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operation in some localities. The most im- of progress in this direction is that taken ion with the Baltimore Belt Line Tunnel, in steam locomotives have been discarded, and ectric locomotives, operated on the overhead n, adopted to draw heavy trains through the his system has proved so successful that in 1896 two 96-ton locomotives were added to the plant. – An underground electric railroad is in operation under the city of London (City and South London line); excavations are being made (1897) for the Waterloo and City line, and others are projected in the British metropolis.

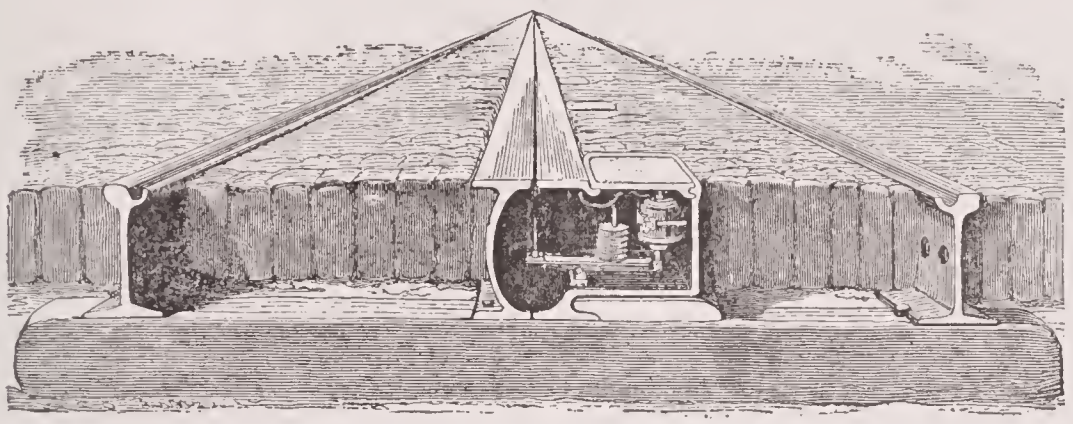


Fig. 2840.—UNDERGROUND ELECTRIC RAILWAY—SINGLE TRACK.

CONDUCTING SYSTEMS.—Various methods have been tried in the problem of conducting electricity from the stationary dynamo to the motor in the car, and also in the application of storage batteries (borne on the car itself) to car propulsion. The method at first tried, that of employing the rail itself as a conductor, soon proved impracticable, despite its ease and economy of installation, both from the difficulty of insulating the conductor and the danger likely to arise from its use. In elevated railways, however, the use of a third insulated rail as a conductor is entirely practicable, and is the system now generally employed. For street traffic two systems are now in use, the overhead and the underground, the former being employed, on account of its superior cheapness, in much the larger number of instances. The overhead system embraces two varieties; the continuous trolley wire, and the divided or sectional trolley wire method. In the continuous wire method the trolley wire is connected with a number of feeder wires, which in some cases extend from the generating station the whole length of the line, and are connected with it at successive points, or separate feeders extend from the generator to points on the line where they are tapped into the trolley wire. This system is especially employed in suburban districts and small towns. In the divided or sectional wire method the feeders extend the entire length of the line, while the trolley wires are divided into sections, the feeders being connected to the central points or the ends of each section. As employed in city streets, the feeders are carried underground and pass upward through the supporting poles at suitable intervals, being extended from the top of those poles to the central trolley wire. The current is taken from the wire by the aid of a small rolling wheel or trolley, passing downward through a conducting pole and insulated wires to the motor under the car, whence the current escapes to the rails of the track through the wheels. The underground system is similarly divided into two methods, the one being a continuous bare conductor placed in a open-slotted conduit, the other a sectional bare conductor similarly placed. The conduit may be placed in the centre of the track, or at its side in connection with one of the rails, as in the street railway system of Budapest. In the first method, parallel conducting wires traverse the conduit and are connected with the terminal wires of the generating dynamo. The current is taken from them by means of a traveling brush or roller, known as a plow, sled, or shoe, which takes up the current and conveys it to the motor in the car. In the second or sectional method, the conducting wire is divided into sections that, on the passage of the car over them, become automatically connected with the generating dynamo. In these sectional systems, magnets are ingeniously employed to produce the necessary contact. The main conductor passes through the conduit, and is lifted, as the car passes, by the attraction of magnets beneath the car; the conductor being thus brought into contact with short sections of conductive material fixed in the top of the conduit, which become temporarily charged with electricity, and supply it to the motor. When the car passes, the conductor, no longer attracted, sinks, and the contact-sections lose their charge. In order to regulate the speed of electric cars, various devices are employed, consisting of rheostats, or resistances, introduced into the circuit or removed from it by means of a hand lever. To change the direction of the car's motion, the motor must be made to reverse its direction of rotation. This is done by the aid of some reversing gear which shifts the commutation brushes or otherwise effects the purpose.

STORAGE BATTERY SYSTEM.—The storage system has important advantage in principle over the trolley system, each car carrying its own source of power and acting independently of all others, while all the complex arrangement of conducting and feeding wires, and of specially laid and connected rails can be dispensed with. In this system, each car is provided with a set or battery of storage cells, placed under the seats of the car; or these are placed in a separate locomotive. They are charged again, when near exhaustion, at dynamos suitably situated, the removal of the batteries and their replacement by fresh ones being quickly performed. The advantages of this system are counterweighted with serious disadvantages which have prevented its wide introduction. These are the weight of the batteries, the cost of renewing them when injured by rough treatment on the road, and the lack of effectiveness as compared with the trolley system. These drawbacks have hitherto prevented any general introduction of the storage battery system, it being employed only in cities where there is legal prevention of the use of the overhead trolley. In New York city, where the overhead wire is prohibited by law, steps are now (1897) being taken for the introduction of the underground system for the surface street railways.

PRACTICAL APPLICATION.—The current is supplied from the station dynamos, through the copper trolley wire to the motors, at a potential of 500 volts, the strength of current varying to meet the work required on each particular road or system of roads. Ordinarily, the trolley wire is suspended over the center of the track from poles planted at the side of the street, by means of cross wires, which are insulated from the trolley wires except where utilized for feed purposes. In suburban districts the feed wires are carried overhead, mounted on glass insulators carried on the poles. But for ordinary street surface roads they are buried underground in conduits and are much more thoroughly insulated. The trolley pole, which rises from the top of the car and carries the contact wheel, is pivoted and pressed upward by a spring, which keeps the trolley uniformly in contact with the wire, whose current is carried down through metallic conductors to the motors, which are flexibly suspended on the car trucks, one end of the motor being pivoted to the axle and the other suspended by springs from the car frame. This mode of suspension is required to prevent shocks to the motor that might damage the insulation of the wires. The current from the motor armature is conveyed to the axle by suitable conducting methods, and thence passes to the wheels and tracks. To drive an ordinary 16-foot car, two 15 horse-power motors are employed, one attached to each axle and connected in series. In practice the generator should be able to furnish from 20 to 25 horse-power for each car used, in order to provide sufficient reserve power for contingencies. Under average conditions a car uses about 1 horse-power per car mile per hour. As regards the attainable speed, it is claimed to go far beyond that to be had from steam locomotives, and it is said that 130 miles an hour have been attained experimentally.—*Generators and Motors.* As the principle of operation of the motor by which electric cars are driven is not generally understood, some brief explanation of it is in place here. The principle involved in the generator is explained under DYNAMO-ELECTRIC MACHINES (*q. v.*), and only a partial restatement of it is here demanded. In the dynamo, the electric current is produced in the coils of an armature which is made to revolve with great rapidity before or between the poles of a powerful electro-magnet, steam or hydraulic power being usually employed to rotate the armature. The motion of the armature is strongly resisted by the attraction of the magnet, and a powerful force is required to overcome this resistance, which is sufficient to considerably retard the motion of rotation. The steam power is employed in overcoming the resistance,

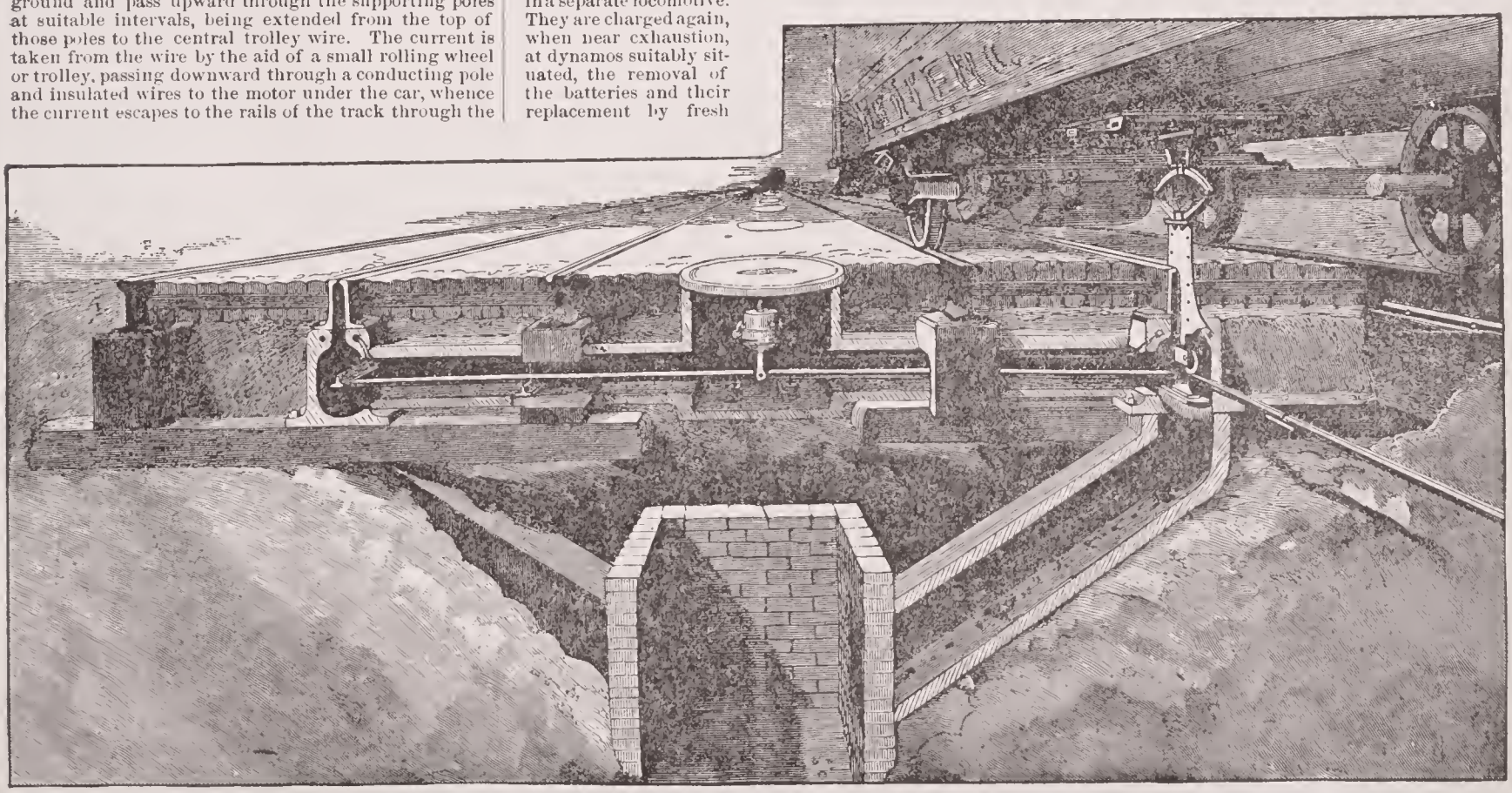


Fig. 2841.—UNDERGROUND ELECTRIC RAILWAY—DOUBLE TRACK.

which acts upon the molecules or atoms of the armature, and causes the lost power of rotation to be changed into some form of molecular or atomic vibration. The form produced is that known as electric current. This current possesses an energy equivalent to that of the steam or other power exhausted in its production, and its outflow over the conducting wire is equivalent to the transfer of this quantity of energy to a distant point,—in this instance to the armature of the car motor. This motor is a dynamo precisely similar in principle to the generating dynamo, though differing in form to meet the requirements of the situation. The current generated in the primary armature, in its passage through the motor armature, has the effect to cause this to rotate in turn, through the action upon it of its electric magnets; the energy fed into it by the current being thus converted into mechanical energy. It would appear that the passage of the electric current through the armature coil energizes the attraction upon the coil of the neighboring magnets, and causes the portions of the coil energized to move foward the magnetic poles, the armature moving in an opposite direction to that given to the generating armature, the process being essentially a restoration of the original conditions. The motion thus given the armature is derived from the electric energy of the current, which is converted back again, through the magnetic attraction, from molecular to mass motion, the armature revolving with an energy equivalent—except for certain items of loss—to that given the generator armature. All electric motors, therefore, depend for their operation on the tendency of a conductor carrying a current to move in a magnetic field; or, in other words, on the action of electric attraction and repulsion on such a conductor. In all cases the rotation is in such a direction as to induce in the armature an electro-motive force opposed to that of the driving current; therefore called the counter electro-motive force. This force exerts a resisting influence and opposes the passage of the driving current until, when a certain maximum speed is attained, very little current passes. In practice, however, this maximum speed is not attained; a small current is expended in overcoming friction in the bearings, air friction, &c. When the load is placed on the motor, or work required to be done by it, the speed is reduced and the counter electro-motive force decreased, thus permitting a greater current to pass. The fact that the load thus regulates the current automatically, renders electric motors very economical in operation.

Electric Repul'sion. The driving apart, by a seeming repulsive force, of two bodies containing a similar electric charge, or of two wires of an electric circuit whose currents are flowing in opposite directions. It is opposed to *electric attraction*, which takes place between opposite electric charges, and between two wires whose currents are flowing in the same direction.

Electric Resist'ance. All substances, even the best conductors, resist the passage of electricity in some degree, while certain dielectrics resist it almost absolutely. Gases offer very high resistance to the flow of a current. Liquids are also much more resistant than solids, with the single exception of mercury. Solids vary greatly in this particular, metals usually having small resistance; no two are alike. Silver has the smallest of all known resistances.—*Resistances*, as they are denominated, are often placed in an electric circuit to produce some special effect. They consist of coils, strips, bars, or spirals of metal, plates of carbon, metallic powders, liquids, etc. The effect of resistance is a conversion of electric energy into heat, yielding incandescence if the resistance be considerable. The incandescent light is the result of the high resistance of the carbon filament. Heat increases the resistance of nearly all metallic conductors, but it decreases that of the carbon of an incandescent lamp. The electric resistance of dielectric and non-conductors generally decreases with increase of temperature.

Electric Shock. The physiological effect produced in an animal by the electric discharge. It is much employed in electro-therapeutics for curative purposes. A severe shock, like that of the lightning stroke, is often followed by death; though this is not due to the shock, but to the disrupting effects of the discharge.

Electric Spark. See ELECTRIC DISCHARGE.

Electric Stor'age Bat'tery. The subject of electric storage is referred to in several of the accompanying articles, and the use of the storage battery in power propulsion is mentioned under ELECTRIC RAILWAY. A description of the principle involved in this so-called storage of electricity is here proposed. A storage battery is composed of a number of storage cells, so arranged as to work in unison. A storage cell is composed of two plates of metal, or of metallic compounds, immersed in an electrolytic liquid, which has no power of acting on them to any important extent until after their surface chemical conditions have been changed by the passage of an electric current from one plate to the other. The simplest storage cell is that of Planté, the discoverer of electric storage. As originally constructed, this consists of two plates of lead immersed in dilute sulphuric acid. Through the cell, as thus composed, a current of electricity is passed, one plate serving as the positive and the other as the negative pole of the electrolytic arrangement. As a result, decomposition of lead takes place and lead peroxide (PbO_2) is formed and deposited on the positive plate, while finely divided, spongy lead is formed on the negative plate. The cell is now charged with stored electricity, to use the common phrase; though what has really taken place is the production of dissimilar chemical conditions in the two plates, the resulting arrangement being one capable of setting up galvanic action, with the production of an electric current in a reverse direction to the originating current. As a result, when the charging current ceases, and an interior circuit between the plates is formed, electric action begins, the peroxide of lead (PbO_2) giving up one of its oxygen atoms, which makes its way to the spongy lead on the other plate and converts it into monoxide of lead (PbO). The final result is that both plates become covered

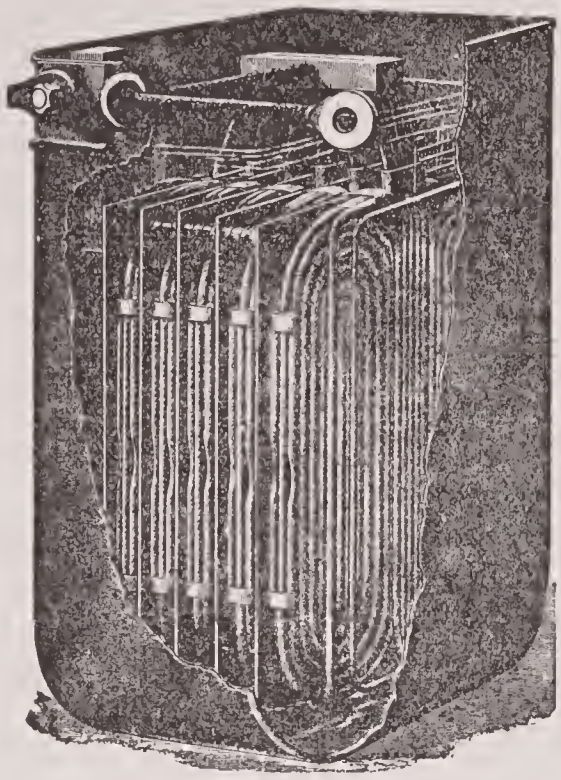


Fig. 2842.—WADDELL-ENZ STORAGE BATTERY.

with the monoxide and, being similar in condition, the chemical action ceases. While the activity continues an electric current passes through the circuit in an opposite direction to that of the charging current, and this current is capable of being utilized for power production or other purposes. To increase the capacity of storage cells, the charging current is sent through them alternately in both directions, charging and discharging, until the plates have been acted upon to a considerable depth, and as large a coating of lead monoxide as possible produced. By this means the time of their discharge is prolonged. The chemical action above stated is not the only one which takes place, but simply the final result of the action, hydrated sulphate of lead being intermediately formed, and then decomposed. The original Planté cell has been superseded by one in which the lead plates are replaced by metallic plates covered with a surface layer of red lead (Pb_3O_4). On charging these the Pb_3O_4 is converted into PbO_2 at the anode, and deoxidized, or converted into metallic lead, at the cathode. Or, in other cases, red lead is placed on the anode and litharge (PbO) on the cathode. By this means the time required for charging is decreased. The plates are perforated or otherwise made irregular on the surface, that they may the better support the active material, which is held in place by being compressed into the apertures or holes. Such a plate is known as a *grid*, from its bearing some resemblance to a gridiron. Recently, plates composed of compressed litharge have been employed. They have the advantage of a greater storage capacity per unit weight than where a grid is used, but their resistance is greater. A storage battery is composed of a number of these cells held together in a suitable receptacle, and so arranged that their conducting wires form a single circuit, and their sum of energy is combined. They do not in any sense store electricity, but the term is convenient and has been retained. One or more storage batteries may be employed in the running of a street car or for other purpose. One advantage which they possess is that electricity which is being developed, but is temporarily not in use, may be employed in charging storage cells for subsequent use, its waste being thus avoided.

Electric Tar'get. An ingenious device whereby an indicator dial at the shooting stand records, by means of electricity, the exact effect of each shot that hits the target. The latter is divided into radial sections, the bull's eye consisting of four of these. Push-buttons form the face of the sections, having bolts projecting rearward, each bolt being encircled by a spiral spring

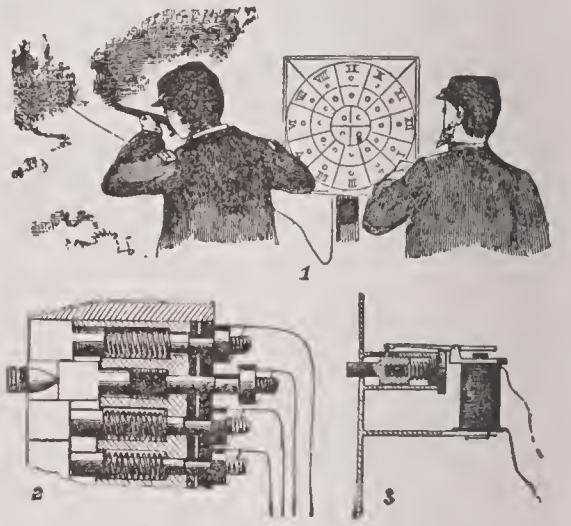


Fig. 2843.—ELECTRIC TARGET.

(2). The indicator dial is correspondingly divided into sections, and connected by wire with the target. The impact of a bullet on one of the push-buttons drives back its connected bolt, on the end of which is a conducting plate. At the same instant a plunger is projected in the corresponding section of the indicator. An electric bell may be included in the circuit, ringing at the same time any one of the plungers is released.

Electric Tel'pherage. The system known as telpherage was first devised by Professors Fleeming Jenkin, Ayrton and Perry, as a ready means of transport for minerals across uneven country, over which their carriage by road would be tedious and expensive. The first telpher line erected was as Glynde, near Lewes, England, in 1886. It was about a mile long and was used to transport clay from a pit to a railway, so as to avoid its carriage over intervening fields and water. One was subsequently erected in Cornwall to convey minerals from a mine over a piece of difficult country. This system has also been used for the transportation of logs (Fig. 2844). The conducting wires are suspended in the air on posts, or otherwise, and on these run small electric motors which take directly from the wires the current necessary to set them in motion. From the travelling motors are suspended carriages for the transport of the load to be moved. Two lines are provided, an *up* and *down* line, each being in segments, the alternate segments being insulated from each other, but in electric connection through cross-pieces on the supporting posts. The carriages are connected in trains long enough to touch two segments at once and thus

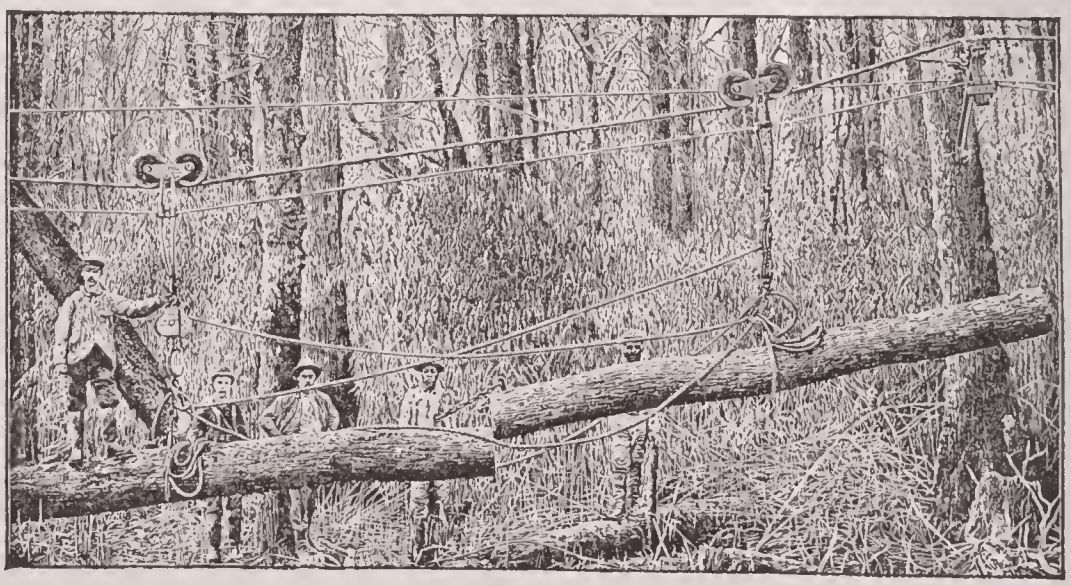


Fig. 2844.—ELECTRIC TRANSPORTATION OF LOGS.

carry the current from one segment to the next one. Where a current can be generated by water-power, a telpherage line is useful and economical; but the system has as yet been little employed.

Electric Weld'ing. Metals may be united by the use of electric heat with a rapidity and perfection unequalled in any other process. In this system of electric welding, as devised by Prof. Elihu Thomson, the metals are heated to incandescence by currents obtained from transformers, and are then caused to combine by pressure or hammering. In the dynamo employed for this purpose no commutator is used, the alternating currents being well adapted for heating purposes. Therefore, the terminals of the dynamo can be directly connected to the clamps that hold the bar to the welder. A step-down transformer (see ELECTRIC CURRENT) intervenes and reduces the voltage greatly while correspondingly increasing the current strength, which may, for short intervals, be augmented to thousands of amperes. The welding process consists in conducting the current into the piece to be united through their points of junction when brought into firm contact. As the current crosses the junction, the resistance to its passage causes a great rise in temperature, sufficient to soften

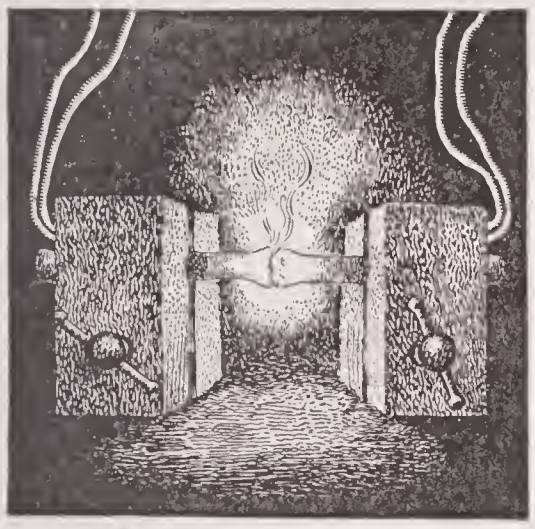


Fig. 2845.—ELECTRIC WELDING.
Showing clamps, conducting wires, and point of contact.

the metal, when the pieces are firmly pressed together by the motion of the clamps or holders. The pieces are prepared for the process by being made slightly convex at their junctions, so that they touch at but a single point or narrow space, near their centers. The welding heat is first reached at this point of contact, and as the pressure is applied the softened metal yields and new parts of the area come into contact, until all the surface is at welding temperature. This process is remarkable for its rapidity, only a few seconds being needed to produce union in small work, and only a few minutes for large work. The heating is local, extending but a short distance from the immediate area of contact, so that there is a marked saving in heat. Electric welding is somewhat widely employed in manufacturing operations, in some cases where large masses of metal are involved. Pipes, steel rails, and heavy projectiles and guns have thus been welded; and rails having been united in this way, after being laid in position in railroad construction.

Elec'trical, *a.* Of or pertaining to electricity or electric science and appliances.

Electrical Ag'riculture. Numerous experiments have been made of late years to ascertain the influence of electricity on the growth of plants, with very interesting results. It has been shown that both atmospheric and terrestrial electricity are highly favorable to the germination of seeds and the increase of plant tissue. The electricity of the atmosphere has been conducted downward by the use of tall collecting poles and conducting wires which ramify through the soil. The use of this device is claimed by some to increase the productivity of a given area by 50 per cent. Prof. Spechneff, of Kiev, by the use of such an arrangement, condensed atmospheric electricity over an enclosed area, with the result that the ordinary grain crops showed an increase of from 28 to 56 per cent. in weight of grain, and from 16 to 60 per cent. in weight of straw. Potatoes showed an increase of 11 per cent. By electrifying the earth the root harvest was made 4 times greater, and that of the leaves 2 or 3 times. He also tried the effect of electrifying the seeds before planting, and found that when subjected to the current for only 2 minutes their rapidity of growth was nearly doubled. The experiment stations of the U. S. have tried the effect of the electric light on garden vegetables with varied results. Some of these vegetables were injured or spoiled. On carrots, peas, cress, spinach, and some other plants, the results were not fully satisfactory. Lettuce was remarkably stimulated, but it was found injurious to expose it continually to the light. In truth, the exposure of plants to the electric light at night, while largely increasing their growth, is not considered beneficial, plants apparently needing periodical periods of rest. One experimenter found, with the use of continuous electric light on Alpine plants, that they presented points of structure identical with those of Arctic plants which grow under the rays of the midnight sun. It has been found that flowers under the influence of electricity bloom much sooner and show finer and more brilliant coloring than under ordinary conditions. Glass, however, must always be interposed between the light and the plant, as the naked light is too bright, and is found to injure the foliage. What will be the ultimate result of these experiments it is too soon to say. They may lead to an important development in agriculture, or may prove to yield unfavorable results not yet determined. It seems entirely probable that the artificial stimulus of nature's processes, by means of collected electrical forces, will be surely followed by a reaction corresponding to that which affects animate beings after alcoholic or tonic stimulation, so that at the end there will be no net gain in vitality or productiveness.

Elec'trical No'menclature. Under this title are defined those technical and other terms, employed in the science and practical use of electricity, which do not require extended separate treatment:

accu'mulator, *n.* A word sometimes applied to an apparatus in which the strength of a current is increased by the motion past it of a conductor; a Leyden jar or condenser.

acidom'eter, *n.* A hydrometer used to determine the specific gravity of the acid liquor in a storage cell.

acou'meter, *n.* An electrical apparatus for testing the delicacy of hearing.

adielec'tric, *n.* A term proposed for substances which are not dielectrics.

alarm', burglar. An automatic device to indicate electrically the opening of a door or window, the stepping on a mat or staircase, &c.

al'cohol, ag'ing of, electric. A process of rapidly aging alcohol through the action of ozone produced by electricity.

al'cohol, rectifica'tion of, electric. The conversion by electricity of the aldehydes into true alcohols, and thus removing from alcohol the bad taste and odor which they give.

alterna'tions of cur'rent. Changes in the direction of a current in an electric circuit.

al'ternator, *n.* An alternate current dynamo.

am'meter, or **am'pere meter,** *n.* A galvanometer for measuring the value of a current directly in amperes.

amper'age, *n.* The number of amperes in a given circuit.

ampere (*ăm-pār*), *n.* [From the famous electrician, AMPÈRE.] The practical unit of electric current.

anelec'tric, *n.* A word formerly in use to indicate bodies which seemed incapable of being electrified by friction.

anelectrot'onus, *n.* The decreased activity of function in a nerve in the vicinity of the anode, when applied therapeutically.

an'ion, *n.* The electro-negative radical of a molecule; the atom or group of atoms of an electrolyzed molecule which appears at the anode.

annun'ciator, *n.* An automatic device for indicating the places at which one or more electric contacts have been closed.

an'ode, *n.* The electro-positive terminal of a battery in a decomposition cell; the pole or terminal from which the current flows from the electric source into the electrolytic liquid, a vacuum, &c.

arc, *n.* A voltaic or electric arc; the brilliant light which appears between the electrodes of a powerful source of electricity when separated a short distance.

arc, carbon. An arc between two carbon electrodes.

arc, copper. An arc between two copper electrodes.

arc, hissing of; frying of. Hissing or frying sounds heard in a voltaic arc when the carbons are too close together.

arc, roaring of. A roaring sound heard in the voltaic arc when the carbons are too near together and the current is very strong.

arc, watt. A voltaic arc whose power is equal to a given number of watts, or units of electric power.

arc'ing. Discharging by means of voltaic arcs.

ar'mature, *n.* A mass of magnetic material in contact with or near the pole or poles of a magnet.

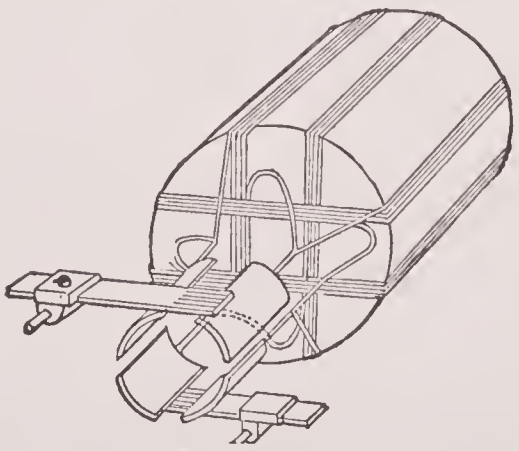


Fig. 2846.—DRUM ARMATURE.

armature, drum. The armature of a dynamo in which the wire coils are wound longitudinally over the surface of a cylinder or drum.

armature pockets. Spaces provided in the surface of an armature to receive the wire coils.

armature, pole. A dynamo armature whose coils are wound on separate poles which project radially from the periphery of a drum, ring or disk.

armature, ring. An armature whose coils are wound on a ring, or a core of circular shape.

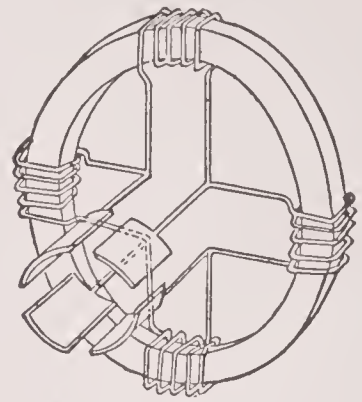


Fig. 2847.—RING ARMATURE.

armature, spherical. An armature whose coils are wound on a spherical iron core.

arrest'er, lightning. A device to protect from the destructive effects of lightning any apparatus placed in an electric circuit.

at'om of electricity. The quantity of electricity supposed to be possessed by any chemical monad atom.

attrac'tion, *n.* The mutual tendency to approach in unlike magnetic poles or electric charges, or in like electric currents.

an'ra, electric. An old term for the wind caused by electric convection. See WIND, ELECTRIC.

bal'ance, electric. Numerous forms of electric balance are in use for various purposes, including the *composite, Coulomb's torsion, centi-ampere, deci-ampere, plating, Wheatstone's,* &c., for electrical weight or measurement.

barad', *n.* A unit of pressure proposed by the British Association; the pressure of one dyne per square centimeter.

bars, omnibus. Heavy bars of conducting material connected to the poles of dynamos, and receiving the entire current of the machine. The name bus-bars or omnibus bars signifies that they carry the whole current.

bas'ket, dip'ping. A basket of non-corrosive material in which articles to be electro-plated are dipped in the cleansing bath.

bath, electric. The tanks or cells used in electroplating or decomposition, and in electro-therapeutics; also a shower bath in which the water-drops carry electric charges to the patient subjected to them.

bath, electric light. An electro-therapeutic bath in which all of a patient's body except the head is exposed to the light and heat of a number of incandescent lamps.

bat'tery, electric. A group of galvanic cells or other electric sources, arranged for combined use of their currents.

battery, storage. A number of storage cells connected so as to yield a single electric current.

bell, electric. A bell connected with a wire conductor, or otherwise arranged to sound through electric power.

bios'copy, electric. Determination of death by the passage of an electric current through the nerves and muscles.

blast'ing, electric. The ignition of powder or other explosive material in a blast by the electric spark.

bleach'ing, electric. A bleaching process in which the bleaching agents are liberated by electrolytic decomposition.

blow'pipe, electric. An air blast produced at the point of a charged conductor by a connection discharge, and utilized through a tube; a device for cutting rocks or other refractory substance by the heat of the electric arc, directed against the substance by an air blast or a magnet.

bob'bin, electric. An insulated coil of wire for an electro-magnet.

bore, ar'mature. The space left between the pole pieces of a dynamo or magnet for the rotation of the armature.

bombard'ment, molec'ular. The forcible projection of the gaseous molecules remaining in exhausted vessels, from the negative electrode (cathode) against the sides of the vessels.

boost'er, *n.* A dynamo inserted in the feeder of an Edison incandescent light system to raise the pressure of that special feeder or group of feeders.

bou'gie-meter, *n.* A term proposed for the practical unit of illumination.

break, *n.* Lack of continuity in a circuit.

break'er, cir'cuit. Any device for breaking a circuit.

bridge, elec'tric. A device for measuring the value of electric resistances; also called an *electric balance.*

bridges, *n. pl.* Heavy copper wires for connecting the dynamos in an incandescent light station to the bus-rods or wires.

brush discharge. An electric discharge which spreads out in a brush form.

brush, farad'ic. An electrode in brush form, used in electro-therapeutics.

brushes, *n. pl.* Strips of metal, bundles of wire, &c., which bear on the commutator in a dynamo electric machine, and carry off the current; plates of carbon for leading the current to electric motors.

buck'ing. The sudden stopping of an electric street car, as if by collision.

bug, *n.* A term employed in some cases to designate a fault in the working of an electric apparatus.

bug'trap. A device employed to overcome the "bug" in quadruplex telegraphy.

bus'-bars. See OMNIBUS BARS.

but'ton, car'bon. A carbon resistance in the form of a button.

button, push. A button employed to close an electric circuit by being pushed.

buzz, *n.* The sound of an electric bell when it fails to strike distinctly.

buz'zer, *n.* A call, less loud than that of a bell, produced by a rapid automatic make and break of current.

ca'ble, *n.* An electric cable.

cable, *v.* To send a telegraphic despatch by means of a cable.

cable, armor of. The metalling, covering, or sheathing of an electric cable.

cable, bunched. A cable containing more than one conducting wire.

cable, capacity of. The quantity of electricity required to raise a cable to a given potential.

cal-electricity. Electricity produced by changes of temperature in the core of a transformer.

call bell, electric. An electric bell used to call the attention of an operator, to call up a person to a telephone, etc.

can'dle, Jab'lochkoff. An arc light invented by Jablochkoff, in which the carbon electrodes are placed parallel to each other and separated by a sheet of insulating material, which keeps them at a constant distance apart. An alternating current is employed with the candle, so that the carbons may be consumed equally.



Fig. 2848. JABLOCHKOFF CANDLE.

capac'ity, dielec'tric. Equivalent to SPECIFIC INDUCTIVE CAPACITY (*q. v.*).

capacity, electrostat'ic. The quantity of electric charge necessary to raise the potential of a conductor to a certain fixed amount.

capacity, specific inductive. The ability of a dielectric to permit induction to its mass, as compared with the same thickness of air under similar circumstances.

car'bons, arc lamp. Rods of artificial carbon employed in arc lamps.

carbons, artificial. Carbons made by mixing pulverized carbon with different carbonizable liquids, carbonizing it by subjecting it to intense heat out of contact with air, and molding it into the shape desired.

cath'ion, or **kath'ion,** *n.* The electro-positive ion or radical resulting from the decomposition of an electrolyte, and which appears at the cathode or negative electrode.

cath'ode, or **kath'ode,** *n.* The terminal plate of the negative wire of a battery in an electrolytic cell, as opposed to the anode, or positive terminal.

cell, electrolyt'ic. A cell or vessel containing an electrolyte, in which chemical decomposition is carried on through the agency of the electric current.

cell, sec'ondary. A term sometimes applied to a storage battery cell.

cell, storage. See ELECTRIC STORAGE.

cell, thermo-electric. A thermo-electric couple.

cell, volta'ic. The employment of two metals, or a metal and a metalloid, in a liquid called an electrolyte, which, when connected outside the liquid by a conductor, will produce an electric current. A number of these cells, connected in series, forms a voltaic or galvanic battery.

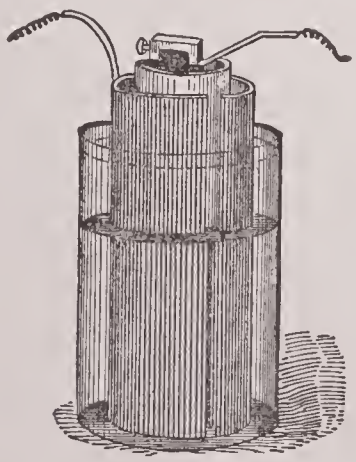


Fig. 2849.—BUNSEN CELL.

charge, bound. The condition of the electric charge in a conductor when placed near another conductor, its charge being held in it by induction.

charge, dens'ity of. The quantity of electricity per unit area at any point on a charged surface. —*Dissipation of:* The gradual loss of charge by leakage. —*Distribution of:* Variations in density at different points of any but a spherical surface.—*Free:* The charge on an isolated conductor.—*Induced:* The charge induced by bringing a conductor into an electrostatic field.

charge, sweeping out. The freeing the line from the charge produced by one signal by reversing the direction of the current.

charg'ing accu'mulators. Sending an electric current into a storage battery to produce in it the necessary chemical change.

cir'cuit, *n.* The path followed by electricity from any point through conducting material back again to its starting point.

cir'cuit, astat'ic. A circuit composed of two closed curves inclosing equal surfaces. Such a circuit is not deflected by the earth's magnetism.

cleat, crossing. A cleat arranged to permit the crossing of two wires without coming into electrical contact.

climb'ers, pole. Spiked devices, worn on foot and ankle, to enable linemen to climb wooden telegraph poles.

clos'ure, *n.* The completion of an electric circuit.

code, American Morse. The Morse telegraphic alphabet.

coil, chok'ing. A coil of wire wound on an iron core in such a manner as to give it high self induction. It is used to cut off an alternating current with less loss of power than in an ohmic resistance.

coil, induc'tion. Two parallel coils of insulated wire used to produce currents by mutual induction. A rapidly interrupted battery current sent through the primary coil induces alternating currents in the secondary coil.

coil, resist'ance. A coil of wire whose electrical resistance is known, and which is employed to measure resistance.—*Standard resistance coil.* A coil whose resistance is that of the standard ohm, or some multiple or such sub-multiple thereof.

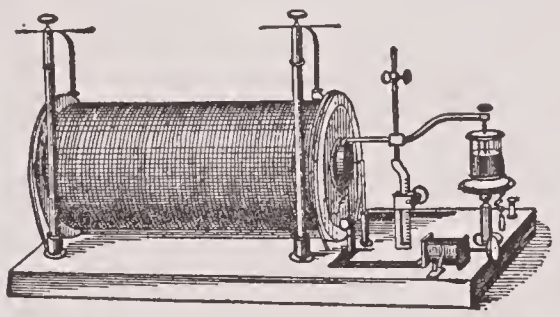


Fig. 2850.—RUHMKORFF COIL.

coil, Ruhm'korff. Any coil whose secondary gives currents of higher electro-motive force than the primary.

coils, Henry's. A series of several induction coils.

collect'ors, *n. pl.* Devices for taking off electricity from a moving electric source, as from the plate of a frictional machine or the commutator of a dynamo machines.

com'mutator, *n.* A device for changing the direction of an electric current.—*Dynamo Commutator.* That part of the dynamo machine which causes the alternating currents produced in the armature to flow in the same direction through the external circuit.

conduct', *v.* To pass electricity through conducting substances.

conduc'tion, *n.* The flow or passage of electric energy through a conducting substance.

conduction, disrup'tive. Conduction in which a resistance in the circuit is suddenly overcome.

conduc'tor, *n.* A substance which permits the passage of an electric current.

con'tact breaker, automat'ic. A device through which an electric current rapidly makes and breaks its own circuit.

con'tacts, *n. pl.* Faults due to the accidental contact of a circuit with a conductor.

convert'er, *n.* The inverted induction coil used in distribution by alternating currents; also, a transformer (*q. v.*).

core, armature. The iron core around which the wires of an armature are wound.

coulomb (*kū-lōm'*), *n.* The unit of electrical quantity.

couple, volta'ic. The two dissimilar metals or substances of a voltaic cell.

cross, *n.* A connection made between two conducting lines; a defect in a telegraph or other circuit from the actual contact of two wires.

cross, weather. A contact or lock made in a telegraph line in wet weather, from defective action of the insulators.

crossing, live trolley; cross-over, trolley. A device to enable a trolley, moving on a line that crosses a second line at an angle, to maintain its electrical connection while crossing.

cur'rent, electric. The passage of electricity through a conducting circuit. It may be *direct* or *alternating; constant* or *variable;* and is measured by the quantity which passes per second through any circuit.

cur'rents, ed'dy. Useless currents produced in the substance of any conductor, which form close circuits of low resistance and tend to cause undue heating in the armatures or pole pieces of dynamos. They constitute a waste of energy.

currents, extra. Currents caused in a circuit by self-induction of the current on itself when the circuit is made or broken.

cut in, to. To complete the electric circuit by introducing into it an electro-receptive device.

cut out, to. A mechanism for throwing out of the circuit an electro-receptive device.

damp'er, *n.* A metallic cylinder in an induction coil, which surrounds the iron core in part or completely, and is used to vary the intensity of the induced currents; also sometimes applied to a dash-pot (*q. v.*).

damp'ing, *n.* Stopping vibratory motion; such as bringing a magnetic needle quickly to rest, instead of permitting it to swing.

dash'-pot, *n.* A mechanical device to prevent too sudden motion in the movable parts of an electric apparatus.

dead beat. A movement of a galvanometer needle in which it passes sharply from point to point of the scale and comes quickly to rest.

death, electric. Death caused by the passage of an electric current through the human body.

decomposi'tion, electrolyt'ic. The separation of chemical molecules into their component parts by the action of the electric current.

depolariza'tion, *n.* Removal of the polarization of a voltaic cell or battery.

detect'or, ground. A device used in an incandescent circuit to show, by the candle-power of a lamp, the location of a ground in the system.

dielec'tric, *n.* A substance which permits induction to take place through its mass. All dielectrics are non-conductors.

dim'mer, *n.* A choking coil, employed in a transformer system to regulate the potential of the feeders.

earth, *n.* A fault in an electric circuit caused by contact of the line with the ground, or with some conductor connected with the ground.

earth, bad. A ground, or earth connection, of comparatively high resistance.

earth cur'rents. Electric currents in the earth, due to a difference of potential at different points.

earth, dead or **total.** A fault in which a line is thoroughly grounded and the current lost.

earth, good. An earth connection of low resistance.

earth or **ground.** That part of the earth which forms part of an electric circuit.

earthed, *a.* Connected to earth.

electrep'eter, *n.* An instrument for changing the direction of an electric current; a term now replaced by switch, key, or pole-changer.

electri'cian, *n.* One versed in the science and application of electricity.

electricity, franklin'ic. In electro-therapeutics, the electricity produced by a frictional or influence machine.

electrom'eter, *n.* An apparatus for measuring differences of electric potential.

elec'tro-neg'atives, *n. pl.* The atoms or radicals that appear at the anode during electrolysis.

electroph'any, *n.* Capital punishment by means of electricity; electrocution.

electrophi'la, *n.* A devotee of electricity.

electropho'bia, *n.* Fear of electricity.

electro-pos'itives, *n. pl.* The atoms or radicals which appear at the cathode during electrolysis.

electrot'onus, *n.* (*Path.*) The change in functional activity which is caused in a nerve by an electric current.

elec'trum, *n.* The name given in ancient times to substances readily electrified by friction.

el'ement, negative and positive. The two plates of a voltaic cell.

en'ergy, electric. The power which electricity possesses of doing work.

endiom'eter, *n.* A voltameter possessing graduated vessels to receive and measure the gases evolved during electrolysis.

explor'er, electric mine. A device for the firing of blasts by currents of high electro-motive force.

explor'er, electric. An apparatus for locating bullets or other metallic substances in the human body by means of induced currents.

far'ad, *n.* The practical unit of electrical capacity.

farad'ic current. A rapidly alternating current produced by an induction coil for use in electro-therapeutics.

faradic machine. A machine for producing faradic currents, consisting either of an induction or a magneto-electric machine.

faradiza'tion, *n.* The effects produced on the nerves and muscles by the use of a faradic current, as distinguished from those produced by a voltaic current.

fault, *n.* A failure in the working of a circuit, due to ground or cross contacts or disconnections.

feed, *n.* A current supply from any source of electricity.

feed'er, *n.* A wire conveying the current from the dynamo to the main conductor.

feet, ampere. The product of the current in amperes by the distance in feet through which it passes.

fi'brone, *n.* An insulating substance of a fibrous composition.

field, *n.* The region of electrostatic or magnetic influence.

find'er, position; tinder, range. An electric device by which the exact position or distance of an object can be learned.

tinder, wire. A galvanometer used to find the corresponding ends of different wires in a branched cable.

fire, St. Elmo's. Tongues of faint illumination which sometimes appear at the ends of masts and of pointed bodies connected with the earth, as flag-poles, church steeples, etc.

flashed car'bons. Carbon conductors for incandescent lighting on whose surfaces carbon has been deposited to improve their uniformity of conduction.

flashed fil'aments. Carbon filaments for incandescent lighting which have been flashed. See FLASHED CARBONS.

flats, *n. pl.* Parts of commutator segments whose surface has become lowered by wear.

flush'-box, *n.* A box or space flush with the street surface, in a system of underground wires, to give access to the conduit.

flu'viograph, *n.* An electric apparatus for registering differences of water level.

fly or **flyer, electric.** A wheel driven by the reaction of a convective discharge.

fog, electric. A dense fog which sometimes appears when the atmosphere contains much free electricity.

force, contact. A difference of potential caused by the contact of unlike metals.

force, electro-motive. The force which moves or tends to move electricity.

force, electrostat'ic. The force arising from the attractions or repulsions of charged bodies.

force, lines of. The lines in which the force of a charged body, a magnet, &c., appear to act.

force, tubes of. Tubes or cones embracing a number of lines of force.

foucault (*foo-kō'*) **currents.** Eddy currents.

frankliniza'tion, *n.* Electrization by a frictional or influence machine.

fre'quencies, Tes'la. A term employed for exceedingly high frequencies.

frequency, fundament'al. The lowest frequency of a current which has harmonics.

frog, trolley. A device to hold together the trolley wires at points where they branch.

ful'gerite, *n.* A tube of vitrified sand, supposed to be caused by a lightning stroke.

fuse, electric. A device for igniting a charge of powder by electricity.

fuse, mag'azine. A safety fuse arranged for easy replacement when burned out.

fuse, plati'num. A thin platinum wire, used to ignite a charge of gunpowder by electric incandescence.

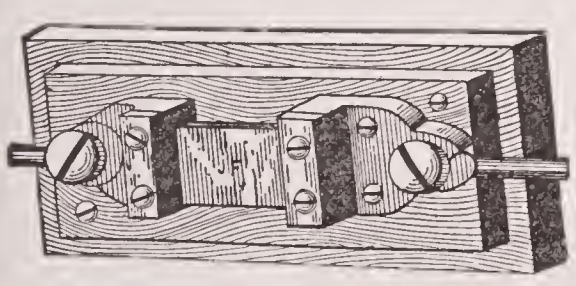


Fig. 2851.—SAFETY FUSE.

fuse, safety. A section of lead, or some easily fusible alloy, placed in a circuit, which it breaks by fusing when the current becomes so strong as to threaten danger.

gains, *n. pl.* The spaces cut in telegraph poles to receive the cross arms.

gal'vanism, *n.* The effects produced by voltaic electricity.

galvaniza'tion, electro-metallur'gic. The process of depositing a metallic coating by electrolysis; electro-plating.

galvanization, electro-therapeu'tic. The effects of a voltaic current on nerves and muscles.

galvanom'eter, *n.* An instrument to measure the strength of an electric current by the deflection of a magnetic needle.

galvanot'ropism, *n.* (*Biol.*) Movements produced in living organisms by the passage through them of electric currents.

gap, air. A gap in a magnetic circuit filled by air.

gap, spark. A gap in a circuit which is closed by a spark when the difference of potential grows strong.

gas'sing, *n.* The evolution of gas from storage battery plates.

gas'troscope, *n.* An electric apparatus to illuminate and inspect the human stomach, a platinum spiral in a glass tube being passed into the stomach and made incandescent.

gen'erator, dynamo-electric. A dynamo-electric machine.

generator, motor. A dynamo which is driven by the power of an electric current.

gov'ernor, current. A device for regulating the strength of a current.

governor, electric. A device to control the speed of an electric motor, the direction of current in a plating bath, &c.

grid, *n.* A perforated lead plate used in an electric storage battery (*q. v.*).

ground, dead. An escape to earth from a telegraph line so great that the line cannot be worked.

ground or **earth.** A term applied to the earth when forming part of a circuit, or used as a reservoir of electricity.

ground return. The use of the earth for the return path of a current.

ground wire. The wire connected with the earth in a grounded circuit.

guard, fan. A wire netting around an electric fan, to prevent its arms from striking any object.

hang'er, cable. A hanger or hook to sustain a cable by supporting it on iron or steel wires strung above.

hanger, trolley. A device to support and insulate trolley wires.

he'liograph, *n.* A telegraphic instrument in which the dots and dashes of the Morse alphabet, or the movements of a needle telegraph, are represented by flashes of light.

hen'ry, *n.* The practical unit of self-induction in an electric current.

high'-bars, *n. pl.* The parts of commutator segments which, through less wear or other cause, are higher than the adjoining portions.

hold'ers, *n. pl.* Clamps to support the carbon pencils in arc lamps; supports for the collecting brushes in a dynamo machine; boxes of refractory material to hold safety fuses and catch the metal when fused.

hour, ampere. A unit of electrical quantity equal to one ampere flow for one hour.

hour, lamp. A current sufficient to maintain an electric lamp for an hour.

hour, watt. A unit of electric power indicated by the expenditure of one watt for an hour.

hum'mer. A word sometimes employed in place of buzzer (*q. v.*).

hystere'sis, *n.* Resistance to magnetic change of stress by molecular friction; retardation of magnetization and demagnetization. The energy lost in consequence of this resistance takes the form of heat.

igni'ter, Jablochkoff. A strip of carbon uniting the ends of the parallel carbons of a Jablochkoff candle, to establish the arc on the passage of the current.

ignition, electric. Ignition by heat of electric origin.

impe'dance, *n.* Any opposition to current flow.

incandes'cence, electric. The glowing of any substance through heat produced by a passing current.

in'dicators, *n. pl.* Various devices to indicate conditions connected with electric circuits.

induc'tance, *n.* The induction of a current on itself or on other circuits—a term now generally employed instead of self-induction.

induc'tion, *n.* The influence exerted by a charged body or a magnet on neighboring bodies separated by air or other mediums.

inductom'eter, differen'tial. An apparatus to measure the momentary currents produced by the discharge of a cable.

induct'ophone, *n.* A device to obtain electrical communication between moving trains and telegraphic wires, by induction between a spiral of wire in the train and spirals fixed on the line.

iner'tia, electro-magnetic. Inductance, or self-induction.

iner'tia, magnetic. The resistance in a magnetic core to instant loss or gain of magnetism.

in-put or **in-take.** The energy absorbed by a machine in causing it to do a certain work.

installa'tion, electric. The establishment of any electric plant.

insula'tion, electric. The employment of non-conducting material on a conductor, to prevent loss of charge or leakage of current.

in'sulator, *n.* Any device for producing insulation.

intercrossing, *n.* A method adopted to prevent disturbance by induction in a telephonic circuit, by alternately crossing equal sections of the line.

interrup'ter, *n.* Any device for breaking or interrupting an electrical circuit.

i'ons, *n. pl.* Groups of chemical atoms or radicals arising from the electrolytic decomposition of a liquid.

jar, Leyden. A condenser in the form of a jar, with metallic coatings placed on the inside and outside of the jar, the outer coating connected with earth, the inner coating receiving the charge, which is bound by induction.

jar, lighting. A Leyden jar filled with iron filings, whose discharge is given in an irregular series of sparks resembling in shape a lightning flash.

jew'elry, electric. Minute incandescent electric lamps, connected with small batteries on the person, which give the appearance of gems or jewelry.

joints, *n. pl.* Various methods of connecting electric conductors.

joule, *n.* The unit of electric energy or work.

joule-meter. An energy meter, as distinguished from a watt-meter (*q. v.*).

kath'ion, *n.* See CATHION.

kath'ode, *n.* See CATHODE.

key, break. A key which opens or breaks the circuit when depressed.

key, discharge. A key to enable to discharge from a condenser or cable to pass through a galvanometer, for purposes of measurement.

key, telegraphic. The key employed in telegraphy for sending over the line the successive alphabetic signals.

kinet'ics, electro-. The phenomena of electricity in motion.

kine'tograph, *n.* A device for reproducing a series of instantaneous photographs on a screen, so rapidly that the action of the original scene is accurately duplicated. As an aid to realistic effect, a large phonograph, or theatrophone, is sometimes employed to reproduce the voices of the actors shown, the sound of the surf (in sea-views), &c. Similar devices are known as the *cinematograph, viriscope, mutascope,* &c.

ky'anizing, *n.* The preservation of telegraphic poles by the injection of a solution of corrosive sublimate into the pores of the wood.

lag, magnet'ic. The tendency in iron to retard magnetization.

lamp, arc. An electric lamp in which the light is yielded by a voltaic arc formed between carbon electrodes.

lamp, incandes'cent. An electric lamp in which the light is produced by the incandescence of a filament of carbon or other poor conductor.

launch, electric. A boat moved by electric power, derived from a storage battery.

leak'age, electrostat'ic. The gradual dissipation of a charge through imperfect insulation.

leg, *n.* The wire or wires in a telephonic circuit by means of which a subscriber is "legged," or placed in circuit with two or more other parties.

line, *n.* A wire connecting two points or stations.

line, telegraph'ic, telephon'ic, etc. The conducting circuit in any system of electric transmission.

line, tel'pher. The conducting wire or cable in a telpherage system.

line, way. A line connecting with way stations.

line'man, *n.* One who puts up and repairs conducting circuits.

links, fuse. Strips of fusible metal in the form of links, used for safety fuses.

liq'uid, electropoi'on. A battery liquid composed of 1 pound of bichromate of potash dissolved in 10 pounds of water, to which have been gradually added 2½ pounds of sulphuric acid.

liquid, strip'ping. A liquid employed to remove a coating of one metal from the surface of another without affecting the latter.

liquor, spent. Liquor in an electro-plating bath which has become weakened by use.

locomo'tive, electric. A locomotive whose motive power is electricity.

loop, electric. A wire passing from one side of a break in a main circuit and returning to the other side of the break, for the purpose of making connection with a branch telegraph office, placing arc lights on a main circuit, &c.

loxod'rograph, *n.* A device by which the course of a ship may be electrically recorded on paper through the combined use of magnetism and photography.

magnetom'etry. Measurement of the strength of magnetic fields.

main, electric. The principal conductor in any electric system.

main, house. A conductor connecting the incandescent light service of a house with a street main.

make, *n.* The completion of an electric circuit.

make and break. The alternate closing and opening of a circuit.

man'-hole of conduit. An opening from the road-bed to an underground conduit, of sufficient size to admit a man.

me'dium, electro-magnetic. Any medium in which electro-magnetic phenomena occur. The general medium of these phenomena is now believed to be the luminiferous ether.

meg'aloscope, electric. An apparatus for exploring, by aid of an incandescent lamp, the cavities of a body.

metalliza'tion, *n.* Covering a non-conducting substance with a coating of metal, so as to make it electrically conducting and enable it to receive a metallic coating by electro-plating.

me'ter, current. A galvanometer which measures the current in amperes, as distinguished from one which measures the energy in watts.

meter, electric. Any apparatus for measuring the quantity of electricity that passes through a circuit of consumption.

meter, watt-. A galvanometer which is adapted to measure the energy of a current.

mho, *n.* A term proposed for the practical unit of conductivity.

mo'tograph, electro-. An apparatus devised by Edison in which the friction of a platinum point against a cylinder of moist chalk, in rotation, is decreased by the passage of a current of electricity.

net, Faraday's. A net of cotton gauze or similar material, which, when charged with electricity, may be turned inside out without being discharged, its purpose being to demonstrate that the entire charge keeps on the outside of the conductor. (See Fig. 2852.)

nodes, electrical. Points on a conductor traversed by an induced oscillatory current where this current is reduced to zero; points in an open circuit, traversed by oscillatory currents whose potential remains constant, while the terminal potentials alternate.

non-conductors, *n. pl.* Substances which resist the passage of an electric current through their mass.

ohm, *n.* The unit of electric resistance.

ohm, standard. A length of wire whose resistance is equal to the ohm, used to standardize resistance coils.

ohm'meter. *n.* A galvanometer for measuring by the deflection of a magnetic needle the resistance in any part of an electric circuit.

os'cillator, Tes'la's. A form of dynamo-electric machine invented by Nikola Tesla, in which the armature obtains its motion directly from the piston rod of a steam engine, thus avoiding intermediate machinery and the consequent loss of power through friction.

os'teotome, *n.* A revolving saw propelled by electricity, used for the surgical cutting of bones.

out'let, *n.* The places in a building where the fixtures or lamps of an incandescent system are attached.

out'-put. The useful energy given out by a machine.

o'vertones, electric. Vibrations produced in open-circuited conductors by electric resonance, of higher rates than the fundamental tones.

pan, backing. The pan in which the copper shell of an electrotype is placed to receive its backing of type metal.

pane, magic. A sheet of glass covered on one side with pieces of tin foil arranged in some design, and used as a condenser, minute sparks passing between the strips of tin foil.

panteleg'raphy; fac-simile teleg'raphy. A system for the transmission by telegraph of charts, diagrams, sketches or writing.

path, alternative. The path taken by an impulsive discharge, in preference to another path open to the discharge, as in the case of device of path by a lightning stroke.

pen, electric. A device in which a sheet of paper is perforated with minute holes by a needle driven by an electric motor, and afterwards used as a stencil for obtaining manifold copies.

pen'dant, electric. A fixture for the support of an incandescent lamp.

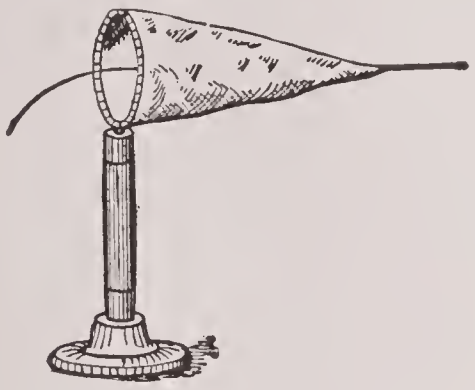


Fig. 2852.—FARADAY'S NET.

pen'dulum, electric. A pendulum which sends electric pulses over a line, by making or breaking contact at every swing.

periodic'ity, *n.* The rate of change in the alternations of an electric current.

phone, *n.* A usual contraction for TELEPHONE.

pho'nogram, *n.* A record produced by phonograph.

photochro'nograph, *n.* An instrument for automatically recording, by electrical means, the transit of a star across the meridian.

pho'tophone, *n.* An instrument for the transmission of articulate speech along a ray of light instead of along a conducting wire.

pho'tophore, *n.* An apparatus employed in medical exploration by the aid of a small incandescent lamp.

pho'to-teleg'raphy, *n.* The reproduction, electrically, of pictures, writings, charts, &c.

pick'le, *n.* An acid solution used to cleanse the surfaces of metallic objects which are to be electroplated.

plane, proof. A small insulated conductor to take test charges from charged conductors.

plas'tics, galvan'o. The cold molding or shaping of metals by the electrotyping method.

plow, *n.* The sliding contact used in an underground trolley line to take the current from the wire.

plug, *n.* A piece of metal used to make or break contact in a narrow break in a circuit.

plug, safety. See FUSE, SAFETY.

plugs, grid. The active material on the plate of a storage battery which fill its perforations.

pock'ets, ar'mature. Spaces in an armature to receive the coils.

pole changer. A switch or key to reverse the direction of an electric current.

poles, idle. Electrodes in a Crookes tube between which no discharges are taking place.

port'electric, *n.* An electric carrier, or system of transportation by successive attractions of wire helices on a hollow solenoidal iron car.

post, binding. A device to connect the terminals of an electric current with those of an electrical apparatus.

poten'tial, electric. The power of doing electric work. See ELECTRIC POTENTIAL.

probe, electric. A metallic conductor employed to discover the position of a bullet or other metallic substance in the body by closing a circuit or deflecting a galvanometer needle.

pulse, electric. An electric oscillation.

punc'ture, electro-. The treatment of aneurisms or diseased growths by electrolytic methods.

push, *n.* A push button, or floor push.

quad, *n.* A contraction for quadruplex telegraphy.

quan'tity, unit of electric. See COULOMB.

quick'ing solu'tion. A solution of a salt of mercury, in which objects to be electro-plated are dipped after cleansing.

relay', *n.* An electro-magnet used in telegraphy to throw local batteries into and out of circuit.

repeat'er, *n.* A telegraphic device for repeating signals received.

resid'ual charge. A portion of charge remaining in a condenser after discharge.

residual mag'netism. Magnetic energy remaining in the core of an electro-magnet after the magnetizing circuit is broken.

resist'ance, *n.* Some substance placed in a circuit to resist the flow of the current; the check to complete conduction in all substances.

resistance, unit of. See OHM.

res'onance, electric. The setting up of pulses in open circuited conductors, by the influence of pulses in neighboring conductors.

retarda'tion, *n.* A check to the speed of telegraphic signalling, caused by induction.

returns', *n. pl.* Conductors through which currents flow back to their source, after passing through an electric apparatus.

revers'er, current. A switch to reverse the direction of a current.

rhe'ostat, *n.* An adjustable resistance.

rheostat, water. A rheostat whose resistance is made by a specified mass of water.

ring, ampere. The turns of wire in an electric balance for the measurement of currents.

rise, *n.* In interior house-wiring, a vertical leading of a conductor from one floor to another.

rock'er, brush. A device for shifting the position of the brushes on a commutator.

rod, clutch. A clutch in an arc lamp to seize the lamp rod and prevent its fall, during feeding, beyond a fixed point.

rod, discharging. A jointed rod used in discharging Leyden jars or condensers.

rod, lamp. A rod for holding the carbons in arc lamps.

rod, lightning. A metal rod placed on the outside of an edifice to protect it from lightning, by conducting the current to the ground.

rods, bus-. Heavy copper rods to which all the terminals of a dynamo generator are connected, and from which the current passes over the feeders to the conducting wires; some as BUS-BARS.

rota'tion, electro-magnetic. A rotation obtained by the attractions and repulsions of an electro-magnet, as in an electric motor.

sad'diers, telegraph'ic. Brackets placed on telegraph poles for the support of the insulators.

safety catch. See CATCH, SAFETY.

St. Elmo's fire. See FIRE, ST. ELMO'S.

satura'tion, magnetic. The maximum degree of magnetism which any substance will accept.

scratch brush. See BRUSH, SCRATCH.

screen, electric. A closed conductor placed over a body to protect it from the induction of electrostatic fields.

screen, magnetic. A box of thick iron placed around a magnet to protect it from the action of exterior magnets.

search'-light, electric. An arc light placed in the focus of a lens or mirror to obtain a powerful beam of parallel rays for exploring the surrounding spaces.

self-induc'tion, *n.* The inductive effect produced by a current in its own conductor, or on itself.

send'er, zinc. A device to send a momentary reverse current into a telegraph wire, after each signal, to counteract the retardation in the line caused by the charge.

sep'arator, *n.* A sheet of ebonite, or other insulator, placed between the plates of a storage battery, in such a manner as to avoid short circuiting, while permitting free circulation of the liquid.

se'ries, contact. A series of metals so arranged that each becomes positively electrified by contact with the one that follows it.

ser'vice, street. That portion of an incandescent light circuit which intervenes between the main and the service cut-out.

serv'ing, cable. The covering of hemp or jute around an insulated cable to preserve it from the pressure of the wire armor.

sheath, protective. A device to prevent connection between the primary and secondary circuit of a transformer.

short-cir'cuit, *v.* To establish a short circuit, or send a current through a shunt.

shunt, *n.* An additional path established for the passage of a current or discharge.

shunt, *v.* To establish a short circuit or additional current path.

shunt'-out, *n.* A device providing a short circuit between terminals, so that an electro-receptive device may be removed without breaking the circuit

sig'nalling, curb. A system for avoiding the effects of retardation in a telegraph cable, by rapidly discharging it before making the next signal.

sig'nalling, double-current. Signally by means of alternating currents.

si'phon, electric. A siphon in which the stoppage of flow, due to gradual air accumulation, is prevented by electrical means.

skin, faradization of. Treatment of the skin by a faradic current.

sleeve, insulating. A tube of insulating material, such as prepared paper, for covering a splice in an insulated conductor.

sled, *n.* The sliding contact made with an underground wire to convey the current to a car motor in an underground electric railway.

slide, resistance. A rheostat in which the resisting coils may be placed in, or removed from, the circuit by a sliding contact or key.

soaking-in. A term employed in telegraphy to represent the gradual penetration of an electric charge by a neighboring dielectric.

soaking-out. The reverse of soaking-in (*q. v.*).

sol'noid core. A soft iron core placed within a solenoid, or circular cylindrical coil of wire, and magnetized by the current passing through the solenoid.

solu'tion, battery. The exciting liquid of a voltaic cell.

sound'er, Morse telegraphic. An electro-magnet used in the telegraph to produce sounds by the striking movement of a lever attached to the armature of the magnet.

sound'er, repeat'ing. A sounder which repeats a telegraphic message into another circuit.

source, electric. Any arrangement adapted to maintain an electro-motive force or difference of potential.

spark, *n.* The flash of light produced by the passage of an electric discharge through air.

spark'ing dis'tance. The distance at which sparks will pass through an air space.

spi'der, ar'mature. A light frame-work with radial arms for holding the armature core in proper position in a dynamo-electric machine.

spi'der, driving. Radial arms connected with the armature of a dynamo, and keyed to the shaft to act as a driving wheel for the armature.

spin, magnetic. A term sometimes employed for *magnetic field*, indicating the belief that magnetism is due to a spin or rotation in the ether.

spi'ral, primary and secondary. The primary and secondary coils of a transformer.

spring'-jack, *n.* A device for inserting a loop in a main electric circuit.

stag'gering. A term applied to commutator brushes, in which one brush is placed slightly in advance of another so as to bridge over a break.

stand'ard, dynamo. A support for the bearings of a dynamo.

state, electroton'ic. A state supposed by Faraday to exist in a conductor, by which differences of potential are produced in moving it through a magnetic field.

state, cath'electroton'ic. The increased functional activity of a nerve in the neighborhood of the cathode or negative terminal of an electric source to whose action it is subjected.

steriliza'tion, electric. The destroying of the germs in a solution by the action of electric currents.

stick'ing, *n.* The failure of the relay armature in a telegraphic circuit to leave the magnet on the cessation of the current.

stopping-off', *n.* A process for plating an electro-plated article with another metal over part of its surface.

storm, electric. A condition of the atmosphere in which it contains an unusual quantity of free electricity.

storm, magnetic. Irregular conditions in the distribution of terrestrial magnetism by which the magnetic dip, declination and intensity are affected.

strain, dielec'tric. The strained condition in which the molecules of glass or other dielectric used as a condenser are placed by its charging; the deformation of a body under the influence of electrical stress.

strength, field. The intensity of magnetism in a dynamo.

stress, dielec'tric. A force producing strain or deformation in a dielectric.

striæ, electric. Parallel streaked bands, of spaces alternately dark and light, caused in tubes of low vacuum by the passage of rapidly alternating currents.

strip, safety. A strip or bare fusible metal used as a safety fuse.

stripping, *n.* Dissolving the coating of metal from a plated article.

struck, *n.* A surface which has been covered with a film of nickel in a bath with a strong current, the coating being continued with a weaker current.

sul'phating, *n.* The formation of a coating of inert sulphate of lead on the plates of a storage battery, thus decreasing its action.

sun'stroke, electric. Effects like those of sunstroke caused by long exposure to the intense light and heat of a voltaic arc.

surg'ings, electric. Oscillations set up in a charged conductor that is being rapidly discharged.

switch, *n.* Any device for changing or opening and shutting electric circuits. (See Fig. 2853.)

switch'-board, *n.* A board provided with switches for the opening, closing, or interchanging of a current.

tach'yphore, *n.* Same as PORTELECTRIC (*q. v.*).

tail'ings, *n.* False markings in automatic telegraphy, due to retardations; the continued running of a current out of a line at the receiving end after the sending current is broken.

talk, cross. Indistinctness in telephonic speech due to the reception, from contact or induction, of speech sent over neighboring circuits.

tank, cable. A tank in which a section of a cable is placed for testing. It is filled with water, sometimes under pressure like that of the ocean bottom.

teas'er, *n.* A coil of fine wire on the field magnets of a dynamo, under the series coil, and connected as a shunt across the main circuit; its purpose being to maintain constant electro-motive force under variations of load.

tee, lead. A tee-shaped tube of lead employed to take a branch joint from a main conductor to a service line.

telau'tograph, *n.* A device for the fac-simile reproduction of handwriting by telegraphy.

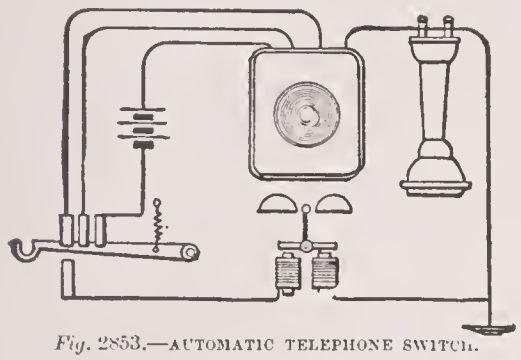


Fig. 2853.—AUTOMATIC TELEPHONE SWITCH.

telem'eter, *n.* A device by which the pressure on a gauge, the reading of a thermometer, etc., can be indicated and recorded at a distance.

tel'ephote, *n.* A method for the telegraphic transmission of pictures through the action of light on selenium.

telephotog'raphy, *n.* Facsimile reproduction by means of dots and lines sent over a line conveying a constant current, whose intensity is varied by an instrument containing a selenium resistance.

theat'rophone, *n.* A telephonic system of transmission between theaters and subscribers by means of slot machine, the machine being set in operation by dropping a piece of money in the slot.—A large phonograph, calculated to reproduce the sounds of an operatic or theatrical performance, so as to be heard by an audience.

tick'er, stock. A telegraphic instrument for automatically sending stock quotations to any number of subscribers.

torque, *n.* That moment of the force applied to a dynamo or other machine, which sets it in rotation; or which sets the armature of a generator or motor in motion.

transform'er, or **convert'er,** *n.* An induction coil used in systems of electric distribution by means of alternating currents; an inversion of the Ruhmkorff induction coil.

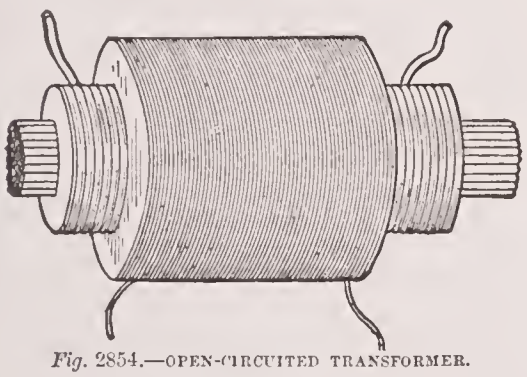


Fig. 2854.—OPEN-CIRCUITED TRANSFORMER.

transmit'ter, *n.* The sending instrument in a telegraphic system.

trol'ley, *n.* A rolling wheel which moves in contact with an overhead wire and carries off the current required to drive an electric car motor.

tube, spark. A vacuum tube which resists the passage of a spark when the vacuum is sufficiently high.

tube, stratifica'tion. An exhausted glass tube through which the current passes in stratifications, or alternate light or dark striæ.

tubes, vacuum. Glass tubes partly exhausted of air, through which electric discharges are sent to produce luminous effects.

turn, ampere. A single turn in a coil of wire through which one ampere passes.

turns, dead. The number of turns made by a self-exciting dynamo before it becomes excited.

u'nits, ab'solute. A system of units based for unit of length on the centimeter, for unit of mass on the gramme, and for unit of time on the second.

units, electrostat'ic. Units founded upon the attraction and repulsion of unit charges of electricity separated by unit distance.

units, fundamen'tal. Those units of length, time, and mass to which all other units may be referred.

units, magnet'ic. Units based on the force exerted upon each other by two magnet poles.

units, prac'tical. Multiples or fractions of the absolute units, adopted for their greater convenience.

vi'trite, *n.* An insulating substance made of glass.

volt, *n.* The practical unit of electro-motive force.

volt'age, *n.* The difference of potential or electro-motive force in any part of a circuit.

voltage, ter'minal. The electro-motive force at the terminals of a circuit.

volta'ic cell. See CELL, VOLTAIC.

vol'taism, *n.* The production of electricity by means of voltaic couples.

volt'ameter, *n.* A cell containing an electrolyte and employed to measure the quantity of current passing by the amount of chemical decomposition caused in a given time.

volt-am'meter, *n.* A watt-meter.

volt'-meter, *n.* An apparatus employed for measuring difference of potential.

watt, *n.* The unit of electric power.

watt'-meter, *n.* A galvanometer adapted to measure at once the strength of current and the difference of potential.

wheel, trolley. See TROLLEY.

whirl, electric; whirl, magnetic. A term to indicate the circular direction taken by lines of magnetic force which surround a conductor through which a current is passing.

wind, elec'tric. The stream of air particles given off at points of a charged conductor.

wind'ing, ampere. Same as TURN, AMPERE.

wire, air-line. A circuit formed by air-strung wires, in distinction to underground wires.

wire, calling. A telephonic wire through which a subscriber communicates with the central office.

wire, line. The wire which connects telegraphic stations with one another.

wire, trolley. The wire from which the trolley wheel takes the current.

wires, bus-. Another name for BUS-BARS (*q. v.*).

wires, dead. Disused or abandoned electric wires.

wires, leading-in. The wires which carry the current through the electric lamp.

wires, phantom. The additional circuits obtained in a single wire by the use of multiplex telegraphy.

wires, top. The wires which carry the current from the feeders at the pole to a neighboring point on a trolley wire.

wiring, *n.* The wires or conductors used in any system for the distribution of electricity.

work, unit of electric. The joule (*q. v.*).

worm'ing, cable. A central core of hemp or jute around which the conductors are wrapped in a cable consisting of a number of conducting wires.

wri'ting, electrolyt'ic. Written characters impressed on cloths by the electrolytic decomposition of a dyeing substance with which they have been treated.

yoke, multiple-pair brush. A device used to hold a number of pairs of brushes in a dynamo so that they can be readily moved on the commutator.

york, single brush. A term sometimes employed for a single brush rocker.

Elec'trical Purifica'tion of Sew'age. The first efforts to purify sewage were made in 1762, since which date the question of the best method of effecting this has occupied the attention of scientific men. Many methods have been tried, with a certain amount of success, though none of them fully satisfactory; and a few years ago Mr. Webster, an English scientist, began to experiment upon the effect of currents of electricity on sewage matter. His experiments proved so encouraging that he obtained permission from the authorities to set up an experimental plant at the Crossness outfall of the London sewage system. He erected here a plant large enough to act on a million gallons a day. The system consists in a long brick or cement shoot or conduit, suspended in which are a number of cast-iron plates placed lengthwise, so that the sewage flow passes between them. Half these plates are connected to the positive and half to the negative poles of a dynamo which yields a large current of low potential. As the sewage flows slowly between the iron plates, the electric current acts on it, the visible effect being the giving off of bubbles of gas, and the gathering of a quantity of muddy matter on the top of the liquid. Some portion of the iron plate connected with the positive pole is dissolved, and powerful oxidizing bodies are formed in the liquid, which rapidly convert the dangerous nitrogenous substances into harmless compounds. Complicated chemical changes take place, which are not yet fully understood. After flowing through the shoots, the liquid passes into reservoirs, where it is left for two or three hours. The mud settles to the bottom, and the liquid is pumped into the river, it being now perfectly harmless. It has been found, by using 27 horse-power of electrical energy, that a million gallons of sewage can be purified in 24 hours. The amount of iron dissolved is about two grains per gallon of sewage; or, for purifying a million gallons daily, about 70 tons per year. Plates cast direct from blast furnaces are pure enough to answer the purpose. The advantage of this system is in its yielding a perfectly pure effluent, and a smaller deposit of mud than is the case where the sewage is treated with chemical substances.

Electrical Transmis'sion of Power. The transmission of the power of water-falls or other sources of power, by means of the dynamo and conducting wires to distant stations, has greatly developed of recent years, practical results having been achieved which 20 years ago were looked upon as mere scientific possibilities. The difficulty in the way of profitable power transmission has been the resistance and loss of power in the conductor, which, under former circumstances, was so great as to practically exhaust the power sent into the wire. It was early perceived that, to avoid this source of loss as much as possible, currents of high potential must be employed, the resistance being in this way reduced to a minimum. In the experiments made by Deprez, at the Munich Exhibition in 1882, continuous currents of 2,000 volts were employed. But great difficulties with the working of the dynamos and motors stood in the way of rapid progress in this direction, the dynamos of that day being unable to withstand the severe strain put upon them. The distance over which it was sought to transmit power was 37 miles, the loss of power in this distance being 50 per cent. Since that period the introduction of alternating currents of high tension, the improvements in dynamos for the production of such currents, the invention of transformers, and the experience gained in the insulation of conductors have overcome these difficulties to a striking degree, and made the economical transmission of power over long distances practical and satisfactory. The first clear demonstration of this was made at the electrical exhibition at Frankfort-on-the-Main. At Lauffen, a village 107 miles from Frankfort, the river Neckar yields 1,600 horse-power, of which 600 was employed in manufacturing, leaving 1,000 unemployed. It was decided to transmit a portion of this power to Frankfort and in this way test the efficiency of this process. The method adopted was the only one in which success could have been attained. It was proposed to transmit the current at a pressure of 15,000 volts, and, as it was not an easy matter to construct dynamos that could yield electricity at so high a pressure, the current was generated at 50 volts, transformed in Lauffen to 15,000 volts, and in Frankfort transformed down again to 100 volts for use in motors, lamps, etc. The wire was very carefully insulated, the rotary or multiphase current was used instead of the ordinary alternating current, and the highly encouraging result produced of the transmission of 74 per cent. of the generated current. (The term *rotary*, *rotating*, *multiphase*, or *polyphase* current is applied to one that results from the combination of a number of alternating currents, whose phases of alternation do not coincide. In practice, three alternating currents are combined.) The success of this experiment has led to a number of large transmission plants. In Europe the most important one is at the city of St. Etienne, France, where there is a very considerable water power. A highly successful experiment was that made at Sacramento, California, in 1895, the electricity generated by the falls of the American river at Folsom being taken to that city, 24 miles away. There is at Folsom an immense irrigation reservoir, a portion of whose waters have been employed to drive four great dynamos of 1,000 horse-power each, the largest in the world except at Niagara. The potential is raised from 7,000 to 10,000 volts by "step-up" transformers. A very large percentage of the power reaches Sacramento, where it is employed to move trolley cars, yield light and heat, and for other purposes. Far the greatest result of this newly developed system, however, is the enormous power plant at Niagara, where a portion of the water above the falls is diverted into a canal 250 feet wide and 12 deep, and carried to great turbines placed at a great depth beneath the surface at a point below the falls. These turbines each develop 5,000 horse-power, the whole plant being calculated to yield 100,000 horse-power. They are used to run immense dynamos, each of 5,000 horse-power, developing about 2,000 volts. The power developed is largely employed at Niagara, but a considerable portion of it is transmitted to Buffalo, where it is used for street railway motors and other purposes. Three of these great generators are now (1897) in place, and the company is preparing to install seven more of the same power. When the necessary extensions have been made, the pit will be 430 feet long and 185 feet deep, and the plant will have a capacity of 50,000 horse-power, or half the total capacity of the canal.

Electrical U'nits. There are two series of units known in electrical science, the *absolute* and *practical*. Absolute units are based on the centimeter for the unit of length, the gramme for the unit of mass, and the second for the unit of time, and are generally termed the centimeter-gramme-second (C. G. S.) units. The practical units are multiples or fractions of the above, and have been introduced because the absolute units are either too small or too large for actual use. The practical units have been named from famous electricians, as Ampère, Coulomb, Faraday, Ohm, &c., and are the following: The *ampere* is the practical unit of electric current, and is such a current or transmission of electricity as would pass with an electro-motive force of one *volt* through a circuit with a resistance of one *ohm;* or a current of strength sufficient to deposit .005084 grain of copper per second. If comparison be made with a stream of water, the ampere is the unit rate of flow, or the number of cubic inches of flow per second. That which causes the flow is the pressure or head of water, equivalent to the electro-motive force, while the resistance is equivalent to the friction of the water, which varies with varying circumstances. The *coulomb* is the unit of electric quantity, or a fixed amount of the thing

called electricity, and is measured by the quantity of electricity that would pass in a second in a circuit whose resistance is one ohm and electro-motive force one volt. It is thus equivalent to an ampere, but differs in representing *quantity*, while the ampere represents *energy*, or current flow. A *farad* is the practical unit of electric capacity, and represents such a capacity of a conductor or condenser that it requires a coulomb of electricity to produce in it one volt of electro-motive force or difference of potential. Electricity acts as if it were a very compressible gas, so that the quantity required to fill any condenser is not always the same, but depends on the electro-motive force with which it enters the condenser. A *henry* is the practical unit of self-induction, or the counter current which a conductor induces in itself when making and breaking. A *joule* is the unit of heat developed by the passage of a current of one ampere through a resistance of one ohm. The *ohm* is the unit of electric resistance. It represents a resistance capable of limiting the flow of electricity under one volt of electromotive force to a current of one ampere or a quantity of one coulomb per second. It is equivalent to a definite retarding force of friction in a stream of water. A *volt* is the practical unit of electro-motive force, and is a force capable of setting up a current of one ampere against a resistance of one volt; or of charging a condenser of one farad capacity with one coulomb of electricity. A *watt* is the unit of electric power, and is equivalent to a volt-ampere, or the combination of current and pressure. It represents the power developed when 44·25 foot pounds of work are done per minute. As a volt-ampere equals a watt, so a volt-coulomb equals a joule. The absolute of *current* is equal to 10 amperes; of *quantity* to 10 coulombs; of *capacity* to 1,000,000,000 farads; of *resistance* to $\frac{1}{1000000000}$ ohms; and of *electro-motive force* to $\frac{1}{100000000}$ volts.

Elec'trically, *adv.* In the manner of electricity, or by means of it.

Elec'tricalness, *n.* Quality of being electrical.

Electri'cian, *n.* A person who studies or is versed in the science of electricity.

Electric'ity, *n.* [Fr. *électricité*; Sp. *electricidád*; It. *elettricita*, from Lat. *electrum*; Gr. *elektron*, amber.] (*Physics.*) One of the great forces of nature; also that branch of physical science which has sprung from the investigation of phenomena depending on this particular force. The term is derived from the Greek *elektron*, amber, in which substance the property of attracting light bodies after friction was first observed. The fact that certain bodies, when rubbed, acquire the power of attracting light particles of matter, was known to the ancients. Thales, of Miletus, developed this property in amber 600 years before the Christian era, and concluded that the substance was animated by an unknown spirit or element. Theophrastus, some centuries later, observed the same attractive property in a crystal termed the lyncurium, now supposed to be the tourmaline. Pliny and other naturalists refer to the attractive power of amber as something well known, but say nothing to lead us to suppose that their knowledge of electrical phenomena went beyond the discoveries of the old philosophers. The first attempt toward a generalization of electrical phenomena was made toward the close of the 16th century, by Dr. Wm. Gilbert, in a treatise on the magnet. In the following century, Dr. Wall, Boyle, Newton and others, accumulated many new facts; but these were not of a nature to lead to the discovery of general principles. The electric spark was first noticed by Dr. Wall. In the early part of the 18th century, Dr. Hawksbee made many electrical experiments, from which he ascertained that glass is a substance which can be readily electrified by friction; and that some other bodies, especially metals, treated in the same manner, appeared to manifest no electrical power whatever. In 1728, Mr. Stephen Grey, a pensioner at the Charter House, performed a number of experiments, which led to the discovery of electrical conduction, and to the classification of bodies into conductors and non-conductors. The conclusions arrived at by Grey were firmly established by the researches of Dufay, a French philosopher, to whom we are indebted for the discovery that there are two opposite states of electrical excitation, in which forces are developed attractive of each other. In 1745 and 1746, numerous attempts were made to confine electricity in glass vessels containing water or mercury; and, almost simultaneously, Von Kleist, in Germany, and Cunæus, in Holland, became acquainted with the disagreeable effects of the electric shock. Musschenbroek, of Leyden, repeated the experiments of Cunæus, and published a report of the effects of the shock received from the apparatus, which is still known as the Leyden jar, or vial. The discoveries of Franklin followed soon after, and greatly advanced the science of electricity. By a series of beautiful experiments with a common kite, this celebrated philosopher ascertained, what had been before conjectured, that lightning is an electrical phenomenon. Cavendish afterward entered with great spirit into the field of electrical research, and thoroughly investigated the conditions of bodies charged with electricity. About the year 1789, Galvani, of Bologna, discovered that the mere contact of metals with the muscles and nerves of a frog, recently killed, produced convulsive motions; and by repeating Galvani's experiments, the celebrated Volta, of Pavia, discovered the apparatus now known as the voltaic pile, which discovery gave rise to a new branch of electrical science called *galvanism* (*q. v.*), or voltaic electricity. Davy's researches proved that the voltaic current is a most potent agent in chemical analysis. In 1820, Oersted discovered that the current exerts a peculiar influence on the magnetic needle, and founded the science, soon afterward fully developed by Ampère, of *electro-magnetism* (*q. v.*). Faraday, in his "Experimental Researches in Electricity," published between 1830 and 1840, described the phenomena of volta-electric and magneto-electric induction, and thus established the beautiful science of *magneto-electricity* (*q. v.*). Seebeck, of Berlin, found that an electric current may be generated by the unequal effect of heat on different metals in contact, and to the new branch of science which sprung from this observation he gave the name *thermo-electricity* (*q. v.*). These are but a few of the many experiments and discoveries made in the first half of the nineteenth century, during which a large number of able physicists devoted themselves to this subject. The peculiar power called electricity is known to us only by its effects, and such terms as *electric current*, and *electric fluid* are to be understood as figurative. Many theories respecting electricity have been advanced for the purpose of explaining electrical phenomena. That of Dufay and Symmer supposes electricity to be an infinitely attenuated fluid pervading all bodies, and composed of two primary elements possessing distinct and opposite properties. These elements, called *vitreous* and *resinous* electricities, are supposed to neutralize each other when combined, electrical repose being the result. When, however, a disunion of these elements takes places, each becomes active. In accordance with this theory, electrical excitation consists in a separation and abstraction of one of the elements, leaving the other in excess or uncompensated. The theory started by Franklin supposes the existence of a single homogeneous imponderable fluid of extreme tenuity and elasticity, in a state of equable distribution throughout the material world. This fluid is assumed to be repulsive of its own particles, but attractive of all other matter. When distributed in bodies, in quantities proportionate to their capacities or attraction for it, such bodies are said to be in their natural state. When we increase or diminish the natural quantity of electricity in any substance, excitation is the result, and the substance, if over-charged, is said to be electrified *positively*, or, if under-charged, *negatively*. The theories of Eales and Cavendish are less defective than those of Dufay and Franklin, upon which they are respectively based; but even these are now found to be inadequate for the elucidation of electrical phenomena. Adopting the views of Faraday, scientific men of all nations now recognize two kinds of electrical force, distinguished by the terms *positive* and *negative*, but do not assume the existence of any peculiar kind of matter to which the term *electric fluid* may be applied. By frictional electricity we distinguish that portion of this subject which relates to the phenomena of ordinary electricity from those comparatively new sciences referring to the phenomena attendant on electrical excitation by chemical action, magnetism and heat. The fundamental principles of electricity are illustrated by the *electric pendulum*. A glass tube bent at right angles, so as to project horizontally, is placed on a convenient stand. On the hook in which its upper end terminates, a cocoon thread is hung, to the end of which a pith-ball is attached. The ball is thus doubly insulated by the glass and the silk thread. If a tube of glass be rubbed by a dry silk handkerchief, and brought near the ball, the latter is at first briskly attracted, and then as briskly repelled; and if the tube be then moved toward the ball, it moves off, keeping at the same distance from it. The ball being so affected, or charged, as it is called, a rod of shellac or of sealing-wax, after being rubbed with flannel, attracts it, if possible, more briskly than before, and again sends it off exactly as the glass had done. If the glass tube be now again taken up and rubbed a second time, if necessary, the ball will act toward it as it did toward the sealing-wax. The same series of attractions and repulsions would have taken place if we had begun with the sealing-wax instead of the glass tube. We interpret this experiment in the following way: When glass is rubbed with silk, it becomes invested with a peculiar property, which gives evidence of its existence by attracting a pith-ball or any other light substance; and after contact has communicated this property to the ball or other matter, repulsion takes place between them. In consequence of the ball being suspended by an insulating thread, it retains the property of rubbed glass thus given it; and although then repelled by a body having the same property, it is powerfully attracted by rubbed sealing-wax. After contact again takes place, and the property of rubbed sealing-wax has replaced that of rubbed glass in the ball, the two similarly affected bodies again repel; and the same series of attractions and repulsions will continue if we present the glass and the wax alternately to the ball. It is customary to call the electricity manifested by glass *positive* or *vitreous*, and that by sealing-wax and bodies of the same class, *negative* or *resinous*. The kind of electricity resulting from friction appears, however, to depend on some peculiar condition of contact between the rubbed surfaces; thus, smooth glass rubbed with silk or wool becomes positive, but when roughened by sand or emery it acquires, under the same circumstances, a negative charge. Again, when silk is rubbed with glass it becomes negative; but when rubbed with sealing-wax, positive. Both kinds of electricity are produced in every case of electrical excitation, the rubber and the rubbed body always assuming opposite states. There are many substances which cannot be excited in the ordinary way, though they may be electrified by placing them in communication with an excited electric. These are termed *anelectrics*, or more properly *conductors*, from their property of conducting the electric force. If an electrified pith ball, suspended by a thread, be touched by an electric—a stick of dry sealing-wax, for instance—its attractive power will not be in any sensible degree impaired; but if it be touched with any conductor in communication with the ground, it will instantly lose its electrical charge. It is therefore evident that electrics are *non-conductors*, or *insulators*, and that anelectrics are transmitters or conductors of electrical action. Modern researches have, however, proved that the difference between the two classes is only one of degree, not of kind; the very best conductors offer a certain resistance to the electrical discharge, and the most perfect insulators permit it to a small extent. The metals are by far the best conductors; shellac, sulphur, glass, silk, and dry gas, the worst. Electrical discharges take place silently and without disturbance in good conductors of sufficient size; but if the conductor be very small, or imperfect from its nature, or be given a very intense charge, it is often destroyed with violence. When a break is made in a conductor employed in effecting the discharge of a highly excited body, disruption or spark-discharge takes place across the intervening air, provided the ends of the conductor be not too distant; but it is now well established that the electric discharge will not take place through an absolute vacuum. The *electrical spark* itself presents many points of interest in the modifications to which it is liable. The time of transit of the electrical force through a chain of good conducting bodies of great length is so minute as to be altogether inappreciable by ordinary means of observation. An electrified body exerts a peculiar influence upon neutral conducting bodies at sensible and even considerable distances. This influence, which has been termed *electrical induction*, may be thus examined:—Let two small cylinders of metal be insulated upon supports of glass varnished with a solution of shellac in alcohol, and let these insulated conductors be placed end to end a short distance apart. Now, if one conductor be charged with positive electricity, it will induce a negative state in the nearer portions of the other, and a positive state in the more remote parts. The precise condition of the second conductor cannot be properly investigated without the aid of the most delicate electroscopes; but with a suspended pith ball the attractive power of its distant extremity may be readily detected. On removing the electrified conductor, the second conductor at once loses its attractive power. For experiments on electrical attraction and repulsion, a large glass tube will be found very useful. To excite it, the rough side of oiled silk (oiled only on one side) rubbed over a composition consisting of an amalgam of mercury, lead (or zinc) and tin, with a little grease, may be used, or in the absence of such a rubber, a soft dry silk handkerchief may be employed. For external experimentation, however, and to exhibit the mechanical, luminous and heating effects of the electrical discharge, we require the electrical machine. The first idea of such a machine originated with the celebrated Otto Guericke, of Magdeburg, who mounted a globe of brimstone on an axis and caused it to revolve rapidly against the palm of his hand. In the electrical machines now in use, the electric to be excited is either a hollow cylinder or a circular plate of glass. The cylindrical machine is more simple in construction and less liable to fracture.

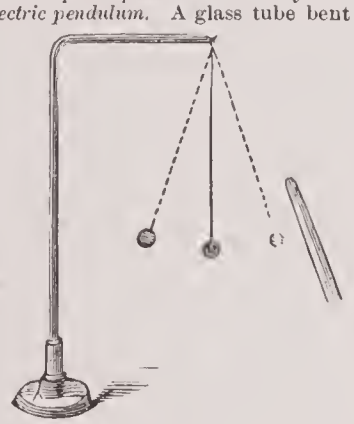


Fig. 922.—ELECTRIC PENDULUM.

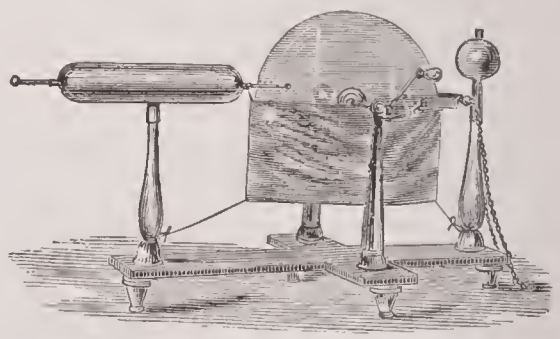


Fig. 923.—PLATE ELECTRICAL MACHINE.

The plate machine consists of a thick plate of glass mounted on a horizontal axis and turned by a crank. At each end there is a glass standard, the one surmounted by a brass ball called the *negative* conductor, the other by a long cylinder of brass with rounded ends, called the *prime* or *positive* conductor. From the standard of the negative conductor project two brass strips, in the form of a clamp, which hold the rubbers against the glass plate. These rubbers are pieces of wash leather or woollen cloth covered with the amalgam above described. Connected with the prime conductor are metallic points, nearly in contact with the surface of the glass, which serve to collect its electricity. The

lower half of the plate is covered with flaps of oiled silk which confine the electricity until it is collected by the points of the prime conductor. Besides the cylindrical and plate machines, there are several machines for collecting electricity, for which see: LEYDEN JAR; GALVANIC BATTERY; HYDRO-ELECTRIC MACHINE; INDUCTION COIL; THERMOPILE. The electrophorus (*q. v.*) displays a method of developing a practically unlimited amount of electricity by means of induction and convection which has been applied in a number of rotary machines, of which the first form was Nicholson's "revolving doubler." Thomas's "replenisher" is perhaps the simplest of these machines. It has a revolving vertical shaft of ebonite which bears, at the ends of a horizontal cross-piece of the same material, two metal pieces called carriers, which rotate between two insulated metal inductors. These carriers when in one position come into contact with delicate springs attached to the neighboring inductors, and in a second position with springs connected by a metallic arc which is quite insulated from the conductors. In the operation of this machine each carrier, in a complete revolution, becomes once positively and once negatively charged, through a successive transfer of charge from one carrier to the other and a yielding of these charges to the inductors. As a result, the inductors increase steadily in positive and negative charges until they gain their highest degree of potential, or electric charge. Of late years the frictional machines have been quite replaced by what are called *influence machines*, in which these principles of induction and convection are applied. Various such machines have been produced, of which the Wimshurst is the most

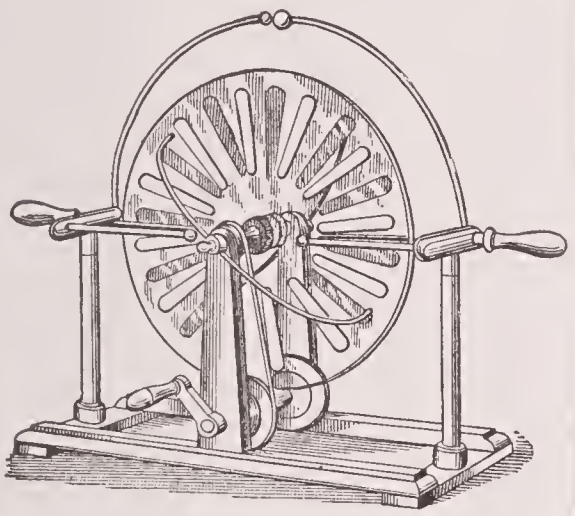


Fig. 2855.—WIMSHURST ELECTRICAL MACHINE.

satisfactory. In this there are two circular glass plates, mounted on a common spindle, and capable of being rotated with equal speed in opposite directions. On the outer surface of each plate are from 12 to 16 strips of sheet metal, at equal distances apart and radiating outward. The main conductors stand on glass or vulcanite pillars at the ends of the horizontal diameters of the vertically mounted plates. In front is fixed a diagonal conductor, called the "neutralizing rod," and behind is fixed a similar rod at right angles to the former. These rods terminate at each end in a small metal brush which touches the metal strips as they pass. By this means each strip as it touches the brush, soon after passing the collecting combs of the conductors, is brought into metallic connection with the strip opposite it on the plate. If now the conductors be at different potentials, or carry opposite charges, each carrier, as it leaves the neutralizing rod, will acquire a charge, negative or positive, as it may be nearer the negatively or positively charged conductor. But each carrier on one plate will act inductively to the carriers on the other plate, and thus add to the inductive effect of the main conductors. Thus the positive conductor is being fed by the positive charges brought by the strips on the upper half of the one plate and the lower half of the other, and the negative conductor by the opposite strips. These conductors are provided with arms which reach toward each other and between whose knobs the accumulated electricity can discharge itself. Electricity of very high potential is thus accumulated and sparks from 3 to 5 inches in length can be easily produced.—*Theories of Electricity.* We have seen that positive and negative electrification must always co-exist, it being impossible to generate a degree of positive charge without generating an equal degree of negative charge. This fact led Faraday to his conception of lines of electric force traversing the dielectric medium, or electric field—the non-conducting substance surrounding an electrified body. In and through this field the electric forces act, their action being not along a surface of equal potentiality, but at right angles to this surface. A group of such lines of electric force forms what is known as a *tube of force.* Each such tube of force has two ends, one resting perpendicularly on a positively charged conductor and the other perpendicularly on a negatively charged conductor. According to the view now generally accepted, electric induction takes place along these tubes of force, so that the negative charge on the terminal area becomes exactly equal to the positive charge on the area from which the tube springs. The electric charge is always on the surface of the conductor. If this be a hollow body, no trace of charge can be found within its interior. This is probably an effect of induction, since all portions of the inner surface being of the same potential and the lines of force emanating from them of the same reading, they must act to neutralize each other. If the body be charged positively, it will resist negative induction through any part of its interior and the lines of force emanate only from its exterior surface, passing outward to surfaces capable of accepting a negative charge. In current electricity this same outward action probably operates to keep the current flow fixed on the exterior of the conducting wire; and the belief is now entertained, from theoretical considerations, that the electrical current does not pass along the metallic conductor at all, but through the dielectric layer immediately surrounding it. These various views and studies have led to new conceptions concerning the nature of electricity; and though we still talk of the electric fluid, of the separation of the electrical charges, and the flow of one or both to earth, of the current and rate of flow, of charge and discharge, these terms are used merely for convenience and not as indicating accepted theories. Electricity, as now looked upon, is not a *substance* but a *form of energy*, and its activities are transformations occurring in the energies of matter. Electrification involves the loss of energy from one *substance*, or its transfer to another under a different form, the result being a difference of conditions between the energy of the affected body and that of neighboring ones, or between parts of the same body, with a strong natural tendency to overcome this difference of condition (or of potential), and restore the disturbed equilibrium of energy. To this effort at equilibration all the phenomena of electric discharge and current flow are due. The study of electric energy has led more and more from the gross to the more rarefied conditions of matter, and it is now considered established that the true field of electrical action is not in ordinary matter, but in the ether associated with it. Theoretical considerations of this kind led Clerk Maxwell to his interesting and now well-established hypothesis that light and electricity are closely similar phenomena, or that light is an electro-magnetic phenomenon. He considered that light and electricity were both due to certain motions of the ether—light being due to oscillations, and electricity and magnetism to rotations, of the ethereal particles. Later studies of this subject render it probable that electricity and magnetism, as well as light and radiant heat, are due to vibrations or oscillations in the ether. Various hypotheses in this direction have been offered, some holding it possible that ether and electricity are identical; negative electrification arising from an excess, positive from a deficiency, of ether. Others believe that electrostatic phenomena are due to a *strain* or *deformation* of the ether; others that electro-motive force arises from differences of *ether pressure*; others that an electric current consists of a real motion or translation of the ether through a conductor. Still other theories have been advanced, and it seems highly probable from recent investigations that light and electro-magnetic radiations are the same in character and origin and are propagated with the same velocity through free ether. Through fixed ether (that between the molecules of substances), the speed varies with different substances. These theoretical views have been largely confirmed by the remarkable experiments of the late Dr. Hertz, of Carlsruhe, who showed that when an impulsive discharge is passing through a conductor, ether waves pass outward in all directions through the space surrounding the conductor, and that these waves are similar to those of light in all respects except that they are much longer. They move with the same velocity as light, and are capable of reflection, refraction, interference, etc., like those of light. When an electric current, therefore, is passing from end to end of a long conductor, it travels, as already said, not within the substance of the conductor, but in the contiguous ether and with a velocity equal to that of light. The difference between these electric waves and those of light seems simply to be one of comparative length, the electric waves being much the longer. The experiments of Tesla show that the electric discharges can be made to follow each other with exceeding rapidity, they being produced at the rate of many hundreds of thousands per second. By the aid of these high frequencies he has succeeded in producing many striking effects.—In 1896 Mr. Thomas Cross Edwards advanced the theory that the sun is the source of all electrical energy; that electricity is Life itself; and, as a logical sequence, that death, whether of plant or animal, is the result of complete deprivation of electrical stimulus. This theory contemplates electricity as purely a force acting upon matter, not matter itself—not even an imponderable ethereal fluid. Its advocacy is based in part upon the general theory of duality in all nature—electricity being the universal positive, and matter, in its various forms, the universal negative; the phenomena of life and death being due to the positive action of the life-giving principle, proceeding from the sun, and its ultimate negation through the influence of the earth—the great magnet which eventually reclaims every living organism that springs from its bosom.

Direct Production of Power.—Various efforts have been made of recent years to produce electricity directly from carbon, without the great loss which arises from the intermediate production of heat. It is well known that many fishes and other ocean animals yield light without heat, thus showing that this is a possible result of nature's conditions, and one worth striving for by man. Edison and other electricians have taken this subject into consideration, and a number of experiments have been made, in which the effort has been to consume carbon chemically without heat emission. In doing this, carbon has been employed as an electrode in a voltaic cell. The method employed by Dr. W. W. Jacques, of New England, consists in blowing air through a solution of fused caustic soda, constituting a voltaic cell with a carbon anode and an iron cathode. He claims to have obtained in this way a very large current with low voltage. Dr. Alfred Coehn, of Germany, explains his method more at length. He takes as the basis of his work the principle that the development of electricity directly from the oxidation of carbon should be sought by determining the conditions under which carbon can be attacked in an electrolytic bath by aid of an external current, and adapting these conditions for the production of a current. In an experiment with dilute sulphuric acid as an electrolyte between carbon electrodes, carbonic acid and carbonic oxide appeared, mixed with only one per cent. of oxygen. At high temperatures the carbon anode was not dissolved, but the acid became discolored, which he supposed to be due to a solution in it of carbon. His efforts were directed toward the attainment of a cell in which carbon should be the soluble electrode, he using lead peroxide as the other electrode; and he claims to have succeeded in proving that it is possible, by electrolysis, to produce a solution of carbon. From such a solution carbon may be separated as a cathion, and an element may be formed of which carbon is the soluble electrode. At present it may be said that this question is still in an embryotic state, though the experiments thus far made are not without encouraging features.

INDUCTION OF CURRENTS. Attention has been given in this article to the inductive effects of static electricity; something now needs to be said about the very interesting induction phenomena of dynamic or current electricity. These phenomena are of the very highest importance in practical electricity, as in the transmission of power and many other applications of electric force. They are based on the following principle: If there be two wire circuits, parallel and near each other, and an electric current be caused to flow through one (which may be called the primary), at the instant of its starting a momentary current appears in the other (the secondary circuit), flowing in the opposite direction. This only continues until the primary current gains full strength, and then disappears. On breaking the primary circuit, a second induced current appears in the secondary, now in the same direction as the primary, also momentary in duration. Every time the primary current is made and broken these phenomena reappear; and if arrangement be made for a rapid interruption and re-formation of the primary current, an equally rapid series of alternating currents will appear in the secondary, each make and break in the primary yielding two currents, in opposite directions, in the secondary. By a continuance of this process, the secondary can be made to induce currents in a third wire, this in a fourth, and so on. These extended inductions, however, have only an experimental significance, and are of no practical utility, while the secondary is of the highest practical usefulness. One circumstance connected with this current it is important to motion: The primary current, on making, rises to its full strength more slowly than it sinks to zero on breaking. In consequence, the induced current due to *making* circuit is less rapid in rising and falling than that due to *breaking.* The latter, therefore, being more sudden in its action, possesses greater electro-motive force. Induction may be produced in another manner. If, while a current is passing through the primary wire, the secondary be moved toward it, a current is induced in the opposite direction. If it be moved away from it, an induced current appears in the same direction as that of the primary. The currents produced in the coils of a revolving dynamo armature are of this kind, though in this case caused by the influence of a magnet instead of that of a primary current. In both instances the moving wire is supposed to cut lines of force, emanating from the primary wire in the one case and from the magnet in the other, to do work in consequence, and to display electric force as the result of this work. In case of the two stationary wire circuits, the secondary does work in resisting the formation of lines of force in making the current in the primary, and in resisting the vanishing of these lines on breaking the current, the work done being converted into electric current in opposite directions in the two cases. Current induction may also be produced in a wire through the influence of a discharge of static electricity; but in this case it is a complicated phenomenon, owing to the oscillatory nature of the discharge. Induction is not confined to the secondary wire. It occurs in the primary wire itself. This, known as *self-induction* or *inductance*, was deduced by Faraday from facts observed by him. On breaking circuit a spark is observed to strike across the air interval, and if an electro-magnet coil be brought into the circuit a powerful shock is experienced on both making and breaking contact. This is due to the effort of self-induction. On making contact, the current induces a momentary opposite current in the wire itself, whose effort is usually to somewhat retard the rise of the current to its maximum strength. On breaking contact a similar current is produced, now in the direction of the primary, which manifests itself in the form of a spark from the positive to the negative pole.—*Effect of coils.* In these experiments, in which short lengths of wire are employed, the induction effects are feeble; but they can be made vigorous if great lengths of wire be employed, in close proximity. This, which could not be conveniently done if the wires were

extended horizontally, can very readily be accomplished by winding them into coils (employing insulated wire so as to avoid direct communication of the current) and bringing the coils close together. We may, for instance, wind the primary and secondary wires on bobbins, and insert the former into the latter, so as to get the greatest possible number of turns of wire into proximity. In this way miles of wire may be employed; and, as the total length of the primary exerts an inductive effect on the total length of the secondary, an induced current of great strength results. The effect is greatly increased if a bundle of iron wires be inserted into the primary coil. The iron is broken up into wires to prevent the formation in its mass of induced currents, which would retard the rise of the induced currents in the secondary wire. The effect of the soft iron wires is a magnetic one, they being converted into magnets by the action of the current coil. This effect, therefore, does not belong to the present subject, but is treated under ELECTRO-MAGNETISM. It must suffice here to speak of the importance of the magnetic induction from the wires, in strengthening the induced current. As regards the practical effects of induced currents, attention has been paid to them in other sections of the subject of electricity. Their physiological effects are very striking, so much so that the nerve and muscle experiments of the physiologist afford a very delicate method for detecting them. (For these effects, see ELECTRO-THERAPEUTICS.) The most important effect of induction is the facility which it affords to yield currents of high electro-motive force from sources of large quantity but small voltage. This is done by making the primary circuit of thick wire and few windings, so as to have small resistance and a low coefficient of self-induction; and to make the secondary circuit of fine wire in many windings, it being often, in large machines, of many miles in length. To prevent disruptive discharge between parts of the insulated wire, the coil is divided up by insulating septa, so that parts at very different potential are separated. The condenser, a very important part of the apparatus, is made of a number of sheets of tin-foil, separated by sheets of oiled silk or varnished paper. The purpose of the condenser is to provide a way for the electricity when the current is broken, and thus prevent the intense spark of the extra current in the primary which, by prolonging the fall of the primary current, reduces the voltage of the induction current. For this purpose one set of leaves of the condenser are connected with one side of the break and the alternate set with the other side. The induced current thus produced by a short, thick primary on a long, thin secondary is much reduced in current strength and greatly increased in voltage over the primary. By reversing the arrangement, a weak current of high voltage may be reduced to a strong one of low voltage. For the applications of this principle see DYNAMO-ELECTRIC MACHINE and ELECTRIC MOTORS.

ATMOSPHERIC ELECTRICITY is the free electricity usually or always present in the atmosphere. Concerning this atmospheric charge the following facts are known: It is generally positive, but often changes to negative when fogs or clouds approach; it is more abundant at high altitudes than near the earth's surface; it is stronger in still than in moving air; it is subject to yearly and daily changes in intensity, being stronger in winter than in summer, and at midday than at morning or evening. Its cause or origin is unknown. Peltier considers it as arising by induction from a negatively charged earth. It has also been ascribed to the evaporation of water; the condensation of vapor; the friction of the wind; induction from the sun; difference of temperature; combustion; oxidation; and other causes. All of these may perhaps have something to do with it. Whatever its origin, there is every reason to believe that the great difference of potential to which we owe the lightning flash is due to the condensation of the aqueous vapor of the atmosphere. As the clouds float onward the free electricity of the air is collected on the surface of their myriad of minute water drops, and when these subsequently gather into larger drops, which embrace many thousands of the smaller ones, the enormous decrease of surface causes an equally enormous increase in electric potential, resulting in the remarkable intensity to which we owe the far reaching discharge of the lightning flash. The analogy between lightning and electricity seems to have been first suggested by the Abbé Nollet in 1748. It was proved by Franklin's famous experiment in 1752. There still remain, however, many problems to be settled concerning atmospheric electricity, which will need a widely extended series of observations conducted on a large scale before much more can be positively known on this wonderful and apparently illimitable subject.

For fuller information concerning the phenomena and applications of electricity see ELECTRO-MAGNETISM; ELECTROLYSIS; GALVANISM; ELECTRIC MOTORS; VOLTAIC ELECTRICITY; ELECTRIC LIGHT; TELEGRAPHY; ELECTROTYPE; &c.

Elec'tritiable, *a.* That may be electrified; capable of receiving electricity, or of being charged with it; that may become electric.

Electrifica'tion, *n.* Act of electrifying, or state of being charged with electricity.

Elec'trified, *p. a.* Charged with electricity; suddenly roused or excited.

Elec'trify, *v. a.* [*Electric*, and Lat. *facio*, to make.] To render electric; to communicate electricity to; to charge with electricity; to effect by electricity; to give an electric shock to; to excite or rouse suddenly; to give a sudden impulse to.

—To enchant; to charm.

—*v. n.* To become electric.

Electriza'tion, *n.* [Fr. *électrisation.*] The act of electrizing.

Elec'trize, *v. a.* [Fr. *électriser.*] To electrify.

Elec'trizer, *n.* Anything which electrizes; especially an electric apparatus used for medical purposes.

Elec'tro-ballis'tic Appara'tus, *n.* An instrument for determining by electricity the velocity of a projectile at any part of its flight. The projectile passes through a screen, thus breaking a current of electricity, and setting in motion a pendulum, which is arrested on the passage of the projectile through a second screen. The distance between the screens being known, the arc through which the pendulum vibrates measures the time of the projectile's flight between the screens, from which its velocity may be easily calculated.

Elec'tro-biol'ogy, *n.* [Gr. *elektron*, amber, *bios*, life, and *logos*, discourse.] That branch of electrical science which treats of the electric conditions of living plants and animals, and the effects of electricity upon them. It includes electro-physiology and electro-therapy or therapeutics. The term is also applied to a phase of mesmerism, in its mental results.

Elec'tro-chem'ical, *a.* Belonging or relating to ELECTRO-CHEMISTRY (*q. v.*).

Electro-chemical The'ory, *n.* (*Chem.*) This theory, founded by Davy and Berzelius, assumes that the constituents of every binary compound are always in opposite electrical states; one being electro-negative, the other electro-positive. When an electric current is passed through such a compound with sufficient force to decompose it, its electro-negative constituent is disengaged at the wire connected with the positive pole of the battery, and its electro-positive element at the wire connected with the negative pole. The elements and many compounds have been classified according to this theory. Thus hydrogen, the metals and their oxides belong to the class of electro-positive substances, while the non-metallic elements and the acids belong to the other class. This distinction, however is relative, as a substance may be electro-positive to one body, but electro-negative to a third. See ELECTROLYSIS.

Electrocu'tion, *n.* [A newspaper coinage, completely irregular in its etymology, but now almost universally adopted.] Capital punishment by electricity; a method by which the barbarous character of hanging is sought to be overcome by substituting an instantaneous and painless mode of putting condemned criminals to death. This method of execution was first adopted in the State of New York, where a law was passed on June 4, 1888, declaring that on and after January 1, 1889, all death sentences in that State should be executed by the electric current, the law requiring that a current of at least 3,000 volts should be employed, an alternating current being considered preferable. Experiment has shown that the strength and electro-motive force of current necessary to cause death differs with different circumstances. A current of low potential is almost harmless, its only danger being that it may give rise to induced currents of much greater voltage. In the case of the alternating current, the danger increases as the alternations become more rapid, up to a certain limit, beyond which the danger grows less; and a current of very rapid alternation becomes harmless. Nikola Tesla has passed currents of 200,000 volts through his body without injury. The first criminal to suffer under the new law was a murderer named Kemmler, who was put to death August 6, 1890. He was fastened in a specially constructed chair, and the current passed through his body from the top of the head to the lower part of the spine, contact being made with moistened sponges. The alternating dynamo employed was capable of producing a current of a maximum pressure of 2,376 volts, the voltage actually employed being something over 1,500. The application of the current threw the body into a state of extreme muscular rigidity, consciousness and sensation being apparently suspended. After 17 seconds the subject was pronounced dead and contact was broken. Complete muscular relaxation followed the rigidity, and after half a minute there occurred slight spasmodic movements of the chest, with expulsion of a small amount of mucus from the mouth. Contact was made again and kept up for 70 seconds, when death was undoubtedly evident. The fact of a seemingly slight delay in death gave rise to much opposition, though it is very probable that no consciousness accompanied the movements observed, and that death was very much more nearly instantaneous than in execution by hanging. In all later executions one electrode has been so applied as to cover the forehead and temples and the other applied to the calf of the leg. An electrocution law was passed in Ohio, April 6, 1896, which took effect on July 1, 1896.

Elec'trode, *n.* [Gr. *elektron*, and *odos*, a way.] A term substituted by Faraday for the term *pole*, as applied to one of the terminations of a voltaic battery. It signifies the way or door by which a current enters or leaves a substance. See ELECTROLYSIS.

Elec'tro-dynam'ic, elec'tro-dynam'ical, *a.* Relating to ELECTRO-DYNAMICS.

Elec'tro-dynamics, *n. pl.* [Gr. *elektron*, and *dynamis*, power.] That part of the science which treats of the effects of the phenomena of electricity as a moving force. See ELECTRIC MOTORS; ELECTRO-MAGNETISM.

Electro-eteh'ing, *n.* A mode of etching upon metals during electro-chemical decomposition. If two plates of copper be connected with the opposite ends of a voltaic battery and placed in a vessel containing water mixed with a little sulphuric acid, the plate connected with the positive end will be attacked by the oxygen which is released during the decomposition of the water. This destructive action can be localized at pleasure, by covering certain parts of the plate with a protecting stratum of varnish. Now, as the varnish effectually shields a plate from the effects of electrolytic action, it is evident that a drawing traced through it in the ordinary manner may be etched without difficulty by exposing the plate to the action of the nascent oxygen. A stout wire must be soldered to the plate; and this, as well as the back of the plate, must be varnished with a solution of shellac in alcohol. Thus prepared, the plate is placed in a decomposition cell opposite a plate of somewhat similar size, and the two are connected respectively with the copper and zinc of a Daniell's or Smee's battery. (See GALVANISM.) After the lapse of about ten minutes the prepared plate is removed, for the purpose of "stopping out" the fine parts of the design with Brunswick black. This being done, the plate is returned for ten minutes more. The half tints are thus stopped out and the plate is once more exposed to the action for ten minutes, in order that the stronger lines of the drawing may be deepened. When the etching is completed, the varnish is removed by heat. The duration of the several exposures, as well as their number, will of course be regulated by circumstances. To etch upon iron or steel, a solution of common salt may be used as an electrolyte; and to etch upon silver, a solution of sulphate of silver. This mode of etching is, in many respects, superior to the common mode by the use of acids. It can be conducted with considerable regularity, and be rendered slow or rapid at pleasure. Also, the plate can be taken out of the cell from time to time to be examined, and re-submitted to the action in a moment.

Electro-gild'ing, *n.* See ELECTRO-PLATING.

Electrol'ogy, *n.* [Gr. *elektron*, and *logos*, a discourse.] (*Physics.*) That department of science which treats of electricity.

Electroly'sis, *n.* (*Chem.*) [Gr. *elektron*, amber, and *luo*, I loose, I dissolve.] The process of electro-chemical decomposition. When certain compounds are introduced into the circuit of the voltaic current, it has the power of loosening and separating their elements. Substances thus susceptible of decomposition are termed *electrolytes*. They are all binary compounds containing single equivalents of their components, which are held together by very powerful affinities. The amount of electrical power required to effect decomposition varies greatly with different electrolytes: solution of iodide of potassium, melted chloride of lead, hydrochloric acid, water mixed with sulphuric acid, and pure water, demand very different degrees of decomposing force, the resistance increasing from the first-mentioned substance to the last. Fluidity is an indispensable condition of electrolysis; for bodies which, when reduced to the liquid state by fusion or solution, freely conduct electricity and readily suffer decomposition, are frequently excellent insulators when solid. When a liquid is electrolyzed, its components are disengaged solely at the limiting surfaces, where the current enters and leaves the liquid, all the intermediate portions appearing perfectly quiescent. Faraday proposed the terms *anode* and *cathode*, respectively, for the surfaces which are supposed to receive and let out the current of positive electricity. The anode is therefore directly against or opposite the positive pole of the battery, or the positive electrode; and the cathode against or opposite the negative pole or electrode. The bodies which are set free by electrolysis are termed *ions*. Those ions which go to the anode, and appear at the positive electrode or pole, are distinguished by the term *anions*, and those which go to the cathode, and appear at the negative electrode, by the term *cathions*. In the phraseology of the electro-chemical theory, anions would be called electro-positive bodies, and cathions electro-negative bodies, from the assumption that they are under the influence of direct attractive forces residing in the opposite poles of the battery. Faraday has shown by conclusive experiments that the decomposing force is not at the poles, but within the substance that is acted on by the current; and the new terms introduced by him express the phenomena actually observed in all cases of electro-chemical decomposition. The following illustrations of electrolysis are interesting: When a pair of platinum plates are plunged into a glass of water to which a few drops of sulphuric acid have been added, and the plates connected by wires with a voltaic battery, the water is decomposed into its two constituents, oxygen and hydrogen; the former being disengaged at the positive electrode, and the latter at the negative electrode. The sulphuric acid is added to the water merely to increase its conducting power. A solution of hydrochloric acid colored with a little Saxon blue, and treated in the same manner, yields hydrogen at the negative electrode and chlorine at the positive, where its presence is made evident by the bleaching of the indigo. Iodide of potassium is decomposed with still greater ease; the free iodine will be recognized at the positive electrode by its brown color, or by the beautiful blue color which it will form with a little gelatinous starch. The decomposition of water by the voltaic current was first observed by Nicholson and Carlisle, and the discovery caused a great sensation in the scientific world. The researches of Davy on the chemical effects of the voltaic current led soon after to the great discovery that the alkalies, soda and potassa, and the earths, which had been hitherto regarded as elementary bodies, contained metals. This discovery, which was announced in 1807, proved that the voltaic pile was an instrument of immense importance in chemical investigations. To Davy's great pupil and successor, Faraday, the world is indebted for the elucidation of beautiful phenomena attending on electrolysis. He inferred that the effects of chemical decomposition were always proportionate to the quantity of

circulating electricity, and might be taken as accurate and trustworthy measuring of the latter. Guided by this important principle, he constructed his *voltameter*, an instrument which has rendered the greatest service to electrical science. This is merely an arrangement by which a little acidulated water is decomposed by the current, the gas evolved being collected and measured. By placing such an instrument in any part of the circuit, the quantity of electrical force necessary to produce any given effect can be at once estimated; or, on the other hand, any required amount of the latter can be, as it were, measured out and adapted to the end in view. The use of this instrument led to the discovery that the relative decomposing effects produced by the same current in different electrolytes is exactly expressed by the atomic weights or chemical equivalents of the electrolytes. For instance, the same current which decomposes but 9 parts of water will decompose 166 parts of iodide of potassium and 139 parts of chloride of lead. Electrolysis can be affected by the electricity of the common electric machine, but only on a very minute scale. This arises from the small *quantity* of electricity set in motion by the machine, compared with that generated by the voltaic battery. A pair of small wires of zinc and platinum dipping into a single drop of dilute acid, develop far more electricity, to judge from the chemical effects, than very many turns of a large plate electrical machine. The wonderful powers of the electricity generated by the machine depend on its *tension*, or that property which enables it to overcome difficulties and pass through imperfect conductors. The electrolysis of metallic salts is now carried out on a large scale in the beautiful arts of *electrotyping* and *electro-plating* (*q. v.*). The more recent arts of *electro-etching*, *galvanography*, and *electric calico-printing*, are also based upon the chemical action of the voltaic current. The so-called storage of electricity is a process of electrolysis, the electric current which passes through the storage cell decomposing the liquid electrolyte and depositing its cathions on the plate connected with the negative, and its anions on that connected with the positive pole of the battery. The similar metallic plates, being thus rendered chemically dissimilar, set up a reverse current through galvanic action, and yield electric energy. Electrolytic decomposition may be effected by means of alternating currents, if a break be made in the secondary circuit so that the discharge has to pass as a spark. In this case comparatively feeble alternating currents yield signs of electrolysis, the gases collected at both electrodes having the same composition, unless the quantities of electricity that alternate in opposite directions are unequal, in which case the electrodes are polarized, and a secondary current may be produced.

Elec'trolyte, *n.* (*Chem.*) A substance susceptible of direct decomposition by the action of the electric current. See ELECTROLYSIS.

Electrolyt'ic, *a.* Relating to electrolysis.

Elec'trolyzable, *a.* That is susceptible of direct decomposition by the electric current.

Elec'trolyze, *v. a.* [See ELECTROLYSIS.] To decompose a substance into its elements by the action of an electric current.

Elec'tro-mag'net, *n.* A bar of iron temporarily magnetized (see ELECTRO-MAGNETISM), causing a current of electricity to pass through a wire coiled around it.

Elec'tro-magnet'ic, *a.* Belonging or relating to electro-magnetism.

Elec'tro-mag'netism, *n.* An important branch of electrical science, which may be said to have sprung from a discovery made by Professor Oersted, of Copenhagen, in the year 1820. The discovery of the Danish philosopher may be thus simply stated: When a properly balanced magnetic needle is placed in its natural position in the magnetic meridian, immediately under and parallel to a wire along which a current of voltaic electricity is passing, that end of the needle which is situated next to the negative side of the battery immediately moves to the *west;* if the needle is placed parallel to and over the wire, the same pole moves to the *east*. When the uniting wire is situated in the same horizontal plane as that in which the needle moves, no declination takes place; but the needle is inclined, so that the pole next to the negative end of the wire is depressed when the wire is situated on the west side, and elevated when situated on the east side. By this discovery the relation of magnetism to electricity, which had long been suspected, was satisfactorily established, and a new and boundless field of research was opened. One of the earliest and most active laborers in this field was Faraday, who, reasoning on the fact that the action of a conducting wire on a magnet is not a directly attractive or repulsive one, was led to the conclusion that if the action of the voltaic current could be confined to one pole of the magnet, that pole ought, under proper conditions, to rotate round the wire; and conversely, if the magnet were fixed and the conducting wire movable, the wire ought to rotate round the magnetic pole. Both of these phenomena he realized; and, early in 1822, described the apparatus for exhibiting them. The apparatus employed to exhibit the rotation of the movable magnet consisted of a deep cup, nearly full of mercury, in which a cylindrical magnet was placed. The north pole of this magnet was allowed to project above the surface of the mercury, while its south pole was held down by a piece of thread attached to the end of a copper wire, which entered the cup through the center of the base. The end of a second wire was made to dip into the mercury exactly over that at the bottom of the cup. By connecting the two wires with the two ends of a voltaic battery in action, the current was made to pass through the mercury; and the magnet, buoyed up by the mercury, rotated about it. If the positive current descended, the rotation was in the direction from east through south to west; but if the current was made to ascend, then the direction of the motion was reversed. Ampère subsequently caused a magnet to rotate round its own axis; and Barlow devised an ingenious apparatus for exhibiting the rotation of a conducting body round its axis. The first useful application of Oersted's discovery of the reciprocal force exerted between magnetic bars and conducting wires, was made by Schweigger, a German physicist, in the construction of an instrument for indicating the direction and measuring the intensity of voltaic currents. (See GALVANOMETER.) The laws of electro-magnetic action were fully developed by Ampère, who must be regarded as one of the greatest philosophers of this century. In the course of his investigations he discovered a number of extremely interesting phenomena resulting from the action of electrical currents on each other, which become evident when arrangements are made for giving mobility to the conducting wires. He found that when two currents flowing in the same direction were made to approach each other, strong attraction took place between them, and when in an opposite direction, an equally strong repulsion. These effects have absolutely no relation that can be traced to ordinary electrical attractions and repulsions, from which they must be carefully distinguished. They are purely *dynamic*, having to do with electricity in motion; and hence they are generally treated of under the head of *electro-dynamics*. Upon those attractions and repulsions of conducting wires Ampère founded a most beautiful and ingenious hypothesis of magnetic actions in general, which explains very clearly the influence of the current on the needle. He found that a striking analogy existed between wires conducting electricity and magnets, when the former were turned corkscrew-fashion, into helices. A helix has indeed all the properties of a magnet, but the nature of the pole at either end will depend on the direction of the turns of the helix; if these be from left to right, then the extremity at which the current enters will have the magnetic properties of a north pole; but if the helix be a left-handed one, then the extremity at which the current enters will have the magnetic properties of a south pole. The analogy extends to fracture. If a magnetic bar be broken in two, each piece is a perfect magnet, and the fractured parts have opposite poles; so it is with the helix, which, if divided in the middle, exhibits attraction between the fractured ends. Now, according to Ampère's theory of magnetism, the phenomena exhibited by a magnet depend on voltaic currents circulating round its molecules. In their excited state, these molecular currents move in all directions, and thus neutralize one another; but when the bar becomes a magnet, the currents move parallel to each other, and in the same direction, and the effect produced is that of a uniform current moving corkscrew-fashion round the bar, which thus becomes in effect a helix; and the attractions and repulsions are consequences of the actions of the currents on each other. In applying this theory to the explanation of the phenomena of terrestrial magnetism, it is necessary to suppose the incessant circulation of electrical currents round the globe from east to west perpendicular to the magnetic meridian. (See MAGNETISM.) A consideration of the influence exerted by electrical currents on magnets naturally led to the conclusion that the neutral condition of bodies susceptible of magnetism would be disturbed by an electrical current, and this conclusion was quickly verified by experiments. When an electrical current is passed at right angles to a piece of iron or steel, the latter acquires magnetic polarity, either temporary or permanent, as the case may be, the direction of the current determining the position of the poles. This effect is prodigiously increased by causing the current to circulate a number of times round the bar, which then acquires extraordinary magnetic power. A steel bar may be permanently magnetized in this way, but a bar of pure and soft iron retains the magnetic force only so long as the electrical current is circulating round it. Bars of iron thus temporarily magnetized are called *electro-magnets*. The strongest are horse-shoe-shaped, and the conducting-wire, which is wound several times round them, is the ordinary copper bell-wire, covered with silk or cotton for the purpose of insulation. The power of the electro-magnet depends on the dimensions of the bar, the purity of the iron, the intensity of the current, and on the length and thickness of the covered wire. One of the largest artificial magnets in the world is that constructed several years ago, at Willett's Point, N. Y., by Col. King, U. S. A. The core consists of two discarded Rodman guns, of 15-inch caliber, weighing 25 tons each. The addition of many tons of heavy iron plates formed a "club-footed" magnet. Fourteen miles of torpedo cables, carrying some 25 amperes, form the coil; while the armature consists of six platform plates bolted together. As a test of strength, an effort was made to pull off the armature, but the chain employed broke under a strain of 44,800 pounds. Four cannon balls weighing 320 pounds each have been held suspended like a chain from the end of this magnet (Fig. 2856). At a distance of 71 feet the magnetism of this device equals that of the earth, deflecting a compass needle 45 degrees. The entire mass, including guns, carriage, armature, etc., weighs about 136,000 pounds.

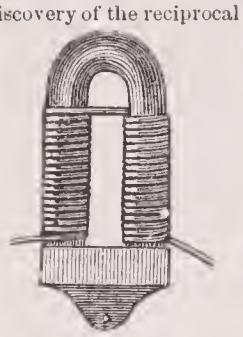


Fig. 924.
ELECTRO-MAGNET.

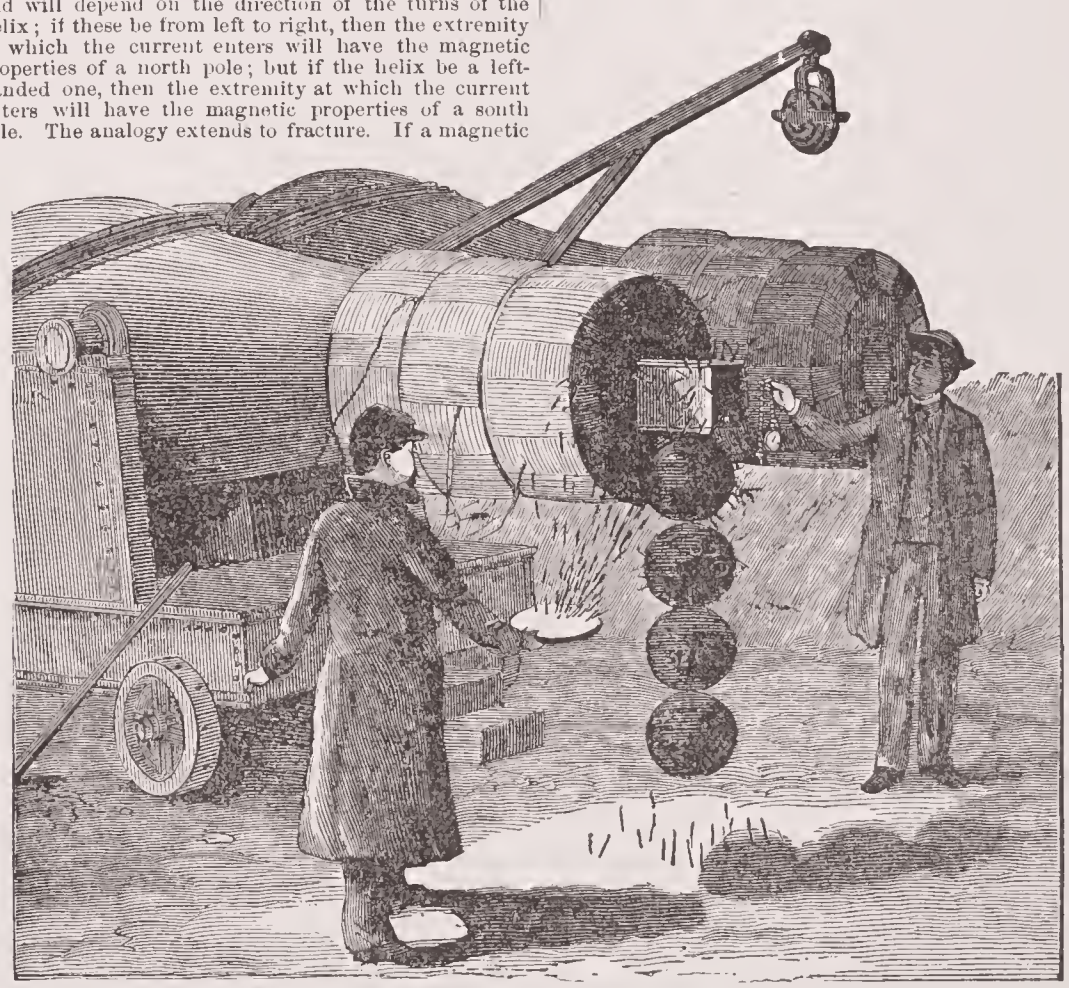


Fig. 2856.—THE GREAT CANNON MAGNET.

Electro-metal'lurgy, *n.* The application of electricity to metal-working. The more important branches of electro-metallurgy are fully described under the heads of ELECTRIC FURNACE, ELECTROTYPE, ELECTRO-PLATING and GILDING, and ELECTRO-ETCHING.

The Elmore Process of Producing Pure Copper. A new process for the electro-deposition of copper invented by Mr. Elmore, an English metallurgist. This process is based on the following fact: A Mr. Wilde, who had at Manchester a plant for the electro-deposition of copper by the aid of a current produced by the dynamo machine, sought to increase the density of the copper for use in calico-printing and some other industries, by removing

it from the bath and employing on it the pressure of a roller or burnisher. This was done several times during the process, with the unexpected result that, during the removal of the copper from the bath, a coating of oxide of copper formed on its surface, and when redeposited the new coating of copper did not adhere; so that a copper cylinder gradually built up in this way consisted of a series of superimposed cylinders, capable of separation. The improvement made upon this process by Mr. Elmore, may be briefly stated. It was to apply the burnisher continuously without removal of the copper cylinder from the bath. He thus avoided the formation of oxide, and kept the cylinder continually under pressure, producing a homogeneous and dense deposit. Copper, when deposited electrolytically, displays a crystalline structure, and the surface in time presents a rough, granular appearance, which requires greater electrical work to increase the thickness. This result can only be avoided by making the rate of deposit very slow; and even in this case the microscope shows a crystalline structure. By the continuous application of the burnisher this difficulty is avoided, a smooth surface being continually produced, while the pressure upon the comparatively soft copper rubs out the crystals into a fibrous, coherent mass. In this process the deposit is not made upon a stationary object, but upon a revolving tube, which is immersed in a suitable electrolyte, such as sulphate of copper. Plates of metal from which the deposit is made are placed on each side of this tube, and at the bottom is another electrode consisting of a flat sheet of perforated copper, the perforations permitting the impurities in the copper to fall into a wooden tray beneath. These several copper plates are so connected as to form the positive pole or anode of the bath. As the tube revolves by mechanical power it is passed upon by a small plate of agate, which moves automatically backward and forward from end to end of its surface, against which it is kept pressed by springs. Thus every layer of copper of infinitesimal thickness is compressed from the crystalline into a fibrous structure, it taking 144 hours to deposit an eighth of an inch of metal, during which the burnisher moves over its surface from 30 to 60 times, according to the nature of the metal being worked. The process, on account of the burnishing action, is three times as rapid as ordinary electro-depositing, and can be made six times as rapid if desired. On completion of the work and removal of the tube of copper from the bath, it can be separated from the basic tube by heating or pressure, and yields a tube of pure copper of remarkable qualities. Its tenacity is found to be about double that of ordinary copper, which contains impurities from which this is free; while its ductibility is so great that it can be worked without annealing with greater ease than ordinary copper after annealing. It is also found to possess elasticity—a characteristic but slightly present in metals—it being even more elastic than steel, hitherto considered the most elastic of metals. The copper produced by this process being absolutely pure, its electric resistance is reduced to a minimum. It is found also that the change in its molecular structure due to the burnishing increases its homogeneity, so that its conductive powers are superior to those of silver, hitherto considered the best conductor. Very probably, though, silver treated by the same process would regain its position at the head of the list of conductors. The electricity of this copper enables it to be drawn many times without annealing, and adapts it to the production of electric cables, whose resistance to conduction it is very important to reduce. The homogeneity, tenacity and ductibility of the copper tubes thus made render them highly suitable for employment as steam pipes where high pressures are used. Sheets of copper can also be produced as thin as tissue paper, if desired, and free from blemish of any kind. This is done by emptying the tank when copper of the desired thickness has been formed, permitting a layer of copper oxide to form, and then refilling the tank. A succession of fillings and emptyings will yield a succession of easily detachable layers. If now the copper tube thus formed be removed from its inner tube, cut through in the direction of its length, and flattened out by a roller, the layers of which it is made up may be separated from each other like the leaves of a book, and yield a series of sheets of equal thickness, each smooth and polished on both sides, and far superior in quality to sheet copper produced by any other means. Large plants for the manufacture of copper by the Elmore process have been established in France and Germany, that in France having a current of 3,600 amperes, with which current 1,400 pounds a week can be deposited on a single mandril.

Electrom'eter, *n.* [Fr. *électromètre*, from Gr. *elektron*, and *metron*, measure.] Electrometer and electroscope are instruments constantly employed in electrical investigations. The two words are generally taken as synonymous; electroscope, however, should be applied to those instruments which give evidence of electrical excitement without giving the exact measure of it; and electrometers to such as show both. The *quadrant electrometer* (1, *Fig.* 925) consists of a conducting rod, generally of box-wood or brass, with a graduated semicircle attached above, in the center of which is a pivot for the rotation of a straw carrying a pithball at its outer end. It is used for electricity of high tension, such as that of the electric machine. When placed on the prime conductor of the machine, the whole becomes charged with positive electricity, and the ball is repelled first by the electricity of the rod, and then by that of the prime conductor, the height to which it rises being seen on the semicircle. This is not an electrometer in the strict sense of the word; for although it tells us, by the straw rising and falling, when one tension is greater or less than another, it does not tell us by how much, the conditions of its repulsion being too complicated for simple mathematical expression. It can show us, however, by the indicator standing at the same point, when the electric tension of the machine is the same at one time as at another. Bennett's *gold-leaf electroscope*—a much more delicate instrument, and one of great value in all electrical investigations—consists (2, *Fig.* 925) of two slips of gold-leaf suspended parallel to each other within a glass receiver, and communicating with a metal cap or disk above. When the cap is touched with an electrified body, the leaves separate, but instantly collapse

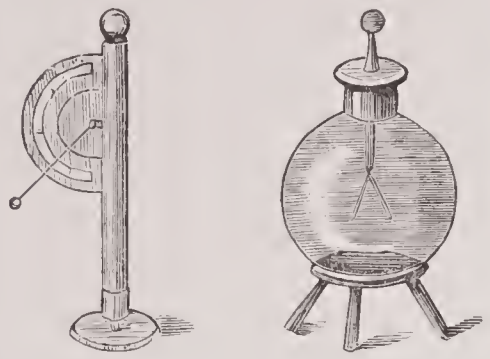


Fig. 925.

when a second body, charged with the opposite kind of electricity, is brought near the cap. Cavendish constructed an excellent electrometer, with two slender reeds terminating with two cork balls, the divergence of which was indicated by a scale. In Coulomb's *torsion-balance*, the force of electrical repulsion is estimated by the reactive force of a fine wire suspended vertically, and twisted more or less from its quiescent position. Harris's *bifilar balance*—an exceedingly delicate and useful electrometer—may be regarded as a modification of Coulomb's. One of the latest improved electrometers is that of Sir W. Thomson, used in connection with telegraphic instruments.

Electromet'rical, *a.* Pertaining to, or made by, an electrometer.

Elec'tro-mo'tive, *a.* That which excites, or produces, electro-motion.

Elec'tro-neg'ative, *a.* Being in such a state, with respect to electricity, as to be repelled by bodies negatively electrified, and attracted by those positively electrified.

—*n.* A substance which, in electro-chemical decomposition, makes its appearance at the *anode*, or electro-positive pole.

Electro-neg'ative I'ons. See ELECTROLYSIS.

Electroph'orus, *n.* [Fr. *électrophore*, from Gr. *elektron*, and *phorus*, bearing.] An instrument which consists of a resinous plate, A, which may be made of equal parts of shellac and resin, with a little Venice turpentine, melted and cast into a circular disk of somewhat less than an inch thick, and from six to ten inches in diameter; it should rest upon a metal plate or sheet of tinfoil; upon its upper surface is placed a somewhat smaller brass plate, B, with a glass handle. When the resinous plate is excited, by rubbing it with a warm and dry flannel, and the metallic cover put down upon it, a spark of negative electricity may be drawn from it; and if it then be raised, it affords a second spark of positive electricity. On replacing the cover, and again touching it, it gives a negative spark, and on again raising it, a second positive spark, and these sparks thus obtained may be repeated any number of times, so that the instrument forms a useful and portable electrical machine. In practice it is necessary to keep the electrophorus in connection with the ground, which is usually done by a metallic pin passing through B to A, or a piece of tinfoil pasted in B and connected with A. When the plate A, is brought down on the lower part of the apparatus, it is charged positively on its under surface, negatively on its upper. If it is then touched, the negative charge escapes and the cover is charged with positive electricity; and if removed and applied to any conductor it will give it a positive charge. The charge of B is very slowly lost, through convection or dampness.

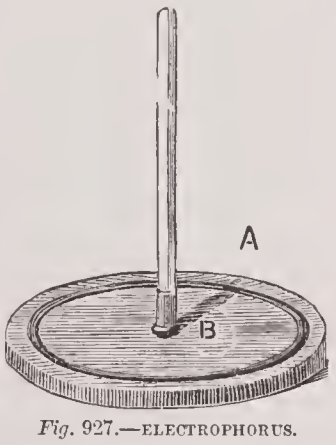


Fig. 927.—ELECTROPHORUS.

Electro-physiolog'ical, *a.* Pertaining to electrical results produced through physiological agencies or by change of action in a living being.

Electro-physiol'ogy, *n.* Electrical results produced through physiological agencies.

Elec'tro-plate, *v. a.* To plate with silver by electricity.

Electro-plat'ing. The art of coating the baser metals with silver by the voltaic current. The process is the same as that employed in the electrotype and in electro-metallurgy generally. Theoretically, the process is one of great simplicity, but for its proper accomplishment great skill is a requisite. The articles subjected to the electro-plating process are generally made of brass, bronze, copper, or nickel silver. When Britannia metal, iron, lead or zinc are to be electro-plated it is necessary first to deposit copper on them, since silver will not adhere to these metals. The best electro-plated goods are of nickel silver. The surface of the metal to be treated needs to be first carefully cleansed of any impurities, grease being removed by boiling in caustic potash, and rust or oxide by the action of dilute nitric acid; they being finally scoured with fine sand. Before being put into the silvering bath they are washed with nitrate of mercury. A thin film of mercury adheres and acts as a cement between the article and the silver. The electrolyte bath is a large trough of earthenware or other non-conducting substance, which contains a weak solution of cyanide of silver in cyanide of potassium. The positive electrode is formed by a plate of silver, and the articles to be plated form the negative. They are hung by pieces of wire to a metal rod lying across the trough. When the silver plate is connected with the positive pole of a voltaic battery or subjected to a magneto-electric current, and the rod holding the articles is connected with the negative pole, chemical decomposition at once begins in the bath, the silver of the cyanide depositing itself on the suspended objects, while the cyanogen is set free at the silver plate, which it begins to dissolve, forming new cyanide of silver. As fast as the solution is weakened by the deposition of silver, it is strengthened by the formation of new cyanide. By this means, without mechanical exertion, it is easy to convert a piece of silver into any shape and cover with it articles of the most complicated and delicate forms, the silver adhering tenaciously to the metal beneath. When taken from the bath the objects appear of a dull white. This dullness is removed by friction from a brush of brass wire driven by a lathe, and polish then given by burnishing. Electro-gilding, or covering with gold, is performed in the same manner as plating. The burnisher is a piece of highly polished hardened steel, sometimes of blood-stone, flint or agate, fitted to a handle, and imparts to the smooth metallic surfaces, by friction, an exceedingly brilliant and lasting polish. Other metals, besides copper, silver and gold, can be electrically deposited from their solutions; of these, the most successful and useful as yet employed is the coating of iron with zinc, a solution of the sulphate of zinc being used for the purpose. Alloys of the metals have also been deposited, but the processes are attended with practical difficulties. Paper and other fibrous material may be electro-plated by first rendering them good conductors of electricity. This may be accomplished by immersing them for one or two hours in a solution prepared by taking a solution of nitrate of silver, and adding ammonia until the precipitate first formed is entirely dissolved again. After drying them well, they are exposed to a current of hydrogen gas, by which means the silver is reduced to a metallic state, and they are rendered so good conductors of electricity that they may be electro-plated in the usual manner. See also ELECTROTYPE.

Electro-pos'itive, *a.* In such a state with respect to electricity as to be attracted by bodies negatively electrified.

—*n.* A substance which, in electro-chemical decompositions, makes its appearance at the cathode, or electro-negative pole.

Electro-pos'itive I'ons. See ELECTROLYSIS.

Electropunc'ture, ELECTROPUNCTUATION, *n.* (*Surg.*) The operation of inserting two or more wires, and then connecting them to the electrodes of the electric or galvanic apparatus. It has been employed therapeutically in cases in which electricity, galvanism and acupuncturation have been indicated.

Elec'troscope, *n.* See ELECTROMETER.

Electro-stat'ics, *n* [Gr. *elektron*, and *statikos*, causing to stand.] That part of the science which treats of electricity in equilibrium, as distinguished from electrodynamics.

Elec'tro-therapeu'tics, *n.* The use of the electric current as a remedial agent (also known as *electrotherapy* and *medical electricity*) has grown until it is now a recognized and useful agent in various complaints, and its employment is widening. Electricity is employed for this purpose in three forms, the static, the galvanic, and the Faradic or induction; though the first named has been little used of late years, on account of the uncertainty of the action of the old frictional and even the Holtz machines. The recently introduced Wimshurst machine, whose action is independent of atmospheric conditions, is creating a renewed interest in the use of static electricity for medical purposes. —*Galvanic.* The current produced by the galvanic or voltaic battery is largely employed as a remedial agent, a battery of a considerable number of cells being needed, as the electricity has to traverse the skin, whose electrical resistance is high. Some form of the bichromate cell is commonly employed, the most convenient batteries comprising from 30 to 50 of these elements. Such a battery, in good working order, will yield a current of from 40 to 70 volts. The cells are usually made small, so that the battery may be portable, the current being used for short periods only. But in cases where measures are taken to reduce the resistance, and the current needs to be kept up for a considerable period—as in the electrolysis of tumors—larger cells must be used, and a rheostat should be employed so as to vary the external resistance with perfect gradations and

avoid the danger of shock on the increase or decrease of current. A collector should also be used, so that the cells may be added successively to the current, as required. Formerly the strength of the current was estimated only by the number of cells; but this is a very uncertain method, and galvanometers are now usually employed, by which the exact amount of current passing may be determined. The ampere, the unit of current strength, is much too large for medical purposes, and the thousandth part of this, the milli-ampere, is employed as a unit, currents varying from 1 to 300 milli-amperes being employed. The effect depends not only on the quantity, but also on the density of the current, this increasing as the diameter of the conductor is decreased. Thus, a current of 200 milli-amperes, conveyed to the body by two conductors with terminals 10 inches in diameter, can be borne with little inconvenience; but if one of the terminals be reduced to 1 inch in diameter, with the same current, intense pain may be felt and dessication and destruction of tissue quickly follow. As this is what is desired in the electrolysis of tumors, &c., currents of large quantity and great density are employed for that purpose. In the conveyance of the current there are employed flexible wires of good insulation, which terminate in electrodes of sizes and shapes adapted to the various purposes in view. For the ordinary treatment of muscles, nerves, etc., disks, plates, or cones of brass or carbon, covered with flannel or wash-leather, are used. In the case of the employment of large currents there are used large pads of moist clay, flannel, sponge, &c., 10 or more inches in diameter, while a platinum or steel needle is used to concentrate the current upon the part to be treated. In all cases electrodes, before being applied to the skin, should be soaked in warm salt water, to diminish the resistance and reduce the pain of the current.—*Faradic Currents.* A simple form of induction coil suffices for the production of the alternating Faradic current, the primary coil of thick wire being wound round a tube in which slides a bundle of iron wire;

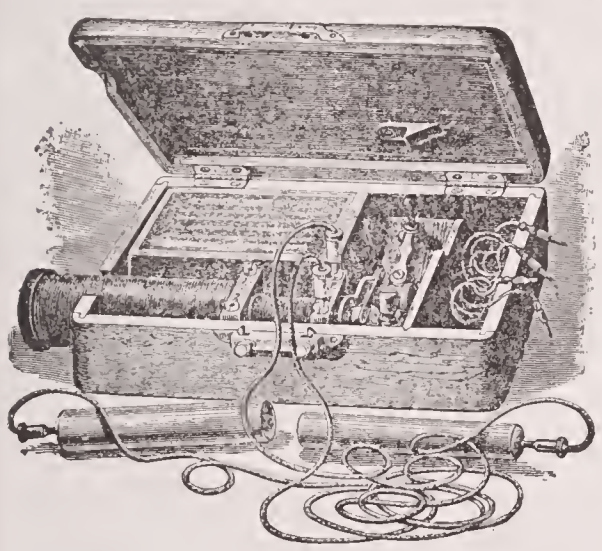


Fig. 2857.—ELECTRO-THERAPEUTIC BATTERY.

over this there fits a secondary coil of fine wire. In the best instruments the strength of the current can be regulated in two ways, one being the sliding of the iron bundle in and out of the primary, and the other the sliding of the secondary coil on or off from the primary. Some form of simple magnetic interrupter of the primary current is necessary, with a suitable means of regulating the rate of interruption. At each action of the interrupter two currents are induced (in opposite directions) in the secondary coil. In the primary there is a current induced in the reverse direction on the making, and in the same direction on the breaking of the circuit. The currents from a faradic machine thus alternate in direction, and also differ in strength, the breaking current, being reinforced by the "extra stream" of the primary, being considerably the stronger. —*Physiological Effects.* When a direct current is employed of from 10 to 15 milli-amperes, with electrodes of 1 to 2 inches diameter, a pricking sensation is felt in the skin, followed by a burning. On breaking the circuit the skin will be found bright red in color, thus showing increased vascularity. On a gradual diminution of the current, the sensation first vanishes under the positive pole; and on slow increase, first appears under the negative, showing that the latter is the more vigorous in action. The effect of such a current on the muscles is to produce contraction. By applying a large sponge electrode to the spine in the dorsal region and a smaller conical one to some such muscle as the biceps of the arm, a current of sufficient strength will cause this muscle to contract at the moment of making and breaking circuit. To yield electrolytic effects it is necessary to apply to the surface a broad electrode connected with one pole, and to use a platinum or steel needle at the extremity of the other conductor. If this needle be inserted into the tumor which it is desired to remove, or applied to any mucous surface, and a current of from 15 to 250 milli-amperes passed, the tissue touched by the needle will be decomposed. The effect at the external electrode will be inappreciable, owing to its broad surface and small density, but at the pointed one, whose current density is large, the result will be marked. If this electrode be positive, the products of decomposition will be strongly acid, as shown by their reddening litmus paper, and the tissue will contract around the electrode. If it be negative, the tissue will decompose rapidly and the products of decomposition will manifest a strong alkaline reaction, a frothy material passing from the electrode, which will have free movement in a sinus caused by its action. The negative pole has thus a much more considerable disintegrating effect than the positive.—*Effect of Induced Currents.* When a weak induced current is applied to the skin, a sensation of gentle pricking or tingling is felt, which grows painful as the current strength is increased, but never harms as in the case of the direct current. If applied to a muscle, a muscular contraction follows; and if the shocks be repeated with sufficient slowness a series of such contractions will take place. But if the shocks follow rapidly, the muscle will be thrown into a state of tetanus or continued contraction, each shock occurring before the muscle has relaxed from the preceding.—*Electrical Diagnosis.* Electrical currents serve a useful purpose in the diagnosis of certain affections of the nerves and muscles. Thus, in some diseases of the spinal cord and the cerebro-spinal nerves the normal phenomena of muscular contraction are found to be much altered. In some cases a muscle may fail to respond to a faradic current of any strength, and yet contract when interrupted primary currents are employed. In other cases the response to voltaic current stimuli may vary in character from that shown under normal conditions of health. These phenomena are termed the "reactions of degeneration."—*Applications to Disease.* Static electricity is found of value in the treatment of various nervous affections, such as neuralgia of old standing, chorea, hemi-anæsthesia, hysteria, and hystero-epilepsy. The voltaic current is employed in acute neuralgias, such as sciatica, tic-douloureux, &c.; in atrophy of muscle following hemiplegia, diabetes, &c.; in spinal irritation and chronic myelitis; in the stiffened joints from chronic rheumatism and in lumbago; in chronic pharyngitis; glandular laryngitis, and chronic tonsilitis; and in other diseases associated with chronic inflammation and defective nutrition. Faradization is of use in nervous exhaustion attended with insomnia, in functional disorders of the generative organs, in acute articular rheumatism, in which it gives great relief to the inflamed and painful joints, and in various other disorders of the nervous and muscular system.—*Electrolysis.* The employment of electricity in the removal of abnormal conditions of tissue is of much usefulness. Nævi and aneurisms are frequently cured by electrolysis, needles which are insulated to within a quarter of an inch of their points being plunged into the tumor and the current sent through them. The contents coagulate around the needles, forming a nucleus around which further clotting takes place, the result being the obliteration of the nævus or the strengthening of the walls and filling of the sac in in an aneurism. For uterine hemorrhage a current of 100 to 250 milli-amperes is used, the positive current being carried by a thick platinum wire to the mucous membrane of the uterus, a large surface electrode lying on the abdomen. The positive current acts as a powerful hæmostatic, and this process, in skillful hands, checks most cases of hemorrhage. Fibroid tumors of the uterus are treated by currents of similar strength applied in the same way. In this case the disintegrating effect of the negative current is preferred, it either lying in the uterine cavity or being applied to the substance of the tumor. Similar treatment is employed in various inflammatory conditions of the uterus, both internal and external. All these effects depend on certain conditions, as the strength of the current, the reduction of the resistance of the skin by the use of a large surface electrode, and the density of the current at the part to be acted on, obtained by the use of the needle electrode. As regards the use of "galvanic" or "magnetic" belts, from which such benefits are claimed, it cannot be said that these benefits are discernable. It is possible in this way to produce a more or less constant current of electricity, and it may be that in some cases benefit has resulted. But the action is irregular, the current cannot be directed or controlled, and troublesome ulcerations have been produced in the skin from prolonged contact with the negative pole. As regards the so-called "magnetic belts," there is nothing to show that they have any influence whatever on the tissues or functions of the body. Powerful magnets have no apparent influence upon the body, and none can be expected from these pieces of magnetized watch spring or wire. If any relief from pain follows their application, it is most probably due to the heat-preserving effects of the flannel in which they are sewn.

Elec'trotint, *n.* An art by which drawings are made with any substance insoluble in the solution of sulphate of copper. When the design is completed, the plate is immersed in the solution, and a reverse made by the electro-coppering process ready for the printer. It is the application of the electrotype to the art of engraving. It was invented in 1840 by E. Palmer, who gave it afterward the name of *glyphography.*

Elec'trotype, *n.* [Fr., from Gr. *elektron,* and *typos,* an impression.] The art of depositing copper and other metals in or upon suitable molds, through the agency of voltaic electricity, so as to produce faithful copies of coins, medals, types, engraved blocks, and other works; invented in 1837 by Professor Jacobi, of St. Petersburg. The following examples of electrolysis (*q. v.*) will elucidate this important branch of electro-metallurgy: If two platinum plates be connected with the opposite ends of a voltaic battery in action, and be placed in a vessel containing water and sulphuric acid, the water will be electrolyzed, or decomposed by electricity; the hydrogen gas will be released at the plate connected with the negative end of the battery, and the oxygen at that connected with the positive. If into the acid liquid some crystals of sulphate of copper (blue vitriol) be now thrown in, electrolysis will still take place, but only one of the elements of the water, namely, oxygen, will be evolved; for the hydrogen, on being released from the water, will take the place of the copper in the solution, and the copper thus liberated will be deposited on the negative plate. This experiment may be continued until all the copper is abstracted from the solution. If a copper plate be now substituted for the platinum one, forming the positive electrode, the water will be decomposed, but neither of the gases will escape. The hydrogen, as before, will take the place of the copper in the solution; the oxygen, instead of appearing at the positive plate, will combine with the copper of which that plate is composed, forming oxide of copper, which will unite with the sulphuric acid to form sulphate of copper. The chemical forces called into action by the current are so beautifully balanced, that, in the last experiment, the quantity of copper supplied by the positive plate equals exactly the quantity withdrawn from the solution, and deposited on the negative plate. The practice of electrotyping consists in preparing models or molds of objects to be copied, and in so arranging the battery, or apparatus, which generates the voltaic current, as to deposit the metal in a compact and solid form upon these models. There are many materials fitted for forming electrotype moulds; of these, fusible metal, wax, stearine, plaster of Paris, and gutta-percha, are mostly used. Non-metallic molds are rubbed over with plumbago or black-lead, which is an excellent conductor for electricity. Plaster of Paris molds must be saturated with wax or tallow, or covered with fine varnish, before they are placed in the copper solution. The simplest kind of voltaic apparatus for electrotyping is a single cell of a Daniell's battery, slightly modified. In a vessel of stoneware or glass is placed a tube or cell of porous earthenware, and in this plate or rod of amalgamated zinc. A perforated shelf for holding crystals of sulphate of copper is fixed in the upper part of the outer vessel. The prepared mold, which represents the copper or negative element of an ordinary voltaic pair, is connected by a wire with the zinc and suspended in the outer vessel. To charge the apparatus, the porous cell is filled with a mixture of water and sulphuric acid; the outer vessel with a saturated solution of sulphate of copper, with a little sulphuric acid in it; and the shelf is well furnished with crystals of sulphate of copper to keep the solution saturated. Certain precautions must be observed in using this apparatus. Thus the mold must not be too small in proportion to the size of the zinc; for when this is the case the copper is deposited as a dark powder. Again, it must not be too large, because then the copper is deposited very slowly, and is of a brittle texture. The single-cell apparatus is now only used for copying medals, seals, and other small works. For electrotyping large objects, or for operating upon a number of small molds, a separate decomposition cell is used, with a single cell of a Daniell's or a Smee's battery for producing the current. The decomposition cell is filled with a dilute acid solution of sulphate of copper. Two brass rods, connected respectively with the zinc and copper (or platinized silver) of the generating-cell, are laid across the top; to one of these the molds are attached, and to the other a plate or plates of copper. By a series of chemical changes, to which reference has already been made, the copper from the solution is transferred to the molds; and the copper plates are dissolved with such regularity that the strength of the solution is kept up. The introduction of powerful magneto-electrical machines, driven by steam, have displaced the old galvanic battery in electroplating or electrotyping, enabling the work to be done in a few hours which took a day or two under the old method. The copper deposit can be easily removed from its matrix by inserting the point of a knife between the impression and the edge of the plate, and displays, on the side next the matrix, a perfect copy of the original. Electrotyping is of the greatest importance in the arts. One of its special applications is to procure duplicates (in copper) of pages of type, as has been done in the case of the pages of this work. Engraved copper plates may be multiplied indefinitely; woodcuts can be reproduced in copper; bronzes can be copied, and numerous such applications to the arts can be made.

Elec'trotype, *v. a.* To copy, or make a fac-simile of, by the electro-chemical process of depositing metals from their solution upon a mold.

Elec'trotyper, *n.* One who electrotypes.

Electrotyp'ic, *a.* Belonging, or relating, to electrotype or electrotyping.

Elec'trotyping, *n.* Same as ELECTROTYPE (*q. v.*).

Electro-vi'tal, *a.* (*Physiol.*) Applied by some physiologists to two currents supposed to move in the nerves of animals: the one external and cutaneous; the other internal, and proceeding from that axis.

Elect'uary, *n.* [L. Lat. *electuarium;* Gr. *ekleiktou—ek,* and *leicho,* to lick up, to lick.] (*Med.*) A form of medicine to be taken by licking it up, or letting it melt in the mouth; a mixture composed of powders, or other ingredients, incorporated with some conserve, honey, or syrup.

Elec'git, *n.* [Lat. 3d pers. sing. of *elegi,* perf. tense of *eligere,* to choose; from *e,* out, and *legere,* to gather, choose. See ELECT.] (*Law.*) A writ of execution founded on the statute of Westminster the Second, by which

after a plaintiff or defendant has obtained judgment in an action, the sheriff gives him possession of the lands and tenements of the opposite party, to be occupied and enjoyed until the money due on such judgment is fully paid, and during that period he is tenant by elegit. Upon this writ the sheriff impanels a jury, who appraise the debtor's goods and lands, and if the former are insufficient to pay the debt, then the latter are also delivered over to the creditor. The writ is still in use in the U.S., with some modifications varying in the different States.

El'egy, *n.* [Lat. *elegia;* Gr. *elegeia*, from *elegos*, from *e! e! legein*, to cry woe! woe!] (*Poetry.*) A short poem composed on a mournful occasion, generally on some one's death. Among the ancient Greeks, the *elegos* was a strain of lament, and usually consisted of a poem made up of alternate hexameter and pentameter verses. The elegiac was also the favorite metre for epigrams. It was used, however, by different poets in different ways. The elegies of Callinus and Tyrtæus are political and warlike; those of Mimnermus are contemplative and melancholy; those of Theognis and Solon are moral and political, &c. The first Latin elegiac writer of note was Catullus, and he was followed by Tibullus, Tibutius, and Ovid. The elegiac verses of Catullus are either mournful or satirical, while those of the other poets of the Augustan æra are devoted to subjects connected with successful or unsuccessful love. In more modern times, the poets of nearly every nation have practised this species of composition.

Ele'i. (*Anc. Hist.*) People of Elis, in Peloponnesus. In their country was the temple of Jupiter, near which were celebrated the Olympic games, of which they had the superintendence. Their horses were held in great repute.

El'ement, *n.* [Fr. *élément;* Lat. *elementum*. Etym. unknown.] A rudiment; a first principle; the first or constituent principle or minutest part of anything; an ingredient. — That which cannot be divided by chemical analysis; a simple or uncompounded substance.

—The substance which forms the natural or most suitable habitation of an animal; the proper state or sphere of anything; the state of things suited to one's temper or habits.

"Our torments may, in length of time, become our *elements*."
Milton.

—The outline or sketch. — The moving cause or principle; that which excites action.

—*pl.* The letters of the alphabet. — The first rules or principles of an art or science.

(*Eccl.*) The bread and wine used in the Lord's supper.

(*Math.*) Rudiments; data employed in calculation.

(*Chem.*) The old philosophers applied this term to imaginary principles of matter; such as fire, water, earth, and air. The elements of the alchemists were salt, sulphur, and mercury. The term *element* is now used as synonymous with *simple body*.

(*Astron.*) Those numerical quantities, obtained by observation and calculation, which are used in compiling tables that exhibit the ephemeris of a planet's motions. The principal are its greatest, mean, and least distance from the sun; its mean daily motion; its mean annual motion; the eccentricity of its orbit and its inclination to the ecliptic; the longitude of its ascending node and perihelion; and its mass and density.

Element'al, *a.* Pertaining to, or produced by, elements; arising from first principles.

Elemental'ity, *n.* Combination of ingredients. (R.)

Element'ally, *adv.* According to elements; literally.

Element'ariness, *n.* Quality of being elementary.

Element'ary, *a.* [Fr. *élémentaire*, from L. Lat. *elementarius*.] Relating to or explaining elements or first principles; primary; simple; uncompounded; uncombined; initial; rudimental; containing, teaching, or discussing first principles, rules, or rudiments; treating of elements; collecting, digesting, or explaining principles.

Elementa'tion, *n.* Instructing in the first principles.

El'emi, *n.* [Fr. *élémi;* It. and Sp. *elemi*.] (*Chem.*) A fragrant resinous substance, obtained from different species of the natural order *Amyridaceæ*, and somewhat similar in properties to copal. It was formerly brought chiefly from Egypt or Ethiopia, and was referred to a tree called *Amyris elemifera*. Part of the *E.* of commerce is now brought from America, and is obtained from trees of other genera, but of the same natural order, particularly *Icaca Icacariba*, which grows in Brazil. *Elaphrium elemiferum* is believed to yield the greater part of the *E.* of Mexico. *E.* is usually in large, pale-yellow, semi-transparent masses, fragile, softening by the heat of the hand, with a smell somewhat resembling that of fennel. It is soluble in alcohol, except a white crystallizable residue, which is very light, inodorous, and tasteless, and which is called *Elemine*. The properties of *E.*, however, chiefly depend on a volatile oil, which may be obtained from it by distillation. *E.* is used in the preparation of stimulant plasters and ointments.

El'emine, *n.* (*Chem.*) See ELEMI.

Elench', or **Elench'us,** *n.; pl.* ELENCHS, or ELENCHES. [Gr. *elengchos*, from *eleng-cho*, to convince, to confute, to refute, to put to shame.] A proof; a trial.

(*Log.*) A vicious or fallacious argument; a syllogism by which an adversary is forced to contradict himself.

Elench'ical, *a.* Pertaining to an elench.

Elench'ically, *adv.* By specious argument.

El'ephant, *n.* [Fr. *éléphant;* Lat. *elephas;* Gr. *elephas*. In Heb. *eleph* signifies an ox or cow; in another form, *alluph*, from obs. root *alaph*, to accustom one's self to become gentle, tame. *Bos Lucas*, the Lucanian ox, was the name originally given to this animal by the Romans, because they first saw it in Lucania, in the army of Pyrrhus.] (*Zoöl.*) A member of the family ELEPHANTIDÆ, *q. v.*

El'ephant, a name indicating various localities in Asia and Africa. — 1. Elephant Point, a promontory at Pegu, in Further India, marks the west extremity of the mouth of the Rangoon, the most easterly arm of the Irrawaddy. It is in Lat. 16° 28′ N., and Lon. 96° 25′ E. — 2. Elephant Bay, an inlet of the Atlantic, on the coast of Benguela, South-west Africa, in Lat. 13° 14′ S., and Lon. 12° 33′ E.; has excellent anchorage, but no fresh water. — 3. Elephant Island, in Senegambia, is about 100 miles up the Gambia. — 4. Elephant River, in the Cape Colony of South Africa, enters the Atlantic after a course of 140 miles, about Lat. 31½ S., and Lon. 18° E.

Elephan'ta, a small island near Bombay, remarkable for a huge unwieldy statue of an elephant, cut out of the solid rock.

El'ephant-apple, *n.* (*Bot.*) See FERONIA.

El'ephant-beetle, *n.* (*Zoöl.*) See SCARABEIDÆ.

Elephan'tiac, *a.* (*Med.*) Afflicted with elephantiasis.

Elephanti'asis, *n.* [Lat. and Gr., from *elephas*, elephant, so called from its likeness to the elephant's hide.] (*Med.*) A disease common in the East and West Indies, and so called from the skin of the afflicted limb becoming rough, scaly, and enormously thickened, so as to resemble the leg of an elephant. It generally comes on with great heat of the skin, alternating with profuse perspiration and ardent thirst. The part becomes red, hot, swelled, and painful, increases to great size, and becomes a burden to the patient. Though it is the leg that is generally affected by this disorder, other parts of the body are liable to its attack; but it is not usual for more than one part to be morbidly enlarged in the same individual. In the treatment of this disease in its earlier stages the use of laxatives and diaphoretics is recommended, together with the application of iodine ointment to the part, and firm bandaging. In the later stages little can be done for its alleviation, and amputation of the part is generally discountenanced.

Elephan'tidæ, *n. pl.* (*Zoöl.*) The Elephant family, order *Pachydermata*, containing the largest terrestrial animals in existence. They are distinguished by having a cylindrical, prehensile, very mobile proboscis, furnished at the tip with a small finger-like appendage, two large projecting tusks in the upper jaw, representing the incisors of other animals, and five toes on each foot included in a hard skin. This family contains the elephants, mammoth, and mastodon, &c. The full-grown adult elephant (fig. 928) may be said to possess only one molar tooth on each side of each jaw, and they are very peculiar for the manner in which they shed or change these teeth. The first-formed teeth, as they grow older, become thinner and shorter, a fresh set forming behind them. These new teeth press from behind forwards, and as the jaws continue to grow they come partially into use. These in their turn are pushed out by another new set forming behind; and this process is repeated till the elephant has changed its teeth eight times. At each dentition the number of plats of which these molar teeth consist are increased. The tusks, which, being implanted in the incisive or intermaxillary bones, may be considered as answering to the incisive teeth, are only shed once in the animal's life. This takes place between the first and second year, soon after which the permanent tusks are cut, and gradually increase in size, the ivory being deposited by successive secretions of a vascular pulp in very thin layers from within. These tusks in the adult animal vary much in size, and continue to grow throughout most of the animal's life. They are generally much larger in the male than in the female, weighing, in the case of the former, from 50 to 150 lbs. The greatest recorded weight is 350

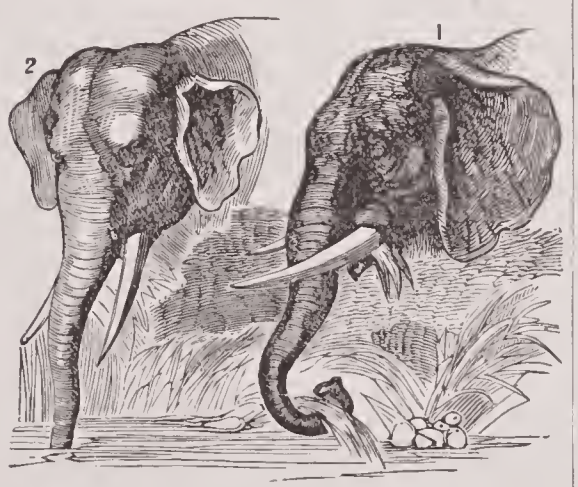


Fig. 928.

1, head of African elephant; 2, head of Asiatic elephant.

lbs., but this is extremely rare. Their average length is from 6 to 7 feet, with a diameter at the base from 5 to 6 inches. The proboscis or trunk, a most elaborate piece of mechanism, is hollow, and is always kept moist internally by a secretion of mucus from glands distributed upon its inner surface. It is endowed with exquisite sensibility, the utmost facility of motion, and immense strength. In its utility and power it is almost equal to the hand of man, and far excels that organ in the monkey tribe. Between 30,000 and 40,000 muscles are said to enter into its structure, and by their action the elephant is enabled to extend this animated instrument, shorten it, and bend it in every direction, so that there is hardly any curve or position which it cannot assume at the will of the animal, nor any substance, large or small, with which it cannot grapple. This is the elephant's pump, his drinking-cup, his water-reservoir, his powdering apparatus with which he puffs the collected dust over his moistened hide to protect it from flies, his foraging instrument with which he collects his food, and his all-powerful arm. The elephant is a huge, unwieldy-looking animal, with a naked, thick, callous, and wrinkled skin, generally of a dirty gray or blackish color. The head is large, and the skull is very thick, but light, owing to an extensive thin cellular texture largely developed between, and separating the outer and inner tables. The chamber which contains the brain is comparatively small, and though these animals are proverbially considered very intelligent, the brain itself is small in proportion to that of the dog or horse, and is only about equal to that of the pig. The eye is very small, but extremely quick, and the ears are of great size. The average height of the male elephant is about ten feet from the wither or top of the shoulder. In the wild state, elephants live in troops, and inhabit only the most solitary forests of tropical Asia and southern Africa. The old males march at the head of the troop, the females and the young following in their rear. They live upon vegetable food, and never attack man or brute animals, but when attacked by them, they defend themselves with great courage and fury. The hunting of elephants in some places, as in Ceylon, is an important affair. A great many men are employed, the animals are taken alive, sometimes 100 or 130 at a time, and sold to the native princes in different parts of India. They are caught without much difficulty, and are readily tamed. In captivity they show great intelligence and docility, and are easily rendered most useful animals to man, though their reasoning powers have been very much exaggerated. In ancient times they were used in war, but nowadays they are only employed as beasts of burden, and in processions (Fig. 212), or in the chase. They are by no means courageous animals, and at the sound of fire-arms they become panic-struck and fly. They couple in the same manner as other quadrupeds. The teats of the female are situated on the chest; and the young suckle the teat with their mouths, and not with their trunks, as has often been alleged. Only two species are found recent. One, inhabiting Asia, *Elephas Indicus*, the Indian elephant, tenanting many parts of India, from the Indus to the Eastern Ocean, and the adjacent large islands, especially Ceylon, has the molar teeth with narrow transverse ridges, and possesses four nails to the hind feet; while the other, inhabiting Southern Africa, *Elephas* (*Loxodonta*) *Africanus*, and found extending from Senegal to the Cape of Good Hope, has the molar teeth with lozenge-shaped ridges, only three toes on the hinder feet, and very large ears. The tusks in this species are generally larger than in the preceding, and the females have them of considerable size also. The ivory obtained from the African elephant is more esteemed in the trade than that from the Indian species. — To this family belong also the extinct genera MAMMOTH and MASTODON, *q. v.*

Elephan'tine, *a.* Pertaining to the elephant. — Huge; resembling an elephant.

(*Pal.*) Noting a period distinguished for large pachydermatous animals resembling the elephant.

Elephan'tine, a small island of the Nile, lying opposite to Assouan on the confines of Egypt and Nubia, in 24° 5′ N. Lat., and 32° 34′ E. Lon. It was anciently called *Abu*, or the "ivory island," from its having been the entrepot of the trade in that precious material. The most important ruins are a gateway of the time of Alexander, and a small temple founded by Amenophis III., and embellished by Rameses III. Another remarkable edifice is the ancient Nilometer, formerly mentioned by Strabo, and which appears to have been built in the time of the Cæsars. This island had the honor of giving a dynasty (the 5th) to Egypt, and was evidently an important place, the inscriptions on the rocks attesting the adoration paid by Sethos I., Psammetichus II., and other monarchs, to the local deities. See EGYPT.

El'ephantoid, Elephantoid'al, *a.* [Gr. *elephas*, elephant, and *oidos*, form.] Elephant-shaped.

Elephant-paper, *n.* A large kind of drawing-paper.

Elephan'topus, *n.* [Gr. *elephas*, elephant, and *toys*, foot, alluding to the form of the leaves in some species.] (*Bot.*) A genus of plants, order *Asteraceæ*. They are perennial plants, erect, with alternate, subsessile leaves. Corolla violet-purple. One American species, *E. Carolinianus*, is found from Pennsylvania W. to Ohio, and S. to Louisiana.

El'ephant's-foot, *n.* (*Bot.*) See ELEPHANTOPUS.

Elephant, (White,) a Danish order of knighthood of great antiquity. The number of knights is limited to 30, besides members of the royal family. The badge is a collar of elephants towered, supporting the king's arms, and having at the end the picture of the Virgin Mary.

El'eroy, in *Illinois*, a post-village of Stephenson co., abt. 8 m. W.N.W. of Freeport.

Eleu'sine, *n.* [Gr. *Eleusis*, where Ceres, the goddess of harvest, was worshipped.] (*Bot.*) A genus of plants, ord. *Graminaceæ*. They are annual grassy plants, one species of which, *E. Indica*, the Wire Grass, is common in the Middle and W. States.

Eleusin'ian Mysteries. (*Antiq.*) Festivals held annually, in Sept., at Eleusis, a town of Attica, in honor of the goddess Demeter, or Ceres. According to some authorities, they were instituted by Cadmus, B.C. 1550; others refer their origin to Erichthonius, B.C. 1494; but the usual opinion is that they were commenced by

Eumolpus, the first hierophant, B. C. 1356. Great secrecy was observed in the celebration of the festivals, consisting of the greater and lesser mysteries; and it was a capital offence to reveal any of the rites. They existed about 18 centuries, and ceased during the invasion of Alaric I., in 396. Hales says they were brought from Egypt to Attica, about B. C. 1399, by Erechtheus, and that they were ultimately borrowed from the Jewish feast of tabernacles.

Elensis, (*e-lu'sis,*) a decayed village of Attica, but, in ancient times, a city of Greece, 12 miles from Athens. The ancient highway which led to Athens is still the modern road, and the plain around the village is covered

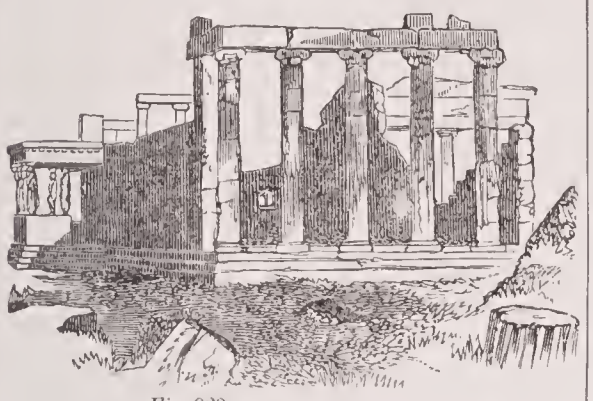


Fig. 929.— TEMPLE OF CERES.

with scattered ruins. It was celebrated as the chief seat of the worship of Ceres, whose temple here was the largest sacred edifice in Greece.

Elen'thera, one of the Bahama islands; *pop.* 5,000.

Elevate, *v. a.* [Lat. *elevo, elevatus* — *e, ex,* and *levo,* from *levis,* light; Fr. *élever.*] To lift up; to raise; to rear; to extol; to raise from a low or deep place to a higher; to raise to a higher state or station; to exalt; to advance; to promote; to improve, refine, or dignify; to raise from or above low conceptions; to elate with pride; to cheer.

—*a.* Exalted; raised aloft; noble; as, "a temple proudly *elevate.*" — *Milton.*

El'evated, *p. a.* Raised; exalted; dignified; elated; excited; made more acute or more loud, as sound.

(*Her.*) Wings turned upwards.

Eleva'tion, *n.* [Fr. *élévation;* Lat. *elevatio.*] Act of elevating, or of raising or conveying from a lower or deeper place to a higher: act of exalting in rank, degree, or condition; state of being elevated; exaltation; an elevated state; dignity; exaltation of mind, character, or style; height; altitude; an elevated place or station; elevated ground; a rising ground; a hill or mountain; a passing of the voice from any note to one more acute; also a swelling or augmentation of voice.

(*Eccl.*) The *E.* in the ritual of the mass, is the raising, first, the Host, then the cup, to receive the homage of the people as the body and blood of Jesus Christ. At the *E.* a bell is rung for the people to look upon the Host. This ceremony was introduced into the Latin Church in the beginning of the 12th century.

(*Arch.*) A geometrical representation of a building measured vertically in respect of the horizon; called by the ancients the *orthography.* In general terms, the height of the building above the ground.

(*Astron.*) The angular height or the altitude of a celestial body above the horizon. Thus, the *elevation of the pole* denotes the arc of the meridian intercepted between the pole and the horizon.

(*Gun.*) The inclination of the axis of the piece above the object aimed at, to allow for the falling of the shot by the action of gravity. It varies with the range.

(*Dialling.*) The angle which the style makes with the substyle line.

(*Perspective.*) Sometimes used for scenography, or perspective representation of the whole object or building.

El'evator, *n.* [Fr. *élévateur.*] He or that which elevates or raises.

(*Com.*) The name given in the U. States to a building in which, by means of a mechanical contrivance, grain is stored direct from the ship or car.

(*Surg.*) An instrument with which surgeons raise any depressed portion of bone, especially of the cranial bones.

(*Anat.*) The term applied to various muscles of the body, whose action is to elevate the parts to which they are attached, as, the *elevator* muscles of the eyes.

(*Mech.*) A contrivance in buildings, for carrying persons, etc., from floor to floor, called in Eng., a *lift.*

El'evatory, *a.* Tending to raise, power to elevate.

Eleve, *n.* [Fr. *élève,* from *élever,* to raise, bring up, educate. See ELEVATE.] One brought up, or protected, by another; a pupil; a disciple; a scholar.

Elev'en, *a.* [A. S. *œndelfene, endlufon, endleofan—œn* for *an,* one, and *lœfan,* to leave; Ger. *eilf, elf.*] One left after ten; one over the number of the fingers; ten and one added.

—*n.* A symbol of ten and one, as 11 or XI.

Elev'en Points, in *Missouri* and *Arkansas,* a river rising in Oregon co., in the former State, and flowing S.E., enters the Big Black River in Lawrence co., Ark.

Elev'enth, *a.* [Sax. *œndlyfta.*] Next in order to the tenth.

—*n.* (*Mus.*) The interval of the octave above the fourth.

Elf, *n.; pl.* ELVES. [Sax. *elf;* L. Ger. *elf;* Dan. *alf;* Icel. *álfr,* a genius or faun, a good or evil spirit; W. *elff,* a spirit, a demon, from *el,* a moving principle, a spirit.] A diminutive wandering spirit; a fairy; a hobgoblin. Elves were honored more particularly by the Northern nations, in whose mythology they occupy a prominent place. They were divided into good and bad elves, and their exploits have given rise to a multiplicity of delightful stories.

"Ye sylphs and sylphids, to your chief give ear,
Fays, fairies, genii, *elves,* and demons, hear." — *Pope.*

—A diminutive being; a dwarf.

—*v. a.* To entangle hair in so intricate a manner that it cannot be unravelled. — This was supposed to be the favorite work of elves in the night; and all hair so matted together received the name of *elf-locks.*

Elf-arrow-head, ELFIN-ARROW, ELF-BOLT, ELF-DART, ELF-SHOT, ELF-STONE, *n.* Popular names in Great Britain for those arrow-heads of flint which were in use at an early period among the barbarous tribes of this country and of Europe generally, as they are still in use among the American Indians, the Esquimaux of the Arctic regions, and the inhabitants of some of the islands in the Pacific Ocean. It was believed that elves, or fairies, hovering in the air, shot these barbs of flint at cattle, and occasionally even at men.

El'fin, *a.* Relating, or pertaining, to elves or dwarfs.

—*n.* An elf; a little urchin.

Elf'ish, *a.* Resembling elves; clad in disguise.

Elf-lock, *n.* See the verb ELF.

El'gin and Kincar'dine, THOMAS BRUCE, EARL OF, an English statesman, B. 1777. He was ambassador to the Sublime Porte from 1789 to 1802, and availed himself of the opportunities of his station; he formed a vast collection of sculptures, and other antiquities, sold afterwards to the English government, and known as the *Elgin Marbles.* Much censure has been rightly lavished on him by Byron and others, for mutilating the noblest monuments of Athens. D. 1841.

Elgin and Kincar'dine, JAMES BRUCE, EARL OF, an English statesman, B. 1811. He was appointed governor-general of Canada in 1846, and there very successfully grappled with the serious difficulties of the time, and carried out a conciliatory policy. In 1849 he was raised to the English peerage, with the title of Baron Elgin of Elgin. After administering the affairs of Canada for 8 years, he returned to England, and was sent as special ambassador to China, in 1857, where he signed the important treaty of Tientsin. Lord Elgin was again sent to China, in 1860, in consequence of a violation of the treaty by the Chinese government, entered Pekin in state, and obtained the enforcement of the treaty. Immediately after this success he was appointed governor-general of India, where he died, 1863.

El'gin, a town of Scotland, co. Elgin or Moray, on the Lossie, 120 m. N. of Edinburgh; celebrated for the ruins of its cathedral, built in 1224, and one of the most magnificent in Great Britain. *Pop.* 8,086.

El'gin, a S. W. co. of Prov. of Ontario, on the N. shore of Lake Erie; *area,* about 700 sq. m. *Rivers.* Otter and Thames creeks. *Pop.* (1895) 50,659. *Cap.* St. Thomas.

Elgin, in *Arkansas,* a post-office of Jackson co.

Elgin, in *Illinois,* a thriving city of Kane co., on Fox river, 42 m. N. W. of Chicago. It is well-built, very pleasant, a manufacturing place, especially noted for its watch manufactures. It has four banks and good schools. *Pop.* (1897) about 27,000.

Elgin, in *Iowa,* a post-village of Fayette co., on Turkey river, about 66 m. N.W. of Dubuque.

Elgin, in *Michigan,* a post-office of Ottawa co.

Elgin, in *Minnesota,* a post-village and township of Wabashaw co., on the Minneska River, abt. 14 m. E.N.E. of Rochester.

Elgin, in *New York,* a post-village of Cattaraugus co., abt. 300 m. W. by N. of Albany.

Eli, [Heb., an offering.] A high-priest of Israel, and the last of the Judges, except Samuel, succeeded Samson abt. 1156 B. C. His too mild and gentle rule of the people, and excessive indulgence toward his wicked and abandoned sons, are powerfully recorded in 1 Samuel, chaps. iv., xiv., and xxii. After a turbulent reign of 40 years, he D. 1116 B. C.

Eli'ab. [Heb., God, my father.] The elder brother of David.

Eli'akim. [Heb., God of the resurrection.] The treasurer to king Hezekiah.

Elias, (Mount,) the name of many summits in Greece, the highest of which is in the Morea, 10 m. from Mistra. Height, 7,829 feet.

Elias, (Mount St.,) a range of mountains in ALASKA, *q. v.*

Eliashib, (*e-lī'a-shib.*) [Heb., God of conversion.] A high-priest of the Jews, after the captivity.

Eli'asite, *n.* (*Min.*) An oxide of uranium, of a dull reddish-brown color, with thin edges, red. Lustre, greasy or resinous. Found in amorphous masses more or less resin-like in aspect, or like gum.

Elic'it, *v. a.* [Lat. *elicio, elicitus* — *e, ex,* and anc. *lacio,* to entice, to allure; from anc. *lax, lacis,* fraud, deception.] To draw out; to entice out; to lure forth; to bring to light; to educe; to extract; to deduce by reason or argument.

Eli'da, in *Illinois,* a post-village and township of Winnebago co., abt. 190 m. N. by E. of Springfield.

Eli'da, in *Ohio,* a post-village of Allen co., abt. 7 m. N.W. of Lima.

Elide', *v. a.* [Lat. *elido* — *e, ex,* and *lædo,* to strike or dash against. See LESION.] To strike or dash out; to force out; to cut off a syllable.

Elic'zer, [Heb., God is my help.] The faithful servant of Abraham.

Eligibil'ity, *n.* [Fr. *éligibilité.*] Quality or state of being eligible; worthiness or fitness to be chosen; the state or quality of a thing which renders it preferable to another, or desirable.

Eligible, (*el'i-jib-l,*) *a.* [Fr. *éligible,* from Lat. *eligo,* and *lego,* to choose.] Fit to be chosen; worthy of choice; preferable; suitable; proper; desirable.

El'igibleness, *n.* Eligibility.

El'igibly, *adv.* In a manner to be worthy of choice; suitably.

Eli'hu. [Heb.. He is my God Himself.] The youngest and wisest of the four friends of Job.

Eli'jah, an eminent prophet of Israel, in the reigns of Ahab and Ahaziah. He was greatly persecuted by Jezebel, the wife of Ahab, but escaped all her machinations, and was taken up to heaven in a chariot of fire, about 896 B. C.

Elim'elech. [Heb., my God is king.] The father-in-law of Ruth.

Elim'inant, *n.* (*Math.*) Same as REPELLANT, *q. v.*

Elim'inate, *v. a.* [Lat. *elimino, eliminatus* — *e, ex,* and *limen,* threshold.] To turn out of doors; to expel; to thrust out; to discharge or throw off; to set at liberty; to disengage; to separate.

(*Algeb.*) To cause to disappear, as a quantity from an equation.

Elimina'tion, *n.* [Fr. *élimination,* from L. Lat. *eliminatio.*] Act of eliminating, or of expelling or throwing off; separation.

(*Algeb.*) The operation by means of which, from a given system of equations, another is deduced in which one or more of the original unknown terms or factors no longer appears. Thus a system of *m* homogeneous independent equations in *m* variables, or, what is equivalent, a system of *m* non-homogeneous equations containing *m* — 1 unknown terms, cannot be satisfied by a common system of values of these variables unless a certain relation exist between the co-efficients. *E.* leads to the discovery of this relation; and the function which, equated to zero, expresses the same is called the *resultant* of the system of equations.

(*Med.*) The act of discharging or secreting by the pores.

Elimsport, in *Pennsylvania,* a post-village of Lycoming co., about 20 m. from Williamsport; *pop.* about 200.

Eli'ot, JOHN, an American clergyman, commonly called "The apostle of the Indians," B. in England, 1604, was educated at Cambridge; but on embracing Puritanism, he, in 1631, emigrated to New England, and became pastor of a congregation of Independents at Roxbury, where he established a grammar-school. In 1646 he began to learn the Indian language, that he might devote himself to the conversion of the natives. In this he met with great success, and obtained a considerable influence over the various tribes. He translated the Bible into their language, and also several pieces of practical divinity. D. at Roxbury, 1690. — Baxter says of this divine, "There was no man on earth whom I honored more than him." A handsome memorial to perpetuate his name was erected in the Forest Hills Cemetery, at Roxbury.

Eli'phaz. [Heb., the endeavor of God.] A son of Esau.

Eliq'uament, *n.* (*Chem.*) A juice squeezed out of the fat of fish.

Eliqua'tion, *n.* [Lat. *eliquatio,* from *eliquare,* to liquefy, to melt out, from *e,* out, and *liquare,* to make liquid, to melt.] (*Metallurgy.*) The separation of two metals by fusion.

El'is, a country of Peloponnesus, lying to the W. of Arcadia and N. of Messina. It runs along the coast, and is watered by the river Alpheus. It was famous for the horses it produced, whose speed was so well known and tried at the Olympic Games.

Elis'abeth. [Heb., God hath sworn.] The wife of Zacharias, and mother of John the Baptist.

Elisavetgrad, (*ei-le-za-vet'grad.*) a town and fortress of European Russia, govt. of Cherson, or Kerson, on the Ingul, 130 m. from Cherson; *pop.* 12,000.

Eli'sha, or ELISEUS. [Heb., salvation of God.] A Hebrew prophet, and the successor of Elijah, who called him from the plough. He performed numerous miracles, and was held in great respect by the kings of Israel and Syria. D. about 860 B. C.

Elish'eba. The wife of Aaron.

Eli'sion, *n.* [Fr. *élision,* from Lat. *elisio.* See ELIDE.] A striking or forcing out.

(*Gram.*) The cutting off or suppression of a vowel or syllable, particularly at the end of a word, for the sake of euphony.

Eli'sor, *n.* [Fr. *éliseur,* from *élire,* to choose. See ELECT.] (*Eng. Law.*) Two persons appointed by the court to return a jury, when the sheriff and the coroner have been challenged as incompetent.

Elite', *n.* [Fr. *élite;* Lat. *e,* and *lego, lectus,* to pick, to choose, to gather. See ELIGIBLE.] A choice or select body; the chosen part, particularly of an army; the flower of an army; the best part.

Elix'ir, *n.* [Fr. *élixir;* Sp. *elixir;* It. *elisire,* from Lat. *elixus,* boiled thoroughly — *e, ex,* and *lix,* lye, ashes; Arab. *aksir;* Hind. *akseer.*] That which is extracted by boiling, refining, &c.; the quintessence; refined spirit; an extract.

(*Alchemy.*) A liquor for transmuting metals into gold.

(*Med.*) A compound tincture; any cordial; that substance which invigorates.

Eli'za, in *Alabama,* a post-office of Jackson co.

Eli'za, in *California,* a village of Yuba co., on Feather river, about 5 m. S. of Marysville.

Eli'za, in *Illinois,* a post-township of Mercer co.

Eliz'abeth, Queen of England, daughter of Henry VIII., by his queen Anne Boleyn, B. 1533. When three years of age, she lost her mother, who was beheaded, and was herself immediately bastardized by Act of Parliament. By a later Act, however, the succession to the throne, was conditionally secured to her. *E.* was carefully educated, attaining, under the direction of Roger Ascham, considerable proficiency in Latin, French, and Italian, and some knowledge of Greek. She was brought

up in the Protestant faith. Marriage projects were early set on foot for her, and she entertained with more or less of sincerity numerous successive suitors; but she never married. She accompanied her sister Mary to London on her accession to the throne; but in the following year, immediately after the suppression of Wyatt's



Fig. 930. — ELIZABETH.
(After a painting by Zucchero.)

insurrection, she was arrested and sent to the Tower. She was kept in, more or less, close confinement during Mary's reign; and was removed from the Tower to Woodstock, and thence to Hatfield House. At the ago of 25 she succeeded Mary, and was received at London with immense joy, the bishops meeting her at Highgate, and the people in crowds escorting her through the city. The re-establishment of the Protestant faith and worship; conflicts in various forms with the adherents of the Romish system, who were also the enemies of *E.* as a Protestant sovereign; conflicts on the other hand with the Puritan party, ever growing stronger; — these were the staple of home transactions during this reign. Foreign affairs also were almost entirely acts of the same drama, — the great struggle between the two religions. Pope Paul IV. refused to acknowledge *E.*'s title; Pius V. and Sixtus V. published bulls of excommunication against her, and absolved her subjects from their allegiance; the king of France supported the claim of Mary, Queen of Scots, to the crown of England, and *E.* assisted the Protestants in Scotland, in France, and the Netherlands; and above all, the struggle took outward shape and formidable dimensions in the threatened Spanish invasion and the "Invincible Armada." *E.* on her accession retained tho principal advisers of her sister Mary, but added several eminent men to their number; among whom were Cecil, Lord Burleigh, who remained her first minister till his death; Sir Nicholas Bacon; and, at a later period, Sir Francis Walsingham. The imprisonment and execution of Mary, Queen of Scots, has been a fruitful occasion of reproach against Queen *E.*; yet none can doubt that Mary sanctioned and took part in the plots and schemes which had for their object tho dethroning of *E.*, and the elevation of Mary to the throne. The personal character of *E.* has naturally been depicted in very different colors by Romanists and Protestants; exaggeration made on both sides, and the truth lying probably between the two extremes. Recent inquiries have resulted in a less favorable view than has been usual in England. Vanity in excess, selfishness, unwomanly hardness, love of expense and display, indulgence in bursts of passion, indelicate speech and manners, and fondness for worthless favorites (especially the earls of Leicester and Essex), are too obvious features of her character. But energy, and good sense, and a certain courage *E.* had too; for though the prosperity and progress that marked her reign must be attributed to the wisdom and measures of her ministers, these ministers were her choice and had her support. Her reign was one of the greatest periods in English literary history, — the age of Shakspeare and Spenser, of Bacon and Raleigh and Hooker. It was an age too of the great enterprises and discoveries: as those of Drake, Frobisher, and other maritime heroes. *E.* D. at Richmond, March 24, 1603; her health and spirits having never recovered the shock they received by the execution of Essex, two years previously.

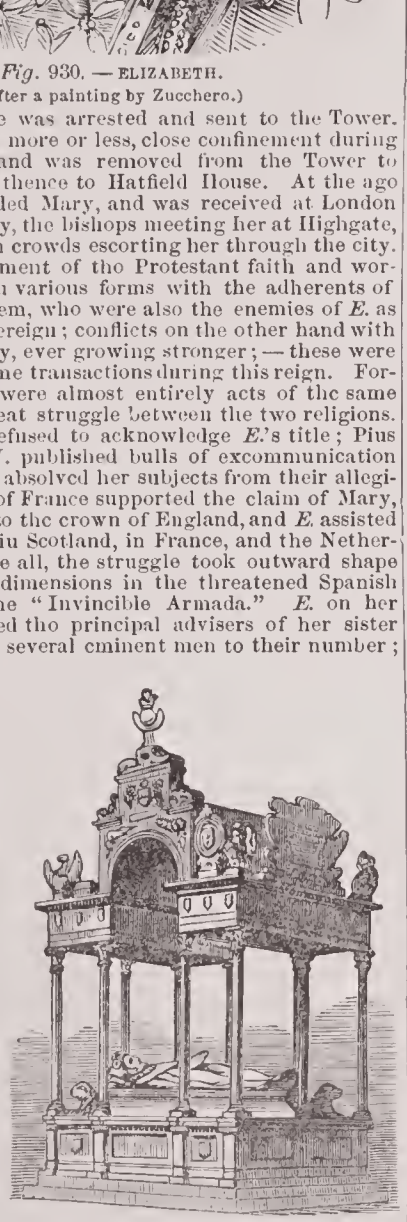


Fig. 931. — TOMB OF ELIZABETH.
(Westminster Abbey.)

Eliz'abeth, PHILIPPINE MARIE HELENE, commonly called MADAME ELIZABETH, sister of Louis XVI., the faithful friend and companion of the royal family in their flight to Varennes, and during their imprisonment, B. 1764; executed, on the pretence of corresponding with her other brothers, afterwards Louis XVIII. and Charles X., by the revolutionists, May 10, 1794.

Elizabeth, Empress of Germany. Queen of Prussia. Princess Palatine, &c.

Eliz'abeth, in *Illinois*, a post-village of Jo Daviess co., abt. 18 m. S.E. of Galena.

Eliz'abeth, or **Elizabethtown,** in *Illinois*, a post-village, cap. of Hardin co., on the Ohio River, abt. 219 m. S.S.E. of Springfield.

Eliz'abeth, in *Indiana*, a post-village of Harrison co., abt. 12 m. S.E. of Coydon.

Eliz'abeth, or **Elizabethtown,** in *N. Carolina*, a post-village, cap. of Bladen co., on the Cape Fear River, abt. 90 m. S. of Raleigh.

Eliz'abeth, in *New Jersey*, a city, cap. of Union co., abt. 5 m. S. by W. of Newark, and 15 m. W.S.W. of New York. *E.* was formerly the cap. and principal town of New Jersey. It contains many handsome and substantial public buildings, and several important manufactories. Settled in 1665. *Pop.* (1897) about 51,000.

Eliz'abeth, in *Ohio*, a township of Lawrence co.—A township of Miami co.

Eliz'abeth, in *Pennsylvania*, a township of Allegheny co.—A township of Lancaster co., about 15 miles N. of Lancaster.—A post-borough in Alleghany co., on the Monongahela river, about 16 miles S. E. of Pittsburg. *Pop.* (1897) about 2,000.

Eliz'abeth, or **Eliz'abethtown,** in *Virginia*, a village of Wood co., on tho Kanawha River, abt. 300 m. N.W. of Richmond.

Elizabeth'an, *a.* Pertaining to Queen Elizabeth, or to her times; as, the *Elizabethan* poets.

Eliz'abeth City, in *N. Carolina*, a post-town, cap. of Pasquotank co., on the Pasquotank River, about 215 m. E. by N. of Raleigh; *pop.* about 2,000. — On Feb. 10, 1862, *E.* was attacked by a National fleet of 7 steamers and a schooner led by commander S. C. Rowan. After a severe action of less than half an hour, the fort defending the town was evacuated, the town itself captured, and the Confederate vessels burned in the harbor.

Eliz'abeth City, in *Virginia*, a S.E. co., bordering on Chesapeake Bay; *area*, about 50 sq. m. *Rivers.* Back River and Hampton Roads. It was one of the 8 original shires into which Virginia was divided in 1634. *Surface*, level; *soil*, fertile. *Cap.* Hampton. *Pop.* (1897) about 18,000.

Eliz'abeth Furnace, in *Virginia*, a former post-office of Augusta co. Now Ferrol P. O.

Eliz'abeth Island, in tho Strait of Magellan; Lat. 52° 50′ S., Lon. 90° 30′ W. It is uninhabited.

Eliz'abeth Islands, in *Massachusetts*. They are 16 in number, very small, and lie between Buzzard's Bay and Vineyard Sound.

Eliz'abeth Petrovna, empress of Russia, B. 1709, was daughter of Peter the Great. In 1741 she usurped the imperial throne, by dethroning the infant Ivan, which was effected without the shedding of blood. At her accession, she made a vow that no capital punishments should take place in her reign. But her humanity was at least equivocal, for she afterwards inflicted upon the countesses Bestuchef and Lapoukin tho punishment of the knout, and had their tongues cut out for betraying some of her secret amours. Though dissolute in her manners, she was extremely superstitious, and performed her devotions with rigorous exactness. In 1756 she joined Austria and Franco against Prussia. D. in 1762.

Eliz'abethport, in *New Jersey*, a manuf. and shipping town of Union co. on Staten Island sound; adjoining Elizabeth, of which it is now a part.

Eliz'abeth River, in *Virginia*, empties into Hampton Roads. A light-ship is stationed on Craney Island Flats, at its mouth.

Elizabeth, (St.,) daughter of Andreas II., king of Hungary, B. at Presburg, 1207. She early displayed what may be called a passion for the severities of tho Christian life, despising pomp, avarice, ambition, cultivating humility, and exhibiting the most self-denying benevolence. When only 14 years old, she married the landgrave of Thuringia, Louis IV., who died in 1227. Great misfortunes soon befell her. She was deprived of her regency by the brother of her deceased husband, and driven out of her dominion on the plea that she wasted the treasures of the state by her charities. The inhabitants of Marburg, whose miseries she had frequently relieved, refused her an asylum, for fear of the new regent. At last she found refuge in the monastery of Kitzingen, and when the warriors who had attended her husband in the crusade returned from the East, she gathered them around her, and recounted her sufferings. Steps were taken to restore to the unfortunate princess her sovereign rights. She declined the regency, however, and would only accept the revenues which accrued to her as landgravine. The remainder of her days were devoted to incessant devotions, almsgivings, mortifications, &c. There is something mournfully sublime in her unnatural self-sacrifice. We shudder even in our sympathy when we read of this beautiful, tender-hearted creature washing the head and the feet of the scrofulous and the leprous. Murillo has a painting (now in the Museum at Madrid) of this act of evangelical devotion. At last her health gave way; and on the 19th November, 1231, she D. at the age of 24, and was canonized 4 years after her death. See Montalembert's *Historia de Sainte Elisabeth de Hongrie*, (Paris, 1836.)

Eliz'abethton, in *Tennessee*, a post-village, cap. of Carter co., abt. 318 m. E. of Nashville The village is pleasantly situated on an island at the junction of the Doe and Watauga rivers.

Eliz'abethtown, in *Indiana*, a post-town of Bartholomew co., about 7 miles S.E. of Columbus.

—A village of Jackson co., on White river, about 65 miles S. by E. of Indianapolis.

Eliz'abethtown, in *Kentucky*, a city, cap. of Hardin co., on Valley creek, about 43 m. S. by W. of Louisville. *Pop.* (1897) about 1,400.

Eliz'abethtown, in *New Mexico*, a post-village of Colfax co.

Eliz'abethtown, in *New York*, a post-village and township, cap. of Essex co., on Boquet river, 35 m. S. by W. of Plattsburg. *Pop.* (1897) about 650.

Eliz'abethtown, in *North Carolina*, a post-village, cap. of Bladen co., on Cape Fear river, about 50 miles above Wilmington.

Eliz'abethtown, in *Ohio*, a village of Guernsey co., about 35 miles E.N.E. of Zanesville.

—A post-village of Hamilton co., about 18 m. W. of Cincinnati.

Eliz'abethtown, in *Pennsylvania*, a post-borough of Lancaster co., on Pennsylvania R. R., 18 miles S. E. of Harrisburg. Has tannery, agricultural implement works, cigar factories, &c., and does a large trade in grain. *Pop.* (1897) about 1,500.

Eliz'abethville, in *Pennsylvania*, a post-village of Dauphin co.

Eliz'abetopol, a town of Russian Trans-Caucasia, Lat. 40° 42′ N., Lon. 46° 20′ E.; *pop.* 15,000.

Eli'zaville, in *Indiana*, a post-village of Boone co., abt. 33 m. N.N.W. of Indianapolis.

Eli'zaville, in *Kentucky*, a post-village of Fleming co., abt. 70 m. E. by N. of Frankfort.

Eli'zaville, in *New York*, a post-village of Columbia co., abt. 42 m. S. by W. of Albany.

Elk, *n.* [A.S. *elch*; Gr. *alke.*] (*Zoöl.*) See DEER and MOOSE.

Elk, in *Iowa*, a township of Clayton co.

—A post-office of Buena Vista co.

—A township of Delaware co.

Elk, in *Michigan*, a post-office of Saginaw co.

—A township of Sanilac co.

Elk, in *Ohio*, a post-township of Vinton co.

—A township of Noble co.

Elk, in *Pennsylvania*, a N.W. central co.; *area*, 760 sq. miles. *Rivers.* Clarion river, and the Bennetts and Driftwood branches of Sinnemahoning creek. *Surface*, uneven, and in the S. part mountainous, the most elevated part of which is Elk mountain, whence the name of the county. *Soil*, generally fertile. *Cap.* Ridgway. *Pop.* (1890) 22,239.

—A township of Chester co.

—A township of Clarion co.

—A township of Warren co.

Elk, in *West Virginia*, a former P. O. of Pocahontas co.

Elk, in *Wisconsin*, a village of Crawford co.

El Ka'der, in *Iowa*, a post-town, cap. of Clayton co., on C. M. & St. P. R. R., 50 miles W. N. W. of Dubuque; in a dairying and stock-raising region. *Pop.* (1897) about 1,100.

Elk City, in *Idaho*, a post-village of Nez Percés co., on the S. fork of Clearwater river, about 140 miles E. by S. of Lewistown.

Elk City, in *Minnesota*, a village of Sherburne co., abt. 5 m. N.W. of Humboldt.

—A village of Todd co., on the Mississippi River, about 11 m. S. of Fort Ripley.

Elk Creek, in *Indiana*, enters the Muscatatuck River from Washington co.

Elk Creek, in *Iowa*, a thriving township of Jasper co.

Elk Creek, in *Kansas*, a township of Republic co.

Elk Creek, in *Kentucky*, a post village of Spencer co.

Elk Creek, in *Pennsylvania*, a post-township of Erie co., about 20 miles S.W. of Erie.

Elk Creek, in *Va.*, a former P. O. of Grayson co.

Elk Creek, in *Wisconsin*, a P. O. of Trempealeau co.

Elk Cross Roads, in *North Carolina*, a village of Ashe co., about 200 W.N.W of Raleigh.

Elk Dale, in *Pennsylvania*, a P. O. of Susquehanna co.

Elk Ford, in *Iowa*, a village of Jones co., about 35 m. N.E. of Iowa City.

Elk Grove, in *California*, a post-village of Sacramento co., abt. 18 m. S.E. of Sacramento.

Elk Grove, in *Illinois*, a post-township of Cook co., abt. 22 m. N.W. of Chicago.

Elk Grove, in *Wisconsin*, a village of Iowa co., abt. 40 m. W. by S. of Madison.

—A post-village and township of Lafayette co., abt. 20 m. N. of Galena.

El-khargeh, (*kar'gai,*) a town of Upper Egypt, the cap. of the Great Oasis; Lat. 25° 28′ N., Lon. 36° 40′ E. *Pop.* 6,000.

Elk'hart, in *Illinois*, a thriving township of Logan co.

Elk'hart, or ELKHART CITY, in *Illinois*, a post-village of Logan co., abt. 17 m. N.N.E. of Springfield.

Elk'hart, in *Indiana*, a N. co., bordering on Michigan; *area*, abt. 465 sq. m. *Rivers.* St. Joseph's and Elkhart rivers. *Surface*, undulating; *soil*, fertile. There are

several lakes in the N. part, the largest of which is 2½ m. in circumfercuce. *Cap.* Goshen. *Pop.* (1890) 39,201.
—An important city of Elkhart co., on the St. Joseph river and 3 lines of R.R., 15 m. E. of South Beud. Has good water-power and exteusive manuf., including paper, flour, starch, &c. *Pop.* (1897) abt. 15,200.
—A township of Noble co.
Elk'hart, in *Iowa*, a post-town of Polk co.
Elk'hart, in *Wisconsin*, a post-village of Sheboygan co., abt. 12 m. S.W. of Sheboygan.
Elk'hart River, in *Indiana*, rises in Noble co., and flowing N.W., enters the St. Joseph iu Elkhart co. Length abt. 150 m.
Elk'horn, in *California*, a township of San Joaquin co.
Elk'horn, iu *Illinois*, a thriving township of Brown co.
—A township of Carroll co.
—A post-village of Logan co.
Elk Horn, in *Iowa*, a post-office of Shelby co.
Elk Horn, in *Kansas*, a township of Lincoln co.
Elk'horn, in *Missouri*, a village of Montgomery co., abt. 90 m. N.E. of Jefferson City.
—A village of Ray co., abt. 160 m. N. of Jefferson City.
Elk'horn, in *Wisconsin*, a post-village and township, cap. of Walworth county, about 40 miles W. of Racine.
Elk'horn City, in *Nebraska*, a post-vill. of Douglas co., on the Elkhoru River, abt. 25 m. W.N.W. of Omaha City.
Elkhorn River, in *Kentucky*, rises in Fayette co., and flowing N.W., euters the Kentucky River in Franklin co.
Elkhorn River, in *Nebraska*, rises in Holt co., and traversing Madison, Stanton, Cumming, Dodge, and Douglas cos., enters the Nebraska, or Platte, River abt. 30 m. above its junction with Missouri River.
Elk Lake, in *Pennsylvania*, a P.O. of Susquehanna co.
Elk'land, in *Michigan*, a post-township of Tuscola co., abt. 40 m. E. of Bay City.
Elk'land, in *Pennsylvania*, a township of Sullivan co.
—A post-village and township of Tioga co., abt. 16 m. N. of Wellsborough.
Elk Lick, in *Missouri*, a village of Pike co., abt. 82 m. N.E. by N. of Jefferson City.
Elk Lick, in *Pennsylvania*, a post-township of Somerset co.. abt. 17 m. S. of Somerset.
Elk Mills, in *Tennessee*, a post-office of Carter co.
Elk Mountain, in *Pennsylvania*, I. In the S. part of Elk co.. a short distance S.E. of Little Toby's creek. II. In the S.E. part of Susquehanna co. Height of the latter abt. 2,000 feet.
Elk Point, in *South Dakota*, a post-village, cap. of Union co., 20 m. N.W. of Sioux City, Ia. *Pop.* (1897) abt. 1,100.
Elk'port, in *Iowa*, a post-village of Clayton co., about 80 ui. N. by E. of Iowa City.
Elk Rapids, in *Michigan*, a thriving post-township of Antrim co., on Grand Traverse Bay, 18 m. N.E. of Grand Traverse. Has saw-mills, chemical factory, blast furnace, &c. *Pop.* (1894) 1,514.
Elk Ridge Landing, in *Maryland*, on the Patapsco river, abt 7 m. S.W. of Baltimore. Now a sub-station of Baltimore P. O.
Elk River, in *Iowa*, a post-village and township of Clinton county, about 40 miles N.N.E. of Davenport.
Elk River, in *Minnesota*, a post-village and township, cap. of Sherburne co., on Elk River.
Elk (or Cowskin) **River,** in *Missouri* and *Indian Territory*, rises in McDonald co. of the former State, and flowing S.W., enters the Neosho River in Indian Torritory.
Elk River, in *Pennsylvania* and *Maryland*, formed by the Big and Little Elk crecks, which rise in Chester co. of the former State, and unite in Cecil co., Maryland. Flowing S.W., it enters the Chesapeake Bay about 8 m. S.E. of Havre-de-Grace.
Elk River, in *Tennessee* and *Alabama*, rises on the N.W. slope of the Cumberland Mountains in Grundy co. of the former State, and flowing S.W. into Alabama, euters the Tennessee River from Limestone co.
Elk River, in *W. Virginia*, rises on the W. slope of the Greenbrier Mountain in Pocahontas co., and flows generally W. to the Great Kanawha River, which it enters at Charleston in Kanawha co.
Elk River Station, in *Minnesota*, in Sherburne co. See Elk River, Minu.
Elk Run, in *Ohio*, a township of Columbiana county.
Elk Run, in *Pennsylvania*, a post-office of Tioga co.
Elk Run, in *Virginia*, a post-office of Fauquier co.
Elk Spring, in *Kentucky*, a former post-office of Warren county.
Elk Spring, in *Missouri*, a village of Pike co.
Elk'ton, in *Illinois*, a village of Crawford co., abt. 130 m. S.E. of Springfield.
Elkton, in *Kentucky*, a post-village, cap. of Todd co., on Elk creek.
Elkton, in *Maryland*, a thriving manuf. town, capital of Cecil county, on the Elk river, at the confluence of its two branches. *Pop.* (1897) abt. 2,600.
Elkton, in *Minnesota*, a village of Carlton co., about 40 m. S.W. of Superior City.
Elkton, in *Missouri*, a post-village of Hickory co., abt. 100 m. S.W. of Jefferson City.
Elkton, in *Ohio*, a post-village of Columbiana co., abt. 159 m. N.E. of Columbus.
Elkton, in *Oregon*, a post-village of Douglas co., on the Umpqua River, about 36 m. N.N.W. of Roseburg.
Elkton, in *Tennessee*, a post-village of Giles co., ou Elk River, about 87 m. S. of Nashville
Elkton, in *Wisconsin*, a village of Dunn co., on the Chippewa River, about 17 m. S.E. of Menomonie.
Elkview, in *Pennsylvania*, a P. O. of Chester co.
Elkville, in *Illinois*, a post-office of Jacksou co.
Elkville, iu *N. Carolina*, a village of Caldwell co.
Ell, *n.* [Sax. *elne, el, elle;* Lat. *ulna*, from Gr. *ōlenē*, the elbow, the arm; W. *elin*, an angle, an elbow.] A measure of length, said to have been originally the length between the ends of the extended arms, or a fathom. The English ell is 45 iuches, or 5 quarters; the Scotch ell, 37·2 English iuches; and the Flemish ell is 27 inches, or 3 quarters.
Ellag'ic Acid, *n.* [Formed from Fr. *galle*, gall reversed.] (*Chem.*) An insoluble acid fonnd as a gray crystalline powder during the preparation of gallic acid. It is found as a product of animal life in certain intestinal concretions or *bezoars* (q. v.) occurring in the antelopes of Central Asia.
El'lagite, *n.* (*Min.*) Ferrifcrous Natiolite, *q. v.*
El'laville, in *Georgia*, a post-village, cap. of Schley co., about 44 m. E.S.E. of Columbus.
Elleb'orine, *n.* (*Chem.*) An acrid resin obtained from the *Helleborne hyemalis*.
El'lenborough, in *West Virginia*, a post-village of Ritchie co., about 37 m. E. of Parkersburg.
El'lenborough, in *Wisconsin*, a township of Grant co., about 20 m. N. of Dubuque.
—A post-village of Grant co., on Platte River, about 7 m. S.E. of Lancaster.
El'lenburgh, in *New York*, a post-town of Cliuton co., about 150 m. N. of Albany.
El'lenburgh Centre, in *New York*, a post-office of Clinton co.
El'lendale, in *North Dakota*, a small but growing city, cap. of Dickey co., on Nor. Pac. aud Gt. Nor. R.Rs. *Pop.* (1897) abt. 1,000.
El'lengowan, in *Maryland*, a P. O. of Baltimore co.
Elleno'rah, in *Missouri*, a post-office of Gentry co.
El'lensburg, in *Washington*, a thriving city, cap. of Kittitas co., on Nor. Pac. R.R., 126 m. E. of Tacoma; trade center of a large mining district and rich agricultural region. *Pop.* (1897) abt. 3,400.
El'lenville, in *New York*, a post-village of Ulster co., about 80 m. S.S.W. of Albany.
El'lerslie, in *Georgia*, a post-village of Harris co., abt. 14 m. N.E. of Columbus.
El'lerslie, in *Pennsylvania*, a village of Susquehanna co., about 140 m. N.N.E. of Harrisburg.
El'lery, William, one of the signers of the American Declaration of Independence, b. at Newport, R. I., 1727. He was appointed by President Washington collector of his native town, and held this office till the end of his long life. D. 1820.
El'lery, in *Illinois*, a village of Stephenson co.
El'lery, in *New York*, a post-village and township of Chautauqua co., on Chautauqua Lake, about 55 m. S.S.W. of Buffalo.
El'letsville, or Ellittsville, in *Indiana*, a post-village of Monroe county, about 7 miles N.W. of Bloomington.
El'licott, in *New York*, a township of Chautauqua co., on Chautauqua Lake.
—A post-office of Erie co.
El'licott City, in *Maryland*, a post-town, cap. of Howard co., on the Patapsco river, about 12 m. W. by S. of Baltimore. A portion of the town extends into Baltimore county. *Pop.* (1897) abt. 1,600.
El'licottsville, in *New York*, a post-village and township of Cattaraugus county, on the Great Valley creek, about 400 miles W. of Albany.
El'lijay, in *Georgia*, a post-village, cap. of Gilmer co., on the river of the same name, about 171 m. N.W. of Milledgeville.
El'lijay River, in *Georgia*, rises in Gilmer co., and enters the Coosawattee at the village of Ellijay.
El'lington, in *Connecticut*, a post-village and township of Tolland county, about 20 miles N.E. of Hartford.
El'lington, in *Illinois*, a township of Adams county.
El'lington, in *Iowa*, a post-office of Hancock co.
El'lington, in *Michigan*, a post-township of Tuscola county, on Cass River, about 95 miles N. of the city of Detroit.
El'lington, in *Minnesota*, a post-village and township of Dodge co., abt. 16 m. S.E. of Faribault.
El'lington, in *New York*, a post-twp. of Chautauqua co., about 25 m. E. of Maysville.
El'lington, in *Wisconsin*, a village and township of Outagamie county, about 36 miles W. by S. of Green Bay.
El'lingwood's Corners, in *Maine*, a post-office of York co.
El'liot, in *Maine*, a post-village and township of York co., about 45 m. S.W. of Portland.
El'liott, in *California*, a post-village and township of San Joaquin county, about 22 miles N. by E. of Stockton.
El'liott, in *Iowa*, a post-township of Montgomery co.
Elliot'ta, or Eliota, in *Minnesota*, a village of Fillmore co., about 14 m. S.E. of Preston.
El'liottsburgh, in *Penna.*, a P. O. of Perry co.
El'liottstown, in *Penna.*, a P. O. of Cumberland co.
El'liottsville, in *Ohio*, a village of Jefferson co., on the Ohio river, about 145 m. E. by N. of Columbus.
El'liottsville, in *Penna.*, a post-office of Fayette co.
Ellipse, *n.* [Fr., from Gr. *illeipsis*, an omissiou or defect, from *elleiptō*, to leave out, to omit, to pass by, from *ec*, and *leipō*, to leave—so called from being defective in one of its properties as compared with the parabola.] (*Geom.*) A figure of an oval shape, representing approximately the shape of the planetary orbits. It is a curve of the second order, and is a conic section, formed by cutting a right cone by a plane passing obliquely through its opposite sides. The section of a cone formed by a plane passing through it at right angles to its axis is a

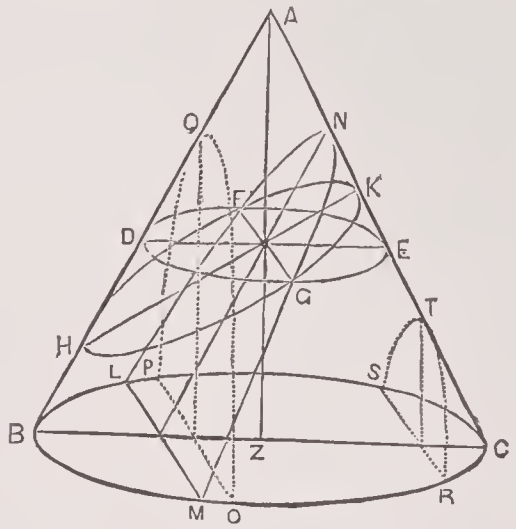


Fig. 932.

circle. If the plane cuts the cone in a direction parallel to its surface, the conic section so formed is a *parabola;* but any section formed by the passage of a plane through the cone at any angle to its axis between a right angle and the angle at which the surface of the cone is inclined to the base, is an *ellipse.* To make this clear, let A B C (Fig. 932) represent a cone; any section of this cone at right angles to the axis A Z, or parallel to the base, as the section D F E G, will be seen at once to be a circle. Let the plane passing through the cone in the section D F E G be now supposed to revolve about F G, a diameter of the circle D F E G, as about an axis, auy section of the cone, as H F K G, made in its revolution from its original position when it was at right angles to the axis, until it assumes a position L F N G M, parallel to the surfaco of the cone, is an ellipse. The section of the cone formed by the last-named portion of the plane is a *parabola.* When the cutting plane is in a direction parallel to the axis, as O Q P or R T S, the curve thus formed is a *hyperbola.* In Fig. 933, C F D G represents a perfect ellipse. The points A and B are called its foci, C D its greater axis, and F G its lesser axis. C is its centre, and the fraction represented by E B as the numerator, and E D as the denominator, its eccentricity. The lines drawn from any point iu the circumference to the

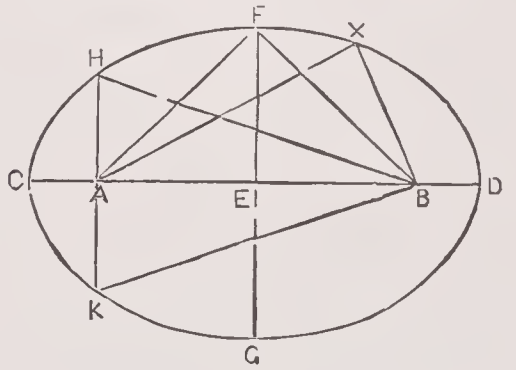


Fig. 933.

foci are termed the focal distances of that point, and the sum of these is the same for every point in the circumfereuce, since the curve is generated by the revolution of a point controlled by a cord, equal in length to the greater axis C D, and fastened at the ends to the foci A B; thus, AC+CB=AH+HB=AF+FB=AX+XB, &c. The line drawn through either of the foci parallel to the lesser axis, as H K, is called the *latus rectum* of the ellipse.—There are various contrivances for describing an ellipse, called ellipsographs or *elliptic compasses.* The simplest method of description is to fix on a plane the two ends of a thread with pins in the foci, and make a pencil move on the plane, keeping the thread constantly stretched. The end of the pencil will trace an ellipse, whose major axis is equal to the length of the thread.
Ellip'sis, *n.*; *pl.* Ellipses. [Gr. *elleipsis.* See Ellipse.] Defect; omission; an ellipse.
(*Gram.* and *Rhet.*) The omission of a word necessary to complete the expression or sentence in its usual form; as, "The house we saw," instead of "The house *that* we saw." The object of *E.* is shortness and impressiveness; accordingly it prevails in proverbs.
(*Printing.*) Applied to various marks used to denote the omission of letters or words, thus, [—] [***] [.....].
Ellip'sograph, *n.* [From Lat. *ellipsis*, and Gr. *graphein*, to write.] (*Geom.*) An instrument for describing an ellipse.—See Ellipse.
Ellip'soid, *n.* [Fr. *ellipsoide*, from Lat. *ellipsis;* Gr. *elleipsis*, and *eidos*, form.] (*Geom.*) A surface of the second order, which is cut by every plane in an ellipse. The most interesting species is called the *Spheroid*, q. v., from the fact of the form of the earth being spheroïdal
Ellip'soid, Ellipsoid'al, *a.* Relatiug to, resembling, or shaped as, an ellipsoid.

Ellip'tic, or **Ellip'tical,** *a.* [Gr. *elleipticos.*] (*Geom.*) Pertaining to an ellipse; having the form of an ellipse.

(*Gram.* and *Rhet.*) Having parts or words omitted; as, an *elliptical* sentence.

Ellip'tically, *adv.* Accordiug to the figure called an ellipse.

(*Gram.* and *Rhet.*) With a part omitted.

Elliptic Compasses, *n.* (*Geom.*) A name given to various contrivances for describing an ellipse by continued motion. — See Ellipse.

Elliptic'ity, *n.* Quality of being elliptical; deviation from the form of a sphere or circle. (Applied to the figure of the earth.)

Elliptic-lan'ceolate, *a.* (*Bot.*) Having a form between elliptic and lanceolate.

Ellip'tograph, *n.* Same as Ellipsograph.

El'lis, in *Kansas*, a city of Ellis co. *Pop.* (1890) 1,017.

El'lis, in *Texas*, a N. E. central county; *area*, 950 sq. m. *Rivers.* Trinity river. *Surface*, diversified; *soil*, fertile. *Pop.* (1890) 31,774. *Cap.* Waxahachie.

El lis, in *Wisconsin*, a post-office of Portage co.

El'lisburgh, in *Indiana*, a village of La Grange co., about 150 m. N.N.E of Indianapolis.

El'lisburgh, in *New Jersey*, a post-village of Camden co., about 6 m. S.E. of Camden.

El'lisburgh, in *New York*, a post-village and township of Jefferson co., on Lake Ontario, about 16 m. S.W. of Watertown.

Ellisburgh, in *Pennsylvania*, a P. O. of Potter co.

El'lis Grove, in *Illinois*, a P. O. of Randolph co.

El'lis Island, in *New York*, abt. 1 m. below the city, in New York Bay. Here is located the principal immigration station of the port of New York.

El'lison, in *Illinois*, a post-township of Warren co.

El'lis River, in *New Hampshire*, enters the Saco river from Coos co.

El'liston, in *New York*, a village of Onondaga co., abt. 140 m. W. by N. of Albany.

El'liston, in *Ohio*, a post-village of Ottawa co.

El'listown, in *Mississippi*, a village of Pontotoc co., about 45 m. S.E. of Holly Springs.

El'lisville, in *Illinois*, a post-village and township of Fulton co., on Spoon River, about 45 m. W. by S. of Peoria.

El'lisville, in *N. Carolina*, a P. O. of Bladen co.

El'lisville, in *Mississippi*, a post-village, cap. of Jones co., on Tallahalla River, about 144 m. S.E. of Jackson.

El'lisville, in *Missouri*, a village of St. Louis co., abt. 22 m. W. of St. Louis.

El'lisville, in *Virginia*, a post-village of Louisa co., about 60 m. N.W. of Richmond.

El'lisville, in *Wisconsin*, a P. O. of Kewaunee co.

Ello'ra, Elora, or Eluru, a village of Hindostan, in the Nizam's dom., prov. Aurungabad, in abt. Lat. 19° 58′ N., Lon. 72° 23′ E.; celebrated for some remarkable cave temples, excavated in the solid rock, which in magnitude and perfection surpass all other constructions of the kind in India. The greatest and most splendid is the *Kylas*, or "Paradise" (Fig. 934), a pagoda consecrated to Siva, 100 ft. high, surrounded by five chapels



Fig. 934. — Temple of Kylas ("the Paradise").
(Ellora.)

nearly similar in form; the whole, together with the area in which they are situated, being excavated in the solid rock, and covered with sculpture from top to bottom, both within and without. The extreme depth of the excavation is 401 feet; the area itself is 323 feet in depth, by 186 feet in its greatest breadth.

Ells'worth, in *Connecticut*, a post-village of Litchfield co., about 50 m. W. by N. of Hartford.

Ells'worth, in *Kansas*, a central co.; rolling prairie and fertile soil; very little timber. *Area*, 729 sq. m. *Pop.* (1890) 8,873. *Cap.* Ellsworth.

—A city, cap. of above co., 66 m. E. of Hayes City; in grain and live stock region. *Pop.* (1897) about 1,600.

Ells'worth, in *Iowa*, a post-town of Hamilton co.

Ells'worth, in *Maine*, a city, port of entry, and the cap. of Hancock co., on both sides of the Union river, which is navigable and empties into Frenchman's Bay about 4 m. below this point. *E.* is one of the best commercial cities in the State; its exports of timber are considerable, and it carries on cod and mackerel fisheries. *Pop.* (1897) about 5,000.

Ells'worth, in *Minnesota*, a post-village of Nobles co.

Ells'worth, in *Missouri*, a village of Texas co., about 85 m. S. by E. of Jefferson City.

Ells'worth, in *New Hampshire*, a township of Grafton co., about 50 m. N. N.W. of Concord.

Ells'worth, in *Ohio*, a post-village and township of Mahoning county, about 165 m. N. E. of the city of Columbus.

Ells'worth, in *Wisconsin*, a post-village, cap. of Pierce co. *Pop.* (1897) about 900.

Ells'worth Falls, in *Maine*, a village of Hancock co., about 30 m. S.E. of Bangor.

Ell'well, in *Pennsylvania*, a post-office of Bradford co.

Ell'wood, Thomas, an English minister of the Friends, b. at Crowell, 1639. He was bred in the tenets of the Church of England, but was induced to join the Quakers, through which he lost the favor of his father. He became reader to Milton, and turned to good account the opportunity thus afforded him of making up for the deficiencies of his early education. *E.* suffered imprisonment for his religion, and wrote a number of books in its defence. He also edited George Fox's Journal, and published a history of the Old and New Testaments; a sacred poem on the life of David, &c. During the raging of the plague in London, in 1665, he obtained a retreat for Milton at Chalfont; and here he is said first to have suggested the idea of the "Paradise Regained." D. 1713.

Ell'wood, or Elwood, in *Illinois*, a post-village of Will co., about 9 m. S. by W. of Joliet.

Ell'wood, in *Maryland*, a P. O. of Dorchester co.

Ell'wood, in *Pennsylvania*, a P. O. of Schuylkill co.

Elm, *n.* [Sax. *ellm*; Du. *olm*; Ger. *ulme*; Dan. *ælm, alm*; Icel. *álmer*; Lat. *ulmus.* Etym. unknown.] (*Bot.*) A well-known tree, several species of which are valuable for their timber. See Ulmus.

Elm, in *Missouri*, a township of Putnam co.

Elm, in *Michigan*, a post-office of Wayne co.

Elm, in *Minnesota*, a post-office of Jackson co.

El'ma, in *New York*, a post-township of Erie co., 10 m. E. S. E. of Buffalo. *Pop.* (1897) about 2,250.

El'ma, in *Washington*, a post-town of Chehalis co., about 15 m. E. of Montesano.

Elm Branch, in *Missouri*, a village of Lawrence co.

Elm Creek, in *Texas*, enters the Nueces river in Dimmit co.

Elmendar'o, in *Kansas*, a village of Lyon co., about 15 m. S. E. of Emporia.

El'mer, in *New Jersey*, a post-town of Salem co., 126 m. S. of Camden; has manuf. interests. *Pop.* (1897) abt. 1,400.

Elm Grove, in *Illinois*, a post-office of Adams co.

Elm Grove, in *Iowa*, a flourishing township of Louisa county.

—A village of Marion co., abt. 88 m. W. S.W. of Iowa City.

Elm Grove, in *Massachusetts*, a P. O. of Franklin co.

Elm Grove, in *Missouri*, a village of Clay co., on Smith's Fork of Platte River, 28 m. N. by W. of Independence.

Elmi'na, (St. George del Mina,) a seaport-town of W. Africa, in Ashantee, former cap. of the Dutch settlements, and burned by the English in 1873 during the Ashantee war. *Pop.* 10,000.

Elmira, in *New York*, a city, cap. of Chemung co., 160 m. W.S.W. of Albany and 275 m. W.N.W. of New York by rail. It is handsomely laid out in a broad and fertile valley. The Chemung canal connects it with Seneca lake, the Junction canal with central Pennsylvania, and the Erie and Northern Central railroads with New York, Philadelphia, &c. Newtown creek furnishes abundant water-power. There are rolling-mills and other iron works, manuf. of boots and shoes, flour-mills, breweries, &c. Here are located a State Reformatory and the Elmira Female College. The city is handsomely laid out and contains many beautiful residences and several fine parks; has an excellent fire department and water system, and an extensive and growing trade. *Pop.* (1897) about 35,000.

El'mo, (Fire of St.,) *n.* A name given to the meteor known as Castor and Pollux, *q. v.*

El Monte, (*el mon'tā,*) in *California*, a village and township of Los Angelos county, about 13 miles E. of Los Angelos.

El'more, Alfred, a.r.a., a distinguished Irish artist, b. at Clonakilty, Cork, 1816. Among his works, which are numerous, we may specify *The Inventor of the Stocking-loom; Lenore; On the Housetops*; *Two Women at the Mill.* The last three were at the "Centennial" Exhib. (Philadelphia, 1876). His methods of handling and coloring were extremely refined and delicate. D. 1881.

El'more, *Geo.* a vill., of Talbot co., about 62 m. W. of Macon.—In *Ill.*, a p.-vill. of Peoria co., about 30 m. N.W. of Peoria.—In *Ind.*, a twp. of Daviess co.

Elmore, in *Minnesota*, a post-township of Faribault co., about 5 m. S. of Blue Earth City.

Elmore, in *Nebraska*, a former P. O. of Richardson co.

Elmore, in *Ohio*, a post-village of Ottawa co., on Portage river, about 17 m. S. E. of Toledo. *Pop.* 1,200.

Elmore, in *Vermont*, a post-town and township of Lamoille co., about 17 m. N. by E. of Montpelier.

Elm Point, in *Illinois*, a former post-office of Bond co.

Elm River, in *Illinois*, enters the Little Wabash in Wayne co.

Elms'ford, in *New York*, a post-office of Westchester county.

Elms'horn, a town in Germany, in Holstein, on the Elbe, 10 m. from Glückstadt. *Pop.* (1895) 6,700.

Elm Springs, in *Arkansas*, a post-village of Washington co., about 212 m. N.W. of Little Rock.

Elm Springs, *Iowa*, a post-office of Sioux co.

Elm Tree, in *Tennessee* a post-office of Weakley co.

Elm'wood, in *Illinois*, a post-town of Peoria co., about 23 m. W. by N. of Peoria. Industries are coal mining and paper making. *Pop.* (1897) about 2,000.

Elm'wood, in *Michigan*, a post-township of Tuscola co., about 22 m. N. E. of Vassar.

Elmwood, in *Missouri*, a post-village of Saline co., about 30 m. E. S. E. of Lexington.

Elmwood, in *Nebraska*, a post-village of Cass co.

Elm'y, *a.* Abounding with elms.

El Obeid, (*el o'baid,*) the cap. of Kordofan, Africa, 230 m. from Sennaar. *Exp.* Gold, hides, ivory, gum-arabic, and slaves. *Pop.* 30,000.

Eloc'ular, *a.* [Lat. *e*, without, and *loculus*, cell, compartment.] (*Bot.*) That has but one cell; unilocular.

Eloen'tion, *n.* [Fr. *élocution*; Lat. *elocutio*, from *eloquor, elocutus* — *e, ex*, and *loquor*, to speak.] A speaking out; distinct utterance; the utterance or delivery of words, particularly in public discourses and arguments; manner of speaking; management of the voice in speaking; oral expression; pronunciation; delivery. — See Delivery, and Rhetoric.

Eloen'tionary, *a.* Pertaining to elocution, or containing it.

Eloen'tionist, *n.* One who is versed in elocution, or who treats of the subject.

Éloge', *n.* [Fr., from Lat. *elogium*, a short saying, an inscription on a tombstone, from *logus*, Gr. *logos*, speech, from *legein*, to speak; It. *elogio.*] This word, which, literally, denotes praise, is more particularly applied to orations delivered in honor of a deceased person. When a member of the French Academy dies, it is the custom for his successor to deliver a panegyrical oration, setting forth his labors and merits. These éloges are generally printed and published, and some of them form eloquent and valuable contributions to literature.

Elo'gium, or **El'ogy,** *n.* [Fr. *éloge*; Lat. *elogium.* See Eulogy.] An utterance; a short saying or maxim; the praise bestowed upon a person or thing; panegyric; an eulogy.

Elo'him, *n.* [Heb.] One of the names given to God in Scripture.

Elohis'tic, *a.* (*Scrip.*) Applied to those parts in the Old Testament, where the word *Elohim* is used instead of *Jehovah.*

Eloign, (*e-loin',*) *v. a.* [O. Eng. *eloigne*; Fr. *éloigner*, from L. Lat. *elongare.*] To put at a distance; to remove far from another; — written also *eloin.* (R.)

El'on, the twelfth judge of Israel, and the second after Jephthah, succeeded Ibzan about A. M. 3830; he was descended from the tribe of Zebulun, and after governing the republic for the space of ten years, died A. M. 3840, or, according to the nearest computation, B. C. 1167.

El'on, in *Iowa*, a post-office of Allamakee co.

Elon'gate, *v. a.* [L. Lat. *elongo, elongatus* — *e, ex*, and *longus*, long.] To lengthen; to extend; to remove further off.

Elon'gate, Elon'gated, *a.* (*Bot.*) Applied to any part in a plant which exceeds the common proportional length by its breadth.

Elon'gated, *p. a.* Lengthened; removed to a distance.

Elonga'tion, *n.* [Fr.] Act of stretching or lengthening; state of being extended; distance; space which separates one thing from another; extension; continuation.

Elonga'tion, *n.* (*Astron.*) [Lat. *e*, and *longus*, long.] The apparent angular distance of a planet from the sun. The greatest *E.* of Mercury is about 28½°; that of Venus, about 47° 48′. The *E.* of the superior planets may have any value from 0° to 180°.

(*Surg.*) An incomplete luxation, in which the ligaments of an articulation are stretched, and the limb lengthened, without total luxation.

Elope', *v. i.* [Sax. *hleápan*, to leap. See Leap.] To start away; to run away; to quit one's station, without permission or right; to escape privately; to run away from a husband with another man, or to quit a father's or guardian's house privately with a gallant.

Elope'ment, *n.* Act of eloping; private or unlicensed departure from the place or station to which one is assigned by duty or law, particularly of a wife from her husband, or a daughter or ward with a gallant.

El'ops, *n.* [Lat. *elops, ellops, helops*; Gr. *elops, ellops*, originally signifying mute.] (*Zoöl.*) The Sein-fish, or Sea galley-wasp of the W. Indies, a small fish about 15 inches long, and of a silvery-gray color.

El'oquence, *n.* [Fr. *éloquence*, from Lat. *eloquentia*, from *eloquor, eloquens* — *e, ex*, and *loquor*, to speak.] A speaking out; the force of speaking; power, beauty, and appropriateness of language; the expression of strong emotions in a manner adapted to excite similar emotions in the minds of others. — The art of clothing the thoughts in the most suitable expressions, in order to produce conviction or persuasion. — See Rhetoric.

—In its primary signification, *E.* had reference to public speaking alone; but as most of the rules for public speaking are applicable equally to writing, the word was extended to both.

El'oquent, *a.* [Fr. *éloquent*; Lat. *eloquens.*] Relating to or having eloquence; having the power of oratory; having the power of fluent and elegant speech; having the power of expressing truth or strong emotions in a vivid and appropriate manner; adapted to express truth or strong emotion with elegance and power.

El'oquently, *adv.* With eloquence; in an eloquent manner.

El'ora, a village of Hindostan. See ELLORA.

El'ora, a village of prov. of Ontario, co. of Wellington, at the junction of the Irvine and Grande rivers, abt. 12 m. N. W. of Guelph. *Pop.* 1,498.

El Pas'o, or EL PASO DEL NORTE, or EL PASSO, a line of settlements, abt. 10 m. in length, extending along a fertile and narrow valley upon the Rio Grande, in the Mexican State of Chihuahua, about 350 m. S. by W. of Santa Fé. It is the principal thoroughfare between New Mexico and Mexico. *Pop.* (1897) abt. 5,000.

El Paso, in *Colorado*, an E. central co.; *area*, about 2,660 sq. m. *Rivers*, Squirrel creek, and other small tributaries of the Arkansas river. *Surface*, generally mountainous, the most elevated point being Pike's Peak, in the W. part, which is 14,147 feet high. *Soil*, in some parts fertile. *Min.* Gold. *Cap.* Colorado Springs. *Pop.* (1890) 21,239.

El Paso, in *Illinois*, a city of Woodford co., about 18 m. N. of Bloomington. *Pop.* (1890) 1,353.

El Paso, in *Missouri*, a village of Atchison co., about 75 m. N. N. W. of St. Joseph.

El Paso, in *Texas*, a W. co., bordering on Mexico and New Mexico; *area*, 9,750 sq. m. *Cap.* El Paso. *Pop.* (1890) 15,678.

—A city, capital of El Paso county, on the Rio Grande, opposite El Paso in Mexico. *Pop.* (1897) abt. 12,500.

El Paso, in *Wisconsin*, a post-village and township of Pierce co., on Rush river, about 22 m. E. of Prescott. *Pop.* (1897) about 950.

El Pen'on, a fortified elevation, about 8½ m. E. of the city of Mexico, to which it commands the E. approach.

El'phin, a town, parish, and bishop's see, of Connaught, co. of Roscommon, Ireland, about 17 m. W.N.W. of Longford. Ballyoughter, in the vicinity, is the reputed birthplace of Oliver Goldsmith. *Pop.* of parish about 1,600.

El Rosa'rio, a town of Mexico, State of Cinalon, abt. 55 m. E.N.E. of Mazatlan; *pop.* abt. 5,000.

El'roy, in *Wisconsin*, a city of Juneau co., on the Baraboo river, 70 m. N.W. of Madison. *Pop.* (1895) 1,560.

El'sah, in *Illinois*, a post-village and twp. of Jersey co.

Else, *a.* or *pron.* [A. S. *elles*, else; O. Ger. *alles*, another; Lat. *alias*, Gr. *allos*, other, not the same.] Other; one or something besides.

—*adv.* Otherwise; in the other case: if the fact were different; besides; except that mentioned.

Else'where, *adv.* In any other place; in some other place; in other places; indefinitely.

Els'fleth, a town of Oldenburg, on the Weser, 12 m. E.N.E. of Oldenburg; *pop.* 12,000.

Elsie, in *Michigan*, a post-office of Clinton co.

El'sinborough, in *New Jersey*, a township of Salem co.

Elsinore, or ELSINEUR, (*el'se-nor.*) a seaport of Denmark, on the E. coast of the island of Zealand, 24 m. from Copenhagen; Lat. 56° 2′ 11″ N., Lon. 12° 36′ 49″ E. It stands in the narrowest part of the Sound, on a declivity inclining towards the shore. It has no harbor, but an excellent roadstead, generally crowded with vessels going up or down the Baltic, and anchoring here to take in stores of some kind or other, the supply of which forms the great traffic of the place. On its N.E. side is the fortress of Kronborg. *Pop.* 11,376. — This town is the scene of Shakspeare's tragedy of "Hamlet," and the vaults of the castle of Kronborg are the fabled residence of Holger Danske, the mythic hero of the Danes. The Sound-dues were here collected from all merchant-vessels, except those of Sweden and Denmark. They were originally instituted for keeping up lights and landmarks on the Cattegat and neighboring coasts. In April, 1857, a treaty was concluded between Denmark and the principal European powers, for the redemption of the Sound-dues.

Els'ler, THERESA, and FANNY, eminent dancers, B. at Vienna, the former in 1808, and the latter in 1811. Though the two sisters almost invariably danced together, the younger was the more celebrated. In 1830 they made their appearance at Berlin, creating an extraordinary sensation. After this, the career of Mdlle. Fanny in particular was one continued ovation, and at Vienna, St. Petersburg, London, and Paris, her receptions were most enthusiastic. In 1841, the two sisters came to this country, where they excited unwonted enthusiasm. In 1851, Fanny E., having amassed a fortune, retired to a villa purchased by her near Hamburg. D. 1884. While Theresa E. contracted a morganatic marriage with Prince Adalbert of Prussia, and D. in 1878.

El'sou's Bay, in *Alaska*, an arm of the Arctic Ocean, a short distance E. of Port Barrow; Lat. 71° N., Lon. 156° W.

Els'ter, two rivers of Germany, one of which, the *White Elster*, rises in Voightland, Bohemia, and falls into the Saale, 3 m. from Halle; the other, called the *Black Elster*, rises 2 m. from Elstra, in Saxony, and falls into the Elbe, 8 m. from Wittenberg.

El'ton, a salt-lake of Russia, 170 m. S.S.E. from Saratov; Lat. 48° 56′ N., Lon. 46° 40′ E.; *area*, 130 sq. m. 100,000 tons of salt are annually obtained from this collection of water. It is at no place more than 15 inches in depth.

El'ton, in *New York*, a post-village of Cattaraugus co., about 300 m. W. of Albany.

El'ton, in *Wisconsin*, a post-office of Langlade co.

El-Tyh, (DESERT OF,) (*el-ti,*) was the place wherein the Hebrews sojourned for 40 years. The name is applied to the peninsula between the gulfs of Suez and Akabah, and Egypt and Palestine.

Elu'cidate, *v. a.* [Fr. *élucider*, from L. Lat. *elucido. elucidatus* — *e*, *ex*, and *lucidus*, clear, bright.] To make clear, bright, or manifest; to free from obscurity; to illustrate; to clear up; to explain.

Elucida'tion, *n.* [Fr. *élucidation.*] Act of elucidating; act of explaining or throwing light on any obscure subject; explanation; illustration; exposition; annotation; comment.

Elu'cidative, *a.* Making clear; explanatory.

Elu'cidator, *n.* One who explains; an expositor.

Elu'cidatory, *a.* Tending to elucidate.

Elude', *v. a.* [Fr. *éluder*; Lat. *eludo*—*e*, *ex*, and *ludo*, to play.] To avoid by artifice, stratagem, wiles, deceit, or dexterity; to baffle; to foil; to evade; to escape; to shun.

Elud'ible, *a.* That may be eluded or escaped.

Elul, *n.* [Heb., from *âlal*, to gather, reap, harvest; Aramaic, *alal.* corn, grain.] The 12th month of the civil Jewish year, and the 6th of the ecclesiastical, answering to a part of August and September.

Elu'sion, *n.* [L. Lat. *elusio.*] Act of eluding; an escape by artifice or deception; evasion.

Elu'sive, *a.* That eludes; practising elusion; using arts to escape; evasive; delusive.

Elu'sively, *adv.* By way of elusion.

Elu'soriness, *n.* State of being elusory.

Elu'sory, *a.* Tending to elude or deceive; evasive; fraudulent; fallacious; deceitful; deceptive.

Elute', *v. a.* [Lat. *eluere*, *elutum*, from *e*, out, and *luere*, to wash.] To wash off; to cleanse; to elutriate.

Elu'triate, *v. a.* [Lat. *elutrio*, *elutriatus*, from *eluo* — *e*, *ex*, and *luo*, *lutum*, to wash.] To purify by washing; to cleanse, as a pulverulent substance, by separating foul matter, and decanting or straining off the liquor.

Elutria'tion, *n.* [Lat. *elutrio*, I cleanse.] (*Chem.*) A process employed for separating substances reduced to powder, when of different specific gravities, by means of water. The materials being placed in a vat of water and kept in a state of agitation, a stream of water flowing through the vat floats away the finer particles, which being allowed to settle in other vats, the water may be run off from the surface. The process is employed in separating metals from their ores, in the manufacture of materials used in pottery, and in the preparation of pigments. Gold-washing is a rough *E.*

El'van, *a.* Relative to elves; elvish.

Elvas, (*ail'vass.*) a strong frontier-town of Portugal, in the province of Alentejo, situate on a rocky hill, not far from the Guadiana, and 10 m. from Badajoz. It is one of the most important strongholds in the kingdom, and has a cathedral, several churches, convents, a college, seminary, hospital, arsenal, and a bomb-proof barracks capable of containing 6,000 or 7,000 men. It is supplied with water by a Moorish aqueduct. — *Manuf.* Jewelry and arms. *Pop.* 18,481. In 1808 it was captured and held for five months by the French.

El'vaston, in *Illinois*, a post-village of Hancock co., abt. 10 m. E. by N. of Keokuk.

El'ver, *n.* (*Zoöl.*) A young Conger, or sea-eel.

Elves, *n.* The plural of ELF, *q. v.*

Elvi'ra, in *Iowa*, a post-village of Clinton co., abt. 9 m. W. of Lyons.

Ely'ish, *a.* Same as ELFISH, *q. v.*

El'win, in *Illinois*, a post-village of Macon co.

El'wood, in *Illinois*, a post-village of Will co., 9 m. S. by W. of Joliet.

Elwood, in *Indiana*, an important town of Madison co., 44 m. N. E. of Logansport. *Pop.* (1897) about 12,000.

Elwood, in *Kansas*, a small city of Doniphan co.

Elwood, in *New York*, a post-office of Suffolk co.

Elwood, in *New Jersey*, a post-village of Atlantic co.

E'ly, a city of England, chief town of the Isle of Ely (see BEDFORD LEVEL), and an episcopal see, 16 m. from Cambridge; noted for its fine cathedral, built between the reigns of William Rufus and Edward III. *Pop.* 7,000.

E'ly, a demesne of Ireland, in Ulster, 4 m. from Enniskillen. It includes several woody islets about the head of Lower Lough Erne.

E'ly, a village of the province of Quebec, co. of Shefford, about 10 m. S. S. E. of Melbourne.

Ely, in *Iowa*, a post-office of Linn co.

Elydor'ic, *a.* [Fr. *éludorique*, from Gr. *elaion*, olive-oil, oil, and *ydor*, water.] Applied to a mode of painting with a vehicle composed of oil and water.

E'ly Lick, in *Missouri*, a village of Ralls co., abt. 78 m. N.N.E. of Jefferson City.

Elymas, (*el'e-mās,*) a Jewish sorcerer of Paphos, in Cyprus. He was struck with instant blindness by St. Paul, for opposing the religious inquiries of the proconsul Sergius Paulus, who was embracing the gospel, (*Acts* xiii. 6–12.)

E'lymus, *n.* [Gr. *elyo*, to fold up; the spike being enveloped in the sheaths in some species.] (*Bot.*) A genus of plants, ord *Graminaceæ*, distinguished by having, spikelets 2 or more at each joint of the rachis, 2–6-flowered; glumes 2, collateral, subequal, subulate; paleæ lanceolate, lower one entire, mucronate or awned; seales ciliate. The principal American species are *E. Virginicus*, The Lime Grass; *E. villosus*, The Rye Grass; and *E. Hystrix*, The Hedgehog Grass.

Elyr'ia, in *Ohio*, a post-village and township, cap. of Lorain co., on the Black river, about 7 m. from Lake Erie and 25 W. S. W. of Cleveland. *Pop.* (1897) about 7,000.

E'lysburg, in *Pennsylvania*, a post-village of Northumberland co., abt. 70 m. N. of Harrisburg.

Elysian, (*e-lizh'yan,*) *a.* [Lat. *elysius.*] Pertaining to Elysium or the seat of delight. — Yielding the highest pleasures; deliciously soothing; exceedingly delightful.

Elysian Fields, in *New York*. See HOBOKEN.

Ely'sium, ELYSII CAMPI, ELYSIAN FIELDS. [Lat. *Elysium*; Gr. *élysion pedion*, the Elysian Fields.] (*Myth.*) The paradise in which the souls of the virtuous after death were rewarded by the enjoyment of perfect bliss. Their notions with respect to the life passed in these happy realms differed at different periods, as did their suppositions regarding the locality in which Elysium was situated. Homer places it in the west, near the ocean, distinct from Hades and Tartarus, or the realms of the dead, and describes it as blest with another sun and stars, enjoying an everlasting summer, refreshed by gentle zephyrs, — exhibiting in fact, but in the utmost perfection, all that is most lovely in earthly scenery, and where translated heroes passed their time in following the pursuits most congenial to their nature. Homer represented the ghost of Achilles as waging war with wild beasts, while other chiefs are recreating themselves by managing horses, or with admiring and handling arms and armor. Hesiod and Pindar place Elysium in the "isles of the blest," on the extreme western verge of Ocean; while Plato, in his "Timæus," relates a legend said to have been narrated to Solon by the Egyptian priests, from which arose the fabulous story of the island of Atlantis, celebrated by poets as the paradise of the souls of the heroic and the just, and which is conjectured to have originated in the glowing accounts given by the first discoverers — most probably the Phœnicians — of either the Azores or of the Canary Isles. Lucian places the Elysian Fields near the moon. Plutarch assigns them to the centre of the earth. Virgil describes them as a separate part of the lower world, or domain of Pluto; and according to others they are situated near the ancient Memphis, in Egypt.

Elysium, (*e-lizh'yum,*) in *Illinois*, a village of McHenry co., abt. 50 m. N.W. of Chicago.

Elysium, or ELYSIAN, in *Minnesota*, a post-village and township of Le Sueur co., about 15 miles E.N.E. of Mankato.

E'lyton, in *Alabama*, a post-village of Jefferson co., about 100 m. N. N. W. of Montgomery.

Elytra, *pl.* of ELYTRON, *q. v.*

Elyt'riform, *a.* [Gr. *elytron*, sheath, and Lat. *forma.*] (*Zoöl.*) Formed like the elytron.

El'ytrine, *n.* (*Chem.*) A substance in the horny covering of insects.

El'ytrocele, *n.* [Gr. *elytron*, sheath, and *cele*, tumor.] (*Med.*) A hernia in the vagina.

El'ytroid, *a.* [Gr. *elytron*, and *eidos*, form.] Formed like a sheath.

El'ytron, Elytrum, *n.*; *pl.* ELYTRA. (*Zoöl.*) The wing-sheaths, or upper crustaceous membranes, which form the superior or top wings of the *coleopterous* and *orthopterous* insects, or those of the different tribes or genera that have sheaths and over-lapping wings. The elytra cover the body of the insect, and protect the true membranous wings.

El'zevir, a distinguished name in the history of literature, borne by a family of printers, remarkable for the choice and beautiful execution of their works. — LOUIS, the first of the family known to biographers, was a bookseller at Leyden, at the close of the 16th cent.—MATTHEW, his son, B. 1565, was a bookseller at Leyden, 1618.—ISAAC, eldest son of Matthew, and first printer of the family, Leyden, 1617–1628. — BONAVENTURE and ABRAHAM, brothers of the preceding, and the most famous of the family, partners at Leyden, 1626–1652. — JOHN, son of Abraham, B. 1622, in partnership with his cousin Daniel. 1652–1654, D. 1661. — DANIEL, the last printer of the family, son of Bonaventure, B. 1617; after the death of John associated with his cousin Louis, who had long flourished at Amsterdam, D. 1680. — The Elzevir edition of the classics, and other works, are still held in high esteem for their correctness and beauty.

Em, a prefix. See EN.

(*Typog.*) The standard letter (M) by the size of which a compositor measures and calculates the amount of his composition. It is assumed to be square.

Ema'ciate, (*ē-mash'e-āt,*) *v. n.* [L. Lat. *emacio, emaciatus* — *e*, *ex*, and *macio*, to make lean, from *macer*, lean, meagre.] To waste away; to become lean; to lose flesh gradually; to decay in flesh.

—*v. a.* To cause to waste away or lose flesh gradually; to waste the flesh of and reduce to leanness.

Ema'ciate, Ema'ciated, *a.* Reduced to leanness by a gradual loss of flesh; thin; lean.

Emaciation, *n.* Act of emaciating, or of making lean or thin in flesh, or a becoming lean by a gradual waste of flesh; state of being reduced to leanness: leanness.

(*Med.*) *E.* or wasting of the body, is a symptom of many chronic and acute diseases, and when rapid and excessive, shows the gravity of the disease. *E.* or wasting of the muscles, is always characterized by an unhealthy pallor of the skin, accompanied by great relaxation of that membrane; the cuticle often hanging in folds.

Em'anant, *a.* [Lat. *emanans.*] Resulting of something else; as, "the *emanant* act of creation." — *Hale.*

Em'anate, *v. n.* [Lat. *emano, emanatus* — *e*, *ex*, and *mano*, to flow; probably, by transposition of letters, from Gr. *nama*, anything flowing, from *naō*, to flow.] To flow out; to issue from a source; to flow from; to proceed from a source or fountain; to flow; to arise; to proceed; to issue; to spring.

—*a.* Issuing out; emanant.

Emana'tion, *n.* [Fr. *émanation*, from L. Lat. *emanatio.*] Act of flowing or proceeding from a fountain-head or origin; that which issues, flows, or proceeds from any source, substance, or body; efflux; effluvium.

(*Phil.*) The doctrine, in the ancient systems of philosophy, which regarded all things as emanating or flowing from the Supreme Being. According to it there was no spontaneous creation, but all things issued necessarily out of the divine fullness without any free action on the part of God. This *E.* from original perfection departs more and more from its source and gradually degenerates, which was thought to account for the origin of evil. This system came from the East, and exerted a powerful influence on the systems of ancient Greece, particularly the Pythagorean. Traces of it are to be found in the Hindoo mythology at the present day. It has been employed in theology to explain the relation-

ship among the persons of the Trinity, the Son and Spirit being regarded as effluxes or emanations from the Father.

Em'anative, *a.* Issuing from another.

Em'anatory, *a.* That emanates; emanation.

Eman'cipate, *v. a.* [Lat. *emancipo*—*e*, *ex*, and *mancipium*, a legal formal purchase among the Romans, by taking a thing in the hand and weighing out the money; a slave, from *manus*, the hand, and *capio*, to take.] To declare free and independent; to set free from servitude; to liberate; to restore from bondage to freedom; to free from bondage or restraint of any kind.

—*a.* Set at liberty; free.

Emancipa'tion, *n.* [Fr. *émancipation*, from L. *emancipatio*, from *mancipo*, I sell, or deliver over the tangible property in anything.] Act of emancipating or setting free from slavery, servitude, subjection, or dependence; deliverance from bondage, slavery, or from civil, or any other restraint; liberation; freedom; release; enfranchisement.

(*Law.*) By the ancient Roman law, the son stood in the relation of a slave to the father. By a fiction of that law, the son might be freed from this relation by being three times sold (*mancipatus*) by the father. Hence the enfranchisement of the son derived from this ceremony the name of *emancipation*. In course of time, various modes of emancipation, both tacit and express, became recognized by the Roman jurisprudence. The word, in countries following that law, signifies the exemption of the son from the power of the father, either by express act, or by implication of law. By the present civil law of France, majority (and with it emancipation) is attained at twenty-one years of age; and the marriage of a minor emancipates him. (*Code Civil*, lib. 1, c. iii.)

(*Hist.*) See SLAVERY.

Emancipa'tionist, *n.* An advocate for the emancipation of slaves.

Eman'cipator, *n.* [L. Lat.] One who emancipates or liberates from bondage or restraint.

Eman'cipist, *n.* A convict who has been pardoned or emancipated; — used in Australia.

Emanuel, (*e-măn'u-el,*) The GREAT, king of Portugal, succeeded John II. in 1495. He was the son of Duke Ferdinand of Visen, grandson of king Edward of Portugal, nephew of king Alfonso V., and cousin of John II. His father, accused of conspiracy against John II., was slain by the latter with his own hand. *E.* restored the nobility to their privileges, and encouraged maritime adventures, by which means a new passage to India was discovered by Gama, and, in 1501, to Brazil by Cabral. Emanuel also sent an expedition to Africa, and established a commercial intercourse with the kingdom of Congo. Soon after his accession he published an edict for the expulsion of the Jews from his kingdom. In the last year of his reign, grieved by the agitation caused in Germany by the preaching of Luther, Emanuel wrote to the elector of Saxony, Frederick the Wise, exhorting him to get rid of that great heresiarch. Emanuel married in succession three wives: the first, Isabella, daughter of Ferdinand and Isabella; the second, Mary, her sister; and the third, Eleanor of Austria, sister of Charles V., who survived him and married Francis I. of France. D. 1521.

Eman'uel, in *Georgia*, a S.S.E. co.: *area*, abt. 1,000 sq. m. *Rivers* Ogeechee River, and Pendleton's, Ohoapee, and Cannonchee creeks. *Surface*, level; *soil*, sandy and generally sterile. *Cap.* Swainsborough.

Emar'ginate, *v. a.* [Lat. *emarginare*, *emarginatum.*] To take the margin or edge from.

Emar'ginate, or EMAR'GINATED, *a.* [Fr. *emarginé*, from Lat. *margo*, an edge.] (*Bot.*) A leaf notched in a peculiar manner at the apex, as in the leaf of boxwood.

(*Min.*) Having all the edges of the primitive form truncated, each by one face.

(*Zoöl.*) Having the margin broken by an obtuse notch on the segment of a circle.

Emar'ginately, *adv.* In the form of notches.

Emargina'tion, *n.* The act of taking away the margin.

Emas'culate, *v. a.* [L. Lat. *emasculo*—*e*, *ex*, and *masculus*, dimin. of *mas*, a male. See MASCULINE.] To unman; to castrate; to geld; to deprive of virility. — To deprive of masculine strength or vigor; to weaken; to render effeminate; to vitiate by unmanly softness.

—*a.* Unmanned; vitiated.

Emasculation, *n.* [Fr. *émasculation.*] Act of emasculating or depriving of virility; castration. — Act of depriving of vigor or strength. — Unmanly weakness.

Emas'culator, *n.* One who, or that which, emasculates.

Emas'culatory, *a.* Tending to emasculate.

Em'aus, in *Pennsylvania*, a post village of Lehigh co., 5 m. S.W. of Allentown.

Em'aus, in *Virginia*, a post-office of Bedford co.

Embale', *v. a.* [Fr. *emballer*—*em*, for *en*, and *balle*, q. v.] To make up into a bundle, bale, or package; to pack.

Embalm', *v. a.* [Fr. *embaumer*—*em*, and *baume*, balm, for balsam. See BALM.] To anoint or preserve with balm; to open a dead body, take out the intestines, and fill their place with odoriferous and desiccated spices and drugs, to prevent its putrefaction; to fill with sweet scent, as the air; to preserve, with care and affection, from loss or decay.

Embalmed', *p. a.* Filled with aromatic spices or plants for preservation; filled with sweet scent; preserved from loss or destruction.

Embalm'er, *n.* One who embalms bodies for preservation.

Embalming, (*em-bäm'ing,*) *n.* [Fr. *embaumer*; Lat. *balsamum*, balm.] The art, invented by the Egyptians, of preserving dead bodies from decay by means of aromatics, antiseptics, or desiccation. *E.* was practised by the ancient Egyptians from the earliest times. It was associated with their religious belief, for they held that the soul, after completing its cycle of separate existences of several thousand years, again returned to the body, and if that were found decayed or wasted, it transmigrated. The invention of the art was ascribed to Anubis, the son of Osiris, who first performed this office to his father: hence, all deceased persons were supposed to be embalmed after the model of Osiris. The process of *E.* is described by Herodotus and Diodorus. The corpse of a male was at once delivered to the embalmers; if a female, it was retained at home until decomposition had begun. A scribe first marked with a reed pen a line on the left side below the ribs; along this line the *paraschistes* or flank-incisor made a deep incision with a rude knife of stone or flint, on which he was pursued with curses and pelted with stones as if he had committed some heinous offence. The *taricheutes*, or preparer, then proceeded to remove the entrails and lungs, leaving the heart and kidneys. The brains were drawn through the nostrils by a crooked iron instrument. The entrails were washed with palm-wine and perfumed, and the cavities were then filled up with myrrh, cassia, and other aromatic drugs. The flank incision was then sewed up, and the body steeped in natron for seventy days, after which it was wrapped in linen bandages anointed with gums. The body thus prepared was put in a wooden coffin, and placed in an upright position either in a sepulchre or in one of their own apartments; for many of them kept their dead at home, and sometimes produced them at festive entertainments. Modern discoveries in the tombs leave no doubt that the intestines were separately embalmed and deposited in four vases in the coffin. This method of *E.* was the most expensive, and adopted only by the wealthy classes. The cost was a talent of silver, or about $1,220. Another and cheaper mode, costing only 20 minæ, about $210, was effected without any incision, by injecting the viscera with oil of cedar, and then steeping the body in natron for 70 days; after which the viscera came away, and nothing remained but skin and bones. The 3d method, used only for the lower classes, was performed by washing the body in myrrh and laying it in salt for 70 days. The success of the art as practised by the ancient Egyptians, is attested by the numerous mummies that are to be seen in all the great museums of Europe and America. All classes among them were embalmed, also the animals which their religion held sacred. Of these upward of 50 species have been found embalmed, among them the ibis, crocodile, cat, &c. The art was practised also by the ancient Jews, Greeks, and Romans, though it never attained such perfection among them as among the people from whom it was borrowed. The Persians employed wax, the Assyrians honey; the Jews embalmed some of their kings with spices, with which also the body of our Lord was anointed; and Alexander the Great was embalmed with wax and honey. It appears that the early Christians embalmed their dead, and, according to St. Augustine, mummies were made in his time, at the end of the 5th century. An elaborate process of embalming was also adopted by the Guanches or ancient inhabitants of the Canary Isles. (See MUMMY.) The art of *E.* was probably never lost in Europe, but the mode of *E.* by injecting into the veins of the body a concentrated solution of sulphate of alumina, discovered by Gannal in 1834, has considerably diminished the cost of *E.* From that time many substances have been experimented on and employed as substitutes for sulphate of alumina for the preservation of dead bodies, one of the most successful being, we believe, sulphate of zinc at different degrees of strength. We know reputed embalmers who make a mystery of their process, and do not use other substances.



Fig. 935.
EGYPTIAN MUMMY.

Embalm'ing, *n.* Act or art of filling a dead body with spices for preservation.

Embalm'ment, *n.* [Fr. *embaumement.*] The act of embalming.

Embank', *v. a.* [*En* or *in*, and *bank.*] To inclose with a bank; to defend with a bank, mound, or dikes.

Embank'ment, *n.* Act of surrounding or defending with a bank; a mound or bank raised for various purposes, as for protecting against inundation, or for the passage of a railway.

Embar', *v. a.* [*En* and *bar.*] To shut, close, or fasten with a bar; to make fast; to inclose so as to hinder egress or escape.

Embar'cadere, *n.* [Fr. *embarcadère.*] A landing-place. (R.)

Embarca'tion, *n.* [Fr.] Same as embarkation.

Embar'go, *n.*; *pl.* EMBARGOES. [Sp. and It. *embargo*, from Sp. *embargar*, to arrest.] An order by the public authorities of a country to prevent vessels leaving or entering its ports. Embargoes are usually imposed only in time of war, or in apprehension of an invasion: in which cases the government employs the ships under *E.* in armaments, expeditions, transportation of troops, &c. Formerly, when it was necessary to conceal important movements from the enemy, an *E.* was laid upon all vessels that might be the means of conveying information. *E.* may also be laid by government upon the ships of its subjects, in order to employ them in its service.

—*v. a.* To hinder or prevent, as ships from sailing for a limited time; to stop. — To hinder from being prosecuted by the departure or entrance of ships.

Embark', *v. a.* [Fr. *embarquer*, from *bark*; It. *imbarcáre*; Sp. *embarcár.*] To put or cause to enter on board a ship or other vessel, or boat.—To engage; to put to risk or venture; to engage, as a person in any affair.

—*v. n.* To go on board of a ship, boat, or vessel. — To engage in any business, or to undertake it; to take a share.

Embarka'tion, *n.* [Fr.] Act of embarking, or of putting or going on board of a ship or other vessel; that which is embarked.

Embar'rass, in *Illinois*, a township of Edgar co. *Pop.* (1897) abt. 1,800.

Embar'rass, in *Minnesota*, a post-office of St. Louis co. *Pop.* abt. 400.

—A post-office of Wanpaca co.

Embar'ras Point, in *Illinois*, a village of Edgar co., abt. 100 m. E. of Springfield.

Embar'ras River, in *Illinois*, rises in Champaign co., and flowing generally S. through Douglas, Coles, and Cumberland cos. to Newton and Jasper cos., turns to the S.E., traverses a part of Crawford co., and enters the Wabash River from Lawrence co.

Embar'ras River, in *Wisconsin*, enters Wolf River from Wanpaca co.

Embar'rass, *v. a.* [Fr. *embarrasser*—*em*, and *barre*, a bar.] To put a bar or difficulty in the way of; to involve in difficulties; to hinder; to perplex; to entangle. — To confuse; to confound; to disconcert; to abash; to distress; to embroil. — To render intricate, perplexed, or entangled.

Embar'rassed, *p. a.* Perplexed; rendered intricate. — Confused; confounded.

Embar'rassing, *p. a.* Perplexing; entangling; confusing; confounding; abashing.

Embar'rassingly, *adv.* In an embarrassing manner.

Embar'rassment, *n.* Act of embarrassing; perplexity; intricacy; entanglement; trouble; distress; anxiety. — Confusion of mind; abashment.

Embase'ment, *n.* Deterioration; debasement. (R.)

(*Med.*) Same as embasis.

Em'basis, *n.* [Gr.] (*Med.*) A bathing-tub or vessel filled with warm water.

Embas'sador, *n.* An AMBASSADOR, *q. v.*

Em'bassage, *n.* Embassy. (O.)

Em'bassy, *n.* [Fr. *ambassade*; Sp. *embaxada*; It. *ambasciáta.* See AMBASSADOR.] The charge, employment, or commission of a public minister, whether ambassador or envoy; the person or persons intrusted with a public or solemn message; any solemn message.

Embathe', *v. a.* [*En* and *bathe.*] To bathe.

Embat'tle, *v. a.* [*En* and *battle.*] To arrange in order of battle: to array troops for battle. — To furnish with battlements.

—*v. n.* To be arranged in order of battle.

Embat'tled, *p. a.* Arrayed in order of battle. — Furnished with battlements. — Having been the place of battle.

(*Her.*) One of the eight crooked or curved lines used in addition to the straight line, in dividing one part of the field from another, or for the outline of any principal ordinary. When this outline, or line of division, is in the form of the battlements of a tower, it is said to be embattled. French heralds use the term *crenelle.*

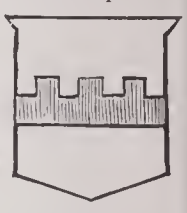


Fig. 936.
EMBATTLED.

Embat'tlement, *n.* Same as BATTLEMENT, *q. v.*

Embay', *v. a.* [*En* and *bay.*] To inclose in a bay or inlet; to landlock; to inclose between capes or promontories.

Embden, or **Emden,** (*em'den,*) a seaport-town of Hanover, being the second in that former kingdom in respect of size and importance, prov. Aurich, on the N. bank of the æstuary of the Ems, or rather of the bay called Dollart, 15 m. S.W. of Aurich. There are ship-building docks. *Pop.* 15,827.

Emb'den, in *Maine*, a post-township of Somerset co., on the Kennebec River, abt. 40 m. N. by W. of Augusta; *pop.* abt. 1,100.

Emb'den Centre, in *Maine*, a post-village of Somerset co., on the Kennebec River, abt. 40 m. N. by W. of Augusta.

Embeam', *v. a.* To clothe or cover with beams of light.

Embed', or IMBED, *v. a.* [*En* and *bed.*] To lay, as in a bed; to lay in surrounding matter.

Embed'ment, *n.* Act of embedding.

Embel'lish, *v. a.* [Fr. *embellir*—*en*, and *belle*; Lat. *bellus*, pretty, handsome, fine, neat, contracted from *benulus*, from *benus* = *bonus*, good.] To make beautiful or elegant by ornaments; to make graceful or elegant, as manners; to adorn: to deck; to decorate; to ornament; to beautify; to illustrate.

Embel'lished, *p. a.* Adorned; decorated; beautiful.

Embel'lisher, *n.* One who embellishes; one who graces with ornaments.

Embellishingly, *adv.* In such a manner as to embellish.
Embel'lishment, *n.* [Fr. *embellissement.*] Act of embellishing or adorning; anything that adds beauty or elegance; ornament; decoration; grace; beauty; elegance.
Em'ber-days, *n. pl.* [Sax. *ymb-ren*, or *ymb-ryne* — *ymb*, about, around, and *ryne*, Goth. *runs*, a course, anniversary.] (*Eccl.*) In the Roman Catholic Church, certain days, first appointed by Pope Calixtus A. D. 220, to be set apart for fasting and prayer, and for imploring the blessing of God on the fruits of the earth, and on the ministers ordained at these times. The *E.D.* occur four times in the year, being the Wednesday, Friday, and Saturday after the first Sunday in Lent; after the Feast of Pentecost or Whitsunday; after the Festival of the Holy Cross, on the 14th of September; and after the Festival of St. Lucia, on the 13th of December. The weeks in which *E. D.* fall are called *ember-weeks.* The Sundays immediately following these seasons are still appointed by the canons of the Church of England for the ordination of priests and deacons. Derivation of the term is doubtful. By some it is derived from the Greek *hemerai*, days; by others from the Saxon *ymbrea*, a circle or revolution. Others still, connect the term with the A. Sax. *æmyrian*, (Dan. *emmer*,) in the sense of ashes, which the primitive Christians strewed on their heads at these solemn festivals.
Ember-goose, *n.* [Ger. *imber.*] (*Zoöl.*) The great northern diver, a species of *Colymbus.* See Colymbidæ.
Emberi'za, *n.* A genus of birds in the classification of Gray, corresponding to the genus Plectrophanes, *q.v.*
Em'bers, *n. pl.* [A. S. *æmyrian;* Dan. *emmer;* Icel. *eymyria*, hot ashes.] Hot ashes or cinders; small coals of fire with ashes; the residuum of wood, coal, or other combustibles not extinguished.
Ember-weeks, *n. pl.* The weeks on which the ember-days fall.
Embez'zle, *v. a.* [Nor. *embcasiler*, to filch; O. Fr. *besler*, or *beffler*, to deceive, to gull; Sp. *embauco*, to impose upon, to cheat. Etymol. unknown.] To purloin; to appropriate fraudulently to one's own use what is intrusted to one's care and management; to waste; to dissipate in extravagance.
Embez'zlement, *n.* (*Law.*) Act of embezzling, or fraudulently appropriating to one's own use the money or goods intrusted to one's care and management; the thing appropriated; larceny by clerks, servants, or agents. An *E.* is in substance, and essentially, a larceny, aggravated rather than palliated by the violation of a trust or contract, instead of being, like larceny, a trespass.
Embez'zler, *n.* One who embezzles.
Embil'low, *v. a.* To heave as the waves of the sea; to swell.
Embit'ter, *v. a.* To imbitter.
Embit'terment, *n.* The act of imbittering. (R.)
Emblaze', *v. a.* [*En* and *blaze.*] To set in a blaze; to kindle; to adorn with glittering embellishments.
(*Her.*) To point or adorn with figures armorial; to blazon.
Embla'zon, *v. a.* [Fr. *blasoner.* See Blazon.] To display pompously; to adorn with figures of heraldry or ensigns armorial.
Embla'zoner, *n.* A blazoner; one who emblazons; a herald; one who publishes and displays with pomp.
Embla'zonment, *n.* An emblazoning.
Embla'zonry, *n.* Pictures on shields; display of figures; heraldic ornaments.
Em'blem, *n.* [Fr. *emblême;* Gr. *emblema*, from *emballo* —*en*, and *ballo*, to throw or cast.] In the primary sense of the word, a piece of mosaic, or any work in which bits of one kind of material are inserted or set into another. — In the general acceptation of the term, anything which, by association of ideas, appears to be a visible and suitable representation of some abstract quality, or it has a similar meaning to that of the word *device*, q. v. Thus the lamb is the emblem of meekness, humility, and docility; the lion, of courage and magnanimity; the dog, of fidelity; and the fox, of craft and cunning. The eagle is the emblem of imperial power, as it is reputed to be the king of birds, and often styled the royal bird. Other things have been taken as emblems of persons, as they are associated with them by historical recollections: thus the gridiron is the emblem of St. Lawrence, as the instrument of his martyrdom: the wheel, that of St. Catharine, for a similar reason. An angel bearing a pen is the emblem of St. Matthew; a lion, that of St. Mark; a bull, of St. Luke; and an eagle, of St. John. Flowers are supposed to be emblematic of various qualities, and are, in consequence, sometimes used in the East as a means of communication.
Emblemat'ic, or Emblematical, *a.* Pertaining to, or comprising, an emblem; representing by some allusion or customary connection, or by similar qualities; using emblems.
Emblemat'ically, *adv.* By means of emblems; in the manner of emblems.
Emblemat'icise, *v. a.* To emblematize. (R.)
Emblem'atist, *n.* A writer or inventor of emblems.
Emblem'atize, *v. a.* To represent by an emblem.
Em'blements, *n. pl.* [O. Fr. *embler*, to sow with corn, from *blé*, corn.] (*Law.*) The right of a tenant to take and carry away, after his tenancy has ended, such annual products of the land as have resulted from his own care and labor.
Em'blemize, *v. a.* To emblematize. (R.)
Embloom', *v. a.* [*En*, and *bloom*, q. v.] To cover or enrich with bloom.
Emblos'som, *v. a.* To cover with bloom or blossom.
Embod'ied, *p. a.* Collected or formed into a body.
Embod'ier, *n.* He that embodies.
Embod'iment, *n.* Act of embodying; the state of being embodied.
Embod'y, *v. a.* [*En* and *body.*] To form into a body; to invest with matter; to make corporeal. — To form into a collection or system. — To bring into a band, company, regiment, brigade, army, or other regular assemblage. — To collect.
—*v. n.* To unite in a body, mass, or collection; to coalesce.
Embogue', *v. i.* To discharge, as a river, its waters into the sea or another river.
Embogu'ing, *n.* [Fr. *embouchure*, from *bouche*, Lat. *bucca*, mouth.] The mouth of a river. (R.)
Embold'en, *v. a.* [*En*, and *bold.*] To give boldness or courage to; to encourage.
Embold'ener, *n.* One who emboldens.
Em'bolism, *n.* [Fr. *embolisme;* Gr. *embolisma*, from *emballo* — *en*, and *ballo*, to throw or cast.] That which is thrown in, or inserted; intercalation; the insertion of days, months, or years in an account of time, to produce regularity; intercalated time.
Embolis'mal, *a.* Pertaining to an embolism or intercalation; intercalated; inserted.
Embolismat'ic, or Embolismat'ical, *a.* Embolismic.
Embolis'mic, or Embolis'mical, *a.* Intercalated; inserted.
Em'bolite, *n.* (*Min.*) A chlorobromide of silver, color asparagus to olive-green, resembling horn-silver. It constitutes the principal silver ore of the mines of Chañarsillo, Chili.
Em'bolus, *n.; pl.* Emboli. [Gr. *embolos*, from *emballo*, to put in.] Anything inserted and acting in another, as a wedge, or the piston of a pump, or of a steam-engine.

Embonpoint, (*ang'bŏng-pwâng,*) *n.* [Fr.] Plumpness.
Embor'der, *v. a.* [O. Fr. *emborder* — *en*, and *border.*] To adorn with a border.
Emboss', *v. a.* [*En*, and *boss.*] To raise or form bosses or protuberances; to fashion in relievo or raised work; to cut or form with prominent figures; to cover, as with bosses or protuberances.
Embossed', *p. a.* Formed or covered with bosses or raised figures.
(*Bot.*) Projected in the centre like the boss of a shield.

Emboss'ing, *n.* [Fr. *embosser*, from *bosse*, a stud.] (*Arts.*) The art of obtaining patterns of any kind, or inscriptions, in relief, on cloth, leather, felt, metal, pasteboard, or paper. It is effected by subjecting the material on which it is desired to raise any pattern to very great pressure, which may be applied vertically by the sharp blow of a die, or by a cylinder. For embossing crests, or names, on paper and envelopes, a small stamping-machine is used, and the device desired is cut in intaglio on the die. The paper is placed on a piece of soft metal stamped by the die, and therefore having the device in relief, and the impression is obtained by pressing the die forcibly on it by means of a lever. For embossing woollen goods, the cylinders which are used must have the pattern cut on them in intaglio; but for velvets, and embossing paper of any size, the patterns must be in relief. The following is the process adopted when cylinders are used. The engraved cylinder, or embossing-roller, and another of the same diameter, called the bed-roller, are set closely together, and the material is passed between them. The bed-roller is made of paper (see Calendering), and covered with felt, to prevent it from receiving and retaining any impression from the embossing-roller. The cylinder on which the pattern is cut is made hollow, to receive heated irons, or to be heated by steam. Leather may be embossed by pressure, or by rendering it supple by moisture, and then fashioning it into the desired shape on a mould cut for the purpose. Ornaments for picture-frames and the interior decoration of apartments, which closely resemble carved oak, may be made in this manner. The cloth which is used for binding books is embossed by passing the material between two steel rollers engraved with the required pattern, which are heated by gas jets from pipes passing through the centre of the rollers, which are hollow. When there is any peculiar device on the cover of a book bound in cloth, and there is much gilding about it, the cloth is first glued to the millboard covers, and subjected to great pressure from the die engraved for the purpose, after it has been laid on an iron plate, which is heated from beneath by gas.
Emboss'ment, *n.* A prominence like a boss; a jut; relief; a figure in relievo; raised work.
Embot'tle, *v. a.* [*En*, and *bottle.*] To put in a bottle; to bottle; to include or confine in a bottle.
Embouchure,' *n.* [Fr., from *en*, and *bouche*, mouth.] A mouth or aperture, as of a river, cannon, &c.
(*Mus.*) The mouth-piece of a wind-instrument.
Embow', *v. a.* [*En*, and *bow.*] To form like a bow; to arch; to vault.
Embowed', *a.* (*Her.*) Applied to anything which is bent like a bow.
Embow'el, *v. a.* [*En*, and *bowel.*] To take out the bowels or entrails of an animal body; to eviscerate; to take out the internal parts of; to sink or inclose in another substance.
Embow'eler, Embow'eller, *n.* One who takes out the bowels.
Embow'elment, *n.* Act of taking out the bowels; evisceration.
Embow'er, *v. n.* [*En*, and *bower.*] To lodge or rest in a bower.
—*v. a.* To inclose in or cover with a bower; to shelter with trees.
Embox', *v. a.* [*En*, and *box*, q. v.] See Emboss.

Embrace', *v. a.* [Fr. *embrasser* — *en*, and *bras*, the arm; Lat. *brachium.*] To take or hold within the arms; to press to the bosom in token of affection; to hug; to clasp; to inclose; to seize eagerly or ardently; to lay hold on; to comprehend; to comprise: to encompass; to encircle; to include; to contain; to receive; to admit; to accept.
(*Law.*) To attempt to corrupt a jury.
—*v. n.* To join in an embrace.
—*n.* Inclosure or clasp with arms: pressure to the bosom with the arms; a hug; a clasp; a grapple; reception of one thing into another; conjugal endearment.
Embra'cery, *n.* (*Law.*) One who practices embracery.
Embrac'er, *n.* [Fr.] One who embraces.
Embra'cery, *n.* (*Law.*) An attempt to corrupt a jury in favor of one party in a trial, by promises, persuasion, entreaties, money, entertainment, and the like. The punishment for this misdemeanor, of the person embracing and the jurors embraced, is by fine and imprisonment.
Embranch'ment, *n.* The act or the process of forming a branch.
Embra'sure, *n.* [Fr., from *embraser*, to fire, to set on fire — *en*, and *braise*, burning charcoal; root Teut. *bras*, or *brasa*, a bright fire.] (*Fort.*) An opening in a wall or parapet to hold a bright fire; the indent of a battlement through which cannon are pointed and discharged.
(*Arch.*) The enlargement of the aperture of a door or window on the inside of the wall, for giving greater play for the opening of the door or casement, or for admitting more light.
(*Gun.*) A piece of iron which grasps the trunnions of a piece of ordnance, when raised to the boring-machine.
Em'breeville, in *Pennsylvania*, a P. O. of Chester co.
Embright', *v. a.* To make bright; to brighten.
Embro, a village of prov. of Ontario, co. of Oxford, abt. 100 m. S.W. of Toronto; *pop.* abt. 500.
Embroca'do, *n.* A pass in fencing.
Em'brocate, *v. a.* [L. Lat. *embroco, embrocatum;* Gr. *embrō* — *chē*, a fomentation, from *embrechō*, to foment— *en*, and *brechō*, to wet on the surface, akin to Lat. *regare*; Ger. *regen;* Eng. *rain.*] (*Med.*) To foment or moisten and rub, as a diseased part of the body, with a liquid substance.
Embroca'tion, *n.* [Fr., from L. Lat. *embrocatio.*] (*Med.*) Act of moistening and rubbing a diseased part with a cloth or sponge dipped in some liquid substance. — The liquid with which an affected part is washed.
Embroglio, (*em-brol'yo,*) *n.* See Embroil, and Imbroglio.
Embroi'der, *v. a.* [Fr. *broder*, from *border*, to border, by transposition of letters. See Border.] To surround with a border or edge; to border with ornamental needlework or figures; to adorn with raised figures of needlework.
Embroi'dered, *p. a.* Adorned with figures of needlework.
Embroi'derer, *n.* One who embroiders.
Embroidery, (*em-broid'er-e,*) *n.* [Fr. *broderie.*] The art of working ornamental figures with a needle and thread. The art of *E.* is one of the oldest, and has always been one of the most important, domestic occupations among Oriental nations. It was practised among the Hebrews in the time of Moses; and the women of Sidon were famous for their embroidery before the siege of Troy. In after years, the women of Greece were celebrated for their proficiency in the same art; and some of their productions are said to have equalled, if not surpassed, many of the finest paintings then existing. The inhabitants of Peru, when discovered by the Spaniards, had in their possession elaborate embroideries of gold and silver on feathers, which they manufactured with great skill. In the Middle Ages, ecclesiastical tapestry, curtains, priests' vestments, &c., were all embroidered with the needle; and screens, corridor-linings, &c., were the daily handiwork of some of the noblest ladies, assisted by their handmaidens. In the present day, all *E.* may be divided into two classes, — *E.* on stuffs, and on muslin. The first class includes all ornamental needle-work upon articles of furniture, standards, church vestments, &c.; the second is employed usually upon articles of female apparel, such as caps, collars, &c. Stuff *E.* is performed by means of a loom, and is executed with gold, silver, silk, cotton, and woollen threads. Muslin *E.* is generally accomplished by hand, the fabric being stretched upon a frame. This kind of work has been very fashionable of late years; although at first looked upon only as an elegant accomplishment for ladies, it now forms an article of considerable traffic, and gives employment to a large number of persons. *Berlin-wool-work* is a sort of *E.* which has been in vogue for many years among ladies. The fabric worked upon is generally stretched upon a frame, and the design to be embroidered is drawn upon it; or oftener, an engraving, in which lines are drawn corresponding with the threads of the fabric, is used. The name is derived from the fact that a print-seller named Wittich, in Berlin, up to 1810, sold the best patterns for this kind of work. Machine *E.* has given a great impetus to the art, and some years ago a machine was invented by which one person could guide 80 to 140 needles, all working at the same time. Several kinds of sewing-machines can be used for embroidering.
Embroil', *v. a.* [Fr. *embrouiller* — *en*, and *brouiller*, to jumble, mix, or blend together. See Broil.] To confuse; to confound; to perplex; to mingle: to intermix in confusion; to involve in troubles or perplexities; to entangle; to encumber; to confound; to distract; to disturb; to disorder; to trouble.
—*v. n.* To be in commotion; to become disturbed.
—*n.* Embroilment.

Embroil'ment, *n.* A state of contention, perplexity, or confusion; disturbance.
Embronze', *v. a.* To cover with bronze.
Embroth'el, *v. a.* To enclose in a brothel.
Embrown', *v. a.* See IMBROWN.
Embrue', *v. a.* See IMBRUE.
Em'brun, a town of France, dep. Hautes Alpes, on the Durance, 20 m. E. of Gap; *pop.* 5,118.
Embrute', *v. a.* See IMBRUTE.
Em'bryo, *n.* [Fr. *embryon*; Gr. *embryon*, from *en*, and *bryo*, to be full of anything, to swell therewith.] An organized being in a rudimentary condition, or the rudiment from which, under favorable circumstances, an organized body is to be developed. — The beginning or the first state of anything in its first rudiments or unfinished state.

(*Bot.*) The rudiment of the future plant existing in the seed; the vegetable fœtus. The true *E.* is the essential characteristic of the seed of flowering plants; for a *spore*, as the reproductive part of a flowerless plant is called, has no true *E.*, the rudimentary plant being only developed from it after its separation from the parent. The *E.* is divided into three parts, corresponding to the root, stem, and leaves of the perfect plant, termed, respectively, the *radicle*, the *plumule*, and the *cotyledons*. These parts may be readily recognized in many seeds, especially when the process of germination is a little advanced. Plants which have seeds with 2 cotyledons are called *dicotyledonous*, and those having seeds commonly possessing but one cotyledon are said to be *monocotyledonous*. Flowerless plants are said to be *acotyledonous*. When *albumen* is present in a seed, the size of the *E.* is in inverse proportion to its quantity; thus in grasses there is a larger deposit of albumen, but a very small *E.*; while in the nettle the *E.* is large and the albumen small. When the *E.* is external to the albumen and in contact with the integuments, as in grasses, it is said to be *external*; when it is surrounded by the albumen on all sides, except at its radicular extremity, as in the pansy, it is said to be *internal*. The *E.* is so tenacious of life under favorable circumstances, that there are well attested instances of its having preserved its vitality much beyond 1,000 years.

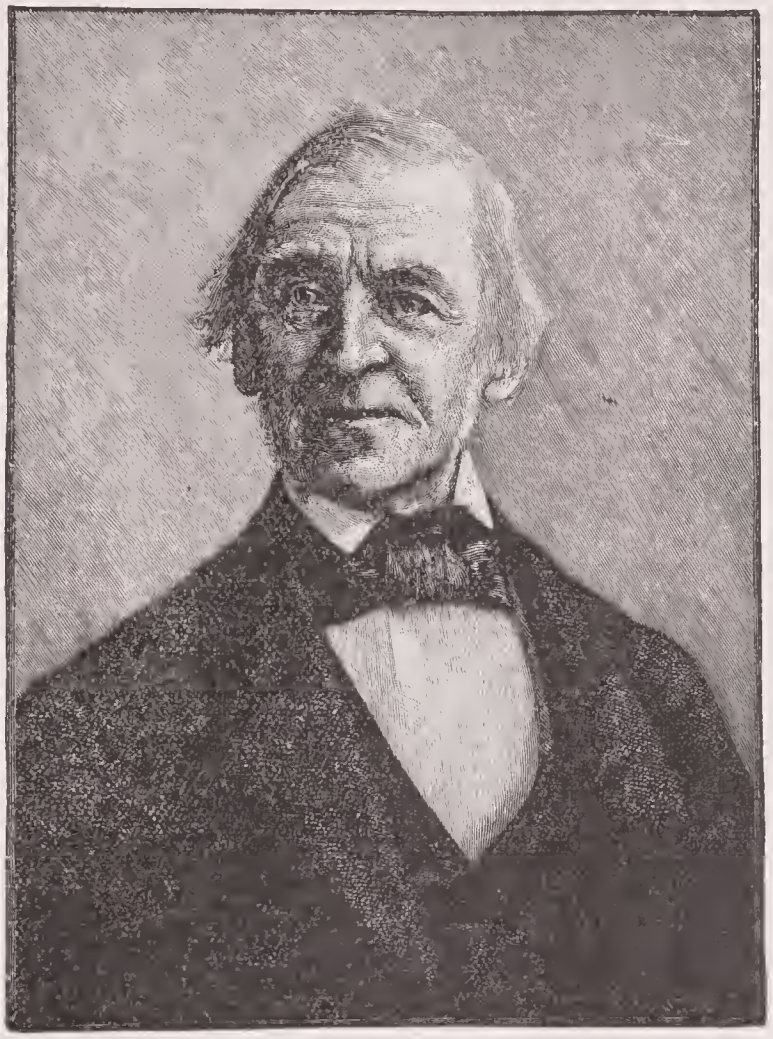
(*Physiol.*) A term applied to the fœtus *in utero*, before the 5th month of pregnancy, from its growth resembling the budding of a plant. — See OVUM.

—*a.* Pertaining to, or noting, anything in its first rudiments or unfinished state.
Embryogen'ic, *a.* Pertaining to the development of an embryo.
Embryog'eny, *n.* [Gr. *embryon*, embryo, and *gennaō*, to produce.] The science of the production and development of embryos.
Embryog'ony, *n.* [Gr. *embryon*, embryo; and *gonē*, generation.] (*Anat.*) The formation of embryos.
Broussais.
Embryog'raphy, *n.* [Gr. *embryon*, and *graphē*, description.] The description of embryos.
Embryolog'ical, *a.* Belonging, or relating, to embryology.
Embryol'ogist, *n.* One skilled in embryology.
Embryol'ogy, *n.* [Gr. *embryon*, and *logos*, discourse, *legein*, to speak; Fr. *embryologie*.] The study of the mode of formation of the fœtus.
Em'bryon, *n.* Same as EMBRYO. (R.)
—*a.* Unfinished; embryonic.
Em'bryonal, *a.* That belongs to an embryo; embryonary.
Em'bryonary, *a.* Relating or belonging to the development of an embryo.
Em'bryonate, Em'bryonated, *a.* Embryonal.
Embryon'ic, *a.* Pertaining to an embryo, or in the state of one.
Embryot'ic, *a.* Same as embryonic.
Embryot'omy, *n.* [Fr. *embryotomie*, from Gr. *embryon*, and *temnein*, to cut, *tomē*, a cutting.] (*Surg.*) The operation of cutting the fœtus out of the womb.
Em'bryous, *a.* Embryonic.
Embu'do, in *New Mexico*, a village near a pass of the same name, about 50 m. N. of Santa Fé.
Em'den, in Hanover. See EMBDEN.
Em'eline, in *Iowa*, a village of Jackson co., about 27 m. S. by W. of Dubuque.
Emend', *v. a.* Same as AMEND. (R.)
Emend'able, *a.* Amendable. (R.)
Emenda'tion, *n.* [Lat. *emendatio*, from *emendo*, *emendatus* — *e*, and *mendum*, a fault, an error.] Act of correcting faults or errors; a correcting what is erroneous or faulty; an alteration for the better; correction; correction of an error or fault.
Em'endator, *n.* [Lat.] A corrector of errors or faults in writings; one who corrects or improves.
Emend'atory, *a.* [L. Lat. *emendatorius*.] Contributing to emendation.
Em'erald, *n.* [Fr. *émeraude*.] (*Min.*) A variety of beryl, *q. v.* It is a precious stone, of a bright rich deep-green color, occurring in hexagonal prisms, in granite, gneiss, and mica rocks. It is a little less hard than beryl. The rich color is due to oxide of chromium. The most celebrated modern locality of the *E.* is Muzo, in New Granada, in a limestone containing cretaceous fossils. Fine specimens occur in Peru, and inferior ones in Bavaria, India, and Mt. Zalora in Upper Egypt. It is said this latter locality was the only one known to the ancients.

(*Printing.*) A type, in size between Minion and Nonpareil.

(*Her.*) The green tincture; vert.
Em'erald, in *Minnesota*, a post-township of Faribault co., 5 m. E. of Blue Earth City. *Pop.* (1897) about 850.
Emerald, in *Ohio*, a post-office of Adams co.
—A village and township of Paulding co., about 61 m. W.S.W. of Toledo.
Em'erald, in *Wisconsin*, a township of St. Croix co., about 30 m. N.E. of Hudson.
Emerald Grove, in *Wisconsin*, a post-vill. of Rock co.
Em'erald-green, *n.* (*Paint.*) A light-green pigment prepared from arseniate of copper; the Scheele's green.
Emerald-nickel, *n.* (*Min.*) Same as Zaratite, *q. v.*
Emerge', *v. n.* [Lat. *emergo* — *e*, *ex*, and *mergo*, to dip, to dip in, to plunge into water, to sink. See MERGE.] To come forth or up; to arise; to rise out of a fluid or other covering or surrounding substance; to issue; to proceed from; to reappear after being eclipsed; to leave, as the sphere of the obscuring object. — To rise out of a state of depression or obscurity; to rise into view.
Emer'gence, or EMER'GENCY, *n.* [L. Lat. *emergentia*.] Act of emerging or rising out of a fluid or other covering or surrounding matter; act of rising or starting into view; act of issuing from, or quitting; a sudden occasion; an unexpected event; unforeseen casualty; pressing necessity; urgency; exigency.
Emer'gent, *a.* [Fr., from Lat. *emergens*.] Rising out of a fluid or anything that covers or surrounds; issuing or proceeding from; rising out of a depressed state, or from obscurity; coming suddenly; sudden; casual; unexpected.
Emer'gently, *adv.* By emerging.
Emer'gentness, *n.* State or quality of being emergent.
Emer'ited, *a.* [Fr. *émérite*; Lat. *emeritus*, from *e*, *ex*, and *mereo*, or *mereor*, to deserve, to merit.] Allowed to have done sufficient public service.
Emer'itus, *n.*; *pl.* EMERITI. [Lat., one who has served out his time, from *emerere*, *emereri*, to obtain by service, to serve out one's term, from *e*, out, and *merere*, *mereri*, to merit, earn, serve.] (*Roman Antiq.*) This name was given to soldiers who had fulfilled the legal term of military service.
—*a.* Applied in colleges and universities to professors who, after meritorious services, are honorably discharged on account of age, &c.
Em'erods, or EMEROIDS, *n.* [Corrupted from *hemorrhoids*; Gr. *haimor-roïs*, usually plural *haimor-roïdes* (*phlebes*, veins, being understood), veins liable to discharge blood — *haima*, blood, and *rheō*, to flow.] (*Med.*) Livid, painful, and bleeding tubercles about the anus; hemorrhoids; PILES, *q. v.*
Emersed', *a.* (*Bot.*) Standing out of, or raised above water.
Emer'sion, *n.* [Fr., from Lat. *emergo*, *emersum*. See EMERGE.] Act of rising out of a fluid or other covering or surrounding substance.

(*Astron.*) The reappearance of a heavenly body after an eclipse; the reappearance of a star which has been hid by the effulgence of the sun's light.
Em'erson, RALPH WALDO, a celebrated American poet and essayist, was born in Boston, 1803, and graduated at Harvard College, 1821. Having turned his attention to theology, he was ordained minister of the Second Unitarian Church of Boston; but soon after formed peculiar views with regard to forms of worship, abandoned his profession, and, retiring to the quiet village of Concord, devoted himself to his favorite study — the nature of man, and his relation to the universe. In 1838, Mr. *E.* published *Literary Ethics. an Oration*; and in 1839, *Nature, an Essay*. In 1841, he published *The Method of Nature, Man the Reformer*, several lectures, and the first series of his *Essays*, the second series of which appeared in 1844. In 1846, he published a volume of poems. In 1848, he travelled in England, where he delivered lectures on *The Mind and Manners of the 19th Century*, and in 1849 delivered the series entitled *Representative Men*. In 1852, in connection with Mr. W. H. Channing, he published the *Memoir of Margaret Fuller, Marchioness d'Ossoli*. Mr. *E.*, in 1856, published a work entitled *English Traits*, and in 1860, *The Conduct of Life*. He delivered, at Concord, an oration on the death of President Lincoln in 1865, and received the degree of L.L.D. from Harvard University in 1866. He has contributed largely to periodicals. Some of his works have been translated into French, and have excited considerable admiration among the Parisian Transcendentalists. He is unquestionably one of the most eminent modern philosophers of the Pantheistic school, and one of the most remarkable personifications of American genius. D. April 27, 1882.
Em'erson, in *Michigan*, a township of Gratiot county.
Em'erson, in *Missouri*, a post-village of Marion co., abt. 25 m. N.W. of Hannibal.
Em'erson, in *Nebraska*, a post-village of Dixon co., abt. 33 m. S. of Ponca.
Em'ery, *n.* [From Cape *Emeri*, in the island of Naxos.] (*Min.*) A variety of corundum, consisting mainly of alumina, combined with a small quantity of silica, peroxide of iron, and a little water. *E.* occurs in Spain, Asia Minor, in the Greek islands, and in the island whence it takes its name. Ground to powder of different degrees of fineness, it is much used in the arts as a polishing-powder. It is mostly employed attached to cloth or paper.
Em'ery, in *Ohio*, a post-office of Fulton co.
Em'erylite, *n.* (*Min.*) Same as Margarite, *q. v.*
Emery's Mills, in *Maine*, a post-office of York co.
Emery's River, in *E. Tennessee*, rises in Morgan co., and flows S. into Clinch River, in Roane co.
Em'esis, *n.* [Gr., from *emea*, to vomit.] (*Med.*) A vomiting.
Emet'ic, *n.* [Gr. *emeticos*, from *emea*, to vomit.] (*Med.*) A class of drugs which produce vomiting, by the influence of some peculiar and specific action on the nerves of the stomach, and independent of smell, taste, or local irritation. There are few diseases to which man is subject, especially active diseases, in which emetics may not only be found useful, but often of the most signal service, not only by removing expeditiously from the system some crude or offensive substance doing hurt by its presence, but by the reactionary influence they exercise as stimulants, and also by the after-effects on the bowels and skin. *E.* also act powerfully as febrifuges in acute fevers and inflammations by the nausea and relaxation they cause when judiciously employed — in other words, by preventing them acting as emetics, and giving them in such doses as will produce all the nausea and sickness without the consummation and vomiting. *E.* are either of the mineral or vegetable kingdom: belonging to the mineral are mercury, sulphate, antimony tartrate and sulphuret, copper sulphate, and zinc sulphate; and of the vegetable are included ipecacuanha, squills, mustard, camomile-tea, asarabacca, and tobacco. *E.* should never be administered to a patient who is disposed to apoplexy, or to a tendency of blood to the head, or when the patient is liable to hemorrhage from any organ, or is subject to hernia. During pregnancy, also, *E.* must be avoided.
Emet'ic, Emet'ical, *a.* Inducing to vomit; causing vomiting.
Emet'ically, *adv.* So as to provoke to vomit.
Em'etine, *n.* (*Chem.*) A substance discovered, in 1817, by Pelletier in ipecacuanha. It is white, pulverulent, and bitter; easily soluble in hot water and alcohol, and intensely emetic. It exists in ipecacuanha to the amount of about 16 per cent., and appears to be the sole cause of its emetic property.
Em'eto-cathar'tic, *a.* (*Med.*) Noting a remedy which at the same time excites vomiting and purging.
Emetol'ogy, *n.* [Gr. *emetos*, vomiting, and *logos*, discourse.] A treatise on vomiting and emetics.
E'meu, Emew, *n.* (*Zoöl.*) See EMU.
Emeute', (*ā-mūt'*,) *n.* [Fr.] An uproar; a riot; a popular outbreak or disturbance.
Emica'tion, *n.* [Lat. *emicatio*.] Sparkling; flying off in small particles.
Emic'tion, *n.* [Lat. *emictum*.] Urine; what is voided by the urinary passages.
Em'igrant, *a.* [See EMIGRATE.] Removing or having removed, from one place or country to another distant place, with a view to reside.
—*n.* One who removes his habitation, or quits one country or region to settle in another.
Em'igrate, *v. a.* [Fr. *émigrer*; Lat. *emigro*, *emigratus* — *e*, *ex*, and *migro*, to remove from one place to another. See MIGRATE.] To depart or remove; to quit one country, state, or region, and settle in another; to remove from one country or state to another for the purpose of residence.
Emigra'tion, *n.* [Fr. *émigration*.] The movement of one or a number of people out of one place or country with a view to their settling in another, into which they are said to *immigrate*, (Lat. *in*, and *migrare*.) Persons coming from Europe, or Canada, with a view of settling in the U. States, should be called *immigrants*, and not *emigrants*, as they are commonly. See IMMIGRATION.
Emigra'tional, *a.* Relating to emigration.
Emigra'tionist, *n.* An advocate of emigration.
Emigrés, (*em'e-graiz*,) *n. pl.* (*French Hist.*) A term applied to those individuals who left France during the revolution. After the taking of the Bastile, the princes of the royal family, *Monsieur* (Louis XVIII.), the Count d'Artois (Charles X.), and the Prince de Condé, departed from France. They were speedily followed, in 1791, by all those who considered that their rights, privileges, and property had been interfered with improperly. Noblemen left their estates and domains; officers, with large numbers of private soldiers, priests, monks, and private individuals, passed over into Germany, Belgium, Holland, Switzerland, and Piedmont. Very few of the *émigrés* had been able to save any property, and the greater proportion were consequently soon in a dreadful state of destitution. The princes themselves formed a court at Coblenz, with a government, ministers, and a court of justice. Communications were kept up with the foreign courts, and thus the feelings of the revolutionary party in France were more and more embittered against them. At last a body of *émigrés*, under the command of the Prince de Condé, followed the Prussian army into Champagne. The republican government immediately put the strongest laws in force against the *émigrés*. Any person found assisting or favoring them in any way was condemned to death, and the lands of all *émigrés* were confiscated. Although many of them had refused to fight against their country, 30,000 persons were put upon the list, and condemned to perpetual exile from the soil of France. The last attempt made by the *émigrés* to penetrate into France by force of arms was in 1795, at Quiberon. The attempt was a failure, and the force belonging to the Prince de Condé was broken up after the peace of Luneville, and sought a refuge in Russia. Under the Directory, many of the *émigrés* tried to return to France, and in 1801, Napoleon I. granted them a general amnesty. By the largest proportion this was hailed with delight, and they returned to their native land. Many, however, did not return until after the restoration of Louis XVIII. Those who had remained loyal received many honors from the king, but were unable to regain their estates or their privileges, on account of the charter of 1814. In 1825, those *émigrés* who had lost their landed estates received a compensation of 30,000,000 francs yearly, on the capital of 1,000,000,000 francs. This grant was, however, repealed during the July revolution of 1830.



Ralph Waldo Emerson

1803–1882

Em'igsville, in *Pennsylvania*, a post-village of York co., abt. 6 m. N. of York.
Em'ilie, in *Pennsylvania*, a post-office of Bucks co.
Em'im. (*Script.*) A warlike race, who in the time of Abraham occupied the country beyond the Jordan, afterwards possessed by the Moabites. (*Gen.* xiv. 5; *Deut.* ii. 10.)
Em'inence, Em'ineney, *n.* [Fr. *éminence.* See EMINENT.] Projection; prominence; elevated ground; elevation; height; a hill.—Highest part; summit; top.—A conspicuous place or position.—Exaltation; high rank; distinction; fame; celebrity.
—A title of honor borne in Europe by various dignitaries at different times; but appropriated to cardinals by a papal decree of the year 1630.
Em'inence, in *Illinois*, a township of Logan co., abt. 40 m. N.N.E. of Springfield.
Em'inence, in *Indiana*, a post-village of Morgan co., abt. 85 m. W.S.W. of Indianapolis.
Em'inence, in *Kentucky*, a post-town of Henry co., abt. 40 m. E. of Louisville. *Pop.* (1890) 1,002.
Em'inence, in *Missouri*, a post-village, cap. of Shannon co., on Current River, abt. 120 m. S.W. of St. Louis.
Em'inence, in *New York*, a post-office of Schoharie co.
Em'inent, *a.* [Fr. *éminent;* Lat. *eminens.*] Rising up to be above others; high; lofty; elevated; exalted; exalted in rank; high in office; dignified; distinguished; conspicuous; prominent; famous; illustrious.
Eminent Domain, *n.* (*Law.*) The power to take private property for public use. It is well settled that such power exists only in cases where the public exigency demands its exercise. Whether the exercise of the right is justifiable in cases where the statute does not provide compensation is unsettled.
Em'inently, *adv.* In a high degree; in a degree to attract observation.
Emini'ja, in *Dakota*, the old name of a frontier village in what is now Minnehaha co., South Dakota, about 60 miles N. E. of Yankton.
Emir, (*em'eer,*) *n.* [Ar., chief or lord.] The term applied to all independent chieftains in the East, and in the north of Africa. The Caliphs took the title of *Emir-al-Numenia* (chief or commander of the faithful). The title is now given by prescriptive usage to all real or supposed descendants of Mahomet by his son-in-law Ali, and his daughter Fatima. These are numerous throughout the Turkish dominions; but their prerogatives are unimportant, the principal being their exclusive right to wear turbans of a green color, which was a favorite with the prophet. The title is also applied to the rulers of provinces, and in connection with different words designates different offices. The master of horse to the sultan is called *E.*-Achor; the standard-bearer, *E.*-Alem; the surveyor of markets, *E.*-Bazaar; and the leader of caravans of pilgrims to Mecca, *E.*-Hadji.
Em'issary, *n.* [Fr. *émissaire;* Lat. *emissarius*, from *emitto.* See EMIT.] One sent forth or out; a person sent on a mission; a person sent on a private message or business; a secret agent; a spy.
(*Anat.*) Vessels through which the excretions take place.
—*a.* Looking about; prying.
Emis'sion, *n.* [Fr. *émission;* Lat. *emissio*, from *emitto.*] Act of sending or throwing out; an issuing out; that which is sent out or issued.
Emis'sive, *a.* Sending out; emitting.
Emis'sory, *a.* (*Anat.*) Applied to duets, especially to certain veins, which convey fluids out of the body.
Emit', *v. a.* [Lat. *emitto*—*e, ex*, and *mitto*, to send. See MISSION.] To send forth or out; to throw or give out; to let fly; to discharge; to dart or shoot; to issue forth, as an order or decree.
Emit'tent, *a.* Sending out; emitting.
Em'lenton, in *Pennsylvania*, a post-village of Venango co., on the Alleghany River, abt. 20 m. S.S.E. of Franklin.
Em'ma, in *Illinois*, a post-village of White co., abt. 2 m. N.E. of the Little Wabash River.
Emmanuel, (*em-măn'u-el.*) [Heb., God with us.] A title of Christ, indicating the mystery and reality of his being God in human nature. (*Isa.* vii. 14, viii. 8; *Matt.* i. 23.)
Em'maus, the village where Christ revealed himself to two of his disciples, on the afternoon of his resurrection-day. Eusebius and Jerome locate it at the ancient Nicopolis, 20 m. W.N.W. of Jerusalem.
Em'maus, in *Indiana*, a former P. O. of Wabash co.
Em'maus, or **Emans,** in *Pennsylvania*, a post-village of Lehigh co., 5 m. S.W. of Allentown: *pop.* abt. 900, mostly Moravians. See EMAUS.
Em'maville, in *Pennsylvania*, a P. O. of Fulton co.
Em'men, two rivers of Switzerland, one rising in the Bernese Oberland, and, after a course of 45 m., joining the Aar, 2 m. from Soleure; the other also rising in the Bernese Oberland, and, after a course of 30 m., joining the Reuss 2 m. from Lucerne. The valley of the first is one of the finest in Switzerland.
Emmen'agogue, *n.* [Gr. *emmenia*, the menses, and *ago*, I drive or expel.] (*Med.*) A medicine to promote menstrual discharges.
Emmenol'ogy, *n.* [Gr. *emmenia*, and *logos*, a discourse.] (*Med.*) A treatise on menstruation.
Em'met, *n.* [Sax. *ämytta, ämet;* O. Ger. *amieza*, an emmet, from *emaxic*, constant, sedulous; Lith. *amzis*, a space of time, duration of time.] An ant or pismire, so named from its industrious and persevering habits. See FORMOCIDÆ.
Em'merich, a town of Prussia, on the Rhine, 5 miles from Cleves. *Manuf.* Woollens, hosiery, &c.
Em'met, ROBERT, an Irish revolutionist, B. in Dublin, 1778. *E.* was a member of the bar, and a highly gifted and estimable man. Becoming associated with the secret society called the "United Irishmen," he became involved in the revolutionary troubles of 1802–3, and was arrested, tried, and sentenced to death, which he suffered, 20th Sept., 1803. *E.* was engaged to be married to Sarah, daughter of the Right Hon. J. P. Curran (*q. v.*), who, after the untimely death of her lover, died of a broken heart. This event gave rise to one of the poet Moore's finest "Melodies,"—"She is far from the land where her young hero sleeps."
Em'mett, in *Georgia*, a village of Wilkinson co., about 40 m. E. of Macon.
Em'mett, in *Illinois*, a township of McDonough county.
Em'mett, in *Iowa*, a N.N.W. co., bordering on Minnesota; *area*, about 450 sq. m. *Rivers.* Des Moines, and one or two smaller streams. There are several small lakes near the N.E. border. *Surface*, level; *soil*, generally fertile. *Cap.* Estherville. *Pop.* 8,000.
—A township of Emmett co.
Em'mett, or **Em'met,** in *Michigan*, a N. co. of the lower peninsula, bordering on Lake Michigan; *area*, 438 sq. m. *Surface*, level; *soil*, fertile. *Cap.* Harbor Springs. *Pop.* (1894) 10,381.
Emmett, or **Emmet,** in *Michigan*, a flourishing township of Calhoun co.
—A post-township in the N.W. part of St. Clair co.
Emmett, in *Ohio*, a post-office of Paulding co.
Emmett, in *Wisconsin*, a village and township of Dodge county, about 40 m. E.N.E. of Madison.
Em'mettsburg, in *Iowa*, a city, cap. of Palo Alto co., on the west fork of Des Moines river, abt. 55 m. N.N.W. of Fort Dodge. Has manuf. interests and a large general trade. Also called EMMETSBURG. *Pop.* (1897) abt. 2,000.
Em'mettsville, in *Indiana*, a post-village of Randolph co., abt. 75 m. E.N.E. of Indianapolis.
Emmew', *v. a.* To confine; to coop up.
Em'mittsburg, in *Maryland*, a post-village of Frederick co., abt. 50 m. N.W. of Baltimore. It is the seat of St. Mary's College.
Em'monite, *n.* (*Min.*) Same as STRONTIANITE (*q. v.*).
Em'monsburg, in *New York*, a P. O. of Fulton co.
Em'morton, in *Maryland*, a P. O. of Harford co.
Emolles'cence, *n.* [Lat. *e*, out, and *mollescere*, to become soft.] The softening of a metal in beginning to melt.
Emol'liate, *v. a.* [Lat. *emollio, emollitus*—*e, ex*, and *mollio*, from *mollis*, soft, tender.] To soften; to render effeminate.
Emol'lient, *a.* [Lat. *emolliens.*] Softening; making supple; acting as an emollient.
—*n.* (*Med.*) An external application which softens, soothes, or allays irritation, and alleviates inflammatory soreness, swelling, and pain. *E.* of honey, gum, sugar, and eggs are among the chief internal articles; and poultices, fomentations, and hot water, the best of the external.
Emolli'tion, *n.* The act of softening. (R.)
Emol'ument, *n.* [Lat. *emolumentum*, a laborious moving out, from *emolior*, to move out with effort—*e*, and *molior*, to exert one's self, from *moles*, a shapeless, heavy mass. See MOLE.] The result of effort; gain; advantage; the profit arising from office or employment.—That which is received as a compensation for services.—Profit; advantage, in a general sense.
Emolument'al, *a.* Useful; yielding profit.
Em'ory, in *California*, a township of Stanislaus co., abt. 24 m. S.E. of Stockton; *pop.* about 800.
Em'ory, in *Virginia*, a post-office of Washington co.
Emo'tion, *n.* [Lat. *emotio*, from *emoveo, emotus*—*e, ex*, and *moveo*, to move.] A moving away; a stirring or rousing up; a moving of the mind: mental excitement; any agitation of mind, or excitement of sensibility; feeling; agitation; perturbation; tremor.
(*Phil.*) A state of feeling awakened through the medium of the intellect, and manifesting its existence and character by some sensible effect on the body. An *E.* differs from a sensation in not springing directly from an affection of the body; and according to Lord Kames, an emotion differs from a passion in this, that it passes away without exciting any desire, whereas a passion is accompanied by desire. Emotions, regarded in themselves, can hardly be called springs of action. They tend rather to quiescence and contemplation, fixing the attention on the objects or occurrences which have excited them. But they combine with springs of action, and give them a character and a coloring.
Emo'tion, *v. a.* To move; to excite.
Emp. A contraction for EMPEROR, and EMPRESS.
Empale', *v. a.* [Fr. *empaler*, from L. Lat. *impalare*—*in*, and *palus*, a pale, a stake.] To fence or fortify with pales or stakes; to set a line of stakes or posts for defence; to inclose; to surround.—To put to death by fixing on a stake.
Empaled', *p. a.* Fenced or fortified with stakes; inclosed; shut in.—Fixed on a stake.
Empale'ment, *n.* [Fr.] A fencing, fortifying, or inclosing with stakes.—A terrible mode of torture and death in vogue among the Romans, and till lately of common practice among the Turks. The mode was, to run a long, sharp stake through the body, and out at the shoulder, and, fixing the end firmly in the ground, leave the writhing wretch to expire on this inhuman spit.

> "And when I have the bloody Hector found,
> *Empale* him with your weapons round about." — *Shaks.*

(*Bot.*) The calyx of a plant.
(*Her.*) A conjunction of coats of arms, pale-wise.

Empan'el, *v. a.* and *n.* See IMPANEL.
Empar'adise, *v. a.* See IMPARADISE.
Empark', *v. n.* [*Em* and *park.*] To form into a park; to inclose, as with a fence.
Empar'lance, *n.* See IMPARLANCE.
Empasm', *n.* [Fr. *empasme*, from Gr. *empassein*, to sprinkle in or on, from *em*, for *en*, in, and *passein*, to sprinkle.] A powder for sprinkling the body, or a diseased part of it, to deprive it of an offensive odor.
Empas'sion, *v. a.* See IMPASSION.
Empas'sionate, *a.* See IMPASSIONATE.
Empeach', *v. a.* See IMPEACH.
Empearl', *v. a.* To cover with pearls, or anything resembling pearls.
Empedocles, (*em-ped'o-klees,*) a Greek philosopher, whose doctrines were in some points allied to those of Pythagoras, was born about B. C. 460, at Agrigentum, in Sicily. The sovereignty was offered him by his fellow-citizens; but being a friend to pure democracy, he refused it, and established a popular government. He was skilled in philosophy, poetry, and medicine. Some fragments of his writings, all in verse, are still extant. Lucretius studied, admired, and imitated, in his own great poem, the works of Empedocles. *E.* is said to have been the first philosopher who taught the doctrine of the "four elements." The time and manner of his death are uncertain; the story of his having thrown himself into the crater of Mt. Ætna being, in all probability, a fiction.
Em'peress, *n.* Same as EMPRESS, *q. v.*
Em'peror, *n.* [Fr. *empereur;* Lat. *imperator*, from *impero*, to command—*in*, and *paro*, to prepare, to furnish, to order.] (*Hist.*) The Romans distinguished their successful generals by the title Imperator, which was assumed by Julius Cæsar on his elevation to the perpetual dictatorship, B. C. 46. The succession of Roman emperors dates from Augustus Cæsar, B. C. 27, and that of the Eastern emperors from Valens, in 364. Charlemagne was crowned Emperor of the West in 800. The Ottoman empire began under Ottoman or Othman I., in 1299. The Czar Peter assumed the title of Emperor of all the Russias in 1721, and Napoleon I. that of the Emperor of the French, May 18, 1804, in which year Francis II. of Germany adopted the style of Emperor of Austria, and renounced the German imperial title in 1806. Brazil became an independent empire under Dom Pedro IV. in 1825. The empire of Germany was reëstablished Jan. 18, 1871; and Queen Victoria assumed the title of Empress of India in 1876.
Emperor-moth, *n.* (*Zoöl.*) A species of the European moth, of the genus SATURNIA, *q. v.*
Em'petra'ceæ, *n.* [From Gr. *en*, upon, and *petros*, a stone; alluding to the places of its natural growth.] (*Bot.*) The Crowberry family, an order of plants, alliance *Euphorbiales.* DIAG. Definite, ascending, anatropal ovules, and an inferior radicle. They are small, heath-like, evergreen shrubs, mostly natives of N. Europe and N. America. Flowers dicœcious. Calyx consisting of hypogynous, imbricated scales. Stamens equal in number to the inner sepals, and alternate with them. Ovary 3–9-celled, with a single erect ovule in each cell. Styles short or altogether wanting. Stigmas lobed, and often lacerated. Fruit drupe seated in the persistent calyx, containing 3–9 bony nucules. Seeds solitary ascending, albuminous. Radicle inferior. The leaves and fruit are generally slightly acid. The berries of *Empetrum negrum*, the crowberry, are eaten in the very cold parts of Europe, and are also employed in Greenland to prepare a fermented liquor. Also used in the preparation of a beverage which is said to have a medicinal value in febrile complaints. The order includes 4 genera and 4 species.



Fig. 937.—CROWBERRY.
b, fruit cut open; *c*, flower.

Empe'trum, *n.* (*Bot.*) The typical genus of the order EMPETRACEÆ, *q. v.*
Em'phasis, *n.; pl.* EM'PHASES. [Gr. *emphasis*—*en*, and *phasis*, a declaration, a saying, from *phemi*, to speak, from the ancient *phaō*, to shine, to be bright, to appear.] A strong and energetic utterance or pronunciation; a stress of force of voice laid on a word or clause of a sentence, in order to enforce a meaning; a distinctive intonation given to one or more words in reading and speaking, in order to draw attention to their value in the sentence; impressiveness; significance; weight; the marked attention which a writer or speaker bestows on a topic, by which it is brought into prominent notice.
Em'phasize, *v. a.* To read or speak with emphatic distinction; to place emphasis on; to make emphatical.
Emphat'ic, Emphat'ical, *a.* [Fr. *emphatique;* Gr. *emphatikos.*] Requiring emphasis; characterized by peculiar force or expressiveness; significant; expressive; forcible; earnest; strong; energetic.
Emphat'ically, *adv.* With emphasis; strongly; forcibly.
Emphat'icalness, *n.* State of being emphatical.
Emphly'sis, *n.* [Gr. *en*, in or upon, and *phlysis*, eruption.] (*Med.*) Eruption of vesicular pimples filled with an acrid fluid.
Emphrac'tic, *a.* [Gr. *emphraktikos*, obstructing, from

emphrassein, to block up.] (*Med.*) Stopping up the pores of the skin.

Emphyse'ma, *n.* [Gr. *emphysema*, inflation, from *emphysen*, to inflate, from *em*, for eu, in, and *physan*, to blow; Fr. *emphysème.*] (*Med.*) *E.*, or wind-dropsy, is a swelling of a part or the whole body, caused by the entrance of air into the cells of the cellular tissue. *E.* is most frequently caused by a fractured rib, which, lacerating the lungs, causes — by constant inspiration of the lungs — the air to enter the cellular tissues, till it is gradually diffused over the body. It also arises from wounds in the throat, or from injury to the lungs or windpipe. The only disease with which *E.* can be confounded is that of general dropsy, or *anasarca;* from this, however, it is easily distinguished by the crackling sound produced under the fingers by handling the swollen parts, and by the absence of the pits when pressed, which always show when water is the cause of the distention.

Emphysem'atous, *a.* [Fr. *emphysémateux.*] (*Med.*) Bloated; swollen; inflated.

Emphyteu'sis, *n.* [Gr. *emphyteusis*, from *emphyteuein*, to plant or improve land.] (*Civ. Law.*) A contract, by which the owner of a piece of land granted it to another, either in perpetuity or for a long time, on condition that he should improve it by building, planting, or cultivating it, and should pay for it an annual rent.

Em'pire, *n.* [Fr., from Lat. *imperium*, from *impero*, to command. See EMPEROR.] Absolute authority; supreme power in governing; imperial power; sovereignty; supremacy. — The territory, region, or countries under the jurisdiction and dominion of an emperor. — Supreme control; governing influence; sway; rule. — Any region, land, or water, over which dominion is extended.

Empire, in *Illinois*, a flourishing township of McLean county.

Empire, in *Michigan*, a post-office of Leelenaw co.

Empire, in *Minnesota*, a township of Dakota co., about 10 m. W.S.W. of Hastings.

Empire, or EMPIRE CITY, in *Minnesota*, a post-village of Empire township, Dakota co., on the Vermilion River, abt. 20 m. S. of St. Paul.

Empire, in *Wisconsin*, a post-township of Fond du Lac co., abt. 4 m. E. of Fond du Lac.

Empire City, in *California*, a village of Stanislaus co., abt. 40 m. S.E. of Stockton.

—A town of Tuolumne co., on the Tuolumne River.

Empire City, in *Colorado*, a post-town of Clear Creek co., abt. 48 m. W. of Denver.

Empire City, in *Nevada*, a village of Ormsby county, on the Carson River, about 3 miles E. by N. of Carson City.

Empire City, in *Oregon*, a post-village, capital of Coos county, on Coos Bay, about 5 m. from the Pacific Ocean.

Empire Iron Works, in *Kentucky*, a P.O. of Trigg co.

Em'pire Junction, in *Wisconsin*, a post-office of Columbia co.

Empir'ic, *n.* [Fr. *empirique;* Gr. *empeirikos*, experienced, from *empeirazo*, to make trial of—*en*, and *peiraō*, to attempt, to try; allied to Lat. *peritus*, skilful.] One whose knowledge is founded exclusively on experience; also, a quack; an ignorant pretender to medical skill; a charlatan.

(*Hist. of Med.*) The empirics were a regular sect of ancient physicians in the time of Celsus and Galen, who gives us some insight into their modes of thought and practice. They laid great stress on the unprejudiced observation of nature; and thought that, by a careful collection of observed facts forming a history, the coincidence of many observations would lead to unalterable prescriptions for certain cases. The later adherents of the school excluded all theoretical study, even that of anatomy, and were guided solely by tradition and their individual experience. By an empiric in medicine is now understood a man who, from want of theoretic knowledge, prescribes remedies by guess according to the name of the disease or to individual symptoms, without thinking of the constitution of the patient or other modifying circumstances. What are called *specifics* are administered on this principle, or, rather, want of principle.

Empir'ic, Empir'ical, *a.* Pertaining to experiments, or resting on experience; versed in experiments; following or relying upon experience; derived from experiments; used and applied without science; characteristic.

Empir'ically, *adv.* By experiment; according to experience; without science; in the manner of quacks.

Empir'icism, *n.* [Fr. *empirisme.*] Dependence of a physician on his experience alone in practice, without the aid of a regular medical education; the practice of medicine without a medical education; quackery.

Empir'icist, *n.* An empiric.

Emplace'ment, *n.* [Fr.] Act of placing; foundation; place; site, as of a building.

Emplas'tic, *a.* [Fr. *emplastique.*] (*Med.*) A constipating medicine.

Emplead', *v. a.* See IMPLEAD.

Employ', *v. a.* [Fr. *employer;* Lat. *implico* — *in*, and *plico*, to fold. See PLY.] To engage; to occupy; to make busy; to keep at work; to exercise; to engross. — To make use of; to use; to engage, as an agent, substitute, instrument, or means. — To apply or devote to an object. — To fill up with occupation.

—*n.* That which engages the mind or occupies the time and labor of a person; business; object of study or industry; employment; occupation; engagement; duty; public office; agency; service for another.

Employ'able, *a.* Capable of being employed.

Employé, (*em-ploy-ā',*) *n.* [Fr.] One who is employed; a clerk; an official.

Employ'er, *n.* One who employs; one who uses; one who engages or keeps in service.

Employ'ment, *n.* Act of employing or using; that which engages the head or hands; business; vocation; occupation; avocation; engagement; agency; office; trade; profession; post; function.

Emplunge', *v. a.* See PLUNGE.

Empoi'son, *v. a.* [Fr. *empoisonner* — *en*, and *poison.* See POISON.] To poison; to administer poison to; to taint with poison or venom; to render noxious or deleterious by an admixture of poisonous substance; to imbitter.

Empoi'soned, *p. a.* Poisoned; tainted with venom; imbittered.

Empoi'soner, *n.* One who destroys by poison; a poisoner.

Empo'ria, in *Kansas*, an important city, cap. of Lyon co., on Neosho river and the M., K. & T. and A., T. & S. F. R. Rs., 61 m. S. S. W. of Topeka. Has extensive manufacturing industries, and is the trade center of a large region; seat of a State Normal School and of the College of Emporia (Presbyterian). *Pop.* (1897) about 8,300.

Emporia, in *Virginia*, a post-borough, cap. of Greenville co. *Pop.* (1897) about 1,500.

Empo'rium, *n.* [L., from Gr. *emporion*, from *emporeuomai*, to go, travel, or pass into, to travel for traffic or business—*en*, and *poros*, a way, passage, or thoroughfare; from *peraō*, to pass through; allied to Sax. *faran*, to go.] A trading-place; a mart; a place for merchandise; a town or city of trade; particularly, a town or city of extensive commerce; as, New York, Philadelphia, and Boston are the great *emporiums* of the East.

Empo'rium, in *Penna.*, a post-borough, cap. of Cameron co., on 3 railroad lines, 73 m. N. W. of Lock Haven. Has some manuf. *Pop.* (1897) about 2,500.

Empow'er, *v. a.* [*En* and *power.*] To give legal or moral power or authority to; to confer authority upon; to authorize; to commission; to enable; to give power or authority for any purpose.

Em'press, *n.* [Contracted from *emperess;* Fr. *impératrice*, from L. *imperatrix.*] The consort or spouse of an emperor. — A female invested with imperial power or sovereignty.

Emprise', *n.* [O. Fr. *emprise.*] An attempt or undertaking of danger; enterprise.

Empris'on, *v. a.* See IMPRISON.

Emprosthot'onos, *n.* [Gr.] (*Med.*) A spasmodic action of the muscles, by which the body is involuntarily drawn forward.

Emp'tier, *n.* He who, or that which, empties.

Emp'tiness, *n.* A state of being empty; a state of containing nothing but air; destitution; absence of matter; void space; vacuity; vacuum; want of solidity or substance; inability to satisfy desire; want of intellect or knowledge.

Emp'tion, *n.* [Lat. *emptio.*] The act of purchasing.

Emp'tional, *a.* That may be purchased.

Emp'ty, *a.* [Sax. *aemti, aemtig, emtig*, vacant, free, idle; *aemtian*, to be at leasure, to be vacant. Etymol. unknown.] Vacant; evacuated; containing nothing, or nothing but air; not filled; void; devoid; destitute of solid matter, or of force or effect; unsubstantial; unsatisfactory; unsupplied; unburdened; having nothing to carry; hungry; vacant of head; ignorant; unfruitful; producing nothing; wanting substance; wanting solidity; destitute; waste; desolate.

—*v. a.* [A. S. *aemtian.*] To make empty, void, or destitute; to deprive of the contents; to pour out the contents of; to waste; to make desolate.

—*v. n.* To become empty; to pour out or discharge its contents.

Emp'tying, *n.* Act of pouring out or making empty.

—*pl.* Sediment or lees of beer, cider, &c.; yeast. (U. S.)

Empty'sis, *n.* [Gr.] (*Med.*) Expectoration of blood caused by hemorrhage of the lungs.

Empugn', *v. a.* See IMPUGN.

Empur'ple, *v. a.* [*En* and *purple.*] To tinge or dye of a purple color; to discolor with purple.

Empur'pled, *p. a.* Stained with a purple color.

Empye'ma, *n.* [Gr., suppuration.] (*Med.*) A collection of purulent matter in the cavity of the thorax. This is an occasional termination of pleurisy, and is attended by difficulty of breathing and inability to lie on the side opposite that which is affected; an external swelling is sometimes perceptible, and the matter has occasionally been let out by making an opening between the sixth and seventh ribs.

Empye'sis, *n.* [Gr.] (*Med.*) A pustulous eruption.

Empyr'eal, *a.* [Gr. *empyros*, from *en*, in, and *pyr*, fire.] Formed of pure fire or light: refined beyond aërial; pertaining to the highest and purest region of heaven.

Empyr'ean, *n.* The highest heaven, where the pure element of fire has been supposed to exist.

Empyreu'ma, *n.* [Gr., from *empyreuo*, I kindle.] That rank, burnt smell peculiar to wood when distilled under certain conditions. It is this odor that gives to tar, creosote, and smoked meats their distinguishing feature.

Empyreumat'ic, Empyreumat'ical, *a.* Having the smell or taste of burnt substances; as, *empyreumatical* oils.

Empyr'ical, *a.* [Gr. *empyrosis*, prepared by fire.] Belonging to combustion, or to combustibility.

Ems, a river of Germany, rising in Lippe-Detmold, traversing Westphalia, and after a course of 150 m. falling into the bay of Dollart, in the N. Sea.

Ems, a spa of Prussia, prov. Hesse-Nassau, on the Lahn, 7 m. S.E. of Coblentz. The springs vary in temperature from 93° to 103° Fahr., and have long enjoyed a European celebrity. *Pop.* 5,438.

E'mu, or **E'meu,** *n.* (*Zoöl.*) The *Dromaius Novæ Hollandiæ*, a singular bird, native of Australia, allied to the Cassowary; they nearly equal the Ostrich in bulk, but have short legs and a shorter neck. It measures more than seven feet in length; the beak is black: the plumage for the most part brown and gray mixed, paler on the under parts; the head differs greatly from that of the common Cassowary, being covered with feathers; nor has it any helmet or rising protuberance whatever, as in that species; the feathers, however, about the head and neck are of a hairy texture, and the fore part of the chin and throat nearly destitute of any, so that the purple color of the skin may be seen through them; the long feathers observable in the wings of the Cassowary of the Old Continent are here wanting; but instead of them are real wings, though of so small a size as to be useless for flight; they are covered with feathers like the rest of the body, and when the bird is quite at rest, are scarcely discernible therefrom. The legs are



Fig. 938. — EMU AND YOUNG.

stout, similar to those of the Galeated Cassowary, but greatly indented or jagged at the back part; the three toes placed in the same manner, all forwards. So far the external appearance of the bird; internally, it is said to differ from every other species, particularly in having no gizzard, and the liver being so small as not to exceed that of a blackbird. It is shy and timid, trusting to its great speed for safety, except when hard pressed; it then strikes violently with its legs. The flesh of the young is delicate, but that of the full-grown bird is coarse; it is pursued, however, for the oil that is obtained from it, of which the skin produces six or seven quarts.

Em'ulate, *v. a.* [Lat. *æmulor, æmulatus*, to make one's self a rival, from *æmulus*, that strives after another earnestly; allied to Gr. *hamillaomai*, to contend with another, from *hamilla*, a contest for superiority, from *hama*, at once, together with; akin to Sansk. *sam*, with.] To strive or contend with; to strive to equal or excel, in quantities or actions; to imitate, with a view to equal or excel; to rival; to vie with; to be equal to.

Emula'tion, *n.* [Fr. *émulation*, from L. *æmulatio.*] Act of emulating or of attempting to equal or excel in qualities or action; desire of superiority; competition; rivalry; desire of excellence, attended with effort to attain to it; contention; contest; struggle; strife.

Em'ulative, *a.* Inclined to emulation; rivalling; disposed to competition.

Em'ulator, *n.* [Lat. *æmulator;* Fr. *émulateur.*] One who emulates; a rival; a competitor.

Em'ulatress, *n.* [Fr. *émulatrice.*] She who emulates.

Emul'gent, *a.* [Lat. *emulgeo, emulgens* — *e, ex*, and *mulgeo*, to milk.] (*Anat.*) Belonging or relating to the renal artery and vein.

—*n.* (*Anat.*) The artery and vein which go from the aorta and vena cava of the kidney are so called, from the ancient notion of the blood being, as it were, strained in the kidneys.

(*Med.*) Any medicine used to excite the flow of bile.

Em'ulous, *a.* [Lat. *æmulus.*] Desirous or eager to emulate, or to imitate, equal, or excel another; desirous of like excellence with another; rivalling; engaged in competition.

Em'ulously, *adv.* With desire of equalling or excelling another.

Em'ulousness, *n.* Quality of being emulous; rivalry; competition.

Emul'sion, *n.* [Fr. *émulsion;* from Lat. *emulsus*, from *emulgeo.*] (*Med.*) A milky preparation made by uniting oil and water through the intervention of some substance capable of combining with both.

Emul'sive, *a.* Milk-like; softening; producing or yielding a milk-like substance.

Emunc'tory, *n.* [L. Lat. *emunctorium*, a pair of snuffers, from *emungo, emunctus* — *e, ex*, and obsol. *mungo*, to blow the nose; Gr. *mysso.*] (*Anat.*) Any part of the body which serves to carry off excrementitious matter; an excretory duct.

Emyd'oidæ, *n. pl.* (*Zoöl.*) See TERRAPIN.

En, a prefix to many English words, and an inseparable particle borrowed from the French, and by them taken from the Latin. In many words, *en* is used for *in*, and in older writers the *en* is of perpetual occurrence, both

particles coinciding with the Lat. *in* and the Greek *en*. Many modern English words are written indiscriminately with either, as *entire*, *enquire*. The prefix of *en* is sometimes converted into *em*, especially before a labial, as *employ*, *employer*. By the Saxons, *en* was made a plural termination to a great number of words, as in *housen*, *escapen*, etc., and is still preserved in that sense in *oxen* and *children*.

Ena'ble, *v. a.* [*En*, and *able*, q. v.] To make able; to supply with power; to furnish with sufficient power or ability; to empower; to strengthen; to authorize.

Enact', *v. a.* [*En* and *act.*] To put in act or action; to establish by law; to pass, as a law; to give legislative sanction, as to a bill; to institute; to decree; to order; to act; to represent in action.

Enact'ing, *p. a.* Giving legislative forms and sanction.

Enac'tive, *a.* Having power to enact or establish, as a law.

Enact'ment, *n.* The passing of a bill into a law; the act of voting, decreeing, and giving validity to a law.

Enact'or, *n.* One who enacts or passes a law; one who decrees or establishes, as a law.

Enaliosau'ria, *n. pl.* [Gr. *enalio*, of the sea, and *sauros*, a lizard.] (*Pal.*) A name applied to the entire group of extinct Saurians, in the organization of which paddles, like those of the whale or turtle, were combined with the head and trunk of a crocodile.

En'allage, *n.* [Gr. *enalla-gē*, from *enallasso* — *en*, and *allasso*, to make other than it is, to change, from *allos*, Lat. *aluis*, another. See ALIENATE.] (*Gram.*) An exchange or interchange; a change of words, or a substitution of one gender, number, case, person, tense, mood, or voice of the same word for another.

Enam'el, *n.* [Fr. *émail.*] An opaque glass, which owes its opacity to the presence of binoxide of tin. Mixed with various metallic oxides and fused, it may be obtained of different colors. The enamel for watch-faces is made from arsenic instead of tin. A coarse enamel made of white glass, free from lead, borax, and soda, is extensively used for coating the insides of culinary vessels. The process at first was unsuccessful, owing to the liability of the glaze to split off under the influence of sudden heat; but great improvements have lately been made, and enamelled culinary utensils are now cheap and common.

—That which is enamelled. — A smooth, glossy surface of various colors, resembling enamel. — The smooth, hard substance which covers the visible part of a tooth.

(*Paint.*) The art of applying vitrifiable colors on thin plates of metal (gold or copper) which are melted on to them, or on pottery, or even glass itself: the glass painting of the present time is chiefly enamelled. This art was practised by the ancient Egyptians and Etruscans. It was very commonly applied to ecclesiastical utensils and furniture during the Middle Ages, and was much in vogue with the Byzantine Greeks, and with the Moors. The town of Limoges, in France, acquired especial celebrity for this class of art, on metal plates. During the Revival in Italy, especially in the Cinque-cento period, it was much employed for table-services of pottery, and for the vessels of apothecaries. The famed Faenza or Majolica ware is simply enamelled earthenware. One of the first good enamellists, especially of portraits, was John Petitot of Geneva (1607–91). The various colors used are prepared from oxides of different metals, melted with some vitrescent mixture or *flux*, and laid on with a fine brush, the medium being oil of spike, or turpentine, or some other essential oil; and it is easy to conceive how much the difficulties of this nice art are increased where the object is not merely to lay a uniform colored glazing on a metallic surface, but also to paint that surface with figures and other designs that require extreme delicacy of outline, accuracy of shadowing, and selection of coloring. The enamel painter has to work, not with actual colors, but with mixtures which he knows from experience will produce certain colors after the operation of the fire. This work requires several firings. The outline is first burnt in, after which the parts are filled up gradually with repeated burnings to the last finishing touches. The principal colors are oxides of lead, platinum, uranium, and chromium; different colors require different treatment. Silica, borax, and red oxide of lead form a flux for some colors; the oxides of iron and manganese are not approved of. The enamel is made opaque and white by oxides of tin or antimony.

—*v. a.* To lay enamel on, as a metal; to paint in enamel; to form a glossy surface like enamel.

—*v. n.* To practice the art of enamelling.

Enam'eller, Enamellist, *n.* One who enamels.

Enam'elling, *n.* Act or art of laying on enamel.

Enam'our, *v. a.* [O. Fr. *enamourer* — *en*, and *amour*, L. *amor*, love; Sp. *enamorár;* It. *inamáre*, *innamráre*, to inspire with love, to fall in love.] To inflame or inspire with love; to charm; to captivate; to fill with delight.

Enam'oured, *p. a.* Inflamed with love; charmed; delighted.

Enanthe'sis, *n.* [Gr. *en*, *in*, and *anthesis*, blossom.] (*Med.*) An eruption on the skin, connected with an internal affection, as measles.

Enanthiopath'ic, *a.* [From Gr. *en*, *in;* *anti*, against, and *pathos*, suffering.] (*Med.*) Relieving, but not curing; palliative.

Enanthiop'athy, *n.* (*Med.*) Allopathy.

Enantio'sis, *n.* [Gr., from *enantios*, opposite.] (*Rhet.*) A figure by which what is spoken negatively is to be understood affirmatively.

Enara, (*ai-na'ra,*) a lake of Russia, in the extreme N. of Finland, is situated between Lat. 68° 30′ and 69° 10′ N., and Lon. 27° 30′ and 28° 45′ E. It has an area of 1,200 sq. m., and has numerous islands. Its superfluous waters are discharged into the Arctic Ocean.

Enar'ea, a country of Africa, south of Abyssinia, is situated within Lat. 7° and 9° N., and Lon. 36° and 38° E., but its limits have not yet been definitely ascertained. It is inhabited by a portion of the Gallas tribes, who, owing to the continued communication which they keep up with Abyssinia, and also to the residence of many Mohammedan merchants among them, are much more civilized than the Gallas in general. Their government is an hereditary and absolute monarchy. The principal rivers of *E.* are the Gibbe and the Dodesa. Its coffee-plantations are so extensive as to deserve the name of woods; they occur chiefly along the banks of the Gibbe. *E.* is remarkable for its manufactures of ornamented arms, and of cloths with embroidered borders. Besides these, it exports slaves, gold, ivory, civet, and skins, into Abyssinia. The king and a small portion of the population are Mohammedans, and it is said that native Christians have been found here. The capital is Saka, a place of considerable importance, near the river Gibbe.

Enar'gite, *n.* (*Min.*) A sulphite of copper and arsenic, of metallic lustre, and grayish to iron-black color.

Enarthro'sis, *n.* [From Gr. *en*, *in*, and *arthron*, a joint.] (*Anat.*) The ball and socket-joint. A species of diarthrosis, or movable connection of bones, in which the round head of one is received into the deeper cavity of another, so as to admit of motion in every direction; as the head of the os femoris with the acetabulum of the os innominatum.

Encage', *v. a.* [*En* and *cage.*] To put into a cage; to shut up or confine in a cage; to coop.

Encamp', *v. n.* [Fr. *en*, and *camp.*] To pitch or fix a camp or camps; to pitch tents or form huts, as an army; to halt on a march, spread tents, and remain for a night or for a longer time; to lodge in a camp.

—*v. a.* To form into a camp; to place in a camp; to place a marching army or company in a temporary habitation or quarters.

Encamp'ment, *n.* [Fr.] Act of pitching tents or forming camps or huts, for temporary lodging or rest; the place where an army or company is encamped; a CAMP, *q. v.*

Encan'this, *n.* [Gr., from *kanthos*, the angle of the eye.] (*Med.*) A small tumor or excrescence growing from the inner angle of the eye.

Encar'dion, *n.* [From Gr. *en*, in, and *kardia*, the heart.] The heart or pith of vegetables.

Encar'pus, *n.* [Gr. *enkarpos*, containing fruit.] (*Arch.*) The festoons on a frieze, consisting of fruits, flowers, &c.

Encase', *v. a.* To inclose; to incase.

Encase'ment, *n.* The act of encasing.

Encash'ment, *n.* The payment in cash of a note, draft, &c.

Encau'ma, *n.* [Gr., a brand.] (*Med.*) A tumor produced by a burn. — An ulcer of the cornea occasioning the loss of the humors.

Encaus'tic, *a.* [Gr. *en*, and *kaustikos*, burning, caustic, from *kaiō*, *kausō*, to burn. — See CAUSTIC.] Pertaining to the art of painting in heated or burned wax.

—*n.* (*Fine Arts.*) A method of painting that was practised to a great extent among the ancients, from the time of Alexander the Great until the 7th or 8th cent., from which time the art gradually declined until the 14 th century, when it seems to have been abandoned, and a practical knowledge of effecting it entirely lost. According to the historian Pliny, there were three methods of performing the process; the first and second seem, however, to be almost, if not entirely, identical; the first being the method of producing large pictures, and the second, of producing designs in miniature. In the first kind, the color that was intended for the ground of the picture, after having been mixed with wax as a vehicle, was smeared over the surface of the wall or panel on which the painting was to be made, and carefully flatteued. The design, whether it was a figure or an arabesque border or scroll-work, was traced on this ground with a sharp-pointed instrument, and the ground carefully removed, leaving the figure in a sort of shallow intaglio. The wall beneath was allowed to show through, or the hollow was filled with wax coloring-matter of another tint; after which the whole was blended together with a hot iron, — a process which removed all traces of the junction of the different colors, and imparted a brilliant gloss to the tints that were used. The second method, in which the work was executed on ivory, must have been similarly done, and the wax-color which had been spread over the ivory removed by the graving-tool, to allow the surface of the ivory to furnish the design; or the design was cut out on the ivory in intaglio, and the hollows thus obtained were filled with colored wax. In the third kind, in which the colors were laid on with a brush, the coloring-matter was mixed with wax dissolved in turpentine or some essential oil. The colors were laid on in a liquid state, and from the use of the brush an effect of light and shadow was obtained which it was impossible to produce in the other methods above described. When the picture was completed, the tints were blended together with a heated iron as before. About 1750, the lost art was recovered, and the practice of it revived, by M. Bachelier and Count Caylus in France. Both produced pictures in this style, and an account of the method used was published. It was warmly taken up throughout the south of Europe for some years, when it again fell into disuse. It was revived again at Munich in the reign of King Louis of Bavaria, and the interiors of many apartments in his palace, and various public buildings erected under his auspices, were executed in it. Since that time, many fine works in this brilliant style of painting have been produced; but it is far better suited for decorative work than for portraits, figures, or landscapes.

E. tiles, small earthenware tiles used for paving the passages in the nave and aisles of churches, and also the chancel. They are also used for paving entrance-halls and the vestibules of houses. They are for the most part in two colors, red and yellow being most commonly used, and they are so called because they have a light arabesque pattern figured on them on a dark ground, or *vice versâ*, in imitation of the early encaustic painting of the ancients.

Encave', *v. a.* To put into a cave; to hide in a cave or recess.

Enceinte, (*ang-sant',*) *n.* [Fr., from *enceindre*, to encircle.] (*Fort.*) This term denotes generally the whole area of a fortified place. Properly, however, it means a cincture or girdle, and in this sense the *E.* signifies the principal wall or rampart encircling the place, comprising the curtain and bastions, and having the main ditch immediately outside it.

—*a.* (*Law.*) Being with child; pregnant.

Enceladus, (*Myth.*) A son of Titan and Terra, the most powerful of all the giants who conspired against Jupiter. He was struck with Jupiter's thunders, and imprisoned under Mount Ætna. Some suppose that he is the same as Typhon. According to the poets, the flames of Ætna proceeded from the breath of *E.*; and as often as he turned his weary side, the whole island of Sicily felt the motion, and shook to its very foundation.

Encephalar'tos, *n.* [Gr. *ankephalos*, and *artos*, bread.] (*Bot.*) A genus of plants, order *Cycadaceæ*, composed of elegant palm-like trees and shrubs, mostly natives of S. Africa and Australia. From the stems of various species a kind of sago, called Caffre-bread, is obtained.

Encephal'gia, *n.* [Gr. *en*, in, *kephale*, the head, and *alges*, pain.] (*Med.*) Deep-seated headache; cephalalgy.

Enceph'alic, *a.* [Gr. *en*, in, *kephale*, head.] Situated in the head.

Enceph'alocele, *n.* [Gr. *ankephalos*, the brain, *kele*, a tumor.] (*Med.*) Hernia of the brain. There are two kinds of this disease: one occurs in young infants, before the skull is completely ossified; the other presents itself after the destruction of a part of the skull in consequence of disease, accident, or the operation of the trepan.

Encephalot'omy, *n.* [Gr. *ankephalos*, and *tome*, a cutting.] (*Anat.*) Dissection of the brain.

Enchafe', *v. a.* [Fr. *échauffer.*] To enrage; to irritate; to chafe.

Enchain', *v. a.* [Fr. *enchainer* — *en* and *chain.*] To put within a chain; to fasten with a chain; to bind or hold in chains; to hold in bondage; to enslave; to enthral; to hold fast; to restrain; to confine.

Enchain'ment, *n.* Act of enchaining; or state of being enchained.

Enchant', *v. a.* [Fr. *enchanter* — *en*, and *chanter*, to sing; L. *canto*, frequent. from *cano*, to sing. See CHANT.] To act upon or influence by songs of sorcery or fascination; to practise sorcery or witchcraft on any thing; to subdue by charms or spells; to charm; to captivate; to fascinate; to enrapture; to bewitch.

Enchant'ed, *p. a.* Affected by sorcery; fascinated; subdued by charms; delighted beyond measure; inhabited or possessed by elves, witches, or other imaginary mischievous spirits.

Enchant'er, *n.* [Fr. *enchanteur.*] One who enchants; a sorcerer or magician; one who charms or delights.

Enchant'ing, *p. a.* Charming; delighting; ravishing.

Enchantingly, *adv.* With the power of enchantment; in a manner to delight or charm.

Enchant'ment, *n.* [Fr. *enchantement.*] Act of enchanting, or of influencing by the agency of certain supposed spirits; the use of magic arts, spells, or charms; incantation; conjuration; magic; spell; sorcery; witchery; witchcraft; irresistible influence; overpowering influence of delight; fascination. — See MAGIC.

Enchan'tress, *n.* A sorceress; a woman who is versed in magical arts, spells, charms, &c.

—A woman whose beauty or excellencies give irresistible influence.

Enchase', *v. a.* [Fr. *enchâsser* — *en*, and *châssis*, a frame; Lat. *capsa*, a repository, a chest, a box, or case; Gr. *kapsa.*] To incase; to infix or inclose in another body, so as to be held fast but not concealed; to adorn by embossed work; to enrich or beautify, as any work in metal, by some design; to adorn by being fixed on the surface; to mark by incision.

Enchas'ing, *n.* Same as CHASING, *q. v.*

Enchas'ten, *v. a.* To correct; to chastise; to chasten.

Encheer', *v. a.* To enliven; to cheer.

Enchis'el, *v. a.* To cut with a chisel.

En'chodus, *n.* [Gr. *egchos*, a spar, and *odoys*, a tooth.] (*Pal.*) A genus of fishes of the Mackerel family, found in the chalk formation.

Encho'riæ, Enchor'ic Characters, *n. pl.* See HIEROGLYPHICS.

En'cinal, or ENSINAL, in *Texas*, a S. co.; *area*, about 1,700 sq. m. *Rivers.* Nueces and Salado rivers. *Pop.* estimated at 1,100 in 1897.

Encinc'ture, *n.* [Lat. *en*, and *cinctura*, a girdle.] A band worn round the body; a cincture.

Encir'cle, *v. a.* [*En* and *circle.*] To enclose or surround with a circle or ring, or with anything in a circular form; to encompass; to enclose; to surround; to environ; to embrace.

Encir'clet, *n.* A small circle; a ring.

Encke, JOHANN FRANZ, (*enk'a.*) a German astronomer, director of the Royal Observatory at Berlin, born at Hamburg, 1791. He enlarged the boundaries of astronomical science, and resolved the orbit of the comet called after his name. D. 1865.

Encké's Comet, *n.* (*Astron.*) A comet of periodic recurrence, to which the attention of astronomers was first especially directed when it was discovered by M. Pons at Marseilles, November 26, 1818. The similarity of its elements to those of comets which had been observed in 1786, 1795, and 1805, led M. Encké to calculate its orbit, and he found the period of its revolution at that time to be just about 1,211 days. The comet reappeared in 1822, and on comparing its elements, and the time of revolution, with those of the comets of the years above mentioned, it was found that they were only successive apparitions of the same comet, and that it regularly appeared at its perihelion at intervals of rather more than 1,211 days. It was also found that its period of revolution was gradually growing shorter, at the rate of nearly three hours per revolution, which caused M. Encke to imagine that it was occasioned by some very slight resisting medium spreading throughout the whole of our solar system. It was named after M. Encké, instead of M. Pons, its discoverer in 1818, on account of the success of the former in determining its orbit and period of revolution, and predicting its reappearance in 1825. For an account of its disappearance, see COMET.

Enclasp', *v. a.* [*En*, and *clasp*, q. v.] To clasp; to enclose; to embrace; to fasten with a clasp.

Enclit'ic, or ENCLIT'ICAL, *a.* [Gr. *eng-klitikos* — *en*, and *clinō*, to make, to bend.] (*Gram.*) Leaning; inclining or inclined; noting a particle or word so closely united to another as to seem to be a part of it; throwing back the accent upon the foregoing syllable.

Enclit'ic, *n.* (*Gram.*) A word which is joined to the end of another; a particle or word that throws the accent or emphasis back upon the former syllable.

—*pl.* The art of declining and conjugating words.

Enclit'ically, *adv.* In an enclitic manner; by throwing the accent back.

Enclois'ter, *v. a.* [Fr. *enclôtrer.*] To cloister.

Enclose, *v. a.* [*En* and *close.*] To inclose.

Enclos'ure, *n.* Same as INCLOSURE.

Enclothe', *v. a.* To clothe.

Enclond', *v. a.* To cover, as with a cloud. (R.)

Encof'fin, *v. a.* [*En*, and *coffin*, q. v.] To put in a coffin.

Enco'miast, *n.* [Gr. *eng-komias-tes*, from *eng-komiazo*, to praise, to laud — *en*, *komos*, a jovial festivity, a festal ode. See COMEDY.] One who praises another; a panegyrist; one who utters or writes encomiums or commendations.

Encomias'tic, or ENCOMIASTICAL, *a.* [Gr. *engkomiastikos.*] Containing encomium or praise; bestowing praise; praising; commending; laudatory.

—*n.* A panegyric.

Encomias'tically, *adv.* In an encomiastic manner.

Enco'mium, *n.*; *pl.* ENCOMIUMS. [Lat.; Gr. *eng-komion* See ENCOMIAST.] A laudatory oration; a high commendation; panegyric; applause; eulogium; eulogy; praise.

Encom'pass, *v. a.* [*En*, and *compass*, q. v.] To move or go round; to encircle; to bring within a given circuit or compass; to inclose; to surround; to environ; to shut in and confine; to hem in.

Encom'passment, *n.* Surrounding; a going round.

Encore, (*ang'kōr,*) *n.* [Fr.; It. *ancóra*, a copulative particle which signifies continuation — *anche*, also, too, likewise, yet, and *ora*, now.] Yet; still; once more; again; a word used by auditors and spectators of plays and other sports when they call for a repetition of a particular part.

—*v. a.* To call for a repetition of a particular part of a entertainment.

Encoun'ter, *n.* [Fr. *encontre* — *en*, and *contre*; Lat. *contra*, against.] A running or going against; a meeting front to front; a meeting in opposition or in contest; a conflict; a fight; a battle; a combat; attack; assault; onset; a meeting; sudden or accidental meeting of two or more; eager and warm conversation.

—*v. a.* [Sp. *encontrár*; Fr. *rencontrer.*] To run or go against; to meet face to face; to meet suddenly or unexpectedly; to meet in opposition or in contest; to rush against in conflict; to engage with in battle; to engage with; to meet and oppose; to attack; to resist; to strive against.

—*v. n.* To meet face to face; to meet unexpectedly; to rush together in combat; to fight; to conflict; to meet in opposition or debate.

Encourage, (*en-kur'aj.*) *v. a.* [Fr. *encourager* — *en*, and *courage.*] To give courage to; to give confidence of success to; to increase the confidence of; to inspire with courage, spirit, or strength of mind; to embolden; to animate; to incite; to stimulate; to cheer; to inspirit; to support; to countenance; to cherish; to strengthen; to foster.

Encour'agement, *n.* [Fr.] Act of giving courage or confidence of success; incitement to action or to practice; incentive; that which serves to incite, support, promote, or advance. — Favor; countenance; rewards; profit.

Encourager, (*en-kur'aj-er,*) *n.* One who encourages.

Encour'aging, *p. a.* Inspiring with hope and confidence.

—*a.* Furnishing ground to hope for success.

Encour'agingly, *adv.* In a manner to give courage or hope of success.

Encra'dle, *v. a.* To lay in a cradle.

Encrease, *v. a.* and *n.* See INCREASE.

Encrin'al, Encrin'ic, *a.* Relating to incrinites.

Encrin'ital, *a.* That contains the remains of incrinites.

Encrinite, (*en'kri-nīt,*) *n.* [Lat. *encrinus*, pl. *encrini*; Gr. *en*, and *krinon*, a lily.] (*Pal.* and *Geog.*) Any fossil crinoid or lily-like echinoderm. The encrinites, which form a most important class of fossils, are characterized by their long, many-jointed stalks, surmounted by flower-shaped bodies, which were furnished with numerous finger-like rays, capable of closing and expanding. Their internal calcareous skeletons, in scattered joints and fragments, are so abundant in some carboniferous limestones as to compose the greater portion of the mass; hence the term *encrinal* or *encrinital limestone.* The minuter joints of the fingers and rays are usually termed *entrochi*, or wheel-stones, and the limestones in which they abound *entrochal limestone.* The stalk of the encrinite was perforated by a canal, which kept the whole in vital action; and the separated joints have consequently some resemblance to beads, — a resemblance which has obtained for them the common names of "St. Cuthbert's beads," "wheel-stones," and "pulley-stones." It is usual to apply the term *Encrinites* to the genera having rounded and smooth stems; those having pentagonal and ornamented stems being termed *Pentacrinites;* those having pear-shaped receptacles, *Apiocrinites;* and those with receptacles forming more or less perfect cups, *Cyathocrinites.* Geologically, the encrinites range from the Silurian up to the present period. They occur most abundantly in palæozoic and mesozoic strata, rarely in cainozoic, and are now only represented by the Comatula or Feather-star, and the all but extinct Pentacrinus of the West Indies. Like the corals, their function seems to have been to a great extent the secretion of lime from the ocean, whole strata of limestone, silurian and carboniferous, being almost entirely made up of their remains.

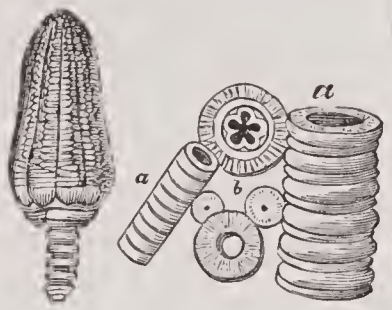


Fig. 939. — ENCRINITES.
a, a, portions of the stem; *b*, separate joints.

Encrinit'ic, Encrinit'ical, *a.* Relating to encrinites.

Encroach', *v. a.* [O. Fr. *encrocher*, from *croc*, a hook.] To catch and draw anything away, as by a hook; to seize upon; to make invasion, as upon rights and possessions of another; to advance by stealth; to make inroad; to pass the proper bounds; to intrude; to infringe; to trench upon; to invade; — followed by *on* or *upon.*

Encroach'er, *n.* One who encroaches.

Encroach'ing, *p. a.* Tending or apt to encroach.

Encroach'ingly, *adv.* By way of encroachment.

Encroach'ment, *n.* [Fr. *encrochement.*] Act of encroaching; unlawful intrusion; advance into the territories or jurisdiction of another by silent means, or without right; invasion; inroad; that which is taken by encroaching on another.

Encrust', *v. a.* [*En* and *crust.*] To cover with a crust.

Encruzilhada, (*en-krōōs-zeel-ya'da.*) a village and harbor of Brazil, prov. of São Pedro-do-Rio-Grande, abt. 50 m. W. of Rio-Pardo; *pop.* abt. 2,500.

Encum'ber, *v. a.* [Fr. *encombrer*, from L. Lat. *incombrare*, to entangle, to hinder, to obstruct.] To impede or embarrass by placing obstacles in the way of; to impede the motion of with a load, burden, or anything inconvenient to the limbs, so as to render motion or operation difficult or laborious; to load; to clog; to embarrass; to impede; to hinder; to obstruct; to trouble; to perplex; to entangle; to load with debts or legal claims.

Encum'bered, *p. a.* Loaded; impeded in motion or operation by a burden or difficulties; loaded with debts

Encum'brance, *n.* That which encumbers; burden; load; clog; impediment; hinderance; legal claims or liabilities.

Encur'tain, *v. a.* [*En* and *curtain.*] To inclose with curtains.

Encyc'lical, *a.* [Gr. *engkyklikos* — *en*, and *kyklos*, a circle. See CYCLE.] Circular; sent to many persons or places; intended for many, or for a whole order of men, as a letter.

Encyclope'dia, Encyclopæ'dia, Cyclopæ'dia, *n.* [Fr. *encyclopédie*; Gr. *engkyklopaideia*, from *kyklos*, a circle, and *paideia*, instruction.] Properly, a work professing to give information in the whole circle of human knowledge. The two terms are used synonymously; but the former is regarded as the more correct, as denoting "*in* a circle," whereas the latter may mean "of a circle." The present signification of *E.* is entirely modern. With the ancients, *E.* was applied to the whole circle of learning, a knowledge of which was necessary to constitute a liberal education. It comprised grammar, music, geometry, astronomy, and gymnastics. Various works of the ancients attempted to embrace the entire circle of knowledge; but they exhibit no plan, and are only confused accumulations of the then known arts and sciences. It does not, however, appear that the ancients ever applied the term *E.* to any work of that kind. So far as is known, the word appears to have been first used in this sense by Alfarabius, a learned Arab, who flourished in the 10th century, and whose work, remarkable for its learning and completeness, is preserved in MSS. in the library of the Escurial at Madrid. From that time, and chiefly in this century, many *E.* have been published, the enumeration of which would be uninteresting for the general reader. During the last twenty years the number of these books has been rapidly increasing, and their character improving. As knowledge increases, so must the demand for *E.* also increase. As the sphere of knowledge extends, the less able is man, with his limited powers and capacities, to embrace the whole circle; he must, therefore, have recourse to helps, — to books in which he can get what information he wants in a comprehensive and easily accessible form; and to furnish this is the object of an *E.*

Encyclope'dian, *a.* Relating to an encyclopedia; embracing the whole circle of learning.

Encyclope'dic, Encyclope'dical, *a.* [Fr. *encyclopédique.*] Pertaining to an encyclopedia.

Encyclope'dist, *n.* One whose knowledge encompasses the whole range of sciences. — In a more restricted sense, one who compiles, or assists in compiling, an encyclopedia.

Encyst', *v. a.* [Gr. *en*, and *kystis*, the bladder, a bag, a pouch, from *kuo*, to hold.] To enclose in a cyst or vesicle.

Encyst'ed, *a.* Inclosed in a bag, bladder, or vesicle, as a tumor.

End, *n.* [A.S. *ende*, *ænde*, *geende.*] The extreme point of a line, or of anything that has more length than breadth; either extremity of such a thing; the extremity or last part; close or conclusion; ultimate or final state or condition; point beyond which no progression can be made; termination; extreme limit; utmost bound; final determination; completion; conclusion; close of life; death; cessation; period; consequence; issue; result; conclusive event; a fragment or broken piece; the ultimate point or thing at which one aims or directs his views; purpose intended; scope; aim; drift.

—*v. a.* [Sax. *ændian.*] To bring to an end or termination; to finish; to terminate; to conclude; to close; to destroy; to put to death.

—*v. n.* To come to an end, or to the ultimate point; to be finished; to terminate; to close; to conclude; to cease; to come to a close.

Endam'age, *v. a.* [*En*, and *damage*, q. v.] To bring loss or damage upon or to; to harm; to injure; to prejudice.

Endan'ger, *v. a.* [*En*, and *danger*, q. v.] To put or bring into danger or peril; to put in hazard; to expose to loss or injury.

Endav'a, a river of S. America, joins the Orinoco River in Venezuela.

Endear', *v. a.* [*En*, and *dear*, q. v.] To make dear or precious; to make more beloved.

Endear'edly, *adv.* With endearment; dearly.

Endear'edness, *n.* State of being endeared; endearment.

Endear'ing, *p. a.* Making dear or more beloved; having a tendency to make dear or beloved.

Endear'ment, *n.* That which endears; ground of affection; that which excites or increases affection; the state of being beloved; tender affection.

Endeav'or, *n.* [Fr. *devoir*, probably from Lat. *debere*, to owe, to be under obligation.] Effort put forth in the performance of duty; an exertion of physical strength, or of the intellectual powers, toward the attainment of an object or the accomplishment of a purpose; effort; attempt; exertion; essay; aim; object.

—*v. n.* To put forth or use efforts in the performance of duty; to exert physical strength or intellectual power for the accomplishment of an object; to try; to attempt; to strive; to labor; to struggle; to essay; to aim.

—*v. a.* To strive after; to attempt; to essay.

"And those were prais'd, who but *endeavour'd* well."—*Pope.*

Endeav'orer, *n.* One who makes an effort or attempt.

Endeavour Straits, (*en-dev'or,*) a channel separating the island of New Guinea from the N.W. coast of Australia; Lat. 10° 45′ S., Lon. 142° 10′ E. — Also a river of S. Australia, entering the Pacific in Lat. 15° 26′ S., Lon. 121° 42′ E.

Endecag'inous, *a.* [Gr. *endeka*, and *gyne*, a female.] (*Bot.*) Having eleven pistils.

Endec'agon, *n.* [Gr. *endeka*, eleven, and *gonia*, an angle.] (*Geom.*) A plane figure of eleven sides and angles; undecagon.

Endecaphyl'lous, *a.* [Gr. *endeka*, and *phyllon*, leaf.] (*Bot.*) Having a leaf composed of eleven leaflets.

Endeis'tic, *a.* [From Gr. *endeiknymi*, to point out.] Pointing out; exhibiting; showing.

Endeix'is, *n.* (*Med.*) Indications afforded by a disease itself of what is proper to be done for its removal.

En demeure. [Fr.] (*Law.*) In default. — Used in Louisiana.

Endem'ic, Endem'ical, Endem'ial, *a.* (*Med.*) Applied to diseases peculiar to a certain class of persons, or to a particular district. Thus ague is an endemic disease in low marshy countries; the goitre in the Alps. They differ from epidemic diseases, which, without reference to locality or class, attack many persons at the same time in the same place, and are contagious; as influenza, scarlet fever, &c.

Endem'ic, *n.* A disease of an endemic nature.

Endem'ically, *adv.* In an endemic manner.

Endeniza'tion, *n.* The act of naturalizing. (R.)

End'er, *n.* One who ends; a finisher.

En'derby Land, a large tract of land in the Antarctic Ocean, discovered in 1831 by Biscoe; Lat. 67° 30′ S., Lon. 50° E.

Ender'mic, Ender'matic Method, *n.* (*Med.*) The application of medicinal agents to the denuded dermis. A blister is first usually applied; when the cuticle is elevated, an opening is made in it to allow the serum to escape, and the medicine is then applied to the dermis, either with or without removing the cuticle. Morphia, strychnia, and various other agents have been thus applied.

Endict', *v. a.* See INDICT.

Endict'ment, *n.* See INDICTMENT.

End'ing, *n.* Termination; conclusion.

(*Gram.*) The terminating syllable or letter of a word.

En'dion, in *Minnesota*, a village of St. Louis co., on Lake Superior, abt. 8 m. N. by W. of Superior City.
En'dite, *v. a.* See INDITE.
Endive, *n.* (*Bot.*) See CICHORIUM.
End'less, *a.* Without end; having no end or conclusion; eternal; everlasting; interminable; infinite; unlimited; incessant; perpetual; uninterrupted; continual; perpetually recurring; seemingly without end.
End'lessly, *adv.* Without end or termination; incessantly; perpetually; continually.
End'lessness, *n.* Quality or state of being endless.
End'long, *adv.* [A. S. *andlang;* Dn. *onlang;* Ger. *entlang.*] Along; in a line; with the end forward.
Endocar'dium, *n.* [Gr. *endon*, within, and *cardia*, heart.] (*Anat.*) The membrane that lines the interior of the heart.
En'docarp, *n.* [Fr. *endocarpe*, from Gr. *endon*, within, and *carpos*, fruit.] (*Bot.*) The inner layer of the pericarp of a fruit. In certain fruits, as in the peach (Fig. 940), it is remarkably hard, and is termed the *stone* or *putamen*. In the almond the endocarp forms a thin woody shell; in the apple it is the core containing the seeds, and in the orange it constitutes the thin membranous partitions which divide the pulp into separate portions.

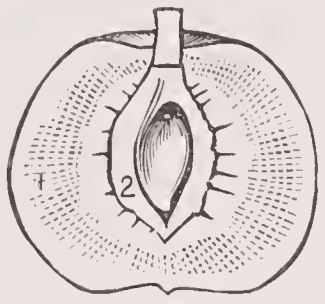


Fig. 940.
VERTICAL SECTION OF A PEACH.
1, sarcocarp.
2, endocarp or putamen.

En'dochrome, *n.* [Gr. *endon*, within, and *chroma*, color.] (*Physiol.*) The colored material which fills vegetable cells, exclusive of the green, which is *chlorophyl*.
Endo'genous, *a.* (*Bot.*) Increasing by internal growth; having the nature of endogens.
En'dogens, *n. pl.* [Gr. *endon*, within, and *ginomai*, to grow. See GENERATE.] (*Bot.*) The 4th class of plants in the system of Lindley, and so called because their stems grow by successive additions to the inside; that is to say, by the addition of woody vessels towards the interior, (see Fig. 52,) so that the outer part is the oldest and hardest. They have no woody rings as in Exogens, and no true medullary rays. They are usually known by the veins of their leaves running parallel with each other, without branching or dividing. Grasses, Lilies, the Asparagus, and similar plants, belong to this class, which in warm countries contains trees of large size, such as Palms and Screw-Pines. This class includes 17 alliances enumerated under BOTANY, *q. v.* See also AGE OF PLANTS.
Endoph'yllous, or ENDOPHYL'LOUS, *a.* [Gr. *endon*, within, and *phyllon*, leaf.] (*Bot.*) Applied to the young leaves of Monocotyledons, from their being crossed with a sheath, while those of exogens are not so inclosed.
Endopleu'ra, *n.* [Gr. *endon*, within, and *pleura*, a rib, the side, the membrane that lines the chest.] (*Bot.*) The internal integument of a seed.
En'dor, in *Illinois*, a village of Wills co.
Endorhi'za, *n.; pl.* ENDORHIZÆ. [Gr. *endon*, within, and *riza*, root.] (*Bot.*) The name given by Richard to the embryo of Monocotyledous, in which the radicle has to rupture the integument at the base of a seed prior to entering into the earth, appearing as if it came from within the mother root.
Endorhi'zal, or ENDORHI'ZOUS, *a.* (*Bot.*) Relating or belonging to the mode of germination in endogens.
Endorse', *v. a.* See INDORSE.
Endoskel'eton, *n.* [Gr. *endon*, within, and *skeleton*, a dry body.] (*Anat.*) See SKELETON.
Endosmom'eter, *n.* [Eng. *endosmose*, and Gr. *metron*, measure.] (*Physics.*) An instrument for measuring the force of the endosmosmic action.
Endosmomet'ric, *a.* Pertaining or relating to the measurement of the endosmosmic action.
En'dosmose, or ENDOSMO'SIS, *n.* [Gr. *endon*, within, and *osmos*, impulsion; Fr. *endosmose.*] (*Physiol.*) A term originally applied by Dutrochet to the transfusion of gaseous bodies or liquids through membranous substances either of an animal or vegetable origin. He found that if two fluids of unequal density are separated by a membrane, the denser fluid will attract or draw to it the less dense. When the attraction was from without inwards, he called it endosmose; when from within outwards, he called it exosmose. In animals and vegetables this remarkable action of fluids performs a very important part. Upon it depend many phenomena connected with the circulation of the blood in animals and the circulation of the sap in vegetables. The substance contained within the membranous covers of the cells of plants is denser than the fluids without; hence a process of endosmose takes place by which the plant is supplied with nourishment from the soil. The bursting of some seeds and fruits depends upon endosmose; and some of the entozoa appear to exist by its action.
Endosmos'mic, Endosmot'ic, *a.* Relating to endosmose; osmotic.
En'dosperm, *n.* [Gr. *endon*, within, and *sperma*, seed.] (*Bot.*) The albumen of seeds.
Endosperm'ic, *a.* (*Bot.*) Denoting that the embryo has endosperm.
En'dostome, *n.* [Gr. *endon*, within, and *stoma*, mouth.] (*Bot.*) The passage through the inner integument of a seed immediately below the part called the foramen.
Endow', *v. a.* [*En*, and Fr. *dower*, from Lat. *dos, dotis*, a marriage-portion, dowry, from Gr. *didomi*, to give.] To furnish with a dower or marriage-portion; to settle a dower on; to settle on as a permanent provision; to furnish with a permanent fund of property. — To enrich or furnish, as with any gift, quality, or faculty. — To indue; to invest.
Endowed', *p. a.* Having a dower settled on; furnished with a portion of estate; supplied with a permanent fund; indued.
Endow'er, *n.* One who enriches with a dower.
Endow'ment, *n.* Act of endowing, or of settling a dower on a woman, or of settling a fund for the support of a clergyman, or of a professor, &c.; that which is bestowed or settled on; property, fund, or revenue permanently appropriated to any object; any quality with which one is endowed; gift of nature; any quality or faculty bestowed by the Creator.
Endur'able, *a.* That can be endured; that can be borne or suffered.
Endur'ableness, *n.* State of being endurable.
Endur'ably, *adv.* In an enduring manner.
Endur'ance, *n.* State of enduring; continuance; state of lasting or duration; a suffering or bearing up against hardships; sufferance; patience; resignation; fortitude.
Endure', *v. n.* [Fr. *endurer;* L. *induro*, to make hard or harder — *in*, and *duro*, from *durus*, hard.] To harden or become hard; to continue in the same state without perishing; to last; to continue; to remain; to abide; to suffer without resistance or without yielding; to bear; to submit.
—*v. a.* To support without breaking or yielding to force or pressure; to sustain; to bear; to bear, as hardship; to bear with patience; to bear without opposition or sinking under the pressure; to undergo; to support; to suffer; to tolerate.
Endur'ing, *a.* Lasting long; permanent.
—*n.* Act of enduring; a sustaining.
Endur'ingness, *n.* Quality of enduring or lasting; lastingness.
End'wise, *adv.* On the end; erectly; in an upright position; with the end foremost.
Endym'ion. (*Myth.*) A shepherd, son of Æthlius and Calyce. It is stated that he asked Jupiter to grant him to be always young, and to sleep as much as he would; whence came the proverb of *Endymionis somnum dormire*—"to sleep the sleep of Endymion." Diana, or the moon, saw him unclothed as he slept on Mount Latmos, and became enamored of his great beauty, coming down from heaven every night to visit him. This fable arises from Endymion's knowledge of astronomy, and particularly his observation of the moon's motion. The people of Heraclea maintained that Endymion died on Mount Latmos, while the Eleans pretended to show his tomb at Olympia, in Peloponnesus.
(*Bot.*) A genus of plants, order *Hyliaceæ*. *E. nutans*, the common Blue-bell, flowers blue, rarely white, is the ornament of woods and thickets in Western Europe.
Ene'id. See ÆNEID.
En'ema, *n.* [Gr., an injection.] A medicine injected into the rectum; a clyster.
En'emy, *n.* [Fr. *ennemi;* L. *inimicus* — *in*, priv., and *amicus*, a friend. See AMICABLE.] One who is unfriendly; one who is hostile to another; a foe; an adversary; an opponent; an antagonist; one who hates or dislikes; a hostile army or force; the great adversary of mankind; the devil.
Energet'ic, Energet'ical, *a.* [Fr. *énergique;* Gr. *energetikos*, doing, active.] Having or manifesting energy; working; active; operative; operating with force, vigor, and effect; forcible; powerful; efficacious; potent; vigorous; moving.
Energet'ically, *adv.* With energy and effect; with force and vigor.
Ener'gico. [It.] (*Mus.*) With energy and force.—With strong articulation and accentuation, and a marked powerful delivery of the single notes, without losing in distinctness of execution.
En'ergize, *v. n.* To act with energy or force; to operate with vigor; to act in producing an effect.
—*v. a.* To give energy or strength or force to; to give active vigor to.
En'ergy, *n.* [Fr. *énergie;* Gr. *energeia* — *en*, and *ergon*, work, *q. v.*] Internal or inherent power to operate or act; the power of operating, whether exerted or not; power exerted; vigorous operation; vigorous power in action; effectual operation; strength or force producing the effect; force; power; vigor; spirit; life; efficiency; efficacy; potency; strength of expression; force of utterance.
En'ervate, *v. a.* [Lat. *enervo, enervatus* — *e, ex*, and *nervus*, a nerve, *q. v.*] To take away the nerves of; to deprive of nerve, vigor, strength, or force; to unnerve; to weaken; to enfeeble; to debilitate.
En'ervated, *p. a.* Weakened; enfeebled; deprived of vigor or force.
En'ervating, *p. a.* Depriving of strength, force, or vigor; weakening; enfeebling.
Enerva'tion, *n.* [Fr. *énervation.*] Act of enervating or weakening.—State of being weakened.
En Famille, (*ang-fa-mēl'.*) [Fr.] In the family-circle; domestically.
Enfee'ble, *v. a.* [*En* and *feeble.*] To make feeble; to deprive of strength; to reduce the strength or force of; to weaken; to debilitate; to enervate.
Enfee'blement, *n.* The act of weakening; enervation.
Enfee'bler, *n.* One who, or that which, enfeebles or weakens.
Enfee'bling, *p. a.* Weakening; debilitating; enervating.
Enfeoff, *v. a.* [*En*, and L. Lat. *feofare*, to confer a fendum, a fee, or feud, on one; same as *feudare*. See FIEF.] (*Law.*) To make a gift of any corporal hereditament to another. See FEOFFMENT.
Enfeoffment, *n.* See FEOFFMENT.
Enfield, (*en'feeld,*) a town and parish of England, in Middlesex, 10 m. N.E. of London; *pop.* 16,053. The British government has an armory here, and the *Enfield rifle* was the arm with which the infantry was, until recently, armed. It has been replaced by the Snider rifle.
En'field, in *Connecticut*, a post-village and township of Hartford co., on the Connecticut River, about 14 m. N. by E. of Hartford.
Enfield, in *Illinois*, a post-office of White co.
Enfield, in *Maine*, a post-township of Penobscot co., on the Penobscot River, about 90 m. N.E. of the city of Augusta.
Enfield, in *Massachusetts*, a post-township of Hampshire co., about 90 m. W. by S. of Boston.
Enfield, in *North Carolina*, a post-village of Halifax co., about 19 m. S. of Weldon.
Enfield, in *New Hampshire*, a post-village and township of Grafton county, about 59 miles N.W. of Concord.
Enfield, in *New York*, a post-village and township of Tompkins co., about 7 m. W. of Ithaca.
Enfield, in *Virginia*, a post-village of King William co., about 36 m. N.E. of Richmond.
Enfield Centre, in *N. Hampshire*, a P.O. of Grafton co.
Enfield Centre, in *New York*, a post-village of Tompkins co., about 160 m. W. by S. of Albany.
Enfilade', *n.* [Fr. *en*, and *file*, a row, a rank, from *fil*, a thread, Lat. *filum.*] (*Mil.*) A line or straight passage, or the situation of a place which may be seen or scoured with shot all the length of the line, or in the direction of a line; a fire of artillery, raking the whole length of a fortification or body of troops.
—*v. a.* To pierce, scour, or rake with shot, in the direction of a line, or through the whole length of a line.
Enfilad'ed, *p. a.* (*Mil.*) Pierced or raked in a line.
Enfiled, *a.* (*Her.*) Applied to a sword, when represented in a charge as run through any object.
Enfleurage, (*an(g)flur'azhe.*) [Fr.] (*Perfumery.*) A process for extracting the scents from flowers by absorption. Wooden frames containing glass smeared with pure fat are filled with flowers, and allowed to remain for a time, varying from one to six days. The grease gradually absorbs the scent, the flowers being renewed from time to time throughout their period of blooming. The scent is afterwards separated from the grease by soaking it in strong spirits of wine. Sometimes wire frames covered with cotton cloths imbued with fine olive-oil are used instead of glass. In this manner the most delicate odors are extracted from flowers, which would otherwise be lost in the process of distillation.
Enfold', *v. a.* See INFOLD.
Enfo'liate, *v. a.* See INFOLIATE.
Enforce', *v. a.* [*En* and *force;* Fr. *enforcir*, to strengthen.] To give force or strength to; to strengthen; to invigorate; to confirm; to animate; to instigate; to force; to impel; to urge on; to urge with energy; to impress on the mind; to compel; to constrain; to oblige; to put in force or in execution.
Enforce'able, *a.* That may be enforced.
Enforc'edly, *adv.* By violence; compulsorily.
Enforce'ment, *n.* Act of enforcing; compulsion; force applied; that which gives force, energy, or effect; sanction; urgent evidence; that which urges, compels, or constrains; a putting in execution, as law.
Enforc'er, *n.* One who enforces.
Enforc'ible, *a.* Capable of being enforced.
Enforc'ive, *a.* Serving to enforce.
Enforc'ively, *adv.* Without choice; compulsorily.
Enfor'est, *v. a.* [*En*, and *forest*, q. v.] To turn into or lay under forest.
Enfran'chise, *v. a.* [*En*, and *franchise*, q. v.] To endow with a franchise; to set free; to liberate from bondage or slavery; to admit to the privileges of a freeman or citizen; to admit to freedom.
Enfran'chised, *p. a.* Set free; released from bondage; admitted to the rights and privileges of freemen.
Enfran'chisement, *n.* Act of enfranchising; release from slavery or custody; the admission of persons to the freedom of a corporation or state; investiture with the privileges of free citizens.
Enfran'chiser, *n.* One who enfranchises or sets at liberty.
Engadine, (*en-ga-deen'.*) a beautiful valley of Switzerland, in the Grison country, extending along both sides of the upper part of the Inn. Length, 45 m., with an average width of 1½. *Pop.* 10,000. This valley is subdivided into the Ober and Unter Engadine, and has an elevation of 5,750 feet above the level of the sea.
Engage', *v. a.* [Fr. *engager* — *en*, and *gager*, from *gage*, a pledge. See GAGE.] To bind by pledge or contract; to pledge; to unite and bind by contract or promise; to enlist; to bind; to attach; to undertake to do (with recip. pron.); to embark in. — To gain; to win; to allure; to attract; to occupy; to employ assiduously. — To attack in contest; to encounter.
—*v. n.* To promise or pledge one's word; to bind one's self; to embark in any business; to take a concern in; to undertake.
—To encounter; to begin to fight; to attack in conflict.
Engaged', *p. a.* Pledged; promised; enlisted; gained and attached; attracted and fixed; embarked; earnestly employed; zealous.
Engaged Columns, *n. pl.* (*Arch.*) Columns attached to walls, by which a portion of them is concealed; they never stand out less than one-half from the wall.
Engag'edly, *adv.* With earnestness; with attachment.

Engag'edness, *n.* State of being engaged, or seriously and earnestly occupied; zeal; animation.

Engage'ment, *n.* [Fr.] Act of engaging, or of pawning, pledging, or making liable for debt; obligation by agreement or contract; compact; contract; promise; adherence to a party or cause; partiality; employment of one's time and attention; avocation; occupation; business.

(*Mil.*) The conflict of armies or fleets; battle; fight; contest; a general action.

Engag'er, *n.* One who engages.

Engag'ing, *p. a.* Winning; attractive; tending to draw the attention or the affections; pleasing.

Engag'ingly, *adv.* In a manner to win the affections.

Enga'no, or PUGNATAN, island of the Malay Archipelago, lying off the S.W. coast of Sumatra. It has a circuit of about 30 m., and is lofty and well-wooded. Lat. 5° 21′ S., Lon. 102° 20′ E. — Another small island on the coast of Papua. — A cape at the N.E. extremity of the island of Luzon, one of the Philippines, Lat. 18° 40′ N., Lon. 122° 20′ E. — Also, the most E. cape of Hayti, Lat. 18° 35′ N., Lon. 68° 20′ W.

Engar'land, *v. a.* To encircle with a garland; to enwreathe.

Engar'rison, *v. a.* To defend or protect by a garrison.

En'gellville, in *New York*, a post-village of Schoharie co., abt. 40 m. W. of Albany.

En'gen, a town of Baden, 22 m. from Constance, where the Austrians were defeated by the French, in 1800.

Engen'der, *v. a.* [Fr. *engendrer*; Lat. *ingenero — en*, and *genero*, to beget, from *genus*, birth, descent, origin. See GENUS.] To implant; to generate; to procreate; to beget; to breed; to cause to bring forth; to create.

—*v. n.* To be caused or produced.

Engen'derer, *n.* One who engenders or begets.

Engenho-do-Matto, (*en-zhen'yo,*) (the Genius of the Forest,) a village and parish of Brazil, prov. of Minas Geraes, abt. 140 m. N.W. of Rio Janeiro.

Enghien, (*ang'e-ă,*) a town of Belgium, 15 m. from Brussels; *pop.* 4,278. This town of Hainault passed into the possession of the Bourbon family in 1485, and was sold by Henry IV. of France, in 1607, to Charles de Ligne, Count of Arenberg. It gave title to a branch of the Condé division of the Bourbon house, which became extinct with Louis Antoine Henri de Bourbon, duke of Enghien, who was shot, at Vincennes, by order of Napoleon I., March 21, 1804, under charge of conspiracy.

En'gine, *n.* [Fr. *engin*, from Lat. *ingenium — en*, and *gigno*, *genitum*, to beget, to produce. See INGENIOUS.] (*Mech.*) An ingenious contrivance; a compound machine, or artificial instrument, composed of different parts, and intended to produce some effect by the help of the mechanical powers. — A military machine, as a battering-ram. — Any instrument. — That by which any effect is produced; means. — Anything used to effect a purpose. — An agent for another.

Engineer', *n.* [Fr. *ingénieur.*] One who constructs or manages engines or artillery; one who forms plans of works for offence and defence, and marks out the ground for fortifications; one who constructs roads, canals, bridges, railways, &c.

Engineering (*en-ji-neer'ing*), *n.* Strictly, the art of managing engines; but now applied in a more extended sense, to all manufacturing and constructive operations in which a knowledge of mechanics is requisite. It is divided into numerous branches, of which two, Military and Civil, will be considered here, and others in Sec. II.—*Military E.*, as a science, implies a knowledge of the construction and maintenance of fortifications, and all buildings necessary in military posts; and includes a thorough instruction on every point relative to the attack and defence of places. The science also embraces the surveying of a country for the various operations of war, and consequently an acquaintance with mathematics, and facility in drawing. When, at a siege, the engineer has surveyed a place, he reports to the commander the weakest places, and those in which approaches may be made with most success. He draws the approaches, marks out the trenches, places of arms, batteries, and lodgments; and, in general, directs the workmen in these operations. He should possess a practical and theoretical knowledge of gunnery. In regard to the marine branch of military engineering, it requires, of course, a general acquaintance with the construction of vessels, jetties, moles, and other buildings of that description. — *Civil E.*, as its name imports, does not include the branches above named, which specially belong to the art of war; but rather relates to the construction of roads and great highways, aqueducts and canals, with all the necessary accompaniments, such as locks, lock-gates, culverts, and bridges. All such structures as breakwaters and light-houses, which are buildings requiring great strength and solidity in the construction of their masonry and foundations, and the formation of huge masses of earth, thrown up as embankments, to protect countries that are below the level of the sea from inundation, or low meadow-lands from being flooded by rivers that are subject to sudden and rapid increase from heavy rains, come within the province of the civil engineer. He also constructs docks for the reception of shipping, quays, reservoirs, and water-courses for supplying towns with water brought from a distance, and he accomplishes the drainage of marsh lands and fenny districts, and irrigates dry soil requiring moisture to render it productive, by various artificial means. Railroads, with their deep cuttings, immense embankments, lofty viaducts, dark tunnels, and roadways sometimes carried for miles on arches of brickwork, — their iron girder, and other bridges, of enormous strength, and bridges of all kinds that span our rivers, whether of wood, stone, or iron,—are all the work of the civil engineer. The formation of artificial harbors by throwing out piers and jetties; and the clearage of natural harbors from all obstructions, such as sunken rocks and sandbanks; and the construction of the great sewers and drains that run in every direction under our large towns and cities, all come under his care: and, in addition to this, he has to superintend the construction of the shafts and machinery of mines and coal-pits, to insure safety to the miners in their ascent and descent, and to secure proper and thorough ventilation in all parts of the mine. Another great branch of *C. E.* is the manufacture of massive machinery, such as pumps, hydraulic and lever presses, looms, and steam-engines of all descriptions, whether they be locomotives, or for vessels, or for setting machinery in motion. In short, the civil engineer seeks to adapt the mechanical powers, and their appliances, and bring them into such forms and combinations that they may furnish the means of saving the expenditure and waste of animal strength and manual labor, and thereby cause the work to be done at a cheaper rate, and in a more efficient manner. It is only within the last three centuries that the professions of architect, painter, sculptor, and engineer, whether civil or military, have become separate and distinct callings. Those of the civil and military engineer have chiefly been elicited and established by the invention of gunpowder and cannon, which necessitated the employment of peculiar skill, and close study in planning and constructing the works of defence that surround any place of importance; and the requirements of commerce, which has long since demanded, and still demands, canals, roads, railroads, and motive power beyond the constant control of the winds and waves for the conveyance of merchandise by land or sea. Although we may consider Archimedes as the first engineer of whom mention is made in history, in memorable connection with appliances of the lever and other mechanical powers, yet the early nations of the world, especially the Egyptians, who raised and fixed in their present position the gigantic blocks that form the pyramids, and reared the mighty monoliths known as Pompey's Pillar and Cleopatra's Needles, must have been possessed of engineers of no ordinary mental capacity. The blocks that form the Cyclopean wall of Tirgus and Mycenæ, the marble columns and the temples of the Greeks, the sewerage and aqueducts of Rome, the underground structures for the drainage of the Assyrian city of Nimrod, the canal of Xerxes, that separated Mount Atlas from the mainland, and the remains of those found in various parts of Egypt, Assyria, and the East, all tell us of the magnificent schemes that the engineers of antiquity designed and carried out, whose names are lost for us. Among the engineers who flourished before the Christian æra, Archimedes, who so skilfully conducted the defence of Syracuse, is the earliest on record, unless we consider Hiram, the clever Tyrian artificer, who aided Solomon in the building of the Temple, as an engineer, as he doubtless was. The writings of Vitruvius prove him to have been employed in the structure of military machines and works of defence, as well as an architect. In the Middle Ages, and even in later periods, we still find the professions we have mentioned above combined in one person; for the eminent Brunelleschi, and Michael Angelo, the sculptor and artist, are mentioned as constructing fortifications, and the illustrious painter Leonardo da Vinci rendering an important service in the capacity of engineer, by the construction of the first canal-lock that was ever used to afford means of communication between waters on different levels. Among engineers of the 16th century, Albert Dürer, the painter and engraver, may be named, who wrote to some extent on the science of fortification. But at this time considerable skill in *C. E.* had already been attained, both in N. Italy and Holland. At the end of the 16th century, the profession of the military engineer began to be brought into greater prominence, and to be considered as requiring special qualifications in him who might undertake the office, and Errard de Bas le Due, Deville, Pagan, Vauban, Cormontaigne, Coehorn, and Belidor may be considered as the originators of the modern system of military engineering. The *E.* works of the U. States are exhibited in its long lines of railroads, its canals, its dry-docks, fortifications, light-houses, breakwaters, bridges, &c. The graduates of the military school of West Point are qualified as military engineers, and are also instructed in the principles of the other departments of the profession. The title of Civil Engineer (C. E.) is now legally conferred by numerous colleges and other educational institutions.

Engine-man, *n.*; *pl.* ENGINE-MEN. One who manages an engine; an engineer.

En'ginery, *n.* The art of managing engines; engines generally; artillery; any device or contrivance; artifice.

"The beautiful *enginery* of Rome." — *Shenstone.*

Engird', *v. a.* [*En*, and *gird*, q. v.] To gird round; to surround; to encircle: to compass.

Engird'ed, or ENGIRT', *p. a.* Surrounded; encompassed.

Engir'dle, *v. a.* To surround as with a girdle; to enclose; to encircle.

Engirt', *v. a.* Encompassed; girt; smart.

En'giscope, *n.* [Gr. *eggys*, near, and *scopea*, to see.] A reflecting microscope.

Eng'land, the most populous, wealthy, and important portion of the United Kingdom of Great Britain and Ireland, comprises the most southerly, the largest, and the most favored part of the island of Great Britain. It is bounded on the N. by Scotland, S. by the English Channel, E. by the German Ocean, and W. by Wales, the Atlantic Ocean, and the Irish Sea. Its extreme length N. to S., or in other words, from Berwick-on-Tweed on the Scottish Border, to the Land's End, the extreme point of Cornwall, is 425 m., with a breadth varying between 62 and 280. *Coast-line.* About 1,200 m., without the indentations into the land; with them, abt. 2,000, m. *Area*, 50,812 sq. m., or 32,590,397 statute acres. *E.* is divided into 40 counties, as follows: —

Bedford,	Durham,	Leicester,	Shropshire,
Berks,	Essex,	Lincoln,	Somerset,
Buckingham (or Bucks),	Gloucester,	Middlesex,	Stafford,
Cambridge,	Hampshire (or Southampton),	Monmouth,	Suffolk,
Chester,	Hereford,	Norfolk,	Surrey,
Cornwall,	Hertford (or Herts)	Northampton,	Sussex,
Cumberland,	Huntingdon,	Northumberland,	Warwick,
Derby,	Kent,	Nottingham (or Notts,	Westmoreland,
Devon,	Lancashire,	Oxford,	Wiltshire,
Dorset,		Rutland,	Worcester,
			York.

The last-mentioned, which is the largest county, is divided into the N.E., N.W., and S.W. Ridings, which are subdivided into wapentakes. The other counties are variously subdivided into hundreds, wards, lathes, rapes, tithings, wapentakes, &c. The principal arms of the sea are, viz.: on the E., the æstuary of the Humber, the Wash, and the æstuary of the Thames; on the S., Southampton Water; and on the W., the Bristol Channel, the æstuaries of the Dee and the Mersey, Morecambe Bay, and the Solway Frith, dividing the N.W. limit of the country from Scotland. *Capes.* The chief promontories are on the E., Flamborough Head, Spurn Head, the Naze, and the N. Foreland; on the S., Dungeness, Beachy Head, the Bill of Portland, and Start and Lizard Points; on the W., Hartland Point and St. Becs Head. *Islands.* Holy Island, Lundy, Isle of Man, Sheppey, Walney, the Isle of Wight, and the Scilly Isles. — *Gen. Desc.* *E.* combines within itself all that is most desirable in scenery, with all that is most necessary for the subsistence of man. Although its features are



Fig. 941. — A SAXON SOLDIER.

moulded on a comparatively minute scale, they are marked with all the agreeable interchange which constitutes picturesque beauty. In some parts, plains, clothed in the richest verdure, watered by copious streams, and pasturing innumerable cattle, extend as far as the eye can reach; in others, gently rising hills and bending vales, fertile in corn, waving with woods, and interspersed with flowery meadows, offer the most delightful landscapes of rural opulence and beauty. Some tracts, again, furnish prospects of the more romantic and impressive kind: lofty mountains, deep glens, isolated craggy rocks, narrow ravines, and tumbling torrents: nor is there wanting, as a contrast to these, scenes in which every variety is a different charm, the vicissitude of black, barren moors, and wide, uninhabited heaths, and almost trackless moors. *Rivers.* The most considerable riparian waters of this country are the Thames, Severn, Medway, Trent, Ouse, Tyne, Tees, Wear, Mersey, Dee, Avon, Eden, and Derwent. *Lakes.* The principal inland sheets of water are the lakes of Windermere, Ulleswater, and Derwentwater in the N.E. div. of the country, where innumerable smaller lakes are also found,—the whole forming an almost continuous chain extending from Morecambe Bay to the Scottish border. *Mountains.* The principal ranges are those generally distinguished as the *Northern*, the *Cambrian*, and the *Devonian.* The first consists of the Pennine range and the Cumbrian group, the former extending from the Cheviot Hills, on the Scottish borders, to the middle of Derbyshire. In this range is Cross Fell, attaining an elevation of nearly 3,000 feet above the level of the sea; and the Peak, in North Derbyshire, rising to a height of 1,800. The Cambrian group lies to the W. of the Pennine, being separated from it by the valleys of the Eden and the Lune. In it are Sca Fell, the loftiest mountain in England, being 3,166 feet high, with Helvellyn and Skiddaw, both above 3,000 feet. The Cambrian range comprises all the Welsh mountains, and will be spoken of in the article on WALES. The Devonian range includes the hills of Corn-

wall, Devon, and part of Somersetshire. The elevations in these are not nearly so lofty as those in the others. *Forests.* The chief of the ancient forest tracts remaining in this country are the New Forest in Hampshire, the Forest of Dean in Gloucestershire, and Bowland Forest in Yorkshire. *Soil, &c.* Few countries possess a smaller proportion of land absolutely sterile and incapable of culture. The richest parts are, in general, the midland and southern. Towards the N. the soil partakes of the barrenness of the neighboring portion of Scotland. The E. coast is, in many parts, sandy and marshy. A range of moorish and elevated land extends from the borders of Scotland to the very heart of *E.*, forming a natural division between the E. and W. sides of the kingdom. Cornwall is also a rough, hilly tract; and a similar character pervades part of the adjacent counties. *Nat. Prod. &c.* The agricultural, mineral, and commercial economy of *E.* will be treated of in our general article *Great Britain. Chief Towns.* London (the metropolis of the British empire), Liverpool, Manchester, Bristol, Birmingham, Leeds, Newcastle-on-Tyne. *Clim.* Humid, but healthy. From the insular situation of the kingdom, it is liable to sudden and frequent changes, and to great variations of dryness and moisture. *Pop.* (1891) 29,002,525. See GREAT BRITAIN; WALES, &c.

England, (Church of.) See PROTESTANT EPISCOPAL CHURCH.

England, (Language and Literature.) *Language.* This language, the vehicle of spoken and written communication between about 100,000,000 of people, is as heterogeneous in its elements as it is widely extended in its sphere. "Latin, Greek, Hebrew, Celtic, Danish, French, Spanish, Italian, German," says M. Müller, in his "Lectures on the Science of Language," — "nay, even Hindustani, Malay, and Chinese words, lie mixed together in the English dictionary." It was long a popular, and probably somewhat partial, whim in England, that Anglo-Saxon formed at least two-thirds of the spoken and written speech of it. But M. Thommerel has recently carefully gone over the dictionaries of Richardson and Webster, and has established the fact, that Anglo-Saxon stands in no greater proportion to the words of merely Latin origin, than the relation that 13,330 holds to 29,354. Yet the English language is essentially and truly a Teutonic or Saxon tongue; for it is not the extent of the vocabulary of a language that gives color to the title of that language — it is to the grammar to which the tongue conforms that we must trace its scientific relationship. Now, whatever there remains of grammar in English — and, indeed, it is very little—obviously bears marks of being forged in a Teutonic workshop; and hence the necessity that there is for classifying it as such in the general philology of the world. In tracing the growth of the English language, it is usual to divide its history into four periods, viz.:

Anglo-Saxon	from A. D.	449–1066
Semi-Saxon	"	"	1066–1250
Early English ...	"	"	1250–1550
Modern English	"	"	1550 to the present day.

These in their order: — The *Anglo-Saxon* period of the language dates from a time when, in the 5th cent., the Teutonic sea-rovers first occupied the southern portion of England, and drove back its original Celtic inhabitants to the N. and W. No sooner had they done this, than they settled in the island, and from that day to this the prevailing tongue of the country has been Anglo-Saxon or English. This Anglo-Saxon was a low German dialect, bearing a close similarity to the old Frisic, which is usually recognized as the parent of the modern Dutch. After long years of social feuds and of national warfare, the absorption by Wessex, or West Saxons, of the various portions of the Heptarchy, in the 9th cent., went far to make the ruling speech of the land the tongue of Berks and of Hants, the recognized centre of this clan. This fact not only gave color to the more refined speech of the Anglo-Saxons, but, in addition to this, the fact of king Alfred, a native of Berks, rising up to be himself such an illustrious ornament to the letters of England, was a special literary confirmation of what before had been simply asserted by the sword. When we compare the writings of Cædmon, a North Anglian, and the writings of Alfred, two dialectical peculiarities at least seem at that early period to have prevailed in the island. There was the Northern or Anglian, which prevailed from the Humber to the Frith of Forth, and the Southern or Saxon one, which was spoken from the Humber to the English Channel. Now, which of those Anglo-Saxon dialects entered specifically into the formation of the English tongue? Two answers have been given to this question by competent scholars. The one, that the classical Saxon of Wessex gradually gave way to the other dialect — that of the Midland counties; the other, that we must look for the real groundwork of our tongue to the gradual coalescence of all the leading dialects of England. — (See Sir Francis Madden's edition of Layamou's Brut, 1847.) The latter view, we confess, appears the more likely. The main peculiarity of the tongue of the island at this early period was, that the infinitives were still in *an;* the substantives, adjectives, pronouns, and articles, were declined like the Latin; and the plural was unlike the singular; in other respects it differed much less from our modern vocabulary than one might at first sight suppose. — The *Semi-Saxon* period was a transition æra, and, like every æra of the kind, one of confusion and one of promise. The monks were of course the learned class of the time; and what with the ancient formularies and mediæval Latin in which they performed their Ave-Marias and their Paternosters, when they attempted to write their mother-tongue, they fell into the grossest mistakes. The *Saxon Chronicle*, 1173, and Layamon's *Brut* (abt. 1200), afforded abundant specimens of this slip-shod style of the Anglo-Saxon, and it is abundantly evident, from an examination of the inflections and genders of the language, that it was undergoing at that time a thorough breaking up. *En* is constantly substituted for *on* in the plurals of verbs; the final *e* is often discarded; weak preterites occasionally take the form of strong ones, and there is a marked uncertainty in the government of prepositions. There is another curious feature observable in the Anglo-Saxon of this time — that, although its date makes it reach a century or two beyond the conquest of 1066, it nevertheless exhibits but few traces of Norman-French. In that curious old poem which has just been referred to, the *Brut*, there are not more than fifty French or Latin words in a composition of 32,000 lines! Norman-French might be the language of the court; it certainly was not the language of the people. — The *Early English* period, again, of the language exhibits important features of consolidation and of final hardening. The English tongue now asserts itself throughout; yet it is still struggling for proper rules. In the first place, it contrived gradually to get rid of all Anglo-Saxon inflections, particularly in the substantives and adjectives; and the vowels *a, e, u,* in final syllables, are all represented by *e*, and the final *n* of the infinitive has already begun to disappear. It constantly prefers to express the relations of an idea by some new word attached to the original one, whereas the old Saxon tongue, like a genuine element of the Teutonic, always expressed such ideas by a modification of this word. In the admirable poem of the *Owl and the Nightingale*, written probably towards the end of the 13th cent., the French language appears as a decided element in its vocabulary. It has likewise become, by the time we reach Chaucer, Gower, and Lydgate, a component part of English speech. And it is obvious that this modification was effected much more through the literary regard which was then engendered in the breasts of those old poets for the French Fabliaux, and such like writings, than from any superior respect which they reluctantly paid to the speech of their Norman masters. Yet certain poets still clung affectionately to the old tongue, and in *Piers Plowman*, and in a few others, we see examples of writers who still found the Anglo-Saxon sufficient for all their wants. The beautiful old ballad of the *Nut-brown Maid* (abt. 1500) is so modern in its style that it is difficult to believe it to be so ancient by a century at least. In the Southern part of Scotland again, and particularly the Anglian counties lying south of the Forth, the language of the people was to all intents and purposes identical with the language of the extreme south; and it is to be noted, in illustration of this remark, that Barbour, a Scottish contemporary of Chaucer, wrote purer English than Chaucer did; that is to say, his poems were much freer from the foreign element of Norman-French. The north-eastern dialects of Scotland have always presented a stumbling-block to the ethnologist; for it is unquestionable that the inhabitants of those counties speak a language which, in its grammar at least, is very nearly akin to that of Yorkshire and Norfolk. Yet in the vocabulary of the people, there are a considerable number of words of Norse or Scandinavian origin. The existence, during the 11th cent., for a period of 30 years, of a Norwegian kingdom under the sea-rover Thorfuin in the extreme northeast of the island, might partially account for this Norse element in the speech of the country. But how are we to account for the existence of an Anglo-Saxon *grammar* north and east of the Forth, or even of the Tay? for it is well enough known that the Norse languages are all widely diverse in their grammar from the Saxon. No satisfactory answer has yet been given to this question; nothing but vague theories indeed have been formed regarding it. The close likeness of the two tongues to the north and south of the island did not last long after the war of independence. So early as Dunbar, the best Scottish poet before Burns, pedantic Latinisms had usurped the place of pure Anglo-Saxon, and in his best poem, the *Daunce*, the striking personifications abound with what were then considered as barbarisms. — In the *Modern English* period of the language, it was to a great extent perfected as to its grammar, if still deficient as to its purity. Of course, the rules and forms of the grammar had still to be rendered workable and delicate by the use which great practice can alone communicate. It is to be observed, however, that it was much more in the ease and dexterity which the old forms of speech received, that this modern period is distinguished, rather than in any new modifications effected upon the grammar itself. Of course the additions which have been made to the English dictionary since the beginning of the 16th cent. have been immense — a process which still goes on; but the effects of change on the glossary of a tongue are merely secondary. The changes, accordingly, which it has since undergone, are merely changes in style, or in the variety of modes in which different individuals express themselves. The English language is worthy, by its remarkable combination of force, precision, and fulness, of being, as it is already, the speech of nearly all the free nations of the world. If it cannot boast a native purity, it can at least boast of what is better than purity in language — the strength and copiousness, the delicacy and grace, the refinement and tenderness, in which its glossary abounds. If it is Teutonic in its stem, as the single *s* in the third person singular of the present indicative assures us, it should be remembered the extent to which it draws on the old classical languages of Europe.

Literature. The English literature is modified in a highly important manner by the history of the English people. Æras of great literary progress have always been found to succeed those periods of the nation's history characterized by important social changes, and sometimes by national revolutions. The literary annals of England may be conveniently arranged into three periods: 1. That antecedent to the Norman Conquest; 2. That extending from the Norman Conquest to the English Reformation; and 3. from the English Reformation to the present day. These in their order. 1. The time preceding the Conquest has a literature composed, of three distinct languages, and possessing merits of a highly important character. First, there is the Celtic, spoken by the Northern Scots, the Irish, and the Welsh. The *Annals of the Four Masters*, compiled by Tigernach, records the authentic doings of the Irish people so early as the 5th cent. No other nation of modern Europe can make a similar boast. Then there are the Scottish Ossianic poems, which, if they were genuine, would lead back the reader to the 3d cent. Among the Welsh people, again, their triads are said to extend as far back as the 5th cent., although nothing very authentic can be learned of the exploits of the famous Welsh prince Arthur of the Round Table, or of the enchantments of the renowned magician Merlin. The cultivation of Latin literature in this country succeeded the introduction of Christianity into it. St. Ninian establishing himself at Whithorn, tried to convert Scotland late in the 4th cent.; St. Patrick made a similar attempt in Ireland in the 5th cent.; and St. Augustine laid the foundation of the Anglo-Catholic church late in the 6th cent. Literary effort soon followed, and we meet as first in this honorable list the names of Alcuin, of Erigena, and of Bede. The *Gleeman's Song*, the *Battle of Finnesburgh*, and the *Tale of Beowulph*, are the only stories of an Homeric cast which the Anglo-Saxon people possess. The latter, in particular, resembles closely, in some of its vividly picturesque touches, the old Iliad of Troy. Doubtless such remarkable religious poems as those of the monk Cædmon deserve to be mentioned in any summary of the literary history of England. Yet the Anglo-Saxon people were comparatively poor in poetry: but they were eminently simple and direct prose-writers. Portions of the sacred Scriptures, Anglo-Saxon chronicles, sermons, glossaries, grammars, geographies, medical works, and dialogues, in their tongue, were all composed by their leading writers Aldhelm, Bede, and Alfred. It was chiefly through the influence of the latter, who discarded Latin in all his communications with his subjects, that the Saxon tongue made so decided a start as it did during the 9th cent. This illustrious monarch, who, both by his enlightenment and his many virtues, has rendered his time one of the most brilliant in English history, used all his personal influence to render into his native tongue the works written in the language of Rome. He was not a dab at Latin, and he knew it, which may possibly account for the loose style of some of his versions, containing, as they do, stray stories, fine bits of description, and even a devout prayer of an occasion, all commingled, in the most distracting manner to a modern classic, with the text of his author. 2. The Conquest brought with it a change of language, and a change of manners in the court: but it could hardly modify the speech of the stubborn Englishmen of those days. In time the lordly Norman nobles found it to be their interest to study the despised tongue of the people they had conquered; and it is owing much more to the influence of Chaucer and Gower, and to the literary class generally, that French came materially to modify the existing language of England. These men knew French, because it was the tongue in which many interesting books were written; and they gave it to the people of England in the firm belief that an acquaintance with it would advance their tastes and improve their manners. Classical and theological learning were now much prosecuted. The founding of the universities, and the extension of the monastic system, gave leisure for scholarship and induced thought. The close political intercourse that there was then with France improved both England and France in learning and in social manners. Such names as Lanfranc and Anselm, as Hales and Duns Scotus, as Michael Scot and Roger Bacon, show how entirely men were devoted, as they usually are in the infancy of a literature, where external peace and leisure will permit of it, to philosophy in both its branches of physical and metaphysical. The historical writers of the time, among whom we must mention William of Malmesbury, Geoffrey of Monmouth, Giraldus Cambrensis, and Matthew Paris, afford an agreeable offset to those subtle speculators. Of course the learned language of the time was altogether Latin; and it is worth noting that the wit and fancy of the ecclesiastics could find as hearty expression in the fine old drinking-song of Walter Mapes, beginning *Mihi est propositum in taberna mori*, or, as Leigh Hunt elegantly renders it, *I devise to end my days in a tavern drinking* — in the 12th cent., as they came to do in the 16th cent., when Bishop Still improved the immortal bacchanalian song of *Jolly good ale and old*. Personal satire and invective were in Mapes's day much in vogue; and the weak King John and the charter of Runnymede afforded those disposed to employ those local squibs only too good targets to aim at. The *Gesta Romanorum*, a singular medley of tales, apologues, and so forth, told often with much humor and pathos, have an interest of their own; and they possess likewise a borrowed grace. They have been instrumental in suggesting some of the noblest themes in our recent literature, and thus have double claims on our affection. The *Merchant of Venice* and *Marmion*, to go no further from home, owe much to those old *Gesta*. These compositions resembled closely

in their structure the French *Fabliaux*, and have had a much greater influence on our literature. The fine old romances of *Havelok the Dane*, the *Gest of King Horn*, *Bevis of Hampton*, *Guy of Warwick*, and last and best of all, those glorious old legends written mostly in French, but composed by Englishmen, to celebrate the greatness of the downfall of the mythical King Arthur and his knights of the Round Table, no English student of this literature will pass by. It was not long since that we had an admirable poem from Alfred Tennyson on the fragmentary materials of this very period. Meanwhile, the vernacular tongue of England, driven from the monasteries and the universities, was almost solely dependent for its patronage and subsistence on the common people of the land. It had no literature worth mentioning at this period; and it was rapidly merging into the semi-Saxon, as it is called, of which the earliest and best representative is the *Brut* of Layamon. The 14th and 15th cents. brought a new æra into English history and English literature. Cressy and Poictiers were fought, and John Wycliffe and Geoffrey Chaucer were born. The former deserves our ceaseless regard for his translation of the sacred Scriptures, the first ever effected by one hand (1380), and, except Sir John Maundeville's travels (1356), it is the first specimen of early English prose-writing in our language. The latter deserves our undying esteem for his immortal *Canterbury Tales* (1390–1400), which, for their fine sportiveness and healthy pathos, their humorous simplicity and genuine tenderness, will be admired while the language endures. It is to be remarked that the *Bruce* of Barbour, a Scotchman, an epic narrative, written abt. 1375, is in purer English than those poems of Chaucer of which we have just spoken. It resembles closely in its diction the English poem of *Piers Plowman*. We can hardly do more than name a great many authors who crowd the canvas of the 15th and 16th centuries, such as John Lydgate, whose *London Lackpenny* (about 1430) is still read with interest; Alexander Barclay, author of the *Ship of Fools* (1509); John Skelton, author of the satire called *Colin Clout* (D. 1529); and Sir Thomas Wyatt, who D. in 1541. The prose-writers of this period are Sir John Fortescue, Chief Justice of the King's Bench under Henry VI.; Wm. Caxton, who holds the honorable place of being the first who introduced printing into Britain (1474), his first book composed with types being the *Game of Chess;* Fabian (1512); Hall, an English lawyer and chronicler (1547); and Tyndale, who was burnt for heresy in 1536. The Scotch poetry of the period almost matches in interest and importance that of the south part of the island. James I., king of Scotland, led the way with his *Queen's Quhair;* Wyntoun, the chronicler (1420); Blind Harry, the author of the once highly popular performance known as *Sir Wm. Wallace;* Robert Henryson (D. 1508), who wrote a beautiful poem called *The Testament of Cresseid;* Gavin Douglas, whose best work, among a considerable number, is, without doubt, his translation of Virgil's *Æneid* into Scottish verse; and last and greatest of the poets of his country until the time of Burns, stands William Dunbar (D. about 1520), whose *Daunce of the Seven Deadly Sins* showed him to have possessed imagination and humor, pathos and tenderness, boldness and vigor, in a very remarkable degree.—3. The period extending from the English Reformation to the present time eclipses in brilliancy and grandeur all the other æras of English literature. As the same sequence of events reigns in letters as in social life, the character of one æra always determines the nature and complexion of the succeeding one. This is very observable in the Elizabethan age, on which we are now entering. The discovery of printing, and the discovery that all was not gospel that came from Rome, were two as potent instruments as could possibly be put into the hands of literary men. What Skelton and Dunbar had begun, Spenser and Shakspeare carried to a splendid consummation. Doubtless an age so rife in new thoughts, and new images, and new forms of expression, could not have been heralded without its meed of bloodshed. The names of Latimer, of Cranmer, of Ridley, and of Sir Thomas More, lie like dark shadows along the landscape of the literature of the time, men whose blood was shed by the rude laws that temporarily assumed the form of justice. The *Utopia* of the latter is a work so proverbially imaginative, that it has given the language a new word; yet so truly philosophical, and so full of elegant writing, as to be the wonder of the time at which it was produced. Roger Ascham, the learned tutor of Lady Jane Grey, and the writer of an excellent work, the *Schoolmaster*, is another admirable miscellaneous writer of that time. As the English drama has already been taken up (see DRAMA), we need only mention here Sackville, who wrote the *Mirrour for Magistrates*, and Brooke, author of the *Tragical History of Romeus and Juliet;* and the Scotsmen, Sir David Lyndsay, Boece, Major, Melville, and George Buchanan. "Lyndsay of the Mount," as he is sometimes called, and George Buchanan, call for a word of special mention, even in a summary like the present. The former was the companion of King James V. during his youth, and his unheeded counsellor in old age. He wrote a huge kind of drama of the moral-play or interlude type, called the *Satire of the Three Estates* (1535), the irony of which is ordinarily aimed at the abuses of the church, but of which the humor is frequently so gross as to render it unfit, at least, for general use. George Buchanan is universally admitted to have been one of the finest classical scholars who has appeared since the age of Augustus. He mingled much in the politics of his time, yet found leisure to nurse his genius in the retired ways of academic seclusion. The founding of the Scottish universities, and the institution of grammar and parish schools, which owed their origin entirely to the indefatigable labors of the reformer Knox, bade fair to give to Scotland an important place in the history of Great Britain. We now come close to the greatest æra in the history of English literature. In all the essentials of true genius this age can give way neither to the best days of ancient Greece or Rome, of modern Italy or France. The greatest men the nation has ever produced come trooping up at the mention of Queen Elizabeth's name. There are Shakspeare and Spenser and Sidney; there are Raleigh and Hooker and Jeremy Taylor; there are Milton and Hobbes and Cudworth, and many others beside, "men, all of them," to adopt the language of Francis Jeffrey, "not merely of great talents and accomplishments, but of vast compass and reach of understanding, and of minds truly creative; not men who perfected art by the delicacy of their taste, or digested knowledge by the justness of their reasonings, but men who made vast and substantial additions to the materials upon which taste and reason must hereafter be employed, and who enlarged, to an incredible and unparalleled extent, both the stores and the resources of the human faculties." Not only was Shakspeare taller by a head than any of his contemporaries, the men who proudly closed around him bulk larger, even to the critical eye, than any other collection of names in the entire roll of our literature. Even the minor dramatists of the time, such as Marlowe and Chapman, Beaumont and Fletcher, Jonson and Drummond, are almost the equals of any poets who have succeeded them. About the close of this period a number of sweet poets arose, who mostly wrote in a lyrical measure, though some of them were didactic, such as Fletcher and Browne, Drayton and Wither, Quarles and "holy George Herbert." During the period of the Restoration and the Revolution, the literature of the stage was exceedingly profligate. The court and the king had imported from France a love of genteel profligacy, which found its most fitting expression in the comedy of intrigue; and Wycherly and Congreve, Vanbrugh and Farquhar, are the dramatic scapegoats of the time. Yet the age was not wholly corrupt, for it could boast of such distinguished theologians as Baxter, Owen, Calamy, Collier, Leighton, South, Tillotson, and Barrow. This was also the time when Milton, who stands in the front rank of poets, lived and sung of Paradise lost and of Paradise regained, writing "something," as he early hoped himself, "which posterity would not willingly let die." Marvel ridiculed the High Church, and Butler, of "Hudibras" fame, burlesqued Dissent; Walton angled, Locke speculated, Newton discovered, and John Dryden "found the English language of brick, and left it of marble." The literary history of the 18th century, and particularly of the reign of Queen Anne, has been censured severely by some, and praised to excess by others. It was natural that the critics of the period should be inclined to over-estimate the influence of the literature among which they lived; but many writers of the present day have decried it, possibly with a considerable touch of truth, for its polite skepticism, and for its hollow insincerity. It has been glorified by its advocates as the Augustan age of English literature, and decried by its enemies as an age of utilitarianism and satire. The truth is, that both in poetry and in prose the form had come to be observed much more than the matter. Pope, of course, is the poetical chief of this age; and while he, no doubt, indulged much more than was meet in the most polished and most personal satire, he nevertheless, as in his *Essay on Man*, displays a fine power of lofty contemplation, and a faculty of expression so brilliant, so happy, and so copious, that we look in vain for the match of it in the entire range of English poetry. Addison is unmatched for grace and ease; Swift has no equal in rude, pointed vigor; and the sense of Johnson's ponderous sentences is frequently obscured by their size. If Young, Akenside, Thomson, Gray, Collins, Beattie, and Cowper were animated by a truer sense of their duty in writing poetry than Pope was, the result shows that they accomplished much less than he did. The greatest poet of the century was Robert Burns. Its novelists were Richardson, Fielding, Smollet, Sterne, and Goldsmith; its historians were Hume, Robertson, and Gibbon; and its philosophers were Butler, Berkeley, Clarke, Shaftesbury, Hume, Paley, and Adam Smith. The first half of the 19th century opens with a galaxy of poets more brilliant, probably, than any that have appeared during an equal number of years in the whole history of English literature. Coleridge, Wordsworth, Scott, Byron, Shelley, Keats, Campbell, and Southey, are the poets of this time. There might be periods of greater originality, but there has been none so various, so diverse, and so fresh of its kind as the period we are describing. Books have been multiplied to an unprecedented degree, and readers have increased almost as abundantly as the books have. This is the age of reviews and periodicals, and, indeed, of novels and romances. The great reviewers of the time are Jeffrey, Sydney Smith, Hazlitt, John Forster, De Quincey, and Carlyle; the great preachers are Hall, Chalmers, and Irving; the philosophers are Stewart, Mackintosh, Bentham, Brown, Hamilton, and Stuart Mill; the men of science are Owen, Whewell, Faraday, Sedgwick, and Huxley; the novelists are Dickens, Thackeray, Bulwer Lytton, Charlotte Brontë, and "George Eliot;" the historians are Hallam, Macaulay, Thirwall, Grote, Milman, and Carlyle. Ruskin stands alone as a writer on art. Poetry is represented by Tennyson, the Brownings, Matthew Arnold, Swinburne, and Massey, besides others, too numerous to mention here. See *Cyclo. of Eng. Lit.* New ed. (Lond. 1877); *Dic. Eng. Lit.*, Adams; *Manual of Eng. Lit.*, Tyler (N. Y. 1879); *Landmarks of Eng. Lit.*, by Nicole (N. Y. 1883); *Eng. Lit. in the Reign of Victoria, with a glance at the past*, by Prof. Henry Morley, (Leipzic, 1882). Stedman's *Victorian Poets*, (13th ed. with sup., London 1887.)

Engleside, in *Missouri*, a village of Oregon co.

Englewood, in *New Jersey*, a post-village of Bergen co., abt. 13 m. N.N.E. of Hudson city.

Eng'lish, in *Iowa*, a twp. of Iowa co.—A twp. of Keokuk co.—A twp. of Lucas co.

English, *n. pl.* [Sax. *Englisc*, from *Engles*, ANGLES, *q. v.*] The people of England.

—*n. sing.* The language of England.

—*v. a.* To translate into English: to anglicize.

English Centre, in *Pennsylvania*, a post-office of Lycoming co.

English Creek, in *Iowa*, enters the Des Moines River from Marion co.

Eng'lish Har'bor, an excellent harbor on the S. coast of the island of Antigua, West Indies, Lat. 17° 3′ N., Lon. 61° 45′ W.

Eng'lish Harbor, an inlet of the Pacific Ocean, on the S. coast of Costa Rica, Lat. 8° 50′ N., Lon. 83° 55′ W.

Englishman, *n.* (*Geog.*) A native of England.

English Neighborhood, in *New Jersey*, a post-village of Bergen co., abt. 5 m. N. of Hoboken.

English Prairie, in *Illinois*, a post-village of McHenry co., abt. 50 m. N.W. of Chicago.

English River, in *Iowa*, formed in Floyd co., by the confluence of the Shell Rock and Lime creeks, and traversing Butler co., enters the Red Cedar River in Black Hawk co.

—Joins the Iowa River in Washington co., being formed by the union of the N. and S. forks, one of which rises in Powesheek, and the other in Keokuk co.

—A township of Washington co.

Eng'lishry, *n.* The people of England; as, a general massacre of the *Englishry*.

English's Creek, in *New Jersey*, a post-office of Atlantic co.

Englishtown, in *New Jersey*, a post-village of Monmouth co., abt. 5 m. N.W. of Freehold.

Engloom', *v. a.* To render gloomy.

Englut', *v. a.* [Fr. *engloutir.*] To swallow up; to fill; to glut; to pamper. (O.)

Engorge', *v. a.* [O. Fr. *engorger.*] To devour; to swallow; to gorge.

—*v. n.* To devour; to feed with eagerness and voracity.

Engorge'ment, *n.* The act of engorging.

(*Med.*) An obstruction occurring in the vessels of a part, giving rise to augmentation of volume.

Engoulee, (*ang-gô-la'.*) [O. Fr. *engouler*, to swallow down.] (*Her.*) An epithet for erosses, saltiers, &c., when their extremities enter the mouths of lions, leopards, &c.

Engraft', *v. a.* To ingraft; to graft.

Engraft'ed, *p. a.* Planted; ingrafted.

Engrafting, *n.* See GRAFTING.

Engrail', *v. n.* (*Her.*) To indent with curve lines.

Engrailed, *a.* Said of a series of little half-moons, or semicircles (Fig. 942) supposed to have been made in it by hail.

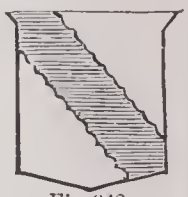


Fig. 942. ENGRAILED.

Engrail'ment, *n.* The ring of dots round the edge of a medal.

Engrain', *v. n.* [*En*, and *grain*—q. v.] To dye in grain or in the raw material. To dye deep.

Engrasp', *v. a.* To seize; to hold fast in the hand; to gripe.

Engraulis, *n.* See ANCHOVY.

Engrave', *v. a.* [*En*, and *grave*, q. v.] To cut a groove into; to mark by making incisions; to cut, as metals, stones, or other hard substances, with a chisel or graver; to cut, as figures, letters, or devices, on wood, stone, or metal; to picture or represent by incisions; to imprint; to impress deeply; to infix, as in the memory.

Engrave'ment, *n.* Act of engraving; an engraving. (R.)

Engrav'er, *n.* One who engraves; a cutter of letters, figures, or devices on stone, metal, or wood; a sculptor; a carver.

Engraving, (*en-graiv'ing,*) *n.* [Fr. *graver*, to engrave.] (*Fine Arts.*) The art by which plates of metal or blocks of wood are prepared by incision or excision in order to imprint designs of any kind on paper, calico, or similar materials. The term engraving is more strictly confined to work of this nature executed on wood or metal; but there are also many different branches of the art, to which specific names are applied; thus, the process of engraving dies in steel for coins and medals is called "die-sinking" (see DIE-SINKING), while engraving on precious stones and shells, which consist of layers of different colors, so that, by cutting away a portion of the upper coat, a dark figure may be produced on a light ground, or *vice versâ*, is termed "cameo-cutting." (See CAMEO.) This branch of the art is somewhat similar to chasing, by which figures and patterns are produced in bas-relief on vessels of gold or silver. There is a great difference in the method used in preparing blocks of wood and plates of metal to effect impressions on paper. In the former, all the parts that are to appear white in the impression are cut away, and the lines which produce the imprint are left on the face of the block (see WOOD-ENGRAVING); but, on the contrary, in engraving on steel, copper, or zinc, the lines which are intended to produce the impression are hollowed out with a graving-tool. The Egyptians practised the art of engraving in bas-relief and intaglio on stone and metal at a very early age, and the Jews and Greeks probably derived their knowledge of the art from them. Indeed, all the nations of the East have practised engraving of various kinds from a

very early period of their history, although none of them ever discovered the practicability of taking impressions from incised plates, or wooden figures in relief. It was about 500 B. C. that a Greek named Aristagoras is said to have produced a map of all the portions of the world that were known to the ancients at that period, graven on a plate of brass. The incised lines were probably filled in with a colored composition, so that the whole presented an appearance somewhat similar to the *niello*-work of the Middle Ages, or the second kind of the early encaustic paintings. (See ENCAUSTIC PAINTING, NIELLO.) The method of producing incised engravings on plates of metal for the purpose of ornamentation, was followed without the slightest variation in the manner of execution from the earliest times until the discovery of the art of printing, and the mode of taking impressions from engraved plates. The art of obtaining an imprint from wooden blocks and types is ascribed to Laurence Koster, of Haarlem, who printed a book of rude wood-engravings on Scripture subjects, with texts of Scripture at the foot of each print, entitled *Speculum Humanæ Salvationis*, about the year 1438; but the merit of the earliest discovery of printing from metal plates is assigned to Masso Finneguerra, of Florence, who took an impression on paper from a large silver plate known as the "Pax," which he was engraving in *niello* about 12 years after the discovery of Koster, who was then printing from movable types cut in metal. After this, the progress made by the Germans and Italians in engraving on wood and metal was rapid, and before the close of the 15th century, books were produced copiously illustrated with maps and engravings imprinted from metal plates. Prior to the time of Albert Dürer, engraving had been effected by means of the graving-tool alone; but this great artist introduced the method of engraving known as etching, by which the design is bitten in, as it is technically called, by the corrosive action of a strong acid on the surface of the plate, after the design has been traced with a needle on the etching-ground, with which the plate has been previously covered. It should, however, be stated that the discovery of the art of etching by means of acid is ascribed by some to Parmegiano, who lived at the same time as Albert Dürer. The style of engraving called "mezzotinto" was introduced by De Siegen about 1640; considerable improvements were subsequently effected in this branch of the art by Prince Rupert. Copper was the material used for all engravings, whether of maps or landscapes, in line, aquatinta, stipple, or on soft ground, until about the year 1815, when soft steel plates were first used by Messrs. Perkins and Heath, of Philadelphia, instead of copper, which were afterwards hardened when the process of engraving had been effected. The tools used in engraving are gravers or burins of all kinds and forms, made of case-hardened steel, etching-needles, scrapers for removing the burr thrown up by the graver or dry point, and burnishers to remove scratches from the plate, and to give a tone and finish to the engraving. The plate is prepared for the reception of the design by covering it with a coating of etching-ground, composed of a mixture of wax, resin, and gum-mastic. This is smeared over the plate after it has been heated, care being taken to render the surface of the ground uniform. It is then blackened by holding it over the smoke of a candle; and as soon as this is done the plate is allowed to cool. The outline of the drawing or map to be engraved, which has been carefully traced in pencil on paper, is next transferred to the ground by pressure, or by rubbing it with a burnisher, and the design thus obtained is traced through the ground with a needle. A rim is then raised round the edge of the plate with what is called "banking-wax," and a solution of nitric acid and water is poured into the hollow thus formed. When this has remained on the plate a sufficient time to bite in the outline, or the lighter parts of the engraving if it be a landscape or figures, the acid is poured off, and the parts which are dark enough are covered with a kind of varnish called "stopping-ground," which resists the corrosion of the acid, and prevents it from acting on the plate in the parts thus covered. The plate is then again subjected to the action of the acid, and the process of applying the stopping-ground to those parts which are sufficiently dark, and the acid to those which are not dark enough, is continued until all the requisite gradations of light and shade have been obtained. The plate is afterwards finished with the graver. In line-engravings, the greater part of the work is done by the burin, a skilful engraver being able to produce a vivid representation by a judicious combination of lines and dots. See also ENGRAVING in SECTION II.

Engross', *v. a.* [*En*, and Fr. *grossir*, to enlarge, to make greater or thicker; from *gros*, big. See GROSS.] To seize in the gross; to take the whole of; to swallow up; to absorb; to occupy; to engage; to buy up in large quantities, in order to make a demand, and sell again at a higher price; to forestall.
—To copy in a large hand; to write a fair, correct copy, in large or distinct legible characters.
—To take or assume in undue quantities or degrees.

Engrossed', *p. a.* Seized in the gross; taken in the whole; absorbed: purchased in large quantities for sale.
—Written in large fair characters.

Engross'er, *n.* One who engrosses.

Engross'ing, *n.* Act of engrossing; the buying up of large quantities of a commodity in order to raise the price.—The copying of a writing in fair and legible characters.

Engross'ment, *n.* Act of engrossing; act of taking the whole; the appropriation of things in the gross or in exorbitant quantities; exorbitant acquisition.
—A copy of a written instrument in a large fair hand.

Engulf, *v. a.* To ingulf; to swallow up.

Engulf'ment, *n.* Act of engulfing, or overwhelming.

Enha'lo, *v. a.* To encircle with a halo.

Enhance', *v. a.* [Fr. *en*, and *hausser*, to raise, from *haut*, high; O. Fr. *hault*; Lat. *altus*, high, aspirated by the vulgar; It. *alzáre*, to lift up.] To raise to a higher peint; to advance; to heighten; to increase; to aggregate.
—*v. n.* To be raised; to swell; to grow larger.

Enhanced', *p. a.* Raised; advanced; heightened; increased.

Enhance'ment, *n.* Act of enhancing; rise; increase; augmentation; aggravation.

Enhanc'er, *n.* One who, or that which, enhances, or raises the price of a thing.

Enhar'bor, *v. a.* To dwell in; to inhabit.

Enhard'en, *v. a.* [Fr. *enhardir*.] To make hard; to harden.—To embolden.

Enharmon'ic, ENHARMON'ICAL, *a.* [Fr. *enharmonique*; Gr. *enarmonicos*—*en*, and *harmonia*. See HARMONY.] (*Mus.*) Noting a scale in music that proceeds by very small intervals.

Enharmon'ically, *adv.* In an enharmonical manner.

Enheart'en, *v. a.* To encourage; to embolden; to animate.

Enig'ma, *n.* [Fr. *énigme*; Lat. *ænigma*; Gr. *ainigma*, from *ainissomai*, to speak darkly, from *ainos*, a tale, a story.] A proposition put in obscure or ambiguous terms to puzzle or exercise the ingenuity in discovering its meaning. In the present day, the *E.* serves merely to beguile a leisure hour; but formerly it was considered a matter of such importance that the Eastern monarchs used to send embassies for the solution of enigmas. The *E.* which Samson proposed to the Philistines, and the still more famous riddle of the SPHINX (*q. v.*), are well known. About the 17th century the *E.*, which had been for centuries neglected as a species of literary display, again came into favor: and in France particularly it was cultivated with so much zeal, that several grand treatises were dedicated to its history and characteristics.
—A dark saying, in which some known thing is concealed under obscure language; an obscure question; a riddle.

Enigmat'ic, or ENIGMAT'ICAL, *a.* [Fr. *énigmatique*, from L. Lat. *ænigmaticus*.] Relating to or containing an enigma or a riddle; obscure; darkly expressed; ambiguous; obscurely conceived or apprehended.

Enigmat'ically, *adv.* In an obscure manner.

Enig'matist, *n.* [Gr. *ainigmatistes*.] A maker or dealer in enigmas and riddles.

Enig'matize, *v. n.* To utter or form enigmas; to deal in riddles.

Enigmatog'raphy, or ENIGMATOL'OGY, *n.* The art of making or solving enigmas or riddles.

Enjail', *v. a.* To put into a jail; to imprison.

Enjoin', *v. a.* [Fr. *enjoindre*; Lat. *injungo*—*in*, and *jungo*, to join.] To join or attach to; to connect with; to impose; to lay upon; to order or direct with urgency; to admonish or instruct with authority; to command; to prescribe.

Enjoin'er, *n.* One who enjoins.

Enjoy', *v. a.* [*En*, and Fr. *jouir*, to enjoy, to possess, from Lat. *gaudeo*, to rejoice or be glad. See JOY.] To have or feel gladness, joy, pleasure, or delight in; to feel or perceive with pleasure; to take pleasure or satisfaction in the possession or experience of; to take pleasure or delight in the possession of; to have, possess, and use with satisfaction, or as a good or desirable thing.
—*v. n.* To feel enjoyment; to take pleasure. (R.)

Enjoy'able, *a.* That may be enjoyed.

Enjoy'er, *n.* One who enjoys.

Enjoy'ment, *n.* [Fr. *enjouement*.] State of enjoying anything, or of pleasurable sensation; pleasure; gratification; satisfaction in the possession of what is good or desirable; fruition; happiness.

Enker'nel, *v. a.* To form into kernels.

Enkhui'sen, a fortified town and seaport of the Netherlands, prov. N. Holland, on the W. shore of the Zuider Zee, 30 m. N.E. of Amsterdam; *pop.* 6,213.

Enkin'dle, *v. a.* [*En*, and *kindle*, q. v.] To kindle; to set on fire; to inflame; to excite; to rouse into action.

Enlace', *v. a.* To fasten with lace; to lace; to inlace.

Enlace'ment, *n.* The act of unlacing.

Enlard', *v. a.* To grease; to baste.

Enlarge', *v. a.* [Fr. *élargir*. See LARGE.] To make large or larger; to make greater in quantity or dimensions; to extend in limits, breadth, or size; to expand; to dilate; to increase; to magnify; to augment; to extend; to expatiate; to set at large; to set free or give freedom to.
—*v. n.* To grow large or larger; to extend; to dilate: to expand; to diffuse; to expatiate; to exaggerate.

Enlarged', *p. a.* Increased in bulk; extended in dimensions; expanded; dilated; augmented; released from confinement or straits.

Enlarg'edly, *adv.* In an enlarged manner.

Enlarg'edness, *n.* State of being enlarged.

Enlarge'ment, *n.* Act of enlarging; state of being enlarged; dilatation; expansion; extension; augmentation; increase; release from confinement; liberation; copious discourse; diffusiveness; an expatiating.

Enlarg'er, *n.* He who, or that which, enlarges.

Enlay', *v. a.* See INLAY.

Enlight', *v. a.* To enlighten. (R.)

Enlight'en, *v. a.* [A. S. *enlihtan*, *onlihtan*—*en*, or *on*, and *lihtan*, to light, *q. v.*] To make light or clear; to shed light on; to supply with light; to illuminate; to make clear or bright; to enable to see more clearly; to give clearer views or perceptions to; to instruct; to enable to see or comprehend truth; to illuminate with divine knowledge.

Enlight'ened, *p. a.* Rendered light; illuminated; instructed; informed; furnished with clear views.

Enlight'ener, *n.* One who enlightens or illuminates.

Enlight'ening, *p. a.* Making light; illuminating; giving light to; instructing.

Enlight'enment, *n.* Act of enlightening; state of being enlightened or instructed.

Enlimn', *v. a.* [Fr. *enlumnir*.] To illuminate or adorn with ornamented letters or with pictures, as a book.

Enlink', *v. a.* To chain to; to link.

Enlist', *v. a.* [*En*, and *list*, q. v.] To enter on a list; to engage in public service, by entering the name of in a register; to unite firmly to a cause; to employ in advancing some object.
—*v. n.* To engage voluntarily in public service by subscribing articles or enrolling one's name; to enter heartily into a cause, as one devoted to its interests.

Enlist'ing, Act of entering voluntarily into military service; act of engaging men to enter into military service.

Enlist'ment, *n.* Act of enlisting; voluntary engagement to serve as a soldier or sailor; voluntary enrolment; the writing by which a soldier is bound.

Enliv'en, *v. a.* [*En*, and Sax. *liban*, to live, *q. v.*] To give life to; to make alive; to quicken; to animate; to give vivacity, spirit, or sprightliness to; to make vigorous or active; to exhilarate; to cheer; to inspirit; to gladden; to invigorate.

Enliv'ener, *n.* He or that which enlivens or animates.

Enliv'ening, *p. a.* Giving life, spirit, or animation; inspiring; invigorating; making vivacious, sprightly, or cheerful.

Enmanché, *a.* (*Her.*) Applied to lines of about half the breadth of the chief, drawn from the centre of the upper edge of the chief to the sides.

En masse, (*ang-mas'*.) [Fr.] In a body; in the mass.

Enmew, *v. a.* See EMMEW.

En'mity, *n.* [Fr. *inimitié*; Lat. *inimicitia*, from *inimicus*. See ENEMY.] Quality of being an enemy; the opposite of friendship; unfriendly dispositions; hostility; animosity; hatred; ill-will; malignity; malevolence; a state of opposition.

Enmossed, (*en-mōst'*,) *a.* Covered with moss.

Enmove', *v. a.* See EMMOVE.

Enna'tion, *n.* [Gr. *ennea*, nine.] (*Zoöl.*) The ninth segment in insects.

Enneacontahe'dral, *a.* [Gr. *ennenkonta*, ninety, and *edra*, a base.] (*Min.*) That has ninety sides.

Enneacontahe'dron, *n.* A solid which has ninety sides.

En'neagon, *n.* [Gr. *ennea*, nine, and *gonia*, angle.] A plane rectilinear figure of nine sides and angles; a nonagon.

Enneag'onal, *a.* Having nine sides and angles.

Enneag'ynous, *a.* Having the form of an enneagon.

Enneahe'dral, *a.* Having nine sides.

Enneahe'dria, or ENNEAHE'DRON, *n.* A figure of nine sides.

Ennean'dria, *n.* (*Bot.*) The 9th class in the Linnæan system. The flowers are hermaphrodites, with nine stamens.

Ennean'drian, or ENNEANDROUS, *a.* (*Bot.*) Having nine stamens.

Enneapet'alous, *a.* [Gr. *ennea*, and *petalon*, a leaf.] (*Bot.*) Having nine petals.

Enneasperm'ous, *a.* [Gr. *ennea*, and *sperma*, a seed.] (*Bot.*) Applied to a fruit which has nine seeds.

En'nemoser, JOSEPH, a medical and philosophical writer, B. in Hintersee, Tyrol, 1787. He attended the gymnasiums in Meran and in Trient, and in 1806 the University at Innsbruck. At the breaking out of the war in 1809, he followed Andreas Hofer as his private secretary, and at the closing thereof he went to finish his studies at Erlangen and to Vienna. For want of means he gave up his studies and became travelling agent for a merchant in Altona for a time, until a countryman of his, whom he met in Berlin, furnished him the necessary funds to renew his studies again. During the French war of 1812 against Russia, he was with other Tyrolese sent to England to procure assistance for the Tyrolese in a projected revolution. On the news of the French campaign against Russia, he started over Sweden to Prussia, and on the way was shipwrecked on the Baltic, and miraculously rescued, after 14 days' suffering, by some pilots. On the call for troops by King Frederick William III., he joined the Lützow volunteers, and commanded a company of Tyrolese riflemen during the campaign of 1813-14. He was particularly mentioned for bravery at Lauenburg, at Möllen, and at Ratzeburg against the corps of Marshal Davoust. During the attack at Jülichs, in March, 1814, he earned the Iron Cross at the head of his company. On the declaration of peace at Paris, he went to Berlin to finish his studies, and graduated there 1816 as Doctor of Medicine. He settled there to practise, and travelled to England, Holland, and the different German baths. Under the tuition of Prof. Wolfart he devoted himself to the study of electro-magnetic therapeutics. In 1819 he was elected Prof. of Medicine at the University of Bonn, where he lectured on Anthropology, Psychical Medicine and Pathology. From a feeling of nostalgia he resigned his professorship in 1837, and settled in Innsbruck to practise; from which place he removed to Munich in 1841, where he became renowned as an electro-magnetic physician. He D. Sept. 19, 1854, in Ergern on Lake Tegern, whither he had gone for the benefit of his health. His principal work is: *Der Magnetismus in seiner geschichtlichen Entwickelung*. Of his other works are to be named: *Histor. psychol. Untersuchungen über den Ursprung und das Wesen der menschlichen Seele; Anthropol. Ansichten zur bessern Kenntniss der Menschen; Der Mag-*

netismus im Verhältniss zur Natur und Religion; Anleitung zur Mesmer'schen Praxis.

En'nis, the chief town of the county of Clare, Ireland, on the river Fergus, 20 m. from Limerick. It is of considerable size, but irregularly built, and has a court-house, jail, barracks, town-hall, college, hospital, and two convents. *Pop.* 8,000.

En'niscor'thy, a market-town and borough of co. Wexford, Leinster. It is memorable as the scene of many terrible outrages during the rebellion of 1798. *Pop.* about 7,000.

Enniskil'len, the chief town of the co. of Fermanagh, Ireland, on an island in Lough Erne, 34 m. from Sligo. Its principal buildings are a court-house, town-hall, barracks, linen-hall, infirmary, and the royal school of Portora, founded by Charles I., and one of the best endowed in the kingdom. *Manuf.* Leather, cutlery, and sewed muslins. There is also a considerable trade in corn, timber, coals, and slate. *Pop.* 6,000. — This place gives the title of earl, in the pecrage of Ireland, to the family of Cole. In 1595 it made an obstinate defence against Queen Elizabeth's army, and was unsuccessfully besieged by James II.'s troops in 1689.

Ennis Point, in *Missouri*, a village of Jasper co., about 180 m. S.W. of Jefferson City.

Ennistrehul, (*en-nis'trawl,*) a small island of Ireland, off the coast of co. Donegal, Ulster, about 7 m. E.N.E. of Malin-Head.

Ennisty'mon, a town of Ireland, co. Clare, Munster, on a river of the same name, near Liscanor Bay, and abt. 14 m. W.N.W. of Ennis; *pop.* about 2,000.

En'nisville, a village of Lower Canada, co. of Lanark, about 9 m. S. of Carleton Place.

Ennisville, in *Pennsylvania*, a post-village of Huntingdon co., about 80 m. W.N.W. of Harrisburg.

En'nius, QUINTUS, a Roman poet, who wrote in heroic verse the annals of the Roman republic, and displayed much knowledge of the world in some dramatical and satirical compositions. D. of the gout, contracted by his frequent intoxication, 169 B. C.; B. at Rudiæ, now Ruge, in Calabria, 239 B. C. — Scipio, on his deathbed, ordered his body to be buried by the side of this poetical friend. Conscious of his merit as the first epic poet of Rome, Ennius bestowed on himself the appellation of the Homer of Latium. Of all his writings, nothing now remains but fragments happily collected from the quotations of ancient authors.

Enno'ble, *v. a.* [Fr. *ennoblir — en*, and *noble*, noble — *q. v.*] To make noble; to raise to nobility; to elevate in degree, qualities, or excellence; to raise; to dignify; to exalt; to elevate; to aggrandize.

Enno'bling, *p. a.* Advancing to the rank of a nobleman; exalting; dignifying.

Enno'blement, *n.* The act of ennobling. — Exaltation; elevation; dignity.

En'noree, in *S. Carolina*, rising in Greenville dist., and flowing S.E., enters the Broad River in Newbery dist.

Enns, a river of Austria, rising at the N.E. base of a branch of the Noric Alps, in the crownland of Salzburg, 12 m. S. of Radstadt. It joins the Danube 11 m. below the town of Linz, after a course of about 120 m.

Ennui, (*ong-nwe'*,) *n.* [Fr.; probably from Gr. *ania*, grief, sorrow, distress, trouble.] Dulness of spirit; langnor, or uneasiness, connected with a feeling of disgust; weariness; heaviness; lassitude; melancholy.

Enoch, (*e'nok,*) the name of two different individuals in Scripture. — 1. The eldest son of Cain, who built a city which was called after his name. — 2. The son of Jared, and father of Methuselah. A peculiarly mysterious interest attaches to him on account of the supernatural manner in which his earthly career terminated. We are told by the writer of Genesis, that *E.* "walked with God 300 years . . . and he was not; for God took him." What the statement "he was not" signified to the later Jews, is explained by the writer of the Epistle to the Hebrews: "Enoch was translated that he should not see death." *E.* and Elijah are the only human beings on record who did not require to discharge the debt which mortals owe to nature. It may naturally be supposed that *E.* was a character on whom the extravagant fancy of the later Jews would fasten with unusual pleasure. As they came more and more into contact with Grecian and other culture, they felt the necessity of linking on the arts and sciences of Gentile nations their own history, if they would continue to preserve that feeling of supremacy which was so dear to their pride as the chosen people. Hence, *E.* appears as the inventor of writing, arithmetic, astronomy, &c., and is affirmed to have filled 300 books with the revelations which he received, the number 300 being obviously suggested by the number of years during which he is said to have walked with God.

E., Book of. (*Theol.*) One of the apocryphal books of the Old Testament, and believed by some to be cited by St. Jude when he says, "Enoch, the seventh from Adam, prophesied, saying," &c. It is generally supposed, however, to have been written after the establishment of Christianity, from the frequent allusions that are made in it to passages of the New Testament; and it is probable that the author took occasion, from the words of St. Jude, to perpetrate the forgery. As for St. Jude himself, it is probable that he cites, not from any book of Enoch then existing, but from general tradition. The book was common in the early church, but was not generally received as canonical, and appears to have been lost about the 8th century. Bruce, however, when in Abyssinia, was fortunate enough to obtain three complete MS. copies of this work. An English translation was published in 1826, by Archbishop Lawrence, and the Ethiopic version in 1838. Several German editions have appeared. The book is chiefly taken up with a relation of the prophetic visions of Enoch regarding the fall, heaven, hell, nature, astronomy, the future of the Jewish people, &c.; the whole being characterized by such absurdities as to render it unworthy of any credit.

E'noch, in *Ohio*, a post-township of Noble co., about 100 m. E. by S. of Columbus.

Enoda'tion, *n.* [Lat. *enodatio*, from *enodo, enodatus — e, ex*, and *nodo*, from *nodus*, a knot. See NODE.] Act of clearing of knots, or of untying; solution of a difficulty; an unravelling; explanation.

Enode', *a.* (*Bot.*) Free from knots.

E'non, the place where John baptized, was near Salem, on the west side of the Jordan, (*John* i. 28; iii. 26.) It is supposed to have been eight or ten miles south of Beth-shean, and near the Jordan.

E'non, in *Illinois*, a village of Bureau co., about 7 m. N.W. of Princeton.

Enon, in *Ohio*, a post-village of Clark co., about 7 m. S.W. of Springfield.

Enon Grove, in *Georgia*, a post-village of Heard co., about 9 m. N.E. of Franklin.

Enon Valley, in *Pennsylvania*, a P. O. of Lawrence co.

Enor'mity, *n.* [Fr. *enormité;* Lat. *enormitas*, from *enormis*. See ENORMOUS.] That which is out of rule, order, regularity, or proportion; any wrong, irregular, vicious, or sinful act; depravity; wickedness; atrocious crime; flagitious villany; atrociousness; excessive degree of crime or guilt.

Enor'mous, *a.* [Lat. *enormis — e, ex*, and *norma*, a rule; Fr. *énorme*. See NORMAL.] Out of rule; going beyond the usual measure or rule; irregular; inordinate; great beyond the common measure; excessive; immoderate; exceeding in bulk or height the common measure; huge; vast; prodigious; outrageous; heinous; flagitious; extremely wicked.

Enor'mously, *adv.* Excessively; beyond measure.

Enor'mousness, *n.* Immensity; vastness.

Enor'thotrope, *n.* [Gr. *en*, in, *erthos*, upright, and *trepo*, to turn.] A card or toy by which confused objects are transformed into various figures or pictures.

E'nos, the son of Seth, and the father of Cainan, was born in the year of the world 235. Moses says, "That then men began to call on the name of the Lord," that is, that Enos was the first who practised any external form of worship; others believe that the passage implies that this was the commencement of idolatry, and that men now began to profane the name of the Lord. It is undoubted that Enos was a pious man, and an observer of social rites and religious ceremonies; and in contradistinction to the scoffers of Cain and his descendants, the patriarch and his family assumed the name of the servants or sons of God, which phrase explains the contradistinguishing term of the sons of men, and the passage, "And the sons of God, seeing the daughters of men that they were fair, took them wives of all which they chose." Enos died at the age of 905, A. M. 1140.

Enos, a maritime town of European Turkey, in Roumelia, 38 miles from Gallipoli. It is the port of Adrianople, and the seat of a limited trade, the harbor admitting only small vessels from its being choked up with sand. — The Gulf of Enos lies to the north of the town, and is 14 miles long by 5 broad.

Enosburgh, in *Vermont*, a post-village and township of Franklin co., on the Missisque River, about 50 m. N.N.W. of Montpelier.

Enosburgh Falls, in *Vermont*, a post-village of Franklin co., about 58 m. N. of Montpelier.

Enough, (*ĕ-nuf',*) *a.* [A. S. *genag, genoh;* Swed. *nog;* Ger. *genug.*] That satisfies desire or gives content; that may answer the purpose; that is adequate to the wants; — generally after the noun to which it attaches; as, "when thou hast gold *enough*." — *Dryden.*

—*n.* A sufficiency; that quantity of anything which satisfies the desires or wants; that which is adequate to the needs; that which is equal to the powers, abilities, or faculties; as, *enough* of money, *enough* of work.

—*adv.* Sufficiently; in a quantity or degree that satisfies or is equal to the desires or wants. — Fully; quiet; denoting a slight augmentation of the positive degree. — Such a quantity or degree as commands acquiescence rather than full satisfaction. — An exclamation denoting sufficiently; used as a contracted form of *it is enough.*

Enounce', *v. a.* [Lat. *enunciare.*] To declare; to announce; to assert authoritatively. (R.) — To articulate; to make utterance. (R.)

Enounce'ment, *n.* Act of enouncing.

Enow, (*e-nou'.*) An obsolete form of enough; — formerly used principally in the plural sense.

Enpierce', *v. a.* To pierce; to transfix; as, "I am too sure *enpierced* with his shaft." — *Shaks.*

Enquire, (*en-kwīr',*) *v. a.* and *n.* The old form of INQUIRE, *q. v.*

Enquir'er, *n.* See INQUIRER.

Enqui'ry, *n.* See INQUIRY.

Enrage', *v. a.* [Fr. *enrager — en* and *rage.*] To excite rage in; to provoke to fury or madness; to irritate extremely; to make furious; to exasperate; to incense; to provoke; to incite; to inflame.

Enrank', *v. a.* To place orderly in rank; as, "no leisure had he to *enrank* his men." — *Shaks.*

Enrapt'ure, *v. a.* [*En* and *rapture.* See RAPTURE.] To carry away or transport with pleasure; to delight beyond measure.

Enrav'ish, *v. a.* [*En* and *ravish.*] To bear or carry away the senses with delight; to throw into ecstasy; to transport with delight; to enrapture; to fascinate.

Enrav'ishingly, *adv.* In a manner to fill with rapture or ecstasy.

Enrav'ishment, *n.* State of ecstasy, or of being carried away with rapture or delight.

Enregister, (*en-rej'is-ter,*) *v. a.* [Fr. *enrégister.*] To register; to record.

Enrich', *v. a.* [Fr. *enrichir — en*, and *riche*, rich.] To make rich, wealthy, or opulent; to supply with abundant possessions; to supply with anything splendid or ornamental; to adorn with adventitious embellishments or decorations.

—To store with intellectual knowledge; as, to *enrich* the mind.

—To fertilize; to make productive or fruitful; as, manure *enriches* land.

Enrich'er, *n.* He who, or that which, enriches.

Enrich'ment, *n.* Act of enriching; augmentation of wealth; amplification; improvement; fertilization; addition of decoration or ornament.

Enridge, (*en-rij',*) *v. a.* To form into longitudinal protuberances or ridges; as, "the *enridg'd* sea" — *Shaks.*

Enring', *v. a.* To bind round, as with a ring; to encircle. (Used chiefly poetically.)

"Ivy *enrings* the barky fingers of the elm." — *Shaks.*

Enrique'ta, or HENRIQUITA, in *California*, a post-village of Santa Clara co., on Guadalupe Creek, about 5 m. from New Almaden. There is a rich mine of quicksilver here.

Enrobe', *v. a.* To dress; to clothe; to invest with a habit or with apparel.

Enrock'ment, *n.* A quantity of loose stones, rubble, &c., sunk into water as a base on which to erect a brakewater, pier, &c.

En-ro'gel, (*Scrip.*) A name which means foot-fountain, and is construed by the Targum into "Fuller's fountain," because the fullers trod the clothes there with their feet. It was near Jerusalem, on the boundary-line between the tribes of Judah and Benjamin. It has been usually supposed the same as the fountain of Siloam. But Dr. Robinson is now inclined to find it in what is called by Christians the Well of Nehemiah, but by the



Fig. 943. — WELL OF NEHEMIAH.

natives the Well of Job. There are only three sources, or rather receptacles of water, now accessible at Jerusalem, and this is one of them. This well is situated in what is now the prettiest and most fertile spot around Jerusalem. It is 125 feet deep, is walled up with large squared stones, which on one side rise and form an arch, and is apparently of great antiquity.

Enroll', *v. a.* [Fr. *enrôler — en*, and *rôle*, a roll or register.] To write in a roll or register; to insert, as a name, or enter in a list or catalogue; to record; to insert in records; to leave in writing; as, to be *enrolled* a member of a club or society.

—To involve; to inwrap; as, "*enrolled* in smoke." *Spenser.*

Enroll'er, *n.* The person who enrolls or records in a register.

Enrol'ment, *n.* Act of enrolling. — That in which anything is recorded; a register; a written record.

Enroot', *v. a.* To fix by the root; to fasten firmly; to implant deeply.

Ensanguine, (*en-sang'gwin,*) *v. a.* [*En*, and Lat. *sanguis*, blood.] To smear with blood; to stain or smirch with gore.

En'sate, *a.* (*Bot.*) Bearing sword-shaped leaves; ensiform.

Enscale', *v. a.* To invest with scales; to give the form of scales to.

Enschedule, (*en-skĕd'yul.*) *v. a.* [*En* and *schedule*, q. v.] To enter in a schedule; as, to *enschedule* accounts.

Ensconce, (*en-skons',*) *v. a.* [*En* and *sconce.* See SCONCE.] To cover or shelter, as with a sconce or fort; to protect; to secure or hide.

—*v. n.* To secure one's self in a fastness or fortification; to take shelter behind something.

"I will *ensconce* me behind the arras." — *Shaks.*

Enseal', *v. a.* [*En*, and *seal*, q. v.] To impress with a seal; to affix a seal to.

Enseam', *v. a.* To sew up; to inclose by a seam.

Enseel', *v. a.* To close the eyes of by sewing the eyelids together; as, an *enseeled* hawk.

Enseint, (*en-sānt',*) *a.* (*Law.*) See ENCEINTE.

Ensemble, (*ăng-sām'bl,*) *n.* [Fr.] All the parts of a person or thing taken as a whole, or collectively; as, the *ensemble* of a state pageant.

—*adv.* Simultaneously; with one accord; at once.

Ensena'da de Barragan', a village and bay in

the Argentine Republic, in the æstuary of the Plata River, abt. 30 m. S.E. of Buenos Ayres.

Enshrine', *v. a.* [*En*, and *shrine*, q. v.] To enclose in a shrine or chest;—hence, to cherish; to guard and preserve with attention and affection; to hold as a thing sacred; as, to *enshrine* a relic, to *enshrine* a person in one's memory.

Enshroud', *v. a.* [*En* and *shroud*.] To cover with a shroud; to clothe, as with a shroud.

Ensif'erous, *a.* [Fr. *ensifère*.] Bearing a sword.

En'siform, *a.* [Lat. *ensis*, a sword, and *forma*, form.] Having the form of a sword; as, an *ensiform* leaf.

En'sign, *n.* [Fr. *enseigne*; Lat. *insigne* — *in*, and *signum*, a mark.] A distinguishing sign; a mark or badge by which one thing may be known from another; any mark or note of distinction; the flag or banner of a military band, or of a vessel; a banner of colors; a national flag or standard; any signal to assemble or to give notice.

(*Mil.*) In the English army, the lowest commissioned officer, who carries the flag or colors in a company of infantry. He is a subordinate to the lieutenants.

En'signcy, En'signship, *n.* The rank of an ensign.

Enslave', *v. a.* [*En* and *slave*.] To reduce to slavery or bondage; to deprive of liberty, and subject to the will of a master; to reduce to servitude or subjection, as to habits or passions.

Enslav'edness, *n.* State of being enslaved.

Enslave'ment, *n.* Act of enslaving; state of being enslaved; slavery; bondage; servitude.

Enslav'er, *n.* One who enslaves.

Enslen'ia, *n.* [In memory of Mr. Aloysius *Enslen*, who collected many plants in the S. States.] (*Bot.*) A genus of plants, ord. *Asclepiadaceæ*. They are twining herbs, with opposite, cordate-ovate, acuminate leaves. Peduncle racemose-umbellate, many-flowered. Flowers white.

Ens'ley, in *Michigan*, a post-township of Newaygo co. *Pop.* (1897) about 1,800.

—A post-office of Newaygo co.

Enstamp', *v. a.* To impress as with a stamp; to impress deeply.

Enstate', *v. a.* To invest with possession; to instate.

Ensue', *v. n.* [Fr. *ensuivre*, from Lat. *in*, and *sequor*, to follow.] To follow as the consequence of premises; to follow in a train of events or course of time; to succeed; to come after.

Ensu'ing, *p. a.* Following as a consequence; coming next after; succeeding.

Ensure, *v. a.* See INSURE.

Ensweep', *v. a.* To pass over with swiftness.

Entab'lature, Enta'blement, *n.* [O. Fr. *entablature*; Fr. *entablement* — *en*, and *table*, a board.] (*Arch.*) The whole of the parts of an order above the column. The assemblage is divided into three parts; the *architrave*, the *frieze*, and the *cornice* (see Fig. 650). The first and last are variously subdivided in the different orders. See COLUMN.

En'tail, *n.* [From Fr. *entailler*, to notch, to cut into.] An estate or fee entailed, or limited in descent to a particular heir or heirs; rule of descent settled for an estate.

—*v. a.* To cut off an estate from the heirs in general; to limit or settle, as the descent of lands and tenements by gift to a man, and to certain heirs specified, so that neither the donee nor any subsequent possessor can alienate or bequeath them; to fix unalienably on a person or thing, or on a person and his descendants. — See ESTATES-TAIL.

Entail'ment, *n.* Act of entailing; state of being entailed; act of giving, as an estate, and directing the mode of descent; act of settling unalienably on a man and his heirs.

Entame', *v. a.* To subjugate; to subdue; to conquer. (R.)

Entan'gle, *v. a.* [*En* and *tangle*.] To tie, bind, knit, twist, or interweave in such a manner as not to be easily separated; to make confused or disordered; to involve; to perplex; to cause to be perplexed, complicated or intricate; to involve in difficulties; to embarrass; to puzzle; to bewilder; to ensnare; to catch.

Entan'glement, *n.* Act of entangling; state of being entangled; involution; a confused or disordered state; intricacy; perplexity.

Entan'gler, *n.* One who entangles or involves.

Entang'ling, *p. a.* Interlocking in confusion; perplexing; ensnaring.

Enta'sia, *n.* (*Med.*) Tonic spasm; a general term applied to tetanus, trismus, &c.

En'tasis, *n.* (*Arch.*) Delicate and almost imperceptible swelling of the shaft of a column, to be found in almost all the Grecian examples, adopted to prevent the shafts being strictly frusta of cones.

(*Med.*) A constrictive spasm.

Entass'ment, *n.* [Fr. *entassement*.] A heap; a pyre; an accumulation. (R.)

Entas'tic, *a.* (*Med.*) Relating to all diseases characterized by tonic spasms.

Ente, *n.* (*Her.*) Any grafted emblazonment.

Entem'ple, *v. a.* To contain: to receive; to embrace. (R.)

Enteu'der, *v. a.* To make tender; to soften; to mollify. — To treat kindly. (R.)

Entente Cordiale. [Fr.] (*Pol.*) The manifestation of goodwill and justice towards each other, exchanged between the governments of two states.

En'ter, *v. a.* [Fr. *entrer*.] To go into; to move or pass, as into a place, in any manner whatever; to pierce or penetrate; to advance into; to begin, as a business, employment, or service; to engage in; to admit or introduce; to set down in writing: to set an account in a book or register; to enroll; to insert.

—*v. n.* To go or come in; to pass into; to pierce; to penetrate; to penetrate mentally; to go into minutely; to engage in, as a project; to take the first step or steps; to be initiated in; to be an ingredient; to form a constituent part.

Enteradenog'raphy, *n.* [Gr. *entera*, the intestines, *aden*, a gland, and *graphō*, to describe.] (*Med.*) A description of, or a discourse upon, the intestinal glands.

Enteradenol'ogy, *n.* [Gr. *entera*, *aden*, and *logos*, discourse.] That part of anotomy which treats of the intestinal glands.

En'terclose, *n.* (*Arch.*) A passage between two rooms, or the passage leading from the door to the hall.

En'terer, *n.* One who enters.

Enter'ic, *a.* [From Gr. *entera*, the intestines.] (*Med.*) Relating to the intestines.

En'tering, *n.* Passage into a place; entrance.

Enteri'tis, *n.* [Gr. *entera*.] (*Med.*) Inflammation of the bowels. This disease may be occasioned by incautious exposure to cold, by acrid substances, or by hardened fæces in the bowels. Its symptoms are: pain over the abdomen; thirst, heat, and excessive restlessness and anxiety; sickness; obstinate constipation; and a hard, small and quick pulse. The pain increases as the disease proceeds, especially about the navel; there is great difficulty in voiding the urine, which is small in quantity and high-colored; and the abdomen is so tender as not to endure the slightest pressure. It often terminates in a few hours in mortification of a part of the intestinal canal; in which case the pain suddenly ceases, the belly becomes tumid, the pulse sinks rapidly, and the countenance acquires a peculiar ghastliness; it also proves fatal during the inflammatory stage. Favorable symptoms are: a gradual diminution of pain and of tenderness on pressure, natural evacuation by the bowels, moist skin, equal and firm pulse, and a copious discharge of urine, depositing abundance of red sediment. This is a disease which requires prompt and decided treatment. Leeches should be applied over the abdomen, and the patient should be put in a hot bath, or fomented with hot water; the lower bowels should be evacuated by a glyster of castor-oil and gruel, but purgatives should be avoided until inflammatory symptoms subside. Pain should be quelled by the effervescing draught, with a very few drops of tincture of opium. In most cases small doses of calomel and opium have been given with great advantage. When the urgent symptoms give way, and the bowels have been cleared, diaphoretic saline medicines and gentle aperients may be used, and a mild nourishing diet allowed; but great care is requisite in ascertaining that all relics of the inflammatory action are got rid of, and that it is not lurking in some one spot in a chronic form, as *E.* is often the result of old disease existing in the cavity of the abdomen.

Enter'ocele, *n.* [From Gr. *entera*, the intestines, and *kele*, a tumor.] (*Anat.*) A rupture of the bowels, in which a protrusion of the intestines appears in the groin.

Enterog'raphy, *n.* [Gr. *entera*, and *grapho*, to write.] (*Anat.*) That branch of anatomy which describes or treats of the intestines.

En'terohy'drocele, *n.* [Gr. *entera*; *udor*, water, and *kele*, a tumor.] (*Med.*) Intestinal hernia complicated with hydrocele, or a collection of serous fluid in the scrotum.

En'terolite, En'terolith, *n.* [Gr. *enteron*, an intestine, and *lithos*, a stone.] (*Med.*) Concretion or calculus in the intestines.

Enterol'ogy, *n.* [Gr. *entera*, intestines, and *logos*, discourse.] (*Anat.*) A treatise on the intestinal parts of the body.

Enterom'phalos, Enterom'phalus, *n.* [Fr. *enteromphale*.] (*Med.*) An umbilical hernia produced by the protrusion of a portion of intestine.

Enterop'athy, *n.* [Gr. *enteron*, an intestine, and *pathos*, suffering.] (*Med.*) Disease of the intestines.

En'teropip'locele, *n.* [Gr. *entera*, *epiploon*, the omentum, and *kele*, a tumor.] (*Anat.*) A rupture in which a part of the intestines, with a part of the epiploon, is protruded.

Enteros'cheocele, *n.* [From *enteron*; *oscheon*, the scrotum, and *kele*, a rupture.] (*Med.*) A scrotal hernia, or rupture of the intestines into the scrotum.

Enterot'omy, *n.* [Gr. *enteron*, intestine, and *tomē*, a cutting.] (*Anat.*) Dissection of the intestines.

(*Surg.*) An operation, little used, which consists in opening the intestines, in order to evacuate the fœcal matter accumulated in it.

Enterplead', *v. n.* See INTERPLEAD.

En'terprise, *n.* [Fr., from *entreprendre*, pp. *entrepris*, *entreprise* — *entre*, in, between, and *prendre*, to lay hold of, from Lat. *prehendo* — *præ*, and an obs. root *hend*, identical with Eng. *hand*.] That which is undertaken or attempted to be performed; particularly, a bold, arduous, or hazardous undertaking. — Undertaking; adventure; attempt.

"Whet on Warwick to this *enterprise*!" — *Shaks.*

—An adventurous spirit; hardihood; as, the spirit of *enterprise*.

—*v. a.* To take in hand: to undertake; to venture; to begin and attempt to perform.

"The business must be *enterpris'd* this night." — *Dryden.*

—*v. n.* To set about the doing of some arduous undertaking.

En'terprise, in *Florida*, a village of Volusia co., on St John's River, abt. 75 m. S. by E. of Pilatka.

En'terprise, in *Illinois*, a post-village of Wayne co., on Elm Creek, abt. 55 m. S.E. of Vandalia.

En'terprise, in *Indiana*, a post-village of Spencer co., on the Ohio River, abt. 30 m. above Evansville.

En'terprise, in *Minnesota*, a post-village of Winona co., abt. 16 m. W.S.W. of Winona.

En'terprise, in *Mississippi*, a post-village of Clarke co., abt. 120 m. N. by W. of Mobile, Ala.

En'terprise, in *Missouri*, a post-village of Shelby co., about 35 m. W. of Hannibal.

En'terprise, in *Ohio*, a village of Preble co., about 100 m. W. by S. of Columbus.

En'terprise, in *Pennsylvania*, a post-village of Warren co., about 5 m. E. of Titusville.

En'terprise, in *Utah*, a village of Morgan co.

En'terpriser, *n.* A man of enterprise; one who undertakes the doing of great things; a person who engages for the performance of difficult or important matters.

En'terprising, *a.* Resolute; bold to undertake; adventurous; active, prompt, or venturesome to attempt great or untried schemes; as, an *enterprising* man.

En'terprisingly, *adv.* In an enterprising manner.

Entertain', *v. n.* [Fr. *entretenir* — *entre*, and *tenir*, to hold; Lat. *teneo*.] To receive, as a guest; to treat hospitably; to receive at table; as, to *entertain* a party of friends. — To support; to maintain; to feed; to lodge; to be at the cost of housing and feeding.

"Leaving so his service . . . so please you *entertain* me." — *Shaks.*

—To reserve or cherish in the mind; to hold; to harbor; to cherish; as, to *entertain* good-will towards another. — To treat with conversation; to amuse or instruct by discourse; to please; to divert; to amuse; as, to *entertain* an auditory with music. — To receive or admit, with a view to consider and decide; as, to *entertain* a suggestion.

—*v. n.* To welcome and treat guests; as, we were hospitably *entertained*.

Entertain'er, *n.* One who entertains, diverts, receives, holds, or accepts.

Entertain'ing, *a.* Pleasing; amusing; diverting: as, an *entertaining* performance.

Entertain'ingly, *adv.* In an amusing or entertaining manner.

Entertain'ingness, *n.* State, quality, or faculty of being entertaining, or of promoting diversion.

Entertain'ment, *n.* Act of entertaining; hospitable reception and treatment; act of diverting or amusing; act of admitting, holding, or cherishing; as, the *entertainment* of guests at table, the *entertainment* of heterodox opinions, &c.

—That which entertains, or causes entertainment;—hence, a treat; a banquet; a festival; as, a costly *entertainment*.

—That which strikes the attention agreeably, and amuses or diverts; as, a dramatic *entertainment*.

En'theasm, *n.* Enthusiastic elation; spiritual inspiration. (R.)

Entheas'tic, *a.* [Gr. *entheastikos*.] Spiritually energetic; having divine potency.

Entheas'tically, *adv.* With divinely effectual powers.

Enthelmin'tha, Enthelmin'thes, *n. pl.* [Gr. *entos*, interior, and *elminthos*, a worm.] (*Med.*) Worms in the bowels or intestines.

En'theus, *n.* [Gr. *entheos*.] Inspiration. (R.)

Enthral', Enthrall', *v. a.* Same as INTHRALL, *q. v.*

Enthral'ment, *n.* Same as INTHRALMENT, *q. v.*

Enthrone', *v. a.* [*En* and *throne*.] To place on a throne; to exalt to the regal seat of dignity; to exalt to an elevated place or seat; — hence, by implication, to invest with sovereign or supreme authority; as, to *enthrone* a monarch.

(*Eccl.*) To induct or install into a vacant episcopal see; as, to *enthrone* a bishop.

Enthrone'ment, *n.* Act of enthroning a monarch or prelate. — State of being enthroned.

Enthroniza'tion, *n.* Act of enthroning; particularly, the act of installing a bishop on his episcopal throne.

Enthro'nize, *v. a.* To place on a throne, as a sovereign or prelate.

Enthusiasm, (*en-thū'zi-azm*,) *n.* [Fr. *enthousiasme*; Gr. *enthousiasmos*, from *enthousiazō*, to be inspired or possessed by a god, from *entheos*, inspired — *en*, and *theos*, a god. See THEIST.] Divine motion or inspiration; any wild passion; poetical fury; a heat or ardor of mind caused by a belief of private revelations; a religious state of mind, in which the imagination is unduly heated, and the passions outrun the understanding; fanaticism; ardent zeal; irrepressible fervor of the imagination; ardent zeal in the pursuit of laudable objects; heat of imagination, tempered by reason or experience.

Enthu'siast, *n.* [Fr. *enthousiaste*; Gr. *enthousiastēs*.] One who is possessed of enthusiasm: a visionary; a fanatic; a zealot; one whose imagination is warmed; one whose mind is highly excited with the love or in the pursuit of an object; a person of ardent zeal; one of elevated fancy or exalted ideas; as, a religious *enthusiast*.

Enthusias'tic, Enthusiastical, *a.* [Gr. *enthousiastikos*.] Filled with enthusiasm, or the conceit of special intercourse with God, or revelations from him; highly excited in the pursuit of an object; heated to animation; warm; ardent; zealous; devoted; visionary; fanatical; elevated; tinctured with enthusiasm; as, "rapture and *enthusiastic* heat." — *Thomson.*

Enthusias'tically, *adv.* With enthusiasm.

Enthymemat'ic, Enthymemat'ical, *a.* [Gr. *enthymematikos*.] Pertaining to or comprising an enthymeme.

En'thymeme, *n.* [Fr., from Gr. *enthymēma*, from *enthyneomai*, to think, to ponder well — *en*, and *thymos*, the soul, from *thūo*, to rush on or along.] (*Rhet.*) An argument consisting only of two propositions, an antecedent and a consequent deduced from it.

"What is an *enthymeme*, quoth Cornelius? — Why, an *enthymeme*, replied Crambe, is when the major is indeed married to the minor, but the marriage kept secret." — *Arbuthnot.*

According to W. Hamilton and De Quincy, the characteristic difference which separates an *E.* from a syllogism does not consist in the mere accident of suppressing one of its propositions, — either may do this, or neither; the difference is essential, and in the nature of the matter; that of the syllogism being certain and apodeictic, that of the *E.* probable, and drawn from the province of opinion.

Entice', *v. a.* [Fr. *attiser;* Sp. *atizár;* Wallach. *atzitza*, to excite; It. *attizzare*, from Lat. *titio*, a firebrand.] To excite; to incite or instigate, by exciting hope or desire; to allure; to tempt; to decoy; to seduce; to draw by blandishments or hopes; to coax; to induce to sin; to urge or lead astray.

Entice'able, *a.* Capable of being enticed; susceptible to temptation.

Entice'ment, *n.* Act of enticing; act or practice of alluring or tempting to evil. "Sly *enticement* gives his baneful cup." (*Milton.*) — Means of enticing; blandishment; allurement; seduction; instigation; temptation; wile.

Entic'er, *n.* One who entices; one who allures to evil.

Entic'ingly, *adv.* Charmingly; in a winning manner.

"She strikes a lute well, and sings most *enticingly.*"—*Addison.*

Entire', *a.* [Fr. *entier;* It. *intero;* Lat. *integer* — *in*, and *tago*, *tango*, to touch.] Untouched; untainted; unsullied; unmixed; pure; without foreign admixture or alloy; as, "joy *entire*." (*Milton.*) — Unbroken; complete in its parts; full and perfect.

"Then back to fight again, new breathed and *entire.*"—*Spenser.*

—Complete; not participated with others; whole; undivided; as, he has the *entire* control of his own will. — Full; comprising all requisites within itself; firm; faithful; sure; solid; fixed; as, *entire* faith. — With vigor unabated; in full strength; not deformed or mutilated; free from blemish and defect; as, an *entire* horse.

(*Bot.*) Even-edged; *i. e.*, not toothed, notched, or divided.

—*n.* Anything whole, unmixed, or perfect; specifically, malt liquor, as ale, porter, &c., drawn from the one vat; as, Barclay and Perkins' *Entire.*

Entire'ly, *adv.* In the whole; fully; completely; as, his memory is *entirely* gone.

—Unmixedly; without alloy; truly; faithfully.

Entire'ness, *n.* State or quality of being entire; completeness; fulness: totality; unbroken form, condition, or quality.

—Honesty; uprightness; integrity.

Entire'ty, *n.* State of entireness; wholeness; integrity; as, *entirety* of satisfaction. — The whole; that which is entire or complete.

En'titative, *a.* [See Entity.] Considered as an entity, or in the abstract.

En'titatively, *adv.* In an entitative manner.

Entit'le, *v. a.* [Fr. *intituler* — Lat. *in*, and *titulus*, a title. See Title.] To give a title to; to give or prefix a name or appellation; to designate; to denominate; to style; to characterize; to prefix as a title; to call; as, to *entitle* a senator "Honorable."

—To give a claim to; to give a right to demand or receive: to qualify; as, to be *entitled* to compensation.

En'tity, *n.* [Fr. *entité*, from L. Lat. *entitas*, from obs. *ens*, *entis*, from *esse*, to be.] Essence; existence; being; substance; a real being, or species of being.

"Their *entity* and quiddity,
The souls of defunct bodies, fly."—*Hudibras.*

En'toblast, *n.* [Gr. *entos*, within, and *blastos*, bud.] (*Anat.*) The so-called nucleolus. See Ectoblast.

Entoil', *v. a.* To take with toils; to insnare; to entangle.

Entomatog'raphy, *n.* Radically the same as Entomology, *q. v.*

Entomb, (*en-tōōm'*,) *v. a.* [*En* and *tomb.*] To bury in a grave; to inter; to deposit in a tomb; to inhume.

Entombment, (*en-tōōm'ment,*) *n.* Act of entombing; burial; interment.

Entom'ic, Entom'ical, *a.* [See Entomology.] Pertaining, or relating, to insects.

En'tomoid, *a.* [Gr. *entomon*, insect, and *eidos*, form.] Resembling an insect.

—*n.* That which resembles an insect.

Entom'oline, *n.* [From Gr. *entomon.*] (*Chem.*) A chemical principle found in the elytra and wings of insects.

Entom'olite, *n.* [Gr. *entomon*, an insect, and *lithos*, stone.] An insect in a petrified state.

Entomolog'ic, Entomolog'ical, *a.* Pertaining to entomology, or to the science of insects.

Entomolog'ically, *adv.* In an entomological manner.

Entomol'ogist, *n.* [Fr. *entomologiste.*] One versed in the science of insects.

Entomol'ogy, *n.* [Fr. *entomologie*; Gr. *entŏma*, insects — *en*, in, *temno*, to cut, and *logos*, discourse; Lat. *insecta.* See Insect.] The science or natural history and description of insects. The name insect implies an animal insected or divided into segments. This term is applicable to the principal part of the articulate subkingdom, and was formerly applied to it; at present, the word insect is only used in reference to those articulated animals which are distinguished by antennæ and breathing-organs composed of ramified tracheæ, with or without air-sacs. The science of entomology presents to the student of nature the most numerous and diversified objects worthy of attention. The observation of the structure and instincts of insects is full of interest, and has at all times engaged the attention of men of science. Along with other branches of natural history, the study of entomology was cultivated by Aristotle and other philosophers among the ancient Greeks. Pliny does not add much in his works to the information given by Aristotle, and it was not studied as an absolute science till the 17th century, when progress began to be

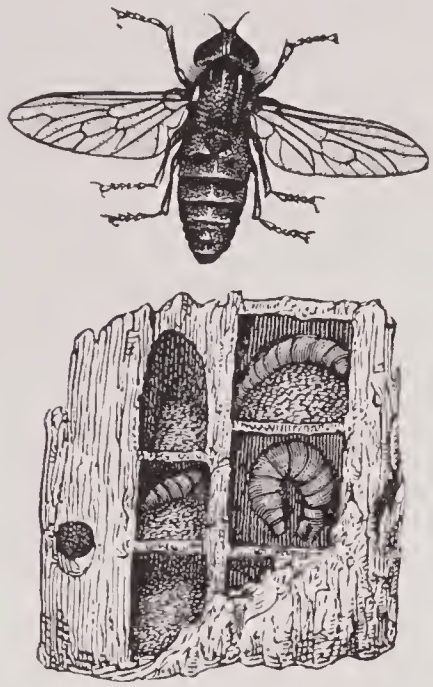


Fig. 944. — Xylocopa (Carpenter Bee) and its nest.

made. The chief naturalists of that period were Gœdart, Swammerdam, Malpighi, Leeuwenhoeck, and Ray. During the 18th century, the great Swedish naturalist Linnæus gave his attention to the study of entomology, and his classification, as far as the orders are concerned, has served as the basis of all that have been since promulgated. It is founded on the presence or absence of the wings, their number, consistence, surface, position in repose; and also on the presence or absence of a stiug. De Geer and Fabricius are, perhaps, after Linnæus, the most worthy to be named of the great entomologists of the 18th century. At the close of the 18th and beginning of the 19th century, the name of Latreille is pre-eminently conspicuous. Since the beginning of the 19th century, the number of insects known and described has prodigiously increased; many entomologists have with great advantage devoted themselves particularly to the study of particular orders of insects; and many valuable monographs have appeared. Entomological literature has now become very extensive. We cannot attempt to enumerate the distinguished entomologists of the 19th century, but perhaps the names of Say, Meigen, Jurine, Gyllenhal, Gravenhorst, Hubner, Dufour Boisduval, Erichon, Lacordiere, Leach, Macleay, Curtis, Westwood, Walker, Smith, and Swainson, deserve particular notice. — See Insects.

Entomoph'agous, *a.* [Gr. *entomon*, insect, and *phanein*, to eat.] Insectivorous; feeding chiefly on insects, as the opossums, bandicoots, &c.

Entomos'traca, *n.; pl.* Entomostracans. [Gr. *entomos*, and *ostrakon*, burnt clay.] (*Zoöl.*) An order of crustacea, comprising those which are covered with a thin horny tegument in the form of a shell, and consisting of 1 or 2 pieces. They have normally 6 or 5 cephalic rings; the 8 or 9 posterior ones belong to the foot series, but 3 or more hind pairs of these are usually obsolete. The abdomen is also without appendages. The Barnacles, *q. v.*, belong to this order.

Entomos'tracous, *a.* Belonging to the entomostraca.

Entomot'omist, *n.* One versed in entomotomy.

Entomot'omy, *n.* [Gr. *entomon*, an insect, and *temnein*, to cut.] The science of the dissection of insects.

Enton'ic, *a.* [Gr. *entonos*, strained. See Entasia.] (*Med.*) Possessing extreme tension.

En'tophyte, *n.* [Gr. *entos*, within, and *phyton*, a plant.] (*Bot.*) A plant which grows from within another, as rhizanths and fungi.

Entozo'a, *n.* [Gr. *entos*, and *zoön*, an animal.] (*Zoöl.*) A name given to an extensive class of low-organized invertebrata, of the group *Annulosa*, the greater part of which are parasitic on the internal organs of other animals. This class corresponds to the order of Nematoids, *q. v.*

Entozo'al, Entozo'ic, *a.* Relating or pertaining to the entozoa.

Entozoöl'ogist, *n.* [From *entozoön*, and *logos*, treatise.] One learned in the science of the entozoa.

Entozo'ön, *n.; pl.* Entozoa, *q. v.*

Entracte, (*ŏng-trăkt'*,) *n.* [Fr.] (*Dram.*) The interval which occurs between the acts of a dramatic representation.

(*Mus.*) A musical divertissement introduced between the acts of a play.

Entrails, (*en'trālz,*) *n. pl.* [Fr. *entrailles;* Gr. *entera*, pl. of *enteron*, from *entos*, the inside.] The internal parts of animal bodies; the intestines; the guts; the bowels. — The internal parts; as, the *entrails* of the earth.

Entram'mel, *v. a.* Same as Trammel, *q. v.*

Entrance, (*en'trans.*) *n.* [Lat. *intrans*, going into, from *intro.* See Enter.] Act of entering into a place; — opposed to *exit;* as, the *entrance* of a minister into office. — Power of entering; ingress; as, free *entrance* into a theatre. — The door, gate, passage, or avenue by which a place may be entered; as, the *entrance* of a house. — Commencement; beginning; initiation; as, *entrance* into good society. — Act of taking possession; as, *entrance* into an estate. — The entering of the name of a thing or things into an official register; as, a ship's *entrance* at a custom-house.

Entrance', *v. a.* or *n.* [*En* and *trance*; O. Fr. *transe.* See Trance.] To put in a trance or swoon; to transport out of the senses; to take away consciousness from. — To throw into an ecstasy; to ravish the senses with delight or wonder.

"I stood *entranced*, and had no room for thought."—*Dryden.*

Entrance'ment, *n.* Act of entrancing; state of trance or ecstasy.

Entrap', *v. a.* [Fr. *attraper* — *a*, *ad*, and *trappe*, a trap. See Trap.] To catch, as in a trap; to ensnare; to insnare; to involve; to perplex; to entangle; to inveigle; to decoy; to embarrass.

Entrap'pingly, *adv.* In a manner to entrap or inveigle.

Entreat', *v. a.* [Fr. *en*, and *traiter*, from Lat. *tracto.* See Treat.] To treat; to use or manage; to deal with; to conduct toward.

"Whereas thy servant worketh truly, *entreat* him not evil." *Eccl.* vii. 20.

—To prevail upon by solicitation and importunity. — To seek to obtain by treaty, engagement, or promise; to ask earnestly; to petition or pray with urgency; to beg; to crave; to beseech; to solicit; to supplicate; to importune; to implore; as, to *entreat* a favor.

—*v. n.* To make an earnest supplication or request; to beseech; as, to *entreat* for a man's life.

Entreat'able, *a.* Susceptible of being obtained by entreaty.

Entreat'er, *n.* One who makes entreaty.

Entreat'ingly, *adv.* In a beseeching, entreating manner.

Entreat'ive, *a* Beseeching; pleading; imploring.

Entreat'y, *n.* Urgent prayer; pressing solicitation; earnest request; solicitation; importunity; as, deaf to *entreaties.*

Entre Douro e Minho, (*en'trá doo-aïr-o ai meen-yo,*) often called Minho, the most N. province of Portugal, bounded N. by the Spanish prov. of Galicia, from which it is separated by the River Minho, and on the W. by the Atlantic Ocean. *Area*, 3,094 sq. m. It has been called the Paradise of Portugal; and indeed it may be doubted whether any territory in Europe of equal extent exhibits so much beauty. It is traversed from N.E. to S.W. by three mountain-ranges, which, however, sink down as they approach the coast, leaving a considerable tract of undulating country along the sea-margin. The chief rivers, besides the Minho, and the Douro, which separates it from the S. prov. of Beira, are the Lima (a portion of the vale of which is said to form the loveliest landscape in the world), the Cavado, and the Tamego. The climate is agreeable and healthy. *Prod.* Wine, oil, flax, maize, wheat, barley, oats, and vegetables. Along the coast are numerous fisheries. The prov. consists of three dists., Braga, Vianne, and Porto, with the town of Braga for the capital. *Pop.* 864,918.

Entrée, *n.* [Fr.] An entry; entering; a coming in; as, to have the *entrée* of good society.

—The first course of viands served at dinner; as, the *entrée* of the soups.

Entremets, (*ong-tr-mā',*) *n. s.* and *pl.* [Fr. *entre*, between, and *mets*, a dish.] (*Cookery.*) A small, dainty dish, or epicurean viand, set on a dinner-table between the more substantial meats, or *pièces de resistance.*

Entrench', *v. a.* See Intrench.

Entrepôt, (*ŏng-tr-pō',*) *n.* [Fr.] A warehouse (bonded or free); a magazine for merchandise. — A mart or port for shipping goods in transit.

Entre Rios ["between the rivers"], a province of the Argentine Republic; *area*, about 45,000 sq. miles. *Rivers.* Uruguay, Parana, Corrientes, Gualeqnay, and numerous other smaller streams. *Surface*, generally low; *soil*, in some parts, fertile. *Principal towns.* Parana, Ybicny, and the cap., Bajada de Santa Fé. *Pop.* (1897) 300,000.

Entresol, (*ŏng-tr-sŏl',*) *n.* [Fr.] (*Arch.*) A floor between two other floors. It consists of a low apartment placed above the first floor, as in Paris, or between the ground-floor and the first floor, as in London.

En'trochal, *a.* Pertaining to entrochite; partaking of the qualities of entrochite.

En'trochite, *n.* [Gr. *en*, and *trochos*, a wheel.] (*Pal.*) A genus of fossils, consisting of the petrified arms of the sea-starfish.

Entro'pium, *n.* [Gr. *en*, and *tropē*, turning.] (*Surg.*) *E.* and Extropium are terms for the turning *in* and the turning *out* of the eyelids. In one case the lashes rub on the base of the eye, causing constant pain and shedding of tears; in the other the ball of the eye is exposed to all the accidents of dust and air.

Entrust', *v. a.* See Intrust.

En'try, *n.* [Fr. *entrée.* See Enter.] The act of entering; entrance; ingress; inlet; as, the *entry* of a man into public life, the *entry* of a ship into port, &c. — Way, path, or passage in or into; the passage by which persons enter a house or other building; as, policemen dodge about an *entry* for the cook's cold victuals. — Act of entering and taking possession of lands or other estate. — Act of committing to writing, or of recording in a book; as, to make a ledger *entry.*

"A notary made an *entry* of this act."—*Bacon.*

(*Com.*) The passing of a ship's documents at a custom-house, or the depositing of the requisite papers, to legalize the landing or shipment of goods, merchandise, &c.

(*Book-keeping.*) The act of recording commercial transactions as they occur. *Single-entry* is that which is entered only once in the accounts in the ledger; a *Double-entry* is effected by entering transactions in the ledger

twice, first to the *debtor* of one set of accounts, and then to the *creditor* of another set. In making the two entries, one is a real account under the name of the debtor or creditor, and the other is a nominal or imaginary account under the head of the goods that have been bought or sold. Take, for instance, the article "Sugar;" say the trader purchases a hogshead of the article from *A. B. & Co.;* he first enters in the regular way to the *Cr.* of *A. B. & Co.*, and then, turning to the folio headed "sugar," he enters it on the *Dr.* side of the account as bought from *A. B. & Co.* In the same way, when the hogshead is sold to *E. F. & Co.*, it is entered first to the *Dr.* of those parties, and then under the *Cr.* side of sugar as sold to *E. F. & Co.* By these double-entries, one the counterpart of the other, the nominal constantly check the real or personal accounts; and a trader can at all times tell how, when, and at what prices his property has been disposed of, without analyzing general accounts. — See Book-keeping.

(*Law.*) The taking possession of lands and tenements where a man has title of entry. Entry is either actual, made by the party or his attorney; or an entry in law, by continual claim. Remedy by entry takes place in cases of abatement, intrusion, and disseisiu; not ou discontinuance or deforcement.

Entune', *v. a.* To tune.

Entwine', *v. a.* To twine; to twist round; to entangle; as, to *entwine* a wreath.

—*v. n.* To become twined, twisted, or involved; as, *entwined* with laurels.

Entwine'ment, *n.* A twining or twisting round.

Entwist', *v. a.* To twist or wreathe round.

Enu'bilous, *a.* [Lat. *e*, out, and *nubilus*, dark, cloudy.] Free from cloud, mist, or fog, as the atmosphere.

Enu'cleate, *v. a.* [Lat. *enucleare;* Fr. *enucléer.*] To unravel; to expose; to explain; to render clear; to make manifest; to solve.

Enuclea'tion, *n.* [Fr.] Act of solving, or making exposition of; a clearing up; a making manifest.

Enu'merate, *v. a.* [Lat. *enumero, enumeratus* — *e, ex,* and *numero,* from *numerus,* number, *q. v.*] To count or tell, number by number; to reckon or mention a number of things, each separately; as, to *enumerate* a person's faults, and ignore his merits.

Enumera'tion, *n.* [Fr.; Lat. *enumeratio.*] Act of enumerating, or of counting or telling a number, by naming each particular.

—An account of a number of things, in which mention is made of every particular article.

(*Rhet.*) A recapitulation or summing up of the heads of an argument.

Enu'merative, *a.* [Fr. *énumératif.*] Counting up one by one.

Enu'merator, *n.* One who enumerates.

Enunciable, (*e-nun'shi-a-bl,*) *a.* That may be enunciated.

Enunciate, (*e-nun'shi-āt,*) *v. a.* [Lat. *enuncio, enunciatus* — *e, ex,* and *nuncio,* to declare, from *nuncius,* a messenger. See Nuncio.] To proclaim; to declare; to tell; to assert; as, to *enunciate* a belief. — To utter; to pronounce; as, to *enunciate* a word with distinctness.

—*v. a.* To utter or pronounce words or syllables.

Enunciation, (*e-nun-shi-a'shun,*) *n.* [Lat. *enunciatio.*] Act of enunciating, or of uttering and pronouncing; open attestation, proclamation, or declaratiou; as, the *enunciation* of a doctrine. — Manner of uttering articulate sounds; lingual expression; as, to speak with a slow *enunciation.*

—The words in which a proposition is expressed; statement; announcement; intelligence: as, the "*enunciations* of the intellect and will."

Enun'ciative, *a.* [Lat. *enunciativus.*] Relating or pertaining to enunciation; expressive; declarative; as, *enunciative* terms.

Enun'ciatively, *adv.* By way of declaration.

Enunciator, (*e-nun'shi-ā-tor,*) *n.* One who enunciates or declares.

Enun'ciatory, *a.* Having reference to enunciation.

Enure', *v. a.* See Inure.

Enure'sis, *n.* [Gr. *enourein,* to make urine in.] (*Med.*) Urine discharged involuntarily.

Enur'ney, *n.* (*Her.*) A bordure charged with wild beasts.

Envault', *v. a.* To inter; to entomb; to enclose in a vault.

Enveigle, (*en-ve'gl,*) See Inveigle.

Envel'op, *v. a.* [Fr. *envelopper,* from Lat. *involvere* — *in,* and *volvere,* to roll; L. Lat. *involpare.* See Voluble.] To roll or fold in; to infold; to cover by wrapping and folding; to inwrap; as, to *envelop* a letter. — To cover on all sides; to hide; to surround entirely; as, *enveloped* in fog.

"A cloud of smoke *envelops* either host." — *Dryden.*

En'velope, Envel'op, *n.* That which infolds or inwraps; a wrapper; a cover; a covering for a letter, parcel, &c.; an investing integument; an outward covering or case.

(*Astron.*) Same as Coma, *q. v.*

(*Fortif.*) An earthwork raised to defend a weaker one.

(*Geom.*) Curve or surface generated by the repeated interjections of given curves or surfaces, whose position, form, and magnitude are allowed to vary according to some continuous law.

Envel'opment, *n.* [Fr. *enveloppement.*] A wrapping; an envelop. — Act of enveloping; an inclosing or covering on all sides.

Envenom, *v. n.* [Fr. *envenimer*—*en,* and *venin,* venom. See Venom.] To taint or impregnate with venom, poison, or any substance destructive to life; to poison; to inoculate with deleterious matter; as, *envenomed* wine.

—To render odious; to make detestable or hateful. — To infect with malice, bitterness, or uncharitableness.

"With *envenom'd* tongue to blast the fame of harmless men." *Philips.*

—To enrage; to provoke; to exasperate; as, to *envenom* woman's jealousy.

En'viable, *a.* That may excite envy; susceptible of evoking ardent desire of possession; very desirable; as, an *enviable* state of single blessedness.

En'viableness, *n.* State or quality of exciting enviable desire.

En'viably, *adv.* In an enviable manner.

Envie', *v. a.* To vie; to seek to equal or excel.

En'vier, *n.* One possessed of envy; one who envies or maligns another.

En'vious, *a.* [Fr. *envieux;* Lat. *invidiosus.*] Infected with envy; feeling, exhibiting, or expressing envy; repining or suffering chagrin, at the excellence, prosperity, or happiness of another; tinctured with envy, as feelings; excited or directed by envy, as remarks.

"Heav'n cannot *envious* of his blessings be." — *Dryden.*

—Inspiring, provoking, or eliciting envy.

En'viously, *adv.* With envy; actuated by envy; in an envious manner.

"How *enviously* the ladies look." — *Swift.*

En'viousness, *n.* Quality or state of being envious.

Envi'ron, *v. a.* [Fr. *environner* — *en,* and O. Fr. *viron,* to surround, from Gr. *gyros,* round. See Gyrate.] To surround; to encircle; to encompass; as, a place *environed* by woods.

"*Environed* with a wilderness of sin." — *Shaks.*

—To involve; to envelop; to besiege; to inclose; to invest.

Envi'ronment, *n.* [O. Fr. *environnement.*] A surrounding or being surrounded. — The person or thing which environs or surrounds.

Envi'rons, *n. pl.* [Fr.] The places lying circumjacent to another place so as to surround it, or lie in its vicinity on different sides; neighborhood; vicinage; as, the *environs* of New York.

Envis'age, *v. a.* [Fr. *envisager.*] To gather by intuitive perfection, or by looking in the face of.

Envis'agement, *n.* Act or faculty of envisaging.

Envol'ume, *v. a.* To form into a volume, as printed sheets.

En'voy, *n.* [Fr. *envoyé,* from *envoyer,* to send — *en,* and *voie,* from Lat. *via,* a way. See Way.] One who carries a message; a messenger; specifically, a person next in rank to an ambassador, deputed by a sovereign, or ruler of a state, to negotiate a treaty, or transact other political business with a foreign prince or government. See Ambassador, Embassy, Charge d'Affaires.

En'voyship, *n.* Office, rank, or dignity of an envoy.

Envy, *v. a.* [Fr. *envier;* Lat. *invidere* — *in,* and *videre,* to see on purpose, to look at. See Vision.] To hate or dislike on account of prosperity and happiness; to repine at another's well-doing; to grudge another's superior position or advantages. — To feel uneasiness, chagrin, mortification, or discontent at the sight of superior excellence, reputation, or happiness enjoyed by another.

"I have seen thee fight when I have *envied* thy behaviour." *Shaks.*

—To impart unwillingly; to withhold maliciously; as, *envy* others' participation in that which is enjoyed by one's self.

—To covet; to hanker after; to desire strongly; as, "the *envied* kiss to share." — *Gray.*

—*v. n.* To feel envy; to experience a sense of longing for something possessed by another, and hence, unattainable.

"Who would *envy* at the prosperity of the wicked?" — *Taylor.*

—*n.* An uneasiness of mind, occasioned by the consideration of a good we discover in the possession of another person, whom we deem less worthy of it than ourselves. It is characterized by a degree of sorrow that the good contemplated should escape ourselves, and of anger, that it should fall to the share of another. It differs from emulation, which is merely a desire to become possessed of something which is enjoyed by another; whereas in envy there is a malevolent feeling which desires that others be brought down below our own level.

Enwall', *v. a.* See Inwall.

Enwallow, (*en-wol'lo,*) *v. a.* To wallow in.

Enwheel', *v. a.* [*In* and *wheel.*] To encompass; to encircle.

Enwomb, (*en-woom',*) *v. a.* To secrete; to bury or hide, as in a womb.

"Afric's Niger stream *enwombs* itself into the earth." — *Donne.*

Enwrap, (*en-rap',*) *v. a.* See Inwrap.

Enwrap'ment, *n.* Act of enwrapping; also, that which enwraps, as a wrapper, covering, &c.

Enwreathe', *v. a.* See Inwreathe.

Enyo. (*Myth.*) A Greek goddess, who delights in havoc and bloodshed. In Hesiod (*Theog.* 273), *E.* is one of the Graiæ, or daughters of Phorcus and Kêto.

Enz, (*ents,*) a river of Germany, flowing through Würtemberg and Baden, and, after a course of 70 m., joining the Neckar to the left of Stuttgart.

Enzeli, or **Enzelli**, (*en-zai'le,*) a lake of Persia, prov. of Ghilan, communicates with the Caspian Sea by a channel 500 yards across; length, 25 miles.

E'ocene, *n.* [Gr. *eos,* the dawn, and *kainos,* recent.] (*Geol.*) A term introduced by Lyell to designate the lower tertiary strata, from the idea that the very small percentage of still existing species among the fossils of these strata indicates what may be regarded as the *dawn* or commencement of the present condition of creation. See Tertiary System.

Eo'la, in *Oregon,* a post-village of Polk co., on the Rickreal River, about 5 m. W. of Salem.

Eo'lia, in *Kentucky,* a P. O. of Letcher co., about 125 m. S.E. of Frankfort.

Eo'lian, Eol'ic, *a.* [Gr. *aolikos.*] Pertaining or relating to Æolia, or to the dialect of Æolia in Asia Minor, inhabited by Greeks. — Relating to Æolus, the fabled deity of the winds. — See Æolian, Æolic, Æolus.

Eo'lic, *a.* Relating to Æolia, or to the Greek dialect of that country. See Æolia.



Fig. 945.
EOLIS CORONATA.

Eo'lipile, *n.* [Lat. *alipila,* from *Æolus.*] See Æolipile.

Eo'lis, *n.* (*Zoöl.*) A genus of Mollusks, order *Gasteropoda proper,* in which the act of respiration appears to be performed by means of numerous finger-like processes (Fig. 945), with which the back is covered.

E'on, Æ'on, *n.* [Gr. *aion,* eternity.] An infinite or indefinite space of time; eternity.

(*Philos.*) See Gnostics.

Eoo'a, Eoa, Eaowe, or Middleburg, the most eastern of the Friendly Islands, in the South Pacific Ocean. It has an elevation of 600 feet above the level of the sea, and was discovered by Tasman in 1643. Lat. 18° 19′ S., Lon. 175° 37′ W.

E'os. (*Myth.*) The Greek name of Aurora, who in the Eastern parts of the world is called Eoo.

Eous, (*e-o'us.*) (*Myth.*) One of the horses of the sun.

Ep, Ep'i. [Gr.] A Greek prefix implying *toward, among, on, against.*

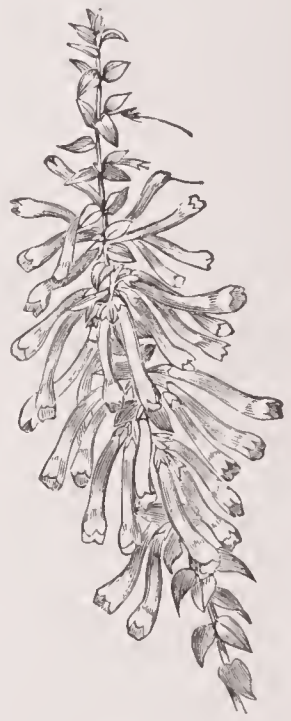


Fig. 946.
EPACRIS GRANDIFLORA.

Epacrida'ceæ, *n.* [Gr. *epi,* upon, and *akros,* the top.] (*Bot.*) The Epacris fam., an ord. of plants, alliance *Ericales.* Diag. Monopetalous flowers, perfect free stamens, seeds with a firm skin, and 1-celled anthers opening longitudinally. — The species are shrubs or small trees, natives of Australia, the Indian Archipelago, and the South Sea Islands, where they are very numerous. There are 30 genera, and 320 species. They are of little importance, except for the beauty of their flowers, on which account they are much cultivated. The fruits of many are edible; as those of *Astroloma humifusum,* Tasmanian cranberry, and *Leucopogon Richei,* the native currant of Australia.

Epact, (*ē'pakt,*) *n.* [Gr. *epaktos* — *epi,* and *ago,* to lead.] (*Chron.*) The excess of the solar month above the lunar synodical month; or of the solar year above the lunar year of twelve synodical months; or of several solar months above as many synodical months; or of several solar years above as many periods, each consisting of 12 synodical months. The menstrual *E.* is the excess of the civil calendar month above the lunar month. For a month of 31 days, this *E.* is 1 day 11 hours 15 minutes 57 seconds, if we suppose new moon to occur on the first day of the month. The annual *E.* is the excess of the solar year above the lunar. As the Julian solar year is (nearly) 365 days, and the Julian lunar year is (nearly) 354 days, the annual *E.* is nearly 11 days. The *E.* for two Julian years is, therefore, nearly 22 days; for three years, 33 days; and so on. When, however, the *E.* passes 30 days, 30 falls to be deducted from it, as making an intercalary month. For three years, then, the *E.* is properly 3; and for 4 years, adding 11 days, it is 14 days; and so on. Following the cycle, starting from a new moon on the 1st of January, we find that the *E.* becomes 30 or 0 in the 19th year. The *E.* for the 20th year is again 11; and so on. The years in the cycle are marked by Roman numerals, I. II. III., &c., called the Golden Numbers; and a table of the Julian *E.* exhibits each year in the cycle with its golden number and *E.* As the Gregorian year (see Calendar) differs from, and is in advance of, the Julian by 11 days (the number lost on the Julian account before the Gregorian computation of time was introduced in England), and as 11 days is the difference between the solar and lunar years, it follows that the Gregorian *E.* for any year is the same with the Julian *E.* for the year preceding it.

Epago'go, *n.* [Gr.] (*Rhet.*) An inductive form of speech. See Induction.

Epal'pate, *a.* [Lat. *e,* and *palpatus,* to touch lightly.] (*Zoöl.*) Without antennæ; — said of certain insects.

Epaminon'das, a Theban general, one of the greatest commanders, statesmen, and patriots of ancient times, was descended from the former kings of Thebes, although the fortunes of his family were so fallen that he was as conspicuous for his poverty as for his birth. His brilliant natural talents had been carefully cultivated by study; and when he embarked in public affairs,

he speedily took the lead as general and politician. Having, at the imminent risk of his own life, saved that of Pelopidas in battle, a friendship was formed between that eminent man and him, which proved of the utmost advantage to their common country; and it was his advice which impelled the former to liberate Thebes from the Lacedemonian yoke.



Fig. 947.—EPAMINONDAS.

War was declared, and Epaminondas led the Theban troops to victory and independence at the celebrated battle of Leuctra, 371 B.C. On his return, both he and Pelopidas were put on their trial, for having held their command longer than the time prescribed for by law. They acknowledged the fact, and expressed their willingness to suffer the penalty — death, provided that, as Epaminondas sarcastically stipulated, it were recorded on their tomb that they had been condemned to die for having saved their country from ruin. This dignified reproof struck home, and their immediate acquittal followed. The rising power of Thebes excited the jealousy of Athens and other States, and Sparta put forth all her strength to humble the people who, from being tributary, had started up their more than equals, their conquerors. Several campaigns ensued, in one of which Epaminondas had nearly taken by surprise the city of Sparta itself; but meeting with a check, he turned to attack Mantinea, near which the two hostile armies of Thebes and Lacedemon, with their respective allies, finally encountered. He attacked the Spartan phalanx in person, and put it to flight; but during his pursuit he was mortally wounded in the breast by a javelin, B.C. 362. Being told by the physicians that he would die as soon as the weapon was extracted, on receiving intelligence that the Bœotians had gained the victory, he is said to have torn out the javelin with his own hand, exclaiming, "I have lived long enough." His moral purity, justice, and clemency are extolled by the ancients as much as his military talents; and it is expressly recorded of him, that he never told a lie, even in jest.

Epanadiplo'sis, *n.* [Gr. See ANADIPLOSIS.] (*Rhet.*) A figure of speech by which the same word occurs both at the beginning and termination of a sentence; as, "Awake, my own beloved, awake!"

Epanalep'sis, *n.* [Gr. See ANALEPSIS.] (*Rhet.*) A rhetorical figure which conveys a repetition of the same word after intervening words.

Epanaphora, (*e-pan-af'o-ra.*) *n.* [Gr.] (*Rhet.*) An anaphora.

Epanastrophe, (*e-pan-as'tro-fe,*) *n.* [Gr.] (*Rhet.*) A figure of speech which serves to introduce the termination of one sentence (or clause) as the beginning of the next.

Epan'odos, *n.* [Gr.] (*Rhet.*) A figure in which the several parts of a sentence are repeated inversely; a coming back to the leading heads of a discourse, after a digressive examination of the various topics involved.

Epanorthosis, *n.* [Gr.] (*Rhet.*) A figure of speech recalling an expression previously uttered, in order to replace it by a more emphatic one; as, "Fair girl! Fair, shall I say? no, *fairest* girl!"

Epan'thous, *a.* [Gr. *epi*, and *anthos*, a flower.] (*Bot.*) Having existence upon flowers; — used in relation to some species of fungi.

Ep'arch, *n.* [Gr. *eparchos.*] In ancient Greece, the ruler of a province.

Ep'archy, Ep'archie, *n.* [Gr. *eparchia.*] In ancient Greece, a province, or subdivision of territory forming the jurisdiction of an eparch or governor. In modern Greece, the equivalent appellation is *nomarchie*, q. v.

Epaule, (*ep-ōl'.*) *n.* [Fr., a shoulder.] (*Fortif.*) The shoulder or angle of a bastion.

Epaulement, (*e-pawl'ment,*) *n.* [Fr.] (*Fortif.*) The shoulder or short parapet made at the flank of a battery, or extremity of a parallel, to prevent its being enfiladed.

Epaulet, (*ep'a-let,*) *n.* [Fr. *epaulette*, from *epaule*, shoulder.] (*Mil.*) An ornamental badge, worn on the shoulder of military men. The *E.* of commissioned officers are usually of gold, while those worn by non-commissioned officers, &c., are usually of brass, worsted, &c.

Ep'auletted, *a.* Furnished with epaulets.

Epée, CHARLES MICHEL, ABBÉ DE L', one of the founders of the system of instruction for the deaf and dumb, was B. at Versailles, Nov. 25, 1712. He studied for the church, and entering into holy orders, became a preacher and canon at Troyes, but eventually, on account of his Jansenist opinions, was deprived of this appointment. He then lived in retirement at Paris. In the year 1755, he first began to occupy himself with the education of two deaf and dumb sisters; and, as he asserts, without any previous knowledge of Pareira's efforts in the cause, invented a language of signs, by which persons thus afflicted might be enabled to hold intercourse with their fellow-creatures. His first attempts being crowned with success, he determined to devote his life to the subject. At his own expense, he founded an institution for the deaf and dumb, and labored with unwearied zeal for its prosperity. His favorite wish, however, the foundation of such an institution at the public cost, was not fulfilled till after his death, which took place Dec. 23, 1789. He wrote a work, entitled *Institution des Sourds et Muets* (2 vols., Paris, 1774), which afterwards appeared in an improved form under the title, *La Véritable Manière d'Instruire les Sourds et Muets* (Paris, 1784).

Epencephal'ic Arch, *n.* [Gr. *epi*, upon, and *egkephalon*, the brain.] (*Anat.*) The bony arch which encompasses and protects the epencephalon: it is composed of the basioccipital, exoccipitals, and superoccipitals, and, in general anatomy, forms the neural arch of the occipital vertebra.

Epenceph'alon, *n.* [Gr.] (*Anat.*) The hindmost of the four primary divisions or segments of the brain, including the medulla oblongata, pons varolii, cerebellum, and fourth ventricle.

Epenet'ic, *a.* [From Gr. *epainos*, an encomium.] Laudatory; panegyritic.

Epen'thesis, *n.*; *pl.* EPENTHESES. [Gr.] (*Gram.*) A figure by which one or more letters are inserted in the middle of a word; as in the Latin *rettulit*, for *retulit*. *Brande.*

Epenthet'ic, *a.* Inserted in the middle of a word.

Epergne, (*e-pārn',*) *n.* [Fr.] An ornamental stand for a large dish in the centre of a table.

Eperies, (*e-per'e-ees,*) a royal free town of Hungary, on the Tarcza, 140 m. from Pesth; *pop.* 10,000.

Epernay, (*ai'per-nai,*) a town of France, dep. Marne, 15 m. from Rheims. It is the chief entrepôt for the Champagne wines. In it is the great manufacturing house of Moët and Chandon, whose vaults measure more than 3 miles in extent, and contain, at some periods, as many as 2,000,000 bottles of Champagne. *Pop.* 8,726.

Epernon, JEAN LOUIS, DUKE D', a French nobleman, B. 1554. He was of an ancient family of Languedoc, and became the favorite of Henry III., who loaded him with honors and titles. He reluctantly recognized Henry IV., but served on his side in the civil war, and took several important towns for him. He was present at the assassination of the king, and did not escape suspicion of being privy to it; but the proceedings commenced against him were stopped, the regent, Mary of Medicis, who owed her appointment to him, taking his part and maintaining him in his offices. Louis XIII. made him governor of Guienne, but he carried his insolence and love of display so far that it was necessary to recall him. It was Epernon who assisted Mary of Medicis to escape from her confinement at Blois in 1619. D. 1642.

Epeus, the son of Panopeus, who was the fabricator of the famous wooden horse which proved the ruin of Troy.

Epexege'sis, *n.* [Gr.] (*Rhet.*) A full explanation; exegesis.

Epexeget'ical, *a.* Explanatory; exegetical.

Epha, Epham, *n.* [Heb.] A Hebrew measure containing about 4·9th bushel (English).

Ephem'era, *n.* [Fr. *éphémère*, from Gr. *ephēmeron* — *epi*, and *hēmera*, a day.] One of the EPHEMERIDÆ, *q. v.*

Ephem'eral, *a.* Continuing or existing one day only; beginning and ending in a day; diurnal; short-lived; existing or continuing for a short time only.

—*n.* A thing very short-lived; an ephemeral plant or production.

Ephem'eran, *n.* An ephemera. See EPHEMERIDÆ.

Ephemeridæ, *n. pl.* (*Zoöl.*) The *Day-fly*, a family of insects, sub-order *Neuroptera*. They have received their name from the brief duration of their existence in the perfect state, in which, very unlike the dragon-flies, they are believed to take no food, merely propagating their species, and dying. From the season of the year in which they begin to be seen, some of them are also called MAY-FLY. The larvæ and pupæ are aquatic, and in these states the *E.* have a much longer life than in their perfect state, extending even to years. The larvæ and pupæ are sufficiently voracious. The abdomen of the larva is furnished on each side with a set of leaflets, which serve instead of gills for respiration, and are also used in locomotion, although there are six feet attached to the thoracic segments. The pupæ differ little from the larvæ, except in having rudimentary wings enclosed under scales. Both larvæ and pupæ have the abdomen terminated by two or three jointed filaments, which the perfect insect also has, sometimes very long. The body of the perfect insect is soft and slender; the wings resemble in form those of dragon-flies, but are soft and filmy: in repose they are elevated vertically above the body: the second pair of wings are much smaller than the first, and in some species are altogether wanting; the organs of the mouth are so soft and small as not easily to be discerned, and to be apparently unfit for any kind of use. *E.*, in their larva and pupa states, live chiefly under stones in water, or in burrows which they make in the banks of streams. When ready for their final change, they creep out of the water to undergo it on some plant or other object by the water-side, generally towards sunset on some fine day of summer or autumn. After having attained their winged state, however, they cast off a complete slough or envelope, so perfect, that it exhibits even the limbs, abdominal filaments, and antennæ: and these "ghost-like exuviæ" are sometimes so abundant in the neighborhood of streams, as to cover in "a pearly layer" the hat and basket of the angler. The multitudes of *E.* are often very great, filling the air as a cloud; nay, so abundant are they at times, that their bodies have been known to cover the ground in certain districts of France, and have been gathered from particular spots in cart-loads to be used as manure.



Fig. 948. — DAY-FLY. (*Ephemera.*)

Ephem'eris, *n.*; *pl.* EPHEMERIDES. [Gr. See EPHEMERA.] A journal or account of daily transactions; a diary. — An astronomical almanac, or a table which exhibits the state or positions of the heavenly bodies at noon, for a number of successive days. — A collective name for reviews, magazines, and all kinds of periodical literature.

Ephemerist, (*ef-em'e-rist.*) *n.* One who studies the diurnal motions and positions of the planets; one who practises astrology. — A journalist; one who keeps an ephemeris.

Ephem'eron, *n.*; *pl.* EPHEMERA. [Gr.] An insect having a mere daily existence; an ephemera; — hence, by implication, applied to events, &c., of brief or momentary duration.

Ephesian, (*e-fē'shan,*) *a.* [Lat. *Ephesius.*] (*Geog.*) Pertaining, or having reference to the city of Ephesus, in Asia Minor.

—*n.* A native or denizen of Ephesus.

Ephesians, (Epistle of Paul to the,) (*e-fē'zhānz.*) (*Scrip.*) The fifth in numerical order of the fourteen epistles of St. Paul contained in the canon of the New Testament. The principal fathers of the early Church are unanimous in favor of the genuineness and canonicity of this book. Much controversy, however, has been subsequently carried on as to whether it was addressed to the Ephesians, from the omission of the words "to the Ephesians" in a few of the ancient MSS., and the assertion of Marcion, a heretic of the second century, but whose testimony is of no weight, that it was addressed to the Laodiceans. Others, again, regard it as a cyclical epistle addressed to no particular church, but to all, though Ephesus may have been the chief. Though the testimony against the received opinion were much stronger than it really is, it is not a matter of great importance; for what was addressed to one was intended for all. It is generally believed to have been written about the year 61 A.D., during the early part of the apostle's first imprisonment at Rome. It is one of the richest and most valuable of the epistles.

Eph'esite, *n.* (*Min.*) A pearly-white variety of MARGARITE, *q. v.*

Ephesus, (*ef'e-sus,*) a famous city of Asia Minor, now in ruins, near the modern village of Ayasaloük or Aisalnck, about 38 m. S.S.E. of Smyrna. It was the ancient cap. of Ionia, and had one of the seven Christian churches founded by the apostles. Its temple, dedicated to Diana, was considered one of the seven wonders



Fig. 949. — SITE OF EPHESUS.

of the world. Its dimensions were 425 feet long and 200 broad. The roof was supported by 127 columns, sixty feet high, which had been placed there by as many kings. Of these, 36 were carved in the most beautiful manner, one of which was the work of the famous Scopas. This celebrated building was not totally completed till 220 years after its foundation. Ctesephon was its principal architect. The riches which were in the temple were immense, and the goddess who presided over it was worshipped with the most awful solemnity. It was burnt on the night that Alexander was born (see ERATOSTRATUS), but soon after it rose from its ruins with greater splendor and magnificence. *E.* for some time bore the name of Arsinoë, in honor of the wife of Lysimachus; but it was again known by its old name. Some have given the name of Ajasaloue to what they conjecture to be the remains of *E.* The Ephesians were much addicted to the use of spells and incantations; hence the words *literæ Ephesiæ* are applied to letters supposed to possess such magical powers as easily to enable persons, by their use, to obtain their wishes.

Ephial'tes, *n.* [Gr.] The nightmare.

Ephippial, (*e-fip'pi-al,*) *a.* In the form of a saddle.

Ephip'pium, *n.* [Gr. *ephippion*, a saddle.] (*Anat.*) See SELLA TURCICA.

Ephor, (*ef'or.*) *n.* [Gr. *ephoros.*] (*Greek Hist.*) One of a class of magistrates common to many of the Dorian states of Greece, but more particularly known in reference to the political constitution of Sparta, where the *E.* held the supreme power in the state. The Spartan *E.* were five in number, and were elected annually from

the body of the ruling caste, and not from any particular tribe. Besides their judicial authority, they exercised a control over the functions of the kings and the senate, and sometimes recalled the former from their foreign expeditions, and demanded an account of their proceedings. The executive power likewise was almost wholly in their hands.

E'phod. [Heb., a covering.] Among the ancient Jews, it was one of the essential articles of the priest's official dress. It was an upper garment consisting of two pieces, one covering the back, and the other the breast, and being united upon the two shoulders. It was made of plain linen, except that of the high-priest, which was embroidered with various colors. Properly, according to the law of Moses, the ephod was to be worn only by the high-priest; but it subsequently came to be in common use among the priesthood, and even David, when bringing the ark back to Jerusalem, appeared in one. The *E.* was regarded by the Jews as a sacred object, and sometimes received divine homage. A description of the *E.* of the high-priest is given in *Exodus* xxviii. 6, *et seq.*



Fig. 950. — EPHOD.

Eph'oral, *a.* Relating or pertaining to an ephor.

Eph'oralty, *n.* Term of office of an ephor.

E'phraim, a son of Joseph, who was adopted, together with his brother Manasseh, by Jacob among the tribes. B. in Egypt about 1710 B. C.

Eph'raim, in *Utah,* a post-village of San Pete co., abt. 8 miles N. of Manti. *Pop.* (1897) about 2,600.

Eph'rata, in *Pennsylvania,* a post-borough and township of Lancaster co., about 14 miles N.E. of Lancaster; is a popular summer resort, and contains the monastery of the German Seventh Day Baptists. *Pop.* of borough, about 2,100; of township, 4,800.

Eph'rata, in *New York,* a post-town of Fulton co.

Ep'ic, Ep'ical, *a.* [Fr. *épique;* Lat. *epicus;* Gr. *epikos,* from *epos,* a song.] (*Lit.*) Narrative; containing narration; rehearsing; heroic: relating to heroic poetry or poems.

"Homer's name shall live in *epic* song." — *Dryden.*

—*n. Epic,* or *Epic Poetry,* is a kind of poetry which has outward objects for its subjects, and is thus distinguished from lyric poetry, which deals with the inner feelings and emotions of the mind. The distinction is general, for there are few productions to which it can strictly apply: but they belong to the one class or the other, according to the predominating character. As in the individual man, so with the human race, the mind is objective before it is subjective; it observes external objects before it turns its thoughts in upon itself; and hence we may conclude that the *E.* was the earliest species of poetry. The earliest specimens of this form of art probably consisted of simple tales rhythmically arranged, and recited to a very simple musical accompaniment. The longer and more artistic epic poems, however, embrace an extensive series of events and the actions of numerous personages. The epic poetry of the early Greeks naturally divides itself into two classes, — the heroic or romantic epos of Homer, and the hieratic epos of Hesiod, — the one dealing with the *political,* the other with the *religious,* life of the Greeks. The *Iliad* and *Odyssey* of Homer present us with the finest specimens of this class of poetry that have ever appeared. The sacred poetry of Hesiod partakes very much of a lyrical character. The *Æneid* of Virgil is not equal to the *Iliad* of Homer as an *E.*; its superiority depending more on beauty of language and arrangement than on anything in the story. The greatest *E.* of modern times is the *Paradise Lost* of Milton. Dante's *Divine Comedy,* however sublime in style, is destitute of that unity of event or action necessary to constitute a great work of this class. The *Jerusalem Delivered* of Tasso is regularly and strictly an *E.,* and adorned with all the beauties that belong to this species of composition. The epic poem is of all poetical works the most dignified, and at the same time the most difficult in execution; and hence it is that so very few have succeeded in the attempt to produce a really great *E.* "To contrive a story which shall please and interest all readers, by being at once entertaining, important, and instructive; to fill it with suitable incidents; to enliven it with a variety of characters, and of descriptions; and throughout a long work to maintain that propriety of sentiment, and that elevation of style, which the epic character requires, — is unquestionably the highest effort of poetical genius." — *Blair's Rhetoric.*

Epica'lyx, *n.* (*Bot.*) The term applied by many botanists to a circle of bracts appearing immediately below the calyx or outer covering of the flower. It is seen in the mallow tribe, and in many plants of the pink and rose tribes. Though a distinct name has been given to this whorl of leafy organs, it properly comes under the denomination of *involucre,* q. v.

Epican'thus, *n.* [Gr. *epi,* and *kanthos,* the angle of the eye.] (*Anat.*) The angle of the eye.

Epicar'idan, *n.* [Gr. *epi,* and *karidos,* shrimp.] (*Conch.*) A parasitic crustacean found upon shrimps.

Ep'icarp, *n.* [Gr. *epi,* upon, *karpos,* fruit.] (*Bot.*) The external layer or region of the pericarp or shell of a fruit. This layer generally appears as a thin skin, being far less liable to alteration than either mesocarp or endocarp. See FRUIT.

Ep'ic Cy'cle, *n.* (*Lit.*) The vast number of poems which treated of the mythological and heroic ages of Greece, rendered some arrangement in the order of reading them absolutely necessary. Thus, besides the *Iliad* and *Odyssey* of Homer, there were five other epic poems relating to the legend of Troy alone, two giving the adventures of Heracles, with many others which are now known only by name. These poems were arranged at Alexandria, in the 2d cent. B. C., not according to merit, but simply by the order of the events which they professed to narrate; and the whole collection received the name of the *Epic Cycle.* This cycle comprised the Homeric poems as well as all others; but inasmuch as the former were generally spoken of by themselves, the phrase "cyclic poet" came gradually to express inferiority. (Grote's *History of Greece,* Part I. ch. xxi.)

Ep'icede, *n.* [Gr. *epikedeion,* an elegy.] An elegy; a dirge; a funeral-song.

Epicc'dial, Epicc'dian, *a.* Dirge-like, elegiac; funereal.

Epicc'dium, *n.* Same as EPICEDE, *q. v.*

Epicene, (*ep'i-sēn,*) *a.* or *n.* [Fr.; Gr. *epikoinos* — *epi,* and *koinos,* common, probably from *xun,* Sansk. *sam,* together with.] Common to both sexes; — a term applied to such Greek and Latin nouns as have only one form of gender, either the masculine or feminine, to indicate animals of both sexes.

Epicras'tic, *a.* [Gr. *epikerastikos.*] Assuaging; emollient.

Epichire'ma, *n.*; *pl.* EPICHIREMATA. [Gr.] (*Rhet.*) A syllogism in which the major and minor premises bring with them their own proof.

Epicol'ic, *a.* [Gr. *epi,* and *kolon,* colon.] (*Anat.*) Lying over and about the colon.

Epictetian, (*ep-ik-te'shan,*) *a.* [Gr. *epikteteios.*] Relating to Epictetus (*q. v.*), or to his philosophy.

Epicte'tus, a Phrygian philosopher of the Stoic school, was B. at Hieropolis, and flourished in the 1st cent. He was originally the slave of Epaphroditus, the freedman of the Emperor Nero, and though expelled from Rome by Domitian, he returned after that emperor's death, and gained the esteem of Adrian and Marcus Aurelius. *E.'s Enchiridion* is a faithful picture of the Stoic philosophy. He supported the doctrine of the immortality of the soul, but declared himself strongly against suicide. The style of *E.* is concise, devoid of all meretricious ornament, and full of energetic counsels and useful maxims. The emperor Antoninus thanked the gods he could collect from the writings of this philosopher that wherewith to conduct life with honor to himself and advantage to his country. *E.'s* favorite maxim was, "Bear and forbear."

Ep'icure, *n.* [Lat. *Epicurus;* Gr. *Epikouros.*] A follower of Epicurus, but more justly a follower of the doctrines ascribed to Epicurus; — hence, a man devoted to sensual enjoyments; one who indulges in the luxuries of the table; a gourmand; a gourmet; a voluptuary; a lover of good eating.

"Then mingle with the English *epicures*." — *Shaks.*

Epicurean, (*ep-i-kū'rē-an,*) *a.* [Lat. *Epicureus.*] Pertaining to Epicurus, or to his philosophy. — Also, luxurious; given to self-indulgence and personal enjoyments; given to luxury; contributing to the pleasures of the table.

"What a damn'd *epicurean* rascal is this!" — *Shaks.*

—*n.* A follower of the doctrines of Epicurus.

—One who is devoted to the pleasures of the table.

Epicu'reanism, *n.* The doctrines enunciated by Epicurus; also attachment to such doctrines.

Epicu'reans, *n. pl.* (*Philos.*) A sect of philosophers founded by Epicurus of Samos, who established a school at Athens, B. C. 306, and continued to teach until his death, B. C. 270. See EPICURUS.

Epicurism, (*ep'i-kū-rizm.*) *n.* [Fr. *épicurisme.*] The Epicurean doctrines. — Luxury sensual enjoyments; indulgence in gross pleasures; voluptuousness.

"Some good men have ventured to call munificence . . . a piece of *epicurism*." — *Calamy.*

Ep'icurize, *v. a.* To profess attachment to the doctrines held by Epicurus. — To gourmandize; to feed like an epicure; to live voluptuously.

Epicu'rus, a celebrated Greek philosopher, founder of the Epicurean school, was B. in Samos, B. C. 342. His father, Neocles, was an Athenian colonist in that island. Epicurus studied philosophy at Athens, taught it at Mitylene and Lampsacus, and in B. C. 306 settled at Athens, and in a garden which he bought there opened his school of philosophy. The fundamental doctrine of Epicurus in morals is, that pleasure is the sovereign good. He taught that this must be sought by the aid of reason; that prudence is the first of virtues, and that moral excellence is only of value as conducing to pleasure. He denied the immortality of the soul, and asserted the existence of the gods, their perfect repose, and their indifference to human affairs. In physics he adopted the atomic theory, applying it to the gods themselves. Although his system too easily lent itself to the justification of a sensual life, *E.* obtained the praise even of his adversaries for the simple, pure, and manly life he himself led. His works are lost, but some fragments of his book *On Nature* were discovered at Herculaneum. The great poem of Lucretius, *De Rerum Natura,* is an exposition of the system of this great philosopher. D. B. C. 270.

Epicycle, (*ep'i-sī-kl,*) *n.* [Gr. *epi,* and *kyklos,* a circle.] (*Astron.*) A little circle revolving while its centre moves round in the circumference of a greater circle.

Epicy'cloid, *n.* [Fr. *epicycloide,* from Gr. *epikyklos,* and *eidos,* shape.] (*Geom.*) See CYCLOIDAL

Epicycloid'al, *a.* Relating to the epicycloid, or partaking of its characteristics.

Epicycloid'al-wheel, *n.* (*Mech.*) A toothed wheel fixed to a framework, having connected with its gear another toothed wheel of half the diameter of the first, and so placed as to revolve in the latter's centre.

Epidaurus, (*ep-i-dor'us,*) a town of ancient Greece, at the N. of Argolis, in Peloponnesus, chiefly dedicated to the worship of Æsculapius, who had there a famous temple. It received its name from Epidaurus, a son of Argus and Evadne. It is now called *Pidavro,* or *Epidairo,* and is the place where, in 1821, the first Greek congress assembled.

Epideic'tic, Epidic'tic, *a.* [Gr. *epideiktikos.*] Tending to exhibit by form or force of language.

Epidem'ic, Epidem'ical, *a.* [Fr. *épidémique,* from Gr. *epidemios* — *epi,* and *demos,* the people. See DEMOCRACY.] Affecting, or common to, a whole people; diffused throughout a community; universal; general.

"They're citizens of Scotland, a nation *epidemical*." — *Cleveland.*

—That falls at once upon a people, as a plague; attacking many persons at the same time or in the same season, as a disease; generally prevailing; affecting great numbers; as, an *epidemic* evil, revolutionary doctrines are *epidemical,* &c.

—*n.* (*Med.*) An infectious or contagious disease, which attacks many people at the same period and in the same country, "rages for a certain time, and then gradually diminishes and disappears, to return again at periods more or less remote." Thus Asiatic cholera, influenza, scarlet fever, measles, &c., frequently appear as *epidemics;* that is, are found to prevail in certain parts of a country, while the adjacent districts are free from their ravages. It is essential to the medical notion of an *epidemic,* that it be of a temporary, in contradistinction to a permanent character, though isolated cases may occasionally be observed in districts once visited by the *E.* It differs from *endemic,* inasmuch as the latter class of diseases are of a more permanent nature, and prevail only among certain people and in certain districts. See BLACK DEATH, CHOLERA, PLAGUE, SMALL-POX, YELLOW FEVER, &c.

Epidem'ically, *adv.* After the manner of an epidemic.

Epidem'icalness, *n.* State of being epidemical.

Epidemiolog'ical, *a.* Relating to epidemiology.

Epidemiol'ogy, *n.* [Gr. *epi, demos,* people, and *logos,* speech.] (*Med.*) That department of medical science devoted to the investigation and treatment of epidemical disease.

Epidemog'raphy, *n.* [Gr. *epi, demos,* people, and *graphein,* to write.] (*Med.*) A history of, or treatise upon, epidemic diseases generally.

Ep'idemy, *n.* [Fr. *épidémie;* Gr. *epidemia.*] (*Med.*) Same as EPIDEMIC, *q. v.*

Epiden'drum, *n.* [Gr. *epi,* and *dendron,* a tree.] (*Bot.*) A genus of plants, order *Orchidaceæ.* There are nearly 300 species that live parasitic upon the bark of trees, chiefly natives of S. America. A great many are cultivated in hot-houses for their beauty and the bizarre appearance of their flowers.

Epiderm, *n.* See EPIDERMIS.

Epiderm'al, *a.* Pertaining to the cuticle of the skin, or to the bark of a tree.

Epidermal Tissue, (*Bot.*) The term applied to the external layer of cells in flowering and the higher flowerless plants. This layer may commonly be readily separated as a distinct membrane or skin, as its component cells differ in shape and in the nature of their contents from those cells placed beneath them. This tissue consists of two parts: namely, of an inner portion, usually called the *epidermis,* and of an outer thin pellicle, to which the name *cuticle* is given. Carpenter, and some other authors, make use of these terms in precisely the reverse sense, calling the external pellicle the epidermis. Following Prof. Bentley, we will employ the terms as generally understood. The epidermis, then, consists of one or more layers of cells, firmly united together by their sides so as to form a membrane. These cells are generally of a flattened tabular character; but they vary much in their outline. Ordinarily, in European plants, the epidermis is formed of but one row of cells; but in tropical plants, two, three, or more rows are common. The upper walls of the cell are generally much thickened by secondary deposits, and this thickening is especially evident in leaves of a leathery or hardened texture, as those of the oleander, box, and holly. The epidermis covers all parts of the plants upon which it is found, that are exposed directly to the air, except the stigma: and it is in all cases absent from those which live under water. In the fungi, algæ, and lichens, it is altogether wanting. The cuticle covers the entire surface of the epidermal cells, with the exception of the openings called *stomata,* and even sheathes the hairs and other appendages. It has no cellular structure, but is a perfectly homogeneous membrane. A membranous layer, resembling, if not actually identical with the cuticle, is found upon the surface of plants living under water, and also covering the algæ, lichens, and fungi. The *stomata,* or *stomates,* to which allusion has been made, are orifices situated between some of the epidermal cells leading into the intercellular cavities beneath, so as to allow a free communication between the internal tissues and the external air. They are commonly called *breathing-pores.* They vary in form and position in different plants, and different parts of the same plant; but they are always the same in any particular part of a plant. The most

common form is oval, but they are sometimes seen round or square. They are either placed singly upon the epidermis at regular or irregular distances, or in clusters, with spaces quite free from them intervening. The number of stomata also varies considerably in different plants and different parts of the same plant. We give the numbers counted in a square inch upon the upper and under surfaces of the leaves of a few plants, to show the extent of this variation: — Mistletoe, upper surface 200, under surface 200; peony, upper surface *none*, lower surface 13,790; house-leek, upper surface 10,710, lower surface 6,000; lilac, upper surface *none*, lower surface 160,000. Stomata exist more or less upon all flowering plants, but are absent from the lower order of flowerless plants. On floating leaves they are found only upon the upper surface.

Epiderm'atoid, Epiderm'oid, *a.* Belonging to, or resembling, the epiderm.

Epiderm'eous, Epiderm'ic, Epiderm'idal, *a.* Pertaining to the epidermis; resembling the bark or covering of a tree.

Epiderm'is, *n.* [Gr.. from *epi*, and *derma*, the skin.] (*Anat.*) The cuticle or scurf-skin of any animal. — See SKIN.

(*Bot.*) See EPIDERMAL TISSUE.

Epiderm'oid, *a.* Same as EPIDERMATOID, *q. v.*

Epidic'tic, *a.* See EPIDEICTIC.

Epidid'ymis, *n.* [Gr.] (*Anat.*) A body formed by convolutions of the commencement of the sperm-duct or *vas deferens*, lying upon the testicle, and more or less closely attached to that gland.

Ep'idote, *n.* [Fr., from Gr. *epidosis*, because the base of the primary form undergoes an increase in some of the secondary forms.] (*Min.*) A mineral which has received several names. It consists essentially of silicate of alumina with silicate of lime (*Zoisite* or calcareous Epidote), or with silicates of lime and of protoxide of iron (*Pistacite* or calcareo-ferruginous Epitode), or with silicates of lime and of protoxide of iron and manganese (Manganesian Epidote). Its color is usually various shades of green, yellow, and red. It occurs in granite and other igneous rocks, and in various crystalline slates.

Epidot'ic, *a.* Resembling, pertaining to, or containing epidote.

Epigæ'a, *n.* [Gr. *epi*, upon, and *ge*, the earth; from its prostrate habit.] (*Bot.*) A gen. of plants, ord. *Ericaceæ*. They are perennial suffruticose, trailing plants; leaves evergreen. The species *E. repens* is the well-known Trailing Arbutus, or May-flower, found in the woods from Newfoundland S.W. through Pennsylvania to Kentucky.

Epigæ'ous, Epige'al, Epige'ous, *a.* [Gr. *epigaios.*] (*Bot.*) Growing upon, or in close proximity to, the earth.

Epigas'trial, Epigas'tric, *a.* [Fr. *epigastrique*; Gr. *epi*, and *gastēr*, the belly. See GASTRIC.] (*Anat.*) Pertaining to the upper part of the abdomen; as, the *epigastric* arteries.

Epigas'trium, *n.* [Lat., from Gr. *epigastrion.*] (*Anat.*) The upper part of the abdomen; the epigastric region, or central portion of the upper part of the belly.

Epigas'trocele, *n.* [Gr. *epi*, upon, *gastre*, the stomach, and *kele*, a tumor.] (*Med.*) A hernia of the stomach, or of the parts near it, whether formed by the stomach or not.

Epige'al, *a.* Same as EPIGÆOUS.

Ep'igee, *n.* [Gr. *epigaios.*] (*Astron.*) Same as PERIGEE, *q.v.*

Ep'igene, *n.* [Gr. *epigenēs.*] (*Crystall.*) Noting a form not natural to a substance,

(*Geol.*) Formed on the surface of the earth: — in contradistinction to *hypogene*.

Epigen'esis, *n.* [Gr. *epi*, and *genesis*, generation.] (*Physiol.*) A formation upon, or in addition to, previously existing parts. The word is applied in physiology to that theory of new formations in organized beings which supposes them to spring from superadded centres of vital activity; as opposed to the theory, which presumes that the new is formed by a development or modification of the old structure. See OVUM.

Epigen'esist, *n.* One who advocates the theory of epigenesis.

Epige'ous, *a.* Same as EPIGÆOUS, *q. v.*

Epiglot'tic, *a.* Relating or pertaining to the epiglottis.

Epiglot'tis, Ep'iglot, *n.* [Gr. *epi*, and *glōttis*, the mouth of the windpipe, from *glōtta*, the tongue.] (*Anat.*) An oval cartilage at the root of the tongue, which closes upon the superior opening of the larynx; its upper extremity is loose, and elevated by its own elasticity; it closes the aperture of the larynx when the tongue is drawn back in the act of deglutition. Its base has a ligamentous attachment to the base of the tongue, the thyroid cartilage, and the os hyoïdes.

Epig'oni, *n. pl.* (*Greek Hist.*) The sons and descendants of the Grecian heroes who were killed in the first Theban war. The war of the Epigoni is famous in ancient history. They resolved to avenge the death of their fathers, and marched against Thebes, under the command of Thersander. The two armies met and engaged on the banks of the Cephissus. The fight was obstinate and bloody, but victory declared for the Epigoni, and some of the Thebans fled to Illyricum with Leodamus, their general, while others retired into Thebes, where they were soon besieged, and forced to surrender.

Ep'igram, *n.* [Fr. *épigramme*, from Gr. *epigramma*, an inscription.] This term, as shown by its derivation, was originally applied to the inscriptions on the tombs and monuments of ancient Greece. They were generally written in verse, and showed great simplicity of style. Usually they were either dedicatory, descriptive, amatory, or elegiac. They were seldom humorous, and their chief merit consisted in the justness of a single thought conveyed in harmonious language. The ancient Romans, in their acceptation of the term *E.*, seem to approach nearer to the idea of modern *E.* Catullus and Martial were among their most famous epigrammatists. In modern times an *E.* is considered to be a short poem usually consisting of two to eight lines, in which some striking or ingenious thought is expressed; whether it be serious or humorous is a matter of indifference. The French have always excelled in this kind of writing. The Germans have usually combined moral proverbs with their epigrams; but those of Schiller and Gœthe are generally satirical. Pope, Byron, Burns, and Moore have written epigrammatic satire with the greatest success.

Epigrammat'ic, Epigrammat'ical, *a.* [Fr. *épigrammatique.*] Writing epigrams; dealing in epigrams; as, an *epigrammatic* poet.

—Suitable to epigrams; belonging to epigrams; concise; pointed; poignant; as, *epigrammatic* wit, an *epigrammatic* style.

Epigrammat'ically, *adv.* In an epigrammatic manner.

Epigram'matist, *n.* [Fr. *epigrammatiste.*] One who composes epigrams or deals in them.

Epigram'matize, *v. a.* [Gr. *epigrammatizō.*] To make an epigram on; to represent or express by epigrams.

Epigram'matizer, *n.* One who assumes a concise, pointed style of writing.

Ep'igraph, *n.* [Gr. *epigraphē* — *epi*, and *graphō*, to write.] An inscription on a statue or building. — (*Lit.*) A citation from some author, or a sentence framed for the purpose, placed at the commencement of a work or of its separate divisions or chapters. (Sometimes termed *motto.*)

Epigraph'ics, *n. sing.* The art or practice of using or making epigraphs.

Ep'igraphist, *n.* One versed in epigraphy.

Ep'igraphy, *n.* The science of inscriptions.

Epigynous, (*e-pij'e-nus,*) *a.* [Gr. *epi*, upon, *gune*, female.] (*Bot.*) A term applied to the stamens and corolla when they appear to arise from the summit of the ovary, in consequence of the adherence of the calyx to that organ. Examples may be seen in the campanula, carrot, and ivy. The name *Epigynæ* has been given to a subdivision of the *Calyciflorœ*, and also to a subdivision of the *Corolliflorœ*, from the calyx being more or less adherent, and the ovary, consequently, inferior. — See classification, in art. BOTANY.

Ep'ilepsy, *n.* [Gr. *epilepsis*, from *epi*, and *lambano*, I seize.] (*Med.*) A form of disease which receives its name from the suddenness of its attack. It is also called the falling sickness, from the patient, if standing, suddenly falling to the ground. By the ancients it was called the sacred disease, from being supposed to be due to the influence of the gods or evil spirits. The attack is usually sudden, without any warning. The patient may be in his ordinary health, engaged, perhaps, in his usual occupation, when all at once he utters a piercing scream, and falls to the ground. Immediately thereafter the face becomes violently distorted, the head is usually drawn to one side, the eyes are set and staring, or roll wildly about, the color of the skin becomes dark and livid, and the veins swollen and turgid; there is frothing at the mouth; the muscles of the lower jaw act violently, producing gnashing of the teeth, and frequently the tongue is thereby grievously injured; the arms are sometimes thrown violently about, and the lower limbs may be agitated in a similar manner, while the fingers with great power clutch at whatever comes in their way. The breathing is at first heavy and difficult, but afterwards it becomes short, quick, and stertorous, and is often accompanied with sighing and moaning. One side of the body is commonly more agitated than the other. After a longer or shorter period, the convulsive movements gradually diminish, and the patient seems to recover a faint glimmering of consciousness; but the look which he casts around is stupid and heavy, and he goes off into a lethargic sleep, from which he does not awake for some hours. Commonly there is no consciousness of anything that occurred during the paroxysm. On coming out of the fit, there is generally headache, and always languor, and it may be days before he fully recovers from the effects of the attack. The duration of the paroxysm is usually from 5 to 10 minutes; but sometimes several attacks follow each other, and it may be protracted for hours. This is a severe form of *E.*; but frequently it is less severe, consisting merely of loss of consciousness, slight rigidity, and the convulsion of a few muscles, and lasting only for a minute or two. Occasionally death takes place during the paroxysm; but generally it is attended with little danger, unless the patient may injure himself by falling in some dangerous position. During the attack the principal thing is to see that the patient does not injure himself, — especially, a piece of cork or other gag ought to be placed between his teeth, to prevent injury to the tongue; the dress should be loosened about the neck and chest; the head, if possible, a little raised, and a free circulation of air maintained. The return of the fit is exceedingly various in different individuals; several years, in some cases, intervening between the attacks, while in others they may occur every month, week, or day. When neglected, they usually become more and more severe, or recur at shorter intervals. Repeated attacks of this disease, in general, soon produce a marked change in the mental and physical character of the individual. There is a gradual diminution of the active powers, purpose becomes irresolute, the spirits are depressed, and the memory fails; the features become coarse, heavy, and inexpressive, and the look vacant. The most frequent, perhaps, of the consequences of confirmed *E.* is insanity, either in the form of acute mania or monomania following the attacks, or of gradual imbecility, without any acute seizure. Though the fit, as we have said, usually comes on suddenly, yet there are sometimes distinct warnings of its approach. These vary in different individuals, and may be lowness of spirits, irritability, dizziness, noises in the ear, floating specks before the eyes. There is, however, a particular sensation which is said to be felt by some immediately before the attack, and which is known as the *aura epileptica*. It is variously described as resembling a current of air, a stream of water, or a slight convulsive tremor, commencing in one of the limbs, and proceeding upwards to the head, when the patient is deprived of all consciousness. *E.* is commonly divided into idiopathic, when it is a primary disease, depending on some affection of the brain; and sympathetic, when produced by an affection in some other part of the body, — as the stomach, bowels, liver, circulating system, &c. Among the causes which give rise to *E.* are external injuries done to the brain by blows, wounds, fractures, and the like, or internal injuries by water on the brain, tumors, concretions, and polypi. Violent affections of the nervous system, sudden frights, strong mental emotions, acute pains in any part, worms in the stomach or intestines, teething, suppression of accustomed evacuations, &c., are causes which also produce *E.* Sometimes it is hereditary; at other times it arises from a predisposition occasioned either by plethora or a state of debility. When it arises from hereditary predisposition, or comes on after the age of puberty, or when the attacks are frequent and of long duration, it is usually difficult to effect a cure; but occurring in early life, and occasioned by worms or any other accidental cause, it may, in general, be remedied with ease. Where the disease can be traced to any special exciting cause, — as injuries of the head, worms, teething, &c., — the treatment should be first directed to its removal. Where, as is often the case, a plethoric state appears to occasion the disease, the patient is to be restricted to a low diet, frequent purgatives are to be exhibited, and everything avoided that may determine the blood to the head: and to counteract such a tendency, occasional cupping, blisters, issues, &c., may be useful. If, on the contrary, there are marks of inanition and debility, a generous diet, with tonic medicines and other means of strengthening the system, will be proper. In this disease great care is necessary in the matter of diet, and moderation in quantity and simplicity in character are material points. When the appropriate remedies are judiciously employed, and the proper regimen strictly adhered to, *E.* is often permanently cured, and the suffering is greatly mitigated even in those forms which do not admit of cure.

Epilep'tic, Epilep'tical, *a.* [Gr. *epileptikos*; Fr. *épileptique.*] Pertaining, or relating to epilepsy, or the falling-sickness; affected with epilepsy; partaking of the nature and character of epilepsy.

Epilep'tic, *n.* One who suffers from epilepsy. — A medicine expressly designed to cure epilepsy.

Epilep'tiform, *a.* Having the form or appearance of epilepsy.

Epilo'bium, *n.* [Gr. *epi*, upon, *loboy*, a pod, *ion*, a violet; a violet growing upon a pod.] (*Bot.*) A genus of plants, ord. *Onagraceæ*. They are perennial herbs with calyx-tube not prolonged beyond the ovary, limb deeply 4-cleft, 4-parted and deciduous; petals 4; stamens 8; anthers fixed near the middle; stigma often with 4 spreading lobes; ovary and capsule linear, 4-cornered, 4-celled, 4-valved; seeds indefinite, comose, with a tuft of long hairs. There are 5 American species, the principal of which are *E. angustifolium*, known as the Willow-herb or Rose-bay, found in low waste grounds from Pennsylvania N. to the Arctic regions; and *E. coloratum*, the Colored Epilobium, found from British America S. to Georgia and W. to Oregon.

Epilog'ic, Epilog'ical, *a.* [Gr. *epilogikos.*] Relating to, or like, an epilogue; epilogistic.

Epil'ogism, *n.* [Gr. *epilogismos.*] Final reckoning.

Epilogis'tic, *a.* [Gr. *epilogistikos.*] Pertaining to an epilogue; of the nature of an epilogue; epilogic.

Epil'ogize, Ep'iloguize, *v. a.* To render in the form of an epilogue; to pronounce an epilogue.

Epilogue, (*ep'i-lôg,*) *n.* [Lat. *epilogus*; Gr. *epilogos*, conclusion — *epi*, and *legō*, to speak.] (*Lit.*) In dramatic poetry, the closing address to an audience at the end of a play; — opposed to *prologue*.

"'Tis true that a good play needs no *epilogue*." — *Shaks.*

(*Rhet.*) The closing or recapitulative part of a discourse; peroration.

Ep'ilogize, *v. a.* See EPILOGIZE.

Epim'achus, *n.* (*Zoöl.*) A genus of birds, allied to the *Paradiseidæ*, having, like them, a slender beak, but with velvety or scale-like feathers partly covering the nostrils, as in the Birds of Paradise. The plumage of *E. magnificus* (Fig. 951) is of the most gorgeous description. It is of a deep black, with the feathers magnificently glossed with various colors. It is a native of some of the islands in the Eastern seas.



Fig. 951.
EPIMACHUS MAGNIFICUS.

Epimen'ides, an epic poet of Crete, contemporary with Solon. He is reckoned one of the seven wise men, by those who exclude Periander from the number. While he was tending his flocks one day, he entered

into a cave, where he fell asleep. His sleep, according to tradition, continued for fifty-seven years, and when he awoke he found every object so considerably altered, that he scarcely knew where he was. It is supposed that he lived 289 years. After death he was revered as a god by the Athenians. Lived in the 6th century B. C.

Epim'eral, *n.* [Gr. *epi*, and *meros*, a thigh.] (*Zoöl.*) That part of the segment of an articulate animal which is above the joint of the limb.

Epimetheus, (*ep-i-me'the-us,*) one of the Oceanides, who inconsiderately married Pandora, by whom he had Pyrrha, the wife of Deucalion. He had the curiosity to open the box which Pandora had brought with her. (See PANDORA.) Epimetheus was changed into a monkey by the gods, and sent into the island Pithecusa.

Ep'inal, a town of France, cap. dep. Vosges, on both banks of the Moselle, 36 m. S.S.E. of Nancy, 65 N.N.E. of Besancon, and 293 E.S.E. of Paris. It is a tolerably well-built and flourishing city, having manufactures of embroidery, lace, pottery, paper, oil, &c. *E.* belonged to the dukes of Lorraine till 1670, when it was taken by the French. *Pop.* 13,130.

Epinglette, (*ep-in-glet',*) *n.* [Fr.] (*Mil.*) The priming-needle of a gun of heavy calibre.

Epini'kian, *a.* [Gr. *epinikion.*] Commemorating a victory; as, an *epinikian* song.

Epinyctis, (*ep-in-ik'tis,*) *n.*; *pl.* EPINYCTIDES. [Gr. *epinyktis*; Lat. *epinyctis.*] (*Med.*) A pustule at the corner of the eye.

Epipet'alous, *a.* [Gr. *epi*, and *petalon*, a petal.] (*Bot.*) Carried on the petals, as of a flower.

Epiphanius, (*ep-i-fai'ne-us,*) a Greek father of the church, who was born in Palestine early in the 4th century, and educated among the Gnostics in Egypt; after which he returned to Palestine and became the disciple of the monk Hilarion. He was chosen bishop of Salamis, in the isle of Cyprus, 367, and died in 403. Epiphanius was a man of some learning but little judgment, and he was a vehement opponent of Origen. He wrote a book entitled *Panarium* against all heresies.

Epiphany, (*e-pif'ā-ne,*) *n.* [Gr. *epiphaneia*, a manifestation.] (*Eccl.*) A festival of the Christian Church held on the 6th day of January, in order to celebrate the manifestation of Christ. In early times this festival probably commemorated the nativity of the Saviour, his manifestation in the flesh, and his manifestation to the Gentiles. As a household festival, the *E.* is better known by the name of king's festival, or of *Twelfth-night* (being the twelfth night from the Nativity). The practice of choosing a king and queen in family merriments upon that night has been traced back to a similar custom among the Romans during the Saturnalia.

Epiphe'gus, *n.* [Gr. *epi*, upon, *phegus*, the beech; being supposed parasitical on the roots of that tree.] (*Bot.*) A genus of plants, ord. *Orobanchaceæ*. The root of *E. virginiana* is called cancer-root, from having been formerly used as an application to cancers. It was the principal ingredient in a once celebrated nostrum, called Martin's cancer-powder.

Epiphone'ma, *n.* [Gr.] (*Rhet.*) A striking exclamation which puts an end to a discourse or oration.

Epiphora, (*e-pif'o-ra,*) *n.* [Gr.] (*Med.*) A disease occasioned by a superabundant secretion of tears.

(*Rhet.*) A word repeated with emphatic effect, at the end of a series of stanzas.

Epiphos'phorite, *n.* (*Min.*) A variety of phosphate of lime, *q. v.*

Epiphyllosperm'ous, *a.* [Gr. *epi*, *phyllon*, leaf, and *sperma*, seed.] (*Bot.*) Presenting seeds on the back of the leaves, as certain ferns.

Epiphyllous, (*ep-i-fil'lus,*) *a.* [Gr.] (*Bot.*) Something growing on a leaf.

Epiphys'ical, *a.* Possessing the nature of an epiphysis.

Epiphysis, (*e-pif'i-sis,*) *n.* [Gr., an outgrowth.] (*Anat.*) A process of a bone separated at first by a layer of cartilage from that to which it is attached.

Epiph'ytal, *a.* (*Bot.*) Belonging to an epiphyte.

Ep'iphyte, *n.* [Gr. *epi*, on, and *phyō*, I produce.] (*Bot.*) A plant which finds a resting-place upon the surface of other plants, *e. g.*, many mosses and orchids, as distinguished from parasites which draw sustenance from their foster-plants.

Epiphyt'ic, Epiphyt'ical, *a.* (*Bot.*) Partaking of, or having, the properties or characteristics of an epiphyte.

Epiphyt'ically, *adv.* (*Bot.*) After the manner of an epiphyte.

Epiplero'sis, *n.* [Gr.] (*Med.*) Superabundance of blood in the arteries, &c.

Epiplex'is, *n.* [Gr.] (*Rhet.*) A figure of speech seeking to convince the hearer by gentle reproach.

Epiploce, (*e-pip'lo-se,*) *n.* [Gr. *epiploke.*] (*Rhet.*) A figure of speech by which one aggravation, or striking circumstance, is added, in due gradation, to another; as, "He not only spared his enemies, but continued them in employment; not only continued, but advanced them."

Epip'locele, *n.* [Gr. *epiplokēle.*] (*Med.*) A hernia or rupture caused by a protrusion of the omentum.

Epiplo'ic, *a.* Relating or pertaining to the omentum.

Epiploon, (*e-pip'lo-on,*) *n.* [Gr.] (*Anat.*) The caul or omentum. See CAUL.

Epipol'ic, *a.* (*Optics.*) Relating to epipolism.

Epip'olism, *n.* (*Optics.*) See FLUORESCENCE.

Epip'olized, *a.* Presenting an epipolic aspect; as, *epipolized* light.

Ep'irot, *n.* An inhabitant of Epirus.

Ep'irus, an extensive prov. of ancient Greece, now forming the S. part of Albania. It was separated from Grecian Illyria by the Cerannian Mountains, and by the famous river Pindus (*q. v.*) from Thessaly. The river Achilon, also famous in mythological story, flowed through the limits of this prov. Here were also the celebrated temple and sacred grove of Dodona. Pyrrhus, king of Macedon, was a native of *E.*, which country passed successively into the hands of the Romans, and the Turks. *E.* by the Convention with Turkey, of May 24, 1881, was ceded to Greece.

Episcenium, (*ep-i-sē'nē-um.*) *n.* [Gr. *episkenion.*] (*Arch.*) Among the ancients, the upper order of the scene in a theatre. See PROSCENIUM.

Episcopacy, (*e-pis'ko-pā-se,*) *n.* [Gr. *episkopos*, a bishop or overseer.] (*Eccl.*) That form of church-government in which one order of the clergy is superior to another; as bishops to priests and deacons. Much discussion has taken place on the subject of episcopacy. Nothing conclusive can be gathered concerning it in the New Testament; but there can be no doubt that it existed universally in the Church from the earliest historic ages down to the time of the Reformation, and it is interred, as no change can be shown to have taken place, that the same constitution existed from the time of the Apostles. Presbyterians and Independents argue, on the other hand, that, as there is nothing definite concerning it in Scripture, Christians are left a discretionary power of modelling the government of their church in such a manner as may seem to them most meet; and that every Christian society has a right to make laws for itself, provided these laws are consistent with charity and peace, and with the fundamental doctrines and principles of Christianity. "It cannot be proved," says Dr. Paley, "that any form of church government was laid down in the Christian, as it has been in the Jewish Scriptures, with a view of fixing a constitution for succeeding ages, and which constitution, consequently, the disciples of Christianity would everywhere and at all times, by the very law of their religion, be obliged to adopt. Certainly no command of this kind was delivered by Christ himself; and if it be shown that the Apostles ordained bishops and presbyters among their first converts, it must be remembered that deacons also, and deaconesses, were appointed by them with functions very dissimilar to any which obtain in the Church at present. The truth seems to have been that such offices were at first erected in the Christian Church as the good order, the instruction, and the exigencies of the society at that time required, without any intention, at least without any declared design, of regulating the appointment, authority, or the distinction of Christian ministers under future circumstances." The power vested in the bishops or higher clergy differs very much among the different episcopal bodies. The Roman Catholic and the Greek churches, as also the Church of England, are episcopalian.

Epis'copal, *a.* [L. Lat. *episcopalis.*] Belonging to, or vested in, bishops or prelates; as, *episcopal* authority.—Governed by bishops; as, an *Episcopal* Church. See PROTESTANT EPISCOPAL CHURCH.

Episcopa'lia, *n.* [Lat.] (*Eccl. Hist.*) A term signifying synodals or other customary payments from the clergy to their bishop or diocesan, which were formerly collected by the rural deans, and by them transmitted to the bishop. (Sometimes written *Onera Episcopalia.*)

Episcopa'lian, *a.* Episcopal; relating or belonging to prelacy, or episcopal government.

—*n.* One who belongs to an episcopal church, or adheres to the episcopal form of church government, rules, discipline, &c. See EPISCOPACY.

Episcopa'lianism, *n.* The system of episcopal religion, or government of the Church by bishops; episcopacy.

Epis'copally, *adv.* In an episcopal manner; by episcopal rule or authority.

Epis'copate, *n.* [Fr. *episcopat*, from L. Lat. *episcopatus.*] A bishopric; the office and dignity of a bishop.—The order of bishops, taken collectively.

Epis'copicide, *n.* [Lat. *episcopus*, and *cædere*, to slay.] The act of feloniously killing a bishop.

Episod'al, Episod'ial, Episod'ic, Episod'ical, *a.* [Gr. *epeisodios.*] Pertaining to an episode; comprised in an episode or digression; as, "*episodical* ornaments of description."—*Dryden.*

Ep'isode, *n.* [Gr. *epeisodion*—*epi*, and *eisodos*, an entrance—*eis*, to, in, and *hōdos*, a way; Sansk. *sad*, to go.] (*Lit.*) In the Greek drama the term *eisodos* was applied to the entrance of the chorus on the stage, and the *epeisodion* to that part of a play which lay between two verbal songs. As these recitations in the early history of the Greek stage had nothing to do with the choral part, the term *epeisodion*, with its Lat. derivative *episodium*, began to be applied to any incidental narrative or digression in a poem which the poet has connected with the main plot, but which is not essential to it. In this light, the catalogue of ships is considered an *E.* in the *Iliad*, and the description of the war in heaven is considered an *E.* in *Paradise Lost.* Episodes should grow naturally out of the subject, and should either point out important consequences or develop hidden causes. The *E.* describing the destruction of Troy, in Virgil's *Æneid*, is one of this kind. In the best poets, episodes are generally finished in the most careful and elaborate manner. The *Faërie Queene* of Spenser, and the *Orlando Furioso* of Ariosto, contain so many long episodes, that the poems present all the appearance of an inartistic compilation of unconnected legends.

Episod'ically, *adv.* By way of episode.

Epispas'tic, *a.* [Gr. *epispastikos*; Fr. *épispastique.*] (*Med.*) Exciting a blistering or irritating action on the skin.

—*n.* (*Med.*) A vesicatory; a blister.

Ep'isperm, *n.* [Fr. *episperme*, from Gr. *epi*, and *sperma*, seed.] (*Bot.*) The outer coat or covering of a seed; the testa or integuments of a seed.

Episperm'ic, *a.* (*Bot.*) Pertaining or relating to the episperm.

Epis'tates, *n.* [Gr., a president.] (*Greek Hist.*) The title of the presidents of the two great councils of the Athenians, viz., the *Ecclesia* and the *Senate of the Five Hundred.* They were elected from the prædri of the ecclesia and senate, and their office lasted for one day, during which they kept the public records and seal.

Epistax'is, *n.* [Gr. *epi*, and *staxein*, to let fall.] (*Med.*) Bleeding at the nose. In young persons, and where it is produced by accidental causes, this is of no consequence; unless, indeed, it should be very profuse, and then the topical application of cold and of styptics, especially a strong solution of alum, or a plug of lint properly introduced, will check it; but when it occurs frequently in advanced life, and is independent of nasal disease, it is apt to indicate fulness of the vessels of the head. It is a dangerous omen in disorders of great debility, and more especially in putrid fever.

Epistemol'ogy, *n.* [Gr. *epistemē*, knowledge, and *logos*, speech.] Doctrine of the fundamental grounds of knowledge.

Epister'nal, *a.* [Gr. *epi*, and *sternon*, the breast-bone.] (*Anat.*) Applied to two bones situated upon the superior and lateral part of the sternum.

Episthot'onos, *n.* [Gr. *episthen*, forward, and *teinein*, to bend.] (*Med.*) A spasmodic affection by which the body is bent forward.

Epistil'bite, *n.* [Gr. *epi*, and Eng. *stilbite.*] (*Min.*) A hydrous silicate of alumina and lime. See STILBITE.

Epis'tle, *n.* [Gr. *epistole*, a message or letter; Fr. *épître.*] A letter written from one person to another. The Scriptural epistles are letters which were addressed by the inspired Apostles to churches or individuals. Of these the Apostle Paul wrote fourteen, St James one, St. Peter two, St. John three, and St. Jude one. Those of Sts. James, Peter, John, and Jude, are commonly called general or Catholic Epistles, as not being addressed to any particular church, but to the churches in general. It is not without its use that we have the doctrines of the Christian religion laid down, not by one apostle only, but by several, so that the same divine truths are presented to us in different forms, or through different media, and thus their manifold beauties and character are better displayed. In reading an *E.*, we ought to consider the occasion of it, the circumstances of those to whom it was addressed, the time when it was written, its general scope and design, as well as the intention of particular arguments and passages. By *E.* in the liturgy of the Roman Catholic and Prot. Episcopal churches, is meant the first lesson in the communion-service, and so styled because it is generally taken from the sacred Epistles, though sometimes from the Acts, and occasionally from the Prophets.

Epis'tolæ, *n. pl.* (*Rom. Law.*) Rescripts; opinions given by the emperors in cases submitted to them for decision. Answers of the emperors to petitions.—The answers of councillors, as Ulpian and others, to questions of law proposed to them.

Epis'tolar, Epis'tolary, *a.* [L. Lat. *epistolaris.*] Relating to epistles or letters; pertaining to missive communications; suitable to letters and correspondence; as, an *epistolary* style.—Contained in letters; transacted by letters; as, *epistolary* intercourse.

Epis'tolet, *n.* A short epistle.

Epistol'ic, Epistol'ical, *a.* [Gr. *epistolikos.*] Epistolary; pertaining to letters or written correspondence.

Epis'tolize, *v. n.* To write epistles.

Epis'tolizer, *n.* A writer of epistles.

Epistolograph'ic, *a.* [Gr. *epistolographikos.*] Epistolary; having reference to correspondence, or to the writing of letters.

Epistolographic characters. See HIEROGLYPHICS.

Epistolog'raphy, *n.* [Fr. *épistolographie.*] Art, method, or practice of writing letters.

Epis'toma, *n.* [Gr. *epi*, and *stoma*, mouth.] (*Zoöl.*) The space between the antennæ and oral cavity in Crustaceæ.

Epistrophe, (*e-pis'tro-fe,*) *n.* [Gr.] (*Rhet.*) A figure of speech wherein an affirmative sense is conveyed at the termination of a clause or sentence.

Ep'istylar Arena'tion, *n.* (*Arch.*) The system in which columns support arches, instead of horizontal architraves and entablatures.

Ep'istyle, *n.* [Gr. *epistylion*; Lat. *epistyllium.*] (*Arch.*) Same as ARCHITRAVE, *q. v.*

Ep'itaph, *n.* [Fr. *épitaphe*; Gr. *epi*, upon, and *taphos*, a tomb.] The inscription upon a tombstone. Among the classical nations of antiquity, *E.* were at first inscribed only upon the tombs of heroes and those who had made themselves distinguished in their country. Among the Greeks, the term was also applied to those verses which were sung in memory of a deceased person on the day of his funeral, or on its anniversary. Among the Romans, every family who consecrated a tomb to its relations had the privilege of inscribing an epitaph upon it. Both Greek and Roman epitaphs were distinguished by three qualities—brevity, simplicity, and familiarity. The Roman tombs were generally situated by the side of the public road, and the epitaphs usually commenced with the words, *Sta, viator*—"Stop, traveller." Sepulchral inscriptions seem first to have taken their origin in England, in the 11th cent. At that time they were always written in Latin. In the 13th cent., most of the epitaphs were written in French, but the clergy and religious bodies still continued to write in Latin. All epitaphs should be characterized by brevity and truth. The long tedious inscriptions upon some tombs are as untrue as they are ungrammatical, and would almost

seem to substantiate the German proverb: "He lies like a tombstone, and is as impudent as a newspaper." Notwithstanding the solemn circumstances with which *E.* are associated, they are often made the vehicles of pleasantry and satire. Goldsmith wrote the following upon Mr. Edward Purdon:

"Here lies poor Ned Purdon, from misery freed,
Who long was a bookseller's hack;
Who led such a damnable life in this world,
I don't think he'll ever come back."

We may also quote the famous *E.* composed by the poet Moore on a Dublin lawyer, who left an unsavory reputation behind him:

"Here lies John Shaw,
Attorney-at-law;
And when he died,
The Devil cried—
'Give me your paw,
John Shaw—
Limb of the law!'"

Burns wrote some very satirical epitaphs, and in France the same kind of grim humor has frequently been indulged in. The *E.* upon Robespierre is as follows:

"Passant, ne pleure point mon sort;
Si je vivais, tu serais mort."
Dry your tears, passer by,
If I lived, you should die.

—This word is also applied to a eulogy in prose or verse, composed without any intent to be graven on a monument.

Epitaph'ian, Epitaph', *a.* [Gr. *epitaphios.*] Pertaining to an epitaph.

Epitaphist, (*ep'i-taf-ist,*) *n.* One who writes epitaphs.

Epit'asis, *n.* [Gr.] (*Lit.*) That part of a composition which forms the main action of the subject treated of, and serves as the prelude to the catastrophe; — correlative to *protasis.* — See PROTASIS.

(*Med.*) The paroxysmal stage of a fever or other disease.

Epithalam'ie, *a.* Belonging to, or intended for, an epithalamium.

Epithala'mium, *n.* [Fr. *épithalame;* Gr. *epithalamion,* the bridal-song — *epi,* and *thalamos,* a bed-chamber, from Sansk. *talapa,* a couch.] A species of poem sung by the ancient Greeks and Romans near the bridal chamber of a newly-married couple. Poems of this character were written by Anacreon, Stesichorus, and Pindar. The *E.* written by Catullus on the occasion of the marriage of Peleus and Thetis, has always been much admired; and that written by the poet Spenser has been described as one of the most gorgeous in all literature.

Epithe'lium, *n.* [Gr. *epi,* and *thelē,* a teat.] (*Anat.*) A thin and delicate kind of cuticle, like that which covers the nipple. The term is now confined to the innermost layer of the internal cavities and canals of the body, which is analogous to the cuticle of the outer surface.

Ep'ithem, *n.* [Gr. *epithema.*] (*Med.*) A lotion; an embrocation; an external topical dressing applied to the body.

Ep'ithet, *n.* [Gr. *epithetos* — *epi,* and *tithēmi,* to place.] A term expressing some real quality of the thing to which it is applied, or an attribute expressing some quality ascribed to it. Epithets are often used in poetry and rhetoric, not to make up any essential part of the description, but only by way of ornament. Even Homer has been found fault with on this head, for equipping every hero with an *E.,* not according to the exigencies of the case, but to suit the measure of his verse. Nothing, says Aristotle, tires the reader more than too great a redundancy of epithets, or epithets improperly applied; and yet nothing is so essential in poetry as a proper use of them. Epithets are also sometimes applied as surnames, or as the second appellation of persons, and were anciently bestowed very freely on account of excellencies or defects, either of body or mind — even kings not being exempt from them; as, Edward *Longshanks,* Richard *Cœur de Lion.*

Ep'ithet, *v. a.* To confer an epithet upon. (R.)

Epithet'ie, *a.* [Gr. *epithetikos.*] Pertaining to an epithet or epithets; containing or consisting of epithets; abounding with epithets.

Epitith'ides, *n.* (*Arch.*) A term applied by some writers, by way of distinction, to the cymatium on the sloping or raking cornices of a pediment, which superimposed moulding was frequently largely developed, and enriched with an ornamental pattern.

Epit'ome, *n.; pl.* EPITOMES. [Gr. *epito-mē* — *epi,* and *temnō,* to cut. See TOME.] An abridgment; a brief summary or abstract of any book or writing; a compendium.

Epit'omist, *n.* An epitomizer; one who makes an epitome.

Epit'omize, *v. a.* To cut off: to curtail.

"We have *epitomized* many particular words."—*Addison.*

—To shorten or abridge, as a writing or discourse; to abstract; to condense; to reduce into smaller compass.

"If the ladies took a liking to such a diminutive race, we should see all mankind *epitomized.*"—*Addison.*

Epit'omizer, *n.* A writer of an epitome; one who abridges or makes abstracts.

Ep'itrite, *n.* [Gr. *epitritos.*] (*Gr. and Lat. Pros.*) A foot consisting of three long syllables and one short one, and called 1st, 2d, 3d, and 4th *epitrite,* according as the short syllable stands as 1st, 2d, 3d, and 4th respectively; as *sălūtātūrĕs, intĕrcālāns,* &c.

Epit'rochoid, *n.* [Gr. *epi,* and *trochos,* wheel.] See CYCLOIDAL.

Epit'rope, *n.* (*Rhet.*) A figure conveying a repetition of a word or words with forcible emphasis.

Epizo'a, *n. pl.* (*Zoöl.*) The name given by Owen to a class of parasitic animals, which chiefly infest fishes, and of which the Linnæan genus *Lernæa* is the type; — opposed to *entozoön.*

Epizo'an, Epizo'on, *n.* [Gr. *epi,* on, and *zōon,* animal.] One of the Epizoa.

Epizoöt'ie, *n.* [Fr. *épizoötique.*] Relating or belonging to the EPIZOA, or to EPIZOÖTY, *q. v.*

(*Geol.*) Applied to such formations as contain animal remains.

Epizo'öty, *n.* A generic name for those diseases of animals which manifest a common character, and prevail at the same time over considerable tracts of country. Like epidemics, they appear to depend upon some peculiar and not well-ascertained atmospheric causes; where the cases are neglected or overcrowded, they also frequently become contagious; they are apt to take on a low type of fever, and are better treated by supporting than by reducing remedies. Influenza in horses, and pleuro-pneumonia and vesicular epizoötic in cattle, are examples.

E Pluribus Unum. [Lat., one from many.] The motto of the United States coat-of-arms (see Fig. 891).

Epoch, Epocha, (*ep'ok, ep'ok-a,*) *n.* [Gr. *epoch-ē,* from *epechō,* to hold upon — *epi,* and *ĕchō,* to hold.] (*Chron.*) A fixed point of time from which succeeding years are numbered; a point from which computation of years begins; any fixed time or period; the period when anything begins, or is remarkably prevalent; period; æra; date; age.

"Scenes of war, and *epochas* of woe."—*Prior.*

(*Astron.*) The longitude or right ascension of a planet at any particular moment of time, is simply called the *epoch* of that planet, for the sake of brevity. In order to determine the future position of a planet in the heavens at any particular period, it is necessary to reckon from its *epoch,* or known longitude at a certain point of past time.

Ep'ochal, *a.* Relating or belonging to an epoch: characteristic of an epoch.

Epode, (*ĕp'ōd,*) *n.* [Gr. *epō, dē* — *epi,* and *ōdē,* an ode. See ODE.] (*Lit.*) In the strophic choruses of the Greek drama, the last portion following the strophe and antistrophe is so called. The name of *Epodes,* applied to a book of Horace's poems, merely signifies supplementary odes.

Epod'ie, *a.* [Gr. *epodikos.*] Relating to or resembling an epode.

Ep'onym, Ep'onyme, *n.* [Gr. *epi,* and *onoma,* name.] A name derived from an individual's patronymic, and applied to a people, region, &c.

Epon'ymous, *a.* Bestowing a person's name to a people, country, &c.

Epopee, (*ep-o-pē',*) *n.* [Fr.; Gr. *epopoiia* — *epos,* a word, an epic poem, and *poiĕō,* to make.] (*Lit.*) An epic poem; the history, action, or fable which makes the subject of an epic poem. — See EPIC.

E'pos, *n.* [Gr.] An epic poem; an epopee.

Ep'ping, in *New Hampshire,* a post-village and township of Rockingham co., on Lamprey River, abt. 30 m. S.E. of Concord; *pop.* abt. 1,700.

Eprouvette, (*a-prōō-vĕt',*) *n.* [Fr., from *éprouver.*] (*Gunnery.*) An apparatus by which the strength of gunpowder is ascertained. There are two methods of doing this, the first being effected by what is called the gun-*E.,* and the second by the mortar-*E.* The latter is by no means an accurate test for comparing the strength of different kinds of powder, unless the grain of all the sorts to be tried be of the same size. A small charge is put into a mortar, and a suitable spherical iron case-shot is placed upon it; the charge is then exploded, and the distance to which the projectile is thrown is carefully measured. The range obtained is of course greater or less according to the strength of the powder. In the gun-*E.* a gun is attached to an iron rod at its centre of gravity, or point at which the gun would exactly balance if placed across a horizontal bar. The upper part of the rod is fastened to a horizontal bar, the ends of which rest in sockets, and which forms an axis, about which the whole apparatus may swing backwards and forwards when set in motion. From the lower part of the gun,

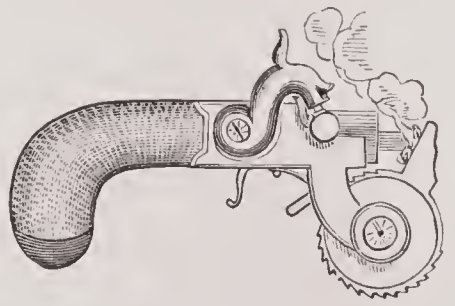


Fig. 952. — EPROUVETTE.

and in a continuous vertical line with the bar by which it is suspended, a rod of iron projects, the point of which works in a groove cut in a piece of wood fixed below it, in the form of the arc of a circle, whose centre is in the axis, around which the whole machine oscillates. This groove is filled with a soft substance. The gun is loaded with a carefully-measured charge of powder; and when fired, the recoil of the gun causes the point of the rod projecting from the under part to describe a line on the soft substance in the groove, the measurement of which determines the strength of the powder. Sometimes a brass quadrant is fixed to the upper part of the rod by which the gun is suspended, on which the extent of the recoil is marked by an index. — The ordinary *E.* is an instrument shaped like a small pistol, without a barrel (Fig. 952), and having its breech-chamber closed by a flat plate connected with a strong spring. On the explosion of the powder against the plate, it is driven back to a distance indexed according to the strength of the powder, and is retained by a ratchet-wheel at its extreme state of propulsion.

Ep'som, a small town of England, on the margin of the Barnstead Downs, in Surrey, 15 m. S.S.W. of London: *pop.* 5,478. — On the Downs, 1½ m. S. from the town, the famous *E.* horse-races are held yearly. They last 4 days, and as many as 1,000,000 persons often assemble to witness the most important of them. — See DERBY (THE).

Ep'som, in *New Hampshire,* a post-township of Merrimac co., abt. 8 m. S.E. of Concord.

Ep'somite, *n.* (*Min.*) EPSOM-SALT, *q. v.*

Ep'som-salt, *n.* (*Chem.*) Sulphate of magnesia. It exists in the mineral waters at Epsom, Eng., whence the name; also at Sedlitz, and Saidschutz in Bohemia. It also occurs as a fibrous or capillary efflorescence on rocks in mines, caves, and elsewhere. In the mines of Idria it occurs in silky fibres, and is called *hair-salt* by the workmen. It is found adhering in loose masses to the roof of Mammoth Cave, Ky., and covers some of the California plains E. of San Diego. It is obtained artificially by treating calcined dolomite with sulphuric acid.

Epu'lis, *n.* [Gr. *epoulis,* a gum-boil.] (*Med.*) A small tubercle on the gums.

Epulones, (*ep-u-lō'nes,*) *n. pl.* [Lat.] (*Rom. Hist.*) Priests, appointed first in 196 B.C., to attend to the *epulum Jovis,* or banquets of Jupiter and the other gods. They formed one of the four great religious corporations at Rome, the other three being the *Augurs, Pontifices,* and *Quindecemviri.*

Epulot'ie, *n.* [Gr. *epi,* and *oulē,* a scar.] (*Med.*) An application which promotes the cicatrizing and healing of sores; — hence the *epulotic ointments* of old pharmacy.

—*a.* Tending to cicatrize and heal.

Epotides, (*e-pot'i-dēs,*) *n. pl.* [Gr.] In ancient naval architecture, two thick blocks of wood, resembling cars, placed one on each side of the prow of a galley, for warding off the blows of the rostra of an enemy's vessel.

Epura'tion, *n.* [Lat. *e,* and *purare,* to purify.] A purification.

Epure, (*ā-pūr',*) *n.* [Fr.] Model or plan of a building.

Ep'worth, in *Iowa,* a post-village of Dubuque co., abt. 19 m. W. of Dubuque.

Equabil'ity, *n.* [Lat. *æquabilitas.*] State or quality of being equable; equality; continued equality at all times, in velocity, movement, mind, or temper; evenness; uniformity.

Equable, (*ē'kwa-bl,*) *a.* [Lat. *æquabilis,* from *æquo,* to make equal, from *æquus,* equal.] That appears on comparison to be fully equal; equal and uniform at all times; even; smooth; steady; undisturbed; unruffled; as, an *equable* temper.

E. motion is that by which equal spaces are passed over in equal times.

E'quableness, *n.* State of being equable.

E'quably, *adv.* In an equable or uniform manner.

E'quador, REPUBLIC OF. See ECUADOR.

Equal, (*ē'kwal,*) *a.* [Lat. *æqualis,* from *æquo* — *æquus,* level; probable root, Sansk. *ēka.*] Of the same extent, magnitude, measure, or degree, when compared; the same in weight, number, or condition; the same in motion, space, or time; the same in qualities; corresponding.

"*Equal* lot may join us; *equal* joy, as *equal* love."—*Milton.*

—Not variable; even; equable; uniform; as, an *equal* temper. — Being in just proportion; proportionate; commensurate; adequate; as, he is not *equal* to the duty imposed. — Impartial; fair; just; equitable; as, an *equal* condition. — Indifferent; feeling or possessing the same degree of interest; as, his likes and dislikes are *equal* to me.

—*n.* One not inferior or superior to another; having the same or a similar age, rank, station, office, talents, strength, &c.; as, she has not her *equal.*

—*v. a.* To make equal to; to make like; to equalize; to raise to the same rank, state, or estimation with; to become or be equal to.

"One whose all not *equals* Edward's moiety." — *Shaks.*

—To recompense fully; to make equivalent to. — To answer in full proportion; to be of like excellence or beauty as.

Equal'ity, *n.* [Lat. *æqualitas;* Fr. *égalité.*] State or quality of being equal or alike in anything; likeness; correspondence in condition; as, to be on a footing of *equality.*—Uniformity; similarity; plainness; as, *equality* of surface.—Sameness in state, condition, or course; as, *equality* of constitution.

(*Math.*) Exact concord of quantity between two magnitudes, denoted by the sign =; as, for instance, $b = y$ conveys the meaning that b contains an identical number of units with y.

(*Law.*) Likeness in possessing the same rights, and being liable to the same duties. Persons are all equal before the law, whatever adventitious advantages some may possess over others. All persons are protected by the law, and obedience to it is required from all.

Equal'ity, in *Illinois,* a post-village of Gallatin co., on Saline creek, about 187 m. S. S. E. of Springfield. *Pop.* (1897) about 700.

Equal'ity, in *Kentucky,* a village of Barren co.

Equaliza'tion, *n.* [Fr. *égalisation.*] Act of equalizing, or state of being equalized.

E'qualize, *v. a.* [Fr. *égaliser.*] To make equal or alike; to make even or uniform; as, to *equalize* accounts. — To bring or reduce to an equality.

"It could not *equalize* the hundredth part
Of what her eyes have kindled in my heart." — *Waller.*

E'qually, *adv.* In an equal manner; evenly; uniformly; as, they are *equally* matched.

E'qualness, *n.* A state of being corresponding or equal; equality. — Evenness; uniformity.

Equau'gular, *a.* Having equal angles.

Equanim'ity, *n.* [Lat. *æquanimitas* — *æquus*, equal, even, and *animus*, mind. See ANIMATE.] Evenness of mind; uniformity and steadiness of temper; that calm disposition or firmness of mind which is not easily elated or depressed; as, nothing can shake his *equanimity*.

E'quant, *n.* [Lat. *æquo*, I make equal.] (*Ptolemaic Astron.*) Among the ancients this term denoted a circle which was conceived to be described in the plane of the deferent or eccentric, for regulating and adjusting certain motions of the planets, and reducing them to easier calculation.

Equate', *v. a.* [Lat. *æquo*, *æquatus*.] To make equal; to reduce to an equation; to reduce to mean time or motion; as, to *equate* distances.

Equation, (*ē-kwā'shon,*) *n.* [Fr. *équation*; Lat. *æquatio.*] (*Math.*) A term given to the symbolical expression of the quality of two quantities. The sign =, placed between the two quantities, signifies that they are equal. Thus $5x+10 = 25$, is an *E.* expressing the equality of the quantities $5x+10$ and 25. A simple *E.* is that which contains only the first *power* of the unknown quantity or quantities. Pure equations of the higher degrees are those which contain the square or any higher power of the unknown quantity, and are divided into two classes — *pure* and *affected*. A pure *E.* is that in which only one power of the unknown quantity is involved: and an affected *E.* is that in which different powers of the unknown quantity are involved. Thus, $ax^2 = b$ is a pure *E.*, and $ax^2 + bx = c$ is an affected *E.* An affected quadratic *E.* is that which contains the square of the unknown quantity and also the unknown quantity itself. An *E.* is said to be *algebraic* when the operations to which the unknown quantity x is subjected do not transcend the ordinary algebraical operations of addition, subtraction, multiplication, division, involution, and evolution; in other cases the *E.* is termed *transcendent*, and receives the distinctive names of *exponential*, *logarithmic*, *trigonometrical*, &c., according to the nature of the functions of x which it involves. An algebraic *E.* is further said to be *rational* and *integral* when, in it, the unknown quantity neither appears in the denominator of a fraction nor under any radical sign. It is evident that every algebraic *E.* can be rendered rational and integral by means of appropriate transformations. See BINOMIAL EQUATION; RECIPROCAL EQUATION.

(*Astron.*) The difference between the apparent and mean motion of the sun. See EQUATION OF TIME.

Personal Equation. (*Astron.*) The interval of time by which an observer, on the average of a number of observations, notes a phenomenon before or after the instant assumed to be that of its actual occurrence.

Equation of a Curve. (*Math.*) An equation demonstrating the existent relation between the co-ordinates of every point in the curve.

Equation of Condition. (*Math.*) See DIFFERENTIAL CALCULUS.

Equation of the Centre. (*Astron.*) The quantity by which the true longitude of the earth differs from the mean longitude.

Equation of the Eq'uinox. (*Astron.*) The difference between the mean and apparent places of the equinox.

Equa'tion of Payments. (*Arith.*) The method of determining the mean time of payment of various sums falling due at different times.

Equa'tion of Time. (*Astron.*) The difference expressed in mean solar time, between the true or apparent right ascension of the sun and its mean right ascension. It may be somewhat popularly defined as the difference between the times indicated by an accurately constructed sun-dial and a well-regulated clock. The *E.* of *T.* arises from the combined operation of all the causes which tend to produce inequalities of the sun's motion in right ascension. The *first* of these is the eccentricity of the earth's orbit, in consequence of which the sun's motion in longitude is unequal. The *second* is the obliquity of the ecliptic, in consequence of which the arcs of the ecliptic and equator, counting from the intersection of these circles to the meridian, are, in general, unequal. A *third*, but comparatively unimportant, cause arises from the perturbations of the moon and planets. The *E.* of *T.* is at its maximum abt. the beginning of Nov., when it amounts to about 16 min. 16 sec.; and is subtractive, that is to say, the clock is faster than the dial by that quantity. At four times in the year, the equation vanishes, or the clock-time and the dial-time agree. This happens about the 25th Dec., 16th April, 16th June, and 1st Sept. But these epochs, depending on the longitude of the sun's perigee, are subject to some variation.

Equator, (*ē-kwā'ter,*) *n.* [Fr. *équateur*; L. Lat. *æquator*, from *æquo*, to make equal.] (*Geog.*) The great circle of the terrestrial sphere which is everywhere equally distant from the two poles, and divides the earth into the N. and S. hemispheres. Terrestrial *longitudes* are measured on the *E.* or some of its parallel circles, commencing from some arbitrary point — most nations adopting the meridian which passes through their capital city. *Latitudes* are counted from the *E.* along the meridian.

(*Astron.*) The great circle of the celestial sphere, of which the plane is perpendicular to the axis of the earth's diurnal motion. When the sun is in its plane, the days and nights are equal everywhere. The *E.* divides the sphere into the N. and S. hemispheres, and the apparent diurnal motions of all the celestial bodies are performed in circles which are parallel to it. The right ascensions are measured on the *E.*; and the declinations on circles which intersect it at right angles. The *E.*, in the heavens, is often styled the *equinoctial*.

(*Geog.*) Name given in 1874 to those provinces of the Upper Nile and Lake region, in Central Africa, lately annexed to Egypt. An extent of territory larger than that portion of the U. S. east of the Mississippi River.

Equato'rial, *a.* Relating or pertaining to the equator.

—*n.* (*Astron.*) An astronomical telescope, (see Fig. 223,) mounted for the purpose of continuously observing and noting the right ascension and declination of a celestial body situated in any part of the visible heavens. The principal axis of the equatorial mounting is parallel to the earth's axis, and by means of this construction it is possible to follow a star from rising and setting by driving the telescope, either by hand or machinery, westward, at the same rate at which the earth's motion carries it eastward. On the polar axis there is fixed a graduated circle, the plane of which is perpendicular to the polar axis, and therefore parallel to the earth's equator. This is called the *hour* circle, and is furnished with two indices. If one be set to sidereal time at the place of observation, which of course represents the right ascension of the part of the heavens then crossing the meridian, the other index will show the right ascension of the part of the heavens to which the telescope points. In this manner the right ascension of a comet, for instance, may be at once found, or the telescope may be pointed to any given right ascension. But the telescope itself is attached to another axis, called the *declination axis*, at right angles to the former one; and to this axis is also attached at right angles another circle, the *declination circle*. The plane of the second circle and of the telescope's motion in declination is thus in all positions at right angles to the plane of the first or equatorial circle. Now it is easy to conceive, from this general description, that when the telescope is pointed to a star, the angle between the direction of the telescope and the polar axis is equal to the polar distance of the star; and by setting the index of the declination circle to zero when the telescope is at right angles to the polar axis, the declination of a star is registered in all positions of the instrument; consequently, when a motion is given to the polar axis without altering the position of the telescope on the declination circle, the point to which the telescope is directed will always lie in the small circle of the heavens coincident with a star's diurnal path; and hence, if the motion communicated to the polar axis be equal to the earth's diurnal rotation, a star will remain constantly in the field. This motion of rotation is communicated to the instrument by clock-work. — See TELESCOPE.

Equator'ial Cur'rent. (*Hydrog.*) The heated surface waters of the tropical regions of the Atlantic are driven by the trade winds to the west, producing a current of some strength, first distinctly traceable off the coast of Africa near the equator, and extending across the ocean to the shores of South America. Its breadth, at first only 150 miles, becomes three times as great when it approaches the South American continent. It has a mean velocity of 36 miles a day, but at certain seasons and in some parts of its course a speed of more than $3\frac{1}{2}$ miles a hour has been recorded. The waters of the *E. C.*, reaching South America, heap themselves up against its obstructive shores, a minor portion flowing off southward as a South Atlantic current, while the major portion, through the configuration of the Brazilian coast, are diverted northward and make their way into the Caribbean Sea through the passages in the Windward Islands. Thence they flow into the Gulf of Mexico, principally through the Yucatan Channel, where the waters become heaped up until they are 3 feet 4 inches higher than the waters of the same gulf at the mouth of the Mississippi. This heaping up is the principal force which causes their steady outflow through the straits of Florida, whence their waters emerge into the Atlantic as the Gulf Stream (*q. v.*), which has here a width of 50 miles and a depth of 350 fathoms. The heated surface waters thus steadily driven westward are replaced by colder waters drawn inward along the coast of Africa, to be in their turn heated and forced westward by the trade winds. In the Pacific a similar *E. C.* makes its way from the American shores to those of Asia and Australia, producing similar effects.

Equato'rially, *adv.* So as to have the motions of an equatorial. — In a line with the equator.

Eques'trian, *a.* [Fr. *équestre*; Lat. *equester*, from *eques*, a horseman.] Pertaining to horses or to horsemanship; relating to the manege; as, *equestrian* skill. — Habitually employing a horse; as, an *equestrian* set of people. — Celebrated by horse-racing; as, *equestrian* feats. — Representing a person mounted on horseback; as, an *equestrian* statue. — Relating or pertaining to the Roman equites, *q. v.*

—*n.* One who rides on horseback; a rider; a horseman.

(*Dram.*) A circus-rider.

Eques'trianism, *n.* Horsemanship; skill in the manege; as, a dashing feat of *equestrianism*.

Eques'trienne, *n.* A lady rider; a female skilled in equestrianism.

Equiangular, (*ē-kwi-ang'gū-ler,*) *a.* [Fr. *equiangle*; Lat. *æquus*, and *angulus*. See ANGLE.] (*Math.*) In Geometry, two or more figures of the same kind (usually rectilinear) are said to be equiangular when the angles of the one, taken consecutively, are respectively equal to the angles of the other. A single figure is also said to be equiangular when all its angles have the same magnitude.

Equian'gular Spiral, *n.* (*Math.*) A name sometimes given to the logarithmic spiral in consequence of its having the property of cutting, at the same angle, all its polar radii vectores. — See LOGARITHMIC SPIRAL.

Equibal'ance, *v. a.* [Lat. *æquus*, and Eng. *balance.*] To possess an equal weight with something; to equiponderate.

—*n.* Equal weight; counterpoise.

Equidæ, (*e'kwe-de,*) *n. pl.* [From Lat. *equus*, a horse.] (*Zoöl.*) The Horse family, belonging to the order *Pachidermata*. Its most striking character consists in the structure of the feet, which are composed of but a single finger or toe terminating each extremity, and encased in a horny sheath or shoe. Besides this well-developed toe, however, the *E.* possess on each side of the metacarpus and metatarsus two small rudimentary processes, which represent two lateral toes. The structure of the leg-bones is much the same as in the generality of the mammalia, except that the humerus and femur are comparatively short, and the bones of the fore-arm and shank, which are much longer, are partially anchylosed together, so that no rotary motion of these bones can take place. The bones of the carpus and tarsus are large and solid, and resemble the bones of the other mammalia in their general arrangement. Beyond these we find a single elongated metatarsal bone, the representative of the middle toe. This is completed by three phalanges, of which the last bears the single horny hoof. This family is distinguished from all other animals by its undivided hoof, formed of the two anterior toes soldered together, its simple stomach, and its female having the teats placed on the pubes. It may be divided into two very distinct types of form: the one the asses and the zebras, which are always more or less banded with blackish-brown, and have always a distinct dorsal line, the tail only bristly at the end, and have warts only on the arms, and none on the hind legs; and the true horses, which are not banded, have



Fig. 953. — GROUP OF HORSES.

no dorsal line, are furnished with warts on their arms and legs, and have long hair on the tail from its insertion to its extremity. The skull of the *E.* is of an elongated form, the jaws being well developed, the lower one especially being of great strength and power. Both jaws are provided with six incisor teeth; small canines are also present in both jaws in the males, but in the females these teeth are usually rudimentary or quite deficient. The molars are six on each side in each jaw; their worn surface is flat, and exhibits a complicated pattern of enamel, generally of a lunate form. Between the molars and incisors there is a considerable space, and in this space is fitted the bit by which the animal is guided. The hair with which the skin is clothed is short on the general surface, but attaining a considerable length on the ridge of the neck and on the tail. The eye is rather large and full, and the external ears elongated, upright, and pointed. The most important species belonging to this family is, without doubt, *equus caballus*, the HORSE, *q. v.* The other principal species or genera are the ASS, the ZEBRA, the ONAGER, and the QUAGGA, *q. v.*

Equidif'ferent, *a.* [Lat. *æquus*, and *differens.*] Equally proportional.

Equidis'tance, *n.* Equal distance.

Equidis'tant, *a.* [Lat. *æquus*, and *distans.* See DISTANT.] Being at an equal distance from the same point, person, or thing.

Equidis'tantly, *adv.* At the same or an equal distance.

E'quiform, *a.* [Fr. *équiforme.*] Presenting the same form.

Equiform'ity, *n.* Uniform equality; as, "*equiformity* of motion."

Equilat'eral, *a.* [Lat. *æquus*, and *lateralis* — *latus*, a side. See LATERAL.] (*Geom.*) A rectilineal figure is said to be equilateral when all its sides are equal. If, moreover, its angles are all equal, it is called *regular*. Every equilateral figure inscribed in a circle is necessary equiangular, and therefore regular. The converse theorem, however, is only true for polygons with an odd number of sides. Equiangular inscribed polygons with an even number of sides, if not equilateral, will at least have every alternate side equal.

Equilateral bivalve. (*Conch.*) A shell is so called when a transverse line drawn through the apex of the umbo bisects the valve into two equal and symmetrical parts

Equilateral hyperbola. (*Math.*) An hyperbola having equal axes.

Equilateral hyperbolic paraboloid. (*Math.*) A quadric conoidal surface generated by a right line which, during its motion, rests upon two other right lines or *directrices*, to one of which it always remains perpendicular. See QUADRIC.

—*n.* A figure presenting equal sides.

Equilib'rate, *v. a.* [Lat. *æquus*, and *libro*, *libratus*, to weigh. See LIBRATE.] To keep in equipoise; to balance equally; to keep even with equal weight on both sides; as, an *equilibrated* magnetic needle.

Equilibra'tion, *n.* State of being equally balanced or equipoised.

Equilib'rious, *a.* Equally balanced.

Equilib'riously, *adv.* Having equal poise.

Equil'ibrist, *n.* One who practises the balancing of himself in hazardous and unnatural positions; as, "an *equilibrist* and rope-dancer."

Equilib'rity, *n.* State of preserving an equal poise or balance; equilibrium.

Equilib'rium, *n.* [Fr. *équilibre*; Lat. *æquus*, and *libra*, a balance.] Equipoise; equality of weight or force; state of rest produced by two or more mutually counteracting forces. — Just poise or balance; equilibrity of any object. See GRAVITY, (CENTRE OF.)

—Equal balancing of the mind between motives or reasons; equal diffusion or distribution of thought.

(*Fine Arts.*) The just place or balance of a figure, or other object, so that it may appear to stand firmly. Also the due equipoise of objects, lights, shadows, &c., against each other by some striking features. This quality is obvious in the works of nature, as well in the human form as in landscape. In the latter, for instance, the sun is generally the medium of producing it by strong contrasts of light and shadow.

—In Architecture, the same means are employed to produce the most striking effects.

(*Polit.*) See BALANCE OF POWER.

In equilibrio. [Lat.] In a state of equipoise or equilibrium.

Equilibrium of Arches. (*Arch.*) This is a subject which is treated in that part of mathematical science called Statics. In this the conditions are considered in which any body, or number of bodies, will remain in a state of rest under the influence of forces that act in opposite directions, and mutually counteract each other. It is evident that the conditions of *E.* can be considered in theory only, as the slightest possible addition to either of the counteracting forces would immediately give it a preponderating influence, and destroy the state of balance. In investigating the *E. of A.*, we must imagine the surfaces of the voussoirs to be perfectly smooth, and friction must be altogether disregarded, so that each stone may be considered to be sustained by the pressure of those on either side of it, acting, under these conditions, in directions perpendicular to their surfaces. The theory on which the *E. of A.* depends is briefly this, that the weights of the voussoirs of which it is composed must be in the same proportion to each other as the sections of the chord of the arch, which are made by producing the lines which represent the junctures of the sides of the voussoirs to the centre from which the line of intrados is described, supposing the arch to be a segmental arch. It is also necessary that the perpendicular passing through the centre of gravity of any part of the arch should pass through a parallelogram formed by lines drawn perpendicular to the sides of the part in question from their extremities. In such an arch the voussoirs at the crown would be the least in depth, and each successive voussoir, from the crown toward the piers, would increase in thickness, so that the line of the extrados would not be described from the same centre as that from which the line of intrados has been described. The slightest alteration of the weight of any of the voussoirs of such an arch as this, in which the stones that compose it are supposed to be supported without friction, would cause it to be overturned; but when friction is taken into account, it is plain that an arch, which would remain in equilibrium under the conditions above stated, if they could exist in practice, would then be capable of sustaining a great amount of superincumbent pressure; and, indeed, pressure on the arch tends to make it stronger, by increasing the friction by which the pressure on it is resisted. The theory of the *E.* of domes is somewhat similar to that of the *E. of A.*, if we consider the dome to consist of a series of exactly equal and opposite slices, that are formed by planes passing perpendicularly through the axis at a small angle to each other, and which support each other at the crown, being, in fact, a number of balanced arches, each of which would preserve its equilibrium, if it were left standing alone. But in the dome, *E.* will be maintained, and the structure will be stronger, if the weight of the upper part of each of such a series of contiguous balanced arches be greater than that which would be required to preserve *E.* in a balanced arch of similar form standing alone; because every stone in each circular and horizontal course, or each of the whole series of the opposite parts of the balanced arches, exerts a lateral pressure on those on either side of it, and their tendency to fall inwards locks the whole structure tightly together. To insure the *E.* of an arch, friction being disregarded, it is therefore necessary to bring the weight of the voussoirs composing the crown up to a certain limit, which must not be increased or diminished in any way; but in the dome, *E.* will be maintained, for the reasons above stated, when the weight of the upper portion of each of the series of arches of which it may be supposed to be composed exceeds this limit.—See ARCH.

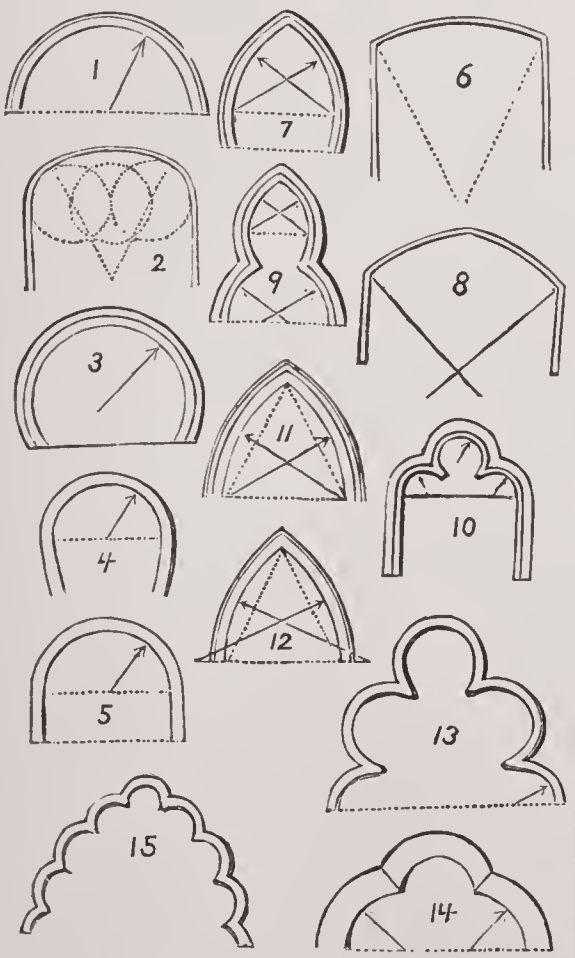


Fig. 954. — PRINCIPAL FORMS OF ARCHES.

1, semi-circular; 2, elliptic; 3, 4, 7, horse-shoe; 5, stilted; 6, segmental; 8, segmental pointed; 9, 10, trefoil; 11, equilateral; 12, lancet; 13, cinquefoil; 14, trefoil; 15, multifoil.

Equilib'rium-valve, *n.* (*Mach.*) The valve in the steam-passage of a Cornish engine for opening the communication between the top and bottom of the cylinder, to render the pressure equal on both sides of the piston.

Equimul'tiple, *a.* [Fr.; Lat. *æquus*, and *multiplico*, to multiply.] Multiplied by the same number or quality.

—*n.* (*Geom.* and *Arith.*) Any number or quantity multiplied by the same number or quantity as another: thus, *m* A and *m* B are equimultiples of A and B, whatever magnitudes the latter may represent; or, 4 times 2, or 8, and four times 4, or 16, are equimultiples of 2 and 4.

Equine, Equinal, (*ē'kwīn'*,) *a.* [Lat. *equinus*, from *equus*, a horse.] Pertaining to a horse; denoting the horse kind.

Equinec'essary, *a.* Requisite in an equal degree.

Equin'ia, *n.* [Lat. *equinus*.] (*Med.*) See GLANDERS.

Equinoctial, (*ē-kwi-nok'she-al*,) *a.* [Fr. *equinoxial*; Lat. *æquus*, and *nox*, *noctis*, night. See EQUINOX.] Pertaining to the equinoxes; having the nights equal to the days; as, the *equinoctial* line. — Relating or pertaining to the time of the equinoxes; as, an *equinoctial* gale. — Pertaining or having reference to the regions or climate of the equinoctial line or equator.

"Pining with *equinoctial* heat."—*Philips.*

E. colure. (*Astron.*) The meridian passing through the equinoctial points. — *E. flowers*, those which open at a stated hour. — *E. points.* (*Astron.*) The two opposite points of the celestial sphere in which the ecliptic and equator intersect each other; the one being the first point of Aries, and the other the first point of Libra. See PRECESSION. — *E. time.* Astronomers sometimes give the date of an occurrence in equinoctial time to get rid of differences. This is reckoned from the moment when the point of Aries passes the vernal equinox.

—*n.* The equator. See EQUATOR.

Equinoc'tially, *adv.* Towards the equator; in the direction of the equinox.

Equinox, (*ē'kwe-noks*,) *n.* [Lat. *æquus*, and *nox*, *noctis*, night. See NOCTURNAL.] (*Astron.*) The time at which the sun passes through the equator in one of the equinoctial points. When the sun is in the equator, the days and nights are of equal length all over the world, whence the derivation of the term. This happens twice every year; namely, about the 21st of March, and the 22d of September: the former is called the *vernal*, and the latter the *autumnal* equinox. The equinoxes do not divide the year into portions of equal length; for in consequence of the earth being at its greatest distance from the sun during the summer months, and its angular motion in its orbit being consequently slower, the interval from the vernal to the autumnal equinox is greater than that from the autumnal to the vernal. In other words, the sun continues longer on the northern than on the southern side of the equator. At the beginning of the present cent., the difference amounted to 7 days 16 hours and 51 minutes. The summer in the northern hemisphere is consequently longer than in the southern by this quantity; and to this circumstance some meteorologists ascribe, in part at least, the higher temperature that is found to prevail in the northern hemisphere under the same parallel.— See PRECESSION.

Equinoctial wind: — used chiefly in poetry.

"No more than usual *equinoxes* blew."—*Dryden.*

Equinunk', in *Pennsylvania*, a post-village of Wayne co., on the Delaware River, abt. 24 m. N.N.E. of Honesdale.

Equip, (*ē-kwip'*,) *v. a.* [Fr. *équiper*, from L. Lat. *eschipare*, from Goth. *skip*, a ship.] To fit, as a ship for sea; to accoutre; to furnish; to supply with men, ordnance, and munitions of war, as a ship; to furnish with arms, or a complete suit of arms. (Used chiefly in a naval and military sense.)

—To dress up; to adorn; to decorate, as the person; as, "equipped in a ridiculous habit." — *Addison.*

Equipage, (*ek'wi-pāj*,) *n.* [Fr.] (*Mar.*) The crew of a ship, together with all a ship's furniture, masts, sails, arms, munitions, &c.

(*Mil.*) The furniture of an army or body of troops. In this sense it includes arms, artillery, utensils, provisions, &c. Camp *E.* includes tents and things necessary for accommodation in camp; while field *E.* consists of arms, artillery, wagons, tumbrels, &c.

—Ornamental furniture; accoutrements; apparel; as, "*equipage* of Pride." — *Pope.*

—Retinue; attendance, as the carriage, horses, and liveries which indicate the fortune or rank of a person when appearing abroad; as, the *equipage* of a nobleman.

Equipaged, (*ek'we-pājd*,) *a.* Furnished with an equipage; attended with a handsome or splendid retinue.

"A goodly train of squires and ladies *equipag'd* well."—*Spenser.*

Equip'arate, *v. a.* To make comparison. (R.)

Equip'edal, *a.* [Lat. *æquus*, and *pedis*, foot.] Having equal feet.

Equipen'deney, *n.* [Lat. *æquus*, and *pendens*, *pendere*, to hang.] State of hanging in an equipoise state.

Equip'ment, *n.* Act of equipping, furnishing, or fitting for a voyage or any expedition. — Anything that is used in equipping; furniture; habiliments; warlike appliances; supplies for a voyage or expedition; as, the *equipment* of an army,

(*Civil Engineering.*) The necessary adjuncts of a railroad, as locomotives, cars, trucks, &c. (Called in England, *rolling-stock.*)

Eq'uipoise, *n.* [Lat. *æquus*, and Fr. *poids*, weight, from Lat. *pondus*. See POUND.] Equal weight; equality of weight or force; equilibrium; a state in which the two ends or sides of a thing are balanced.

Equipol'lence, Equipol'leney, *n.* [Fr. *equipollence*; Lat. *æquus*, and L. Lat. *pollentia*, power, from *polleo*, to be able; Sansk. *pul*, to be great.] Equality of power or force; ability, power, or force in the same degree.

(*Logic.*) A term denoting that two or more propositions signify one and the same thing, though they express it differently.

Equipol'lent, *a.* [Fr., from L. Lat. *æquipollens*.] Having equal or equivalent power, strength, or force.

(*Logic.*) Having equivalent significance.

Equipol'lently, *adv.* With equal force and significance.

Equipon'derance, Equipon'deraney, *n.* [Lat. *æquus*, and *pondus*, weight. See POUND.] Equipoise; equality of weight.

Equipon'derant, *a.* Being of the same weight.

Equipon'derate, *v. n.* [Lat. *æquus*, and *pondero*, *ponderatus*, to weigh, from *pondus*, weight.] To be equal in weight; to exhibit equipoise; to balance; to weigh as much as another thing.

—*v. a.* To counterbalance; to weigh against.

Equipon'derous, *a.* Possessing equality of weight.

Equirad'ical, *a.* [Lat. *æquus*, and *radix*, a root.] With radical equality.

Equiro'tal, *a.* [Lat. *æquus*, and *rota*, a wheel.] Possessing wheels of an equal diameter.

Equiseta'ceæ, *n.* [Lat. *equus*, a horse; *seta*, a hair or bristle.] (*Bot.*) The Horsetail family, an order of plants, alliance *Muscales*. 'DIAG. Sporecases peltate, splitting on one side, without operculum, and with an elater to every spore. They are herbaceous plants, with striated, hollow, jointed, simple or vertically-branched, aërial, silicious stems, arising from slender creeping rhizomes, or underground stems. The joints are surrounded by membranous toothed sheaths, which are regarded as modified leaves; but, in general, the plants of the order are considered leafless. When branched, the branches arise in a whorled manner from beneath the axils of the sheaths, and correspond in number with them. These plants are found in marshy or watery places in most parts of the world. There is but one genus, *Equisetum*, which includes 10 species. The rhizomes contain much starchy matter in the winter months, which might be used as food in case of need. *E. arvenese*, the Field Horsetail; *E. palsustre*, the Marsh Horsetail; *E. sylvaticum*, the Wood Horsetail;

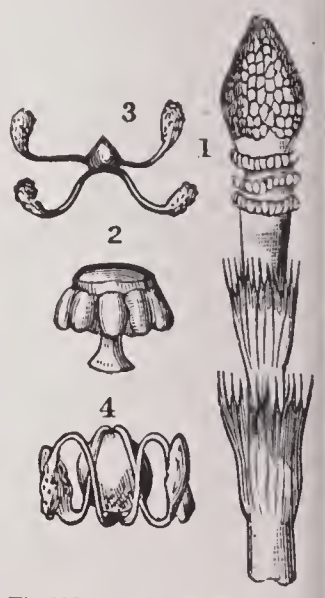


Fig. 955. EQUISETUM TELMATEIA.

1, summit of fertile stem, with fructification; 2, a scale, with its stalk (lateral view); 3, a spore, with its filaments unrolled; 4, a spore, with its filaments hygrometrically rolled up.

and *E. limosum*, the Pipes, are found in most of the States, in woods and low grounds. The rough silicious stems of some species are used for smoothing and polishing wood, particularly those of *E. hyemale*, commonly known under the name of Dutch Rushes. The stems of this species are unbranched, or a little branched only at the base. It is sparingly found in this country.

Equiseta'ceous, *a.* (*Bot.*) Belonging to the Equisetaceæ, *q. v.*

Equiset'iform, *a.* (*Bot.*) Formed like the *Equisetum.*

Equise'tum, *n.*; *pl.* Equiseta. (*Bot.*) See Equisetaceæ.

Equis'onance, *n.* [Fr. *équisonnance.*] (*Mus.*) An equal sounding.

Equis'onant, *a.* Having equal sound, as octaves.

Equitable, (*ek'wi-ta-ble,*) *a.* [Fr. *équitable*, from Lat. *æqaitas*, equity, from *æquus*, equal.] Equal in regard to the rights of persons; distributing equal justice; giving each his due; just; impartial; honest; upright; reasonable; fair; due to justice; as, an *equitable* decision. — Held or exercised in equity; as, *equitable* jurisdiction.

Eq'uitableness, *n.* Equity; quality of being equitable, just, or impartial.

Eq'uitably, *adv.* In an equitable manner; justly; impartial.

Eq'uitancy, *n.* (*Manege.*) Horsemanship.

Equitangen'tial, *a.* [Lat. *æquus*, and Eng. *tangential*, q. v.] (*Geom.*) Said of a curve whose tangent is on an equality with a constant line.

Equitant, (*ek'wi-tant,*) *a.* [Lat. *equitans.*] Mounted on horseback.

(*Bot.*) Overlapping one another entirely and without any involution, as the leaves of the Iris.

Equita'tion, *n.* [Lat. *equitatio.*] Act of riding on horseback; manege; Horsemanship, *q. v.*

Eq'uites, *n. pl.* [Lat., horsemen.] (*Roman Hist.*) A class of citizens, commonly represented by the English word *knights*, but not answering in all respects to its meaning. According to the account of Livy (i. 13), Romulus constituted three centuries of *E.*, to whom he gave severally the names Ramnenses, Titienses, and Luceres. Livy, however, elsewhere speaks of these three centuries (who were collectively called Celeres) as the three ancient *tribes*. Down to the time of Gracchus, the *E.* formed simply a division of the army, and their centuries were composed of patricians and plebeians; but by the Lex Sempronia, B. C. 123, a new class called the *Ordo Equestris* was instituted, and all the judices, who assisted the prætor in trials, were to be citizens of equestrian fortune. The badges of the *E.* were a golden ring and a robe with a narrow purple border; and to them were appropriated the fourteen rows of seats in the theatres next the orchestra. The *E.* furnished the farmers of the public revenue, or publicani; but though they had enjoyed this privilege under the republic, it was only during the empire that they looked to such offices as their birthright.

Equity, (*ek'wi-tē,*) *n.* [Fr. *equité;* Lat. *æquitas*, from *æquus.* See Equal.] Uniformity; right, as contemplated by the law of nature; impartial distribution of justice; natural justice; a just regard to right or claims; impartiality; uprightness; fairness.

(*Law.*) Remedies for the redress of wrongs, or for the enforcement of rights, are distinguished into two classes, — those which are administered in *courts of law*, and those which are administered in *courts of equity.* The rights secured by the former are called *legal;* those by the latter, *equitable.* The former are rights and remedies at common law; the latter, rights and remedies in equity. Much misunderstanding has prevailed regarding the distinctive features of these two branches of jurisprudence. Some have represented them as two opposing and hostile powers, continually at warfare with each other, and striving to encroach on each other's province, as if, in the language of Blackstone, "the one judged without equity, and the other was not bound by any law." It has also been stated that a court of equity is not bound by rules or precedents, but acts from the opinion of the judge; and that the province of equity, as distinguished from law, is to determine according to the spirit of the rule, and not according to the strictness of the letter. In the early history of equity jurisprudence, there might have been much to give color to these views; but in the present day, courts of equity act upon principles as fixed and certain as those on which courts of law proceed. New cases may, and indeed do, arise; but they are decided upon these ascertained rules and principles, whatever may be the opinion of the judge as to what may be just or reasonable in the particular case before him. Equity, then, is a branch of jurisprudence which aims at supplementing the defects of common law, by extending relief to those rights of property which the strict law does not recognize, and by giving more ample and distributive redress than the ordinary tribunals afford. It by no means either controls, mitigates, or supersedes the common law, and does not assume any power to subvert its doctrines. Courts of common law proceed by certain prescribed forms, and give a general judgment for or against the defendant; but there are many cases in which a simple judgment for either party, without qualifications and conditions and particular arrangements, would not do entire justice to either. Some modification of the rights of parties may be required, some restraints on the one side or the other, or some peculiar adjustments, either present or future, temporary or perpetual. To meet these objects, the courts of law in this country have no provisions; they can only adjudicate by a simple judgment between the parties. Courts of equity, however, are not confined or limited in their modes of relief by such narrow regulations, but grant redress to all parties where they have rights, *ex æquo et bono*, and modify and fashion that redress according to circumstances. Courts of equity, too, bring before them all the parties interested in the subject-matter of the suit, and adjust the rights of all, however numerous: whereas courts of law must limit their inquiries to the contending parties.—See Courts of Chancery.

Equity of Redemption. (*Law.*) See Mortgage.

Equiv'alence, Equiv'aleney, *n.* [L. Lat. *æquivalentia*, from Lat. *æquas*, and *valens.*] State of being equivalent; equality of value or worth. — Equal power or force.

Equiv'alent, *a.* [Fr.; Lat *æquus*, and *valens*, from *valeo*, to be able. See Valor.] Equal in force, power, or effect; equal in value, excellence, worth, or weight. — Of the same import or meaning; as, *equivalent* terms.

(*Geom.*) Applied to figures of the same surface.

(*Geol.*) Applied to strata of contemporaneous origin in different regious.

—*n.* That which is equal in power, force, value, weight, or dignity, with something else; offset; compensation; amends.

"No obedience to one law will be a full *equivalent* for the breach of another."—*Rogers.*

(*Chem.*) The proportion expressing the weight, or quantity by weight, of any substance which combines with another substance, to make a definite compound.—See Atomic Numbers.

Equiv'alently, *adv.* In an equal manner.

E'quivalve, *n.* (*Conch.*) A bivalve possessing valves of equal size and form.

Equivalved, (*ē'kwi-valvd,*) *a.* (*Conch.*) With equal valves, as certain shells.

Equivocal, (*ē-kwiv'o-kal,*) *a.* [Lat. *æquus*, and *valva.* See Valve.] Equally applicable to different things, in regard to meaning, as a word or expression; being of doubtful signification; as, *equivocal* manners. — Capable of a double interpretation; ambiguous; as, *equivocal* standing in society. — Doubtful; ambiguous; uncertain; indeterminate; as, an *equivocal* experiment.

Equiv'oeally, *adv.* Ambiguously; in a doubtful sense; in terms susceptible of different senses.

Equiv'oealness, *n.* State of being equivocal or ambiguous.

Equiv'oeate, *v. n.* [Fr. *équivoquer;* It. *equivocare.*] To speak ambiguously; to use words of a doubtful signification; to use ambiguous expressions with a view to mislead; to prevaricate; to shuffle; to quibble; to evade.

—*v. a.* To render capable of a double interpretation.

Equivoca'tion, *n.* [L. Lat. *æquivocatio.*] Act of equivocating; ambignity of speech; quibble; prevarication; shuffling; evasion.

Equiv'oeator, *n.* One who equivocates.

Equiv'oeatory, *a.* Partaking of equivocation.

Equivoke, Equivoque, (*ē'kwi-vōk,*) *n.* [Fr. *équivoque.*] An ambiguous term; equivocation.

Equiv'orous, *a.* [Lat. *equus*, a horse, and *voro*, to devour.] Feeding on horse-flesh.

Equuleus, (*e-kyu-ul'e-us,*) *n.* [Lat., the little horse.] (*Astron.*) One of the old constellations made by Ptolemy, and situated between Aquila and Capricornus. Its brightest stars are of the 4th magnitude. — There is another constellation, named by Lacaille Equuleus Pictoris, the Easel, or Painter's Horse, which is situated near the constellation Argo.

Equus, *n.* [Lat., a horse.] (*Zoöl.*) See Equidæ.

E'ra, *n.* See Æra.

Era'diate, *v. n.* [Lat. *e*, and *radius*, a ray.] To shoot like a ray; to radiate.

Eradia'tion, *n.* Act of eradiating; radiation.

Erad'ieable, *a.* That may or can be eradicated, rooted out, or destroyed.

Erad'ieate, *v. a.* [Lat. *eradico, eradicatum* — *e, ex*, and *radix, radicis*, a root.] To pull up the roots of, or by the roots; to root out; to destroy, as anything that grows; to destroy thoroughly; to extirpate; to exterminate.

Erad'ieated, *a.* (*Her.*) Applied to a tree or flower torn up by the roots.

Eradica'tion, *n.* Act of eradicating or plucking up by the roots; state of being plucked up by the roots; extirpation; excision; total destruction.

Erad'ieative, *n.* (*Med.*) A medicine that cures radically.

Eragros'tis, *n.* [Gr. *eros*, large, and *agrostis*, grass.] (*Bot.*) The Love-grass, a gen. of plants, ord. *Graminaceæ.*

Eran'themum, *n.* [Gr. *er*, the spring, and *anthos*, a flower.] (*Bot.*) A genus of plants, order *Acanthaceæ.*

Eran'thus, *n.* (*Bot.*) A genus of European plants, order *Ranunculaceæ.*

Erard, (*ai-rard',*) a celebrated French pianoforte-maker, the son of an upholsterer, B. at Strasburg, 1752. He early went from the provinces to Paris, and there established a pianoforte manufactory, improving considerably all that relates to that instrument, as likewise to the harp and organ. He also founded an establishment in London. D. 1831.

Eras'able, *a.* That may or can be erased.

Erase', *v. a.* [Lat. *erado* — *e, ex*, and *rado, rasus*, to scrape, scratch, or rub.] To rub, scratch, or scrape out; to efface; to obliterate; to expunge; to blot out; to destroy, as from the memory; to raze.

Erased', *a.* Applied to anything forcibly torn off, leaving the edges jagged and uneven; as, a lion's head *erased* (Fig. 956).



Fig. 956. — erased.

Erase'ment, *n.* Act of erasing; a rubbing out; obliteration; destruction.

Erasion, (*ē-rā'zhon,*) *n.* Act of erasing; obliteration.

Eras'mus, Desiderius, an eminent scholar, B. at Rotterdam, 1467. He was the illegitimate son of a Gerard by the daughter of a physician; but his father and mother dying when he was only 14 years old, he was left to the care of guardians, who determined on bringing him up to a religious life that they might enjoy his patrimony; for which purpose they removed him from one convent to another, till at last, in 1486, he took the habit among the canons-regular at Stein, near Torgau. The monastic life being disagreeable to him, he accepted an invitation from the archbishop of Cambray to reside with him. During his abode with this prelate he was ordained priest; but in 1496 he went to Paris, and supported himself by giving private lectures. In 1497 he visited England, and met with a liberal reception from the most eminent scholars. On his return he spent 12 years in France, Italy, and the Netherlands; and during that time he published several works of great merit. In 1506 he took his doctor's degree at Turin, and went to Bologna, where he continued some time; thence he removed to Venice, where he resided with the famous Aldus Manutius. From Venice he went to Padua and Rome, where many offers were made him to settle; but having received an invitation from Henry VIII., he went to England again in 1510; wrote his *Praise of Folly*, while residing with Sir Thomas More; and was appointed Margaret professor of divinity, and Greek lecturer, at Cambridge. In 1514 he once more returned to the Continent, and lived chiefly at Basel, where he vigorously continued his literary labors, and prepared his edition of the New Testament, with a Latin translation, his *Ciceronianus;* and his celebrated *Colloquies*, which latter gave such offence to the monks, that they used to say, "Erasmus laid the egg which Luther hatched." With Luther, however, whom he had provoked by his treatise on Free-Will, he was in open hostility. In 1528 appeared his learned work, *De Recta Latini Græcique Sermonis Pronunciatione;* and his last publication, which was printed the year before his death, entitled *Ecclesiastes, or the Manner of Preaching.* He D. at Basel, in 1536. Erasmus was a man of great learning, a great wit, and an able critic; but his spirit, though liberal, was not ready to adopt the extreme tenets of the Reformers. *E.* was equally unfriendly to the monastic habits and to the subtilties of the scholastic divinity, and exercised his wit on both of these; but he had no love for theological quarrels, and no wish to draw upon himself unpopularity or persecution. He welcomed the Reformation as a movement of free thought, but deprecated its excesses; he aided it rather as a scholar and critic than as a thinker or reasoner. He exposed the inconsistencies of the scholastic theology, but he produced no new creed and argued in favor of no heretical doctrine. His defence of the right of reason against authority was weak and evasive. But his services in the cause of science were great and lasting, and his writings are still esteemed for the importance of the subjects treated of, and their classical style.

Eras'tianism, *n.* The principles of the Erastians.

Eras'tians, *n. pl.* (*Eccl. Hist.*) The name given to persons who adopted the views of Thomas Lieber, or Erastus, a German physician and divine, who was B. Sept. 7, 1524, and D. Dec. 31, 1583. They formed a separate party in the Assembly of Divines in 1643, and unsuccessfully advocated their peculiar views respecting the exclusively persuasive authority of the pastoral office, and the consequent impropriety of ecclesiastical excommunications, &c.

Eras'ure, *n.* [*E*, and L. Lat. *rasura*, from *rado*, to scrape.] Act of erasing; a scratching out; obliteration; place where a word or letter has been erased or obliterated.

E'rath, in *Texas*, a N. central co.; *area*, abt. 1,000 sq. m. *Rivers.* Bosque river and Paloxy creek. *Cap.* Stephenville. *Pop.* (1897) about 25,400.

Er'ato. (*Myth.*) The Muse who presided over lyric and tender poetry. She is represented as crowned with rose and myrtle, holding a lyre in her hand. She appears with a thoughtful, and sometimes a gay and animated, look, and was invoked by lovers, especially in the month of April, which, among the Romans, was more particularly devoted to the tender passion.



Fig. 957. — erato.

Eratosthenes, (*er-a-tos'the-nes,*) an astronomer of Alexandria, who first conceived the plan of measuring the earth. The means employed were the shadow of a style at Alexandria, and the distance of Alexandria from Syene, when the sun is vertical at solstice. His result was surprisingly near the truth. Starved himself, B. C. 194.

Eratostratus, (*er'a-tos'tra-tus,*) an Ephesian, who burnt the temple of Diana (see Ephesus) the night that Alexander the Great was born. His object was to transmit his name to posterity, by an action so uncommon.

Er'bium, *n.* (*Chem.*) An exceedingly rare metal, found with yttrium and terbium in gadolinite. The oxide erbia is similar in its characteristics to alumina. It has a dark yellow color, but forms colorless salts.

Erb'senstein, *n.* (*Min.*) Pisolite.—A concretionary limestone.

Er'eildoun, in *Pennsylvania*, a P. O. of Chester co.

Ercilla y Zuniga, Alonzo, (*air-seel'ya e thoo-ne'ga,*) a Spanish poet and soldier, was born in the province of Biscay about 1530. He was brought up at the court of Charles V., and joined an expedition which was sent out to Chili against a tribe called the Araucanians. Hence the origin of his admirable epic of *La Araucana*, which describes the perils and exploits of that fierce and dangerous contest; this he wrote on scraps of paper, and on bits of leather when paper could not be had, during those brief intervals which could be snatched from active duty. Died, 1595.

Er'cinite, *n.* (*Min.*) Same as Harmotome, *q. v.*

Erdko'balt, *n.* [Ger. *erde*, earth, and *kobalt.*] (*Min.*) Absolite or earthy cobalt; a variety of Wad, *q. v.*

Erd'mannite, *n.* (*Min.*) A mineral consisting principally of silica, alumina, and the oxides of lanthanum and cerium.

Erdre, (*ar'dr,*) a river of France, which, after a course of nearly 50 m. through the Lower Loire, joins the Loire at Nantes.

Ere, (*ār,*) *adv.* [A. S. *ær;* Goth. *air*, early in the morning. See Early.] Before; sooner than.

"*Ere* sails were spread new oceans to explore." — *Dryden.*

—*prep.* Before, as regards time; as, *ere* summer comes in.

Er'ebus, (*Myth.*) A Grecian deity of the infernal regions, son of Chaos and Darkness, who dwelt in the gloomy space through which the souls passed to Hades. The poets often used the word Erebus to signify hell itself.

Er'ebus, a volcano in the supposed continent discovered in the Antarctic Ocean by Sir James Ross, in 1641. Height 12,400 ft.—See Victoria Land.

Erechtheum, Erechtheium, (*e-rek-the'um,*) one of the most important temples of ancient Athens, which stood on the N. side of the summit of the Acropolis. The temple that originally occupied the site was built by Erechtheus, *q. v.* It was designed for the reception of the image of Minerva, carved out of the trunk of an olive-tree, which was always a special object of veneration to the Athenians. Erechtheus was buried in the temple; from which circumstance the name of Erechtheum was afterwards given to that which was built on the same site about 400–395 B. C., the ruins of which may still be seen. The entire building forms a group of three temples, — *E.* properly so called, the temple of Minerva Polias, and the Pandrosium. The Erechtheum occupied the largest space. It is in the form of a parallelogram, about 73 feet long and 37 feet wide. The portico before the *prothyrium* looks towards the east. The entablature and pediment of the portico was supported on six massive but elegant Ionic columns, enriched with carving. The temple of Minerva Polias was attached to the N. side of the *E.*, at the W. end, and stood on a lower level. It was nothing more than an open portico, 33 feet wide and 21 feet in depth, the roof being supported by six columns, four in front and one on either side, 25 feet in height. It looked towards the N. The Pandrosium was attached to the W. end of the S. wall, and was built at a much later date than the other parts of the building.

Erechtheus, (*e-rek'the-us,*) son of Pandion I., was the 6th king of Athens. In a war against Eleusis he sacrificed his daughter Othonia, to obtain a victory which the oracle had promised for such a sacrifice. He reigned 50 years, and D. 1347 B. C.

Erech'tites, *n.* [Gr. *erectho*, to trouble; the species are troublesome weeds.] (*Bot.*) A genus of plants, ord. *Asteraceæ*. They are annual plants, with leaves simple, alternate. Flowers corymbose, whitish. The only American species, *E. hieracifolius*, the fire-weed, is a well-known rank weed, growing in fields throughout the United States and Canada, particularly in such as have been newly cleared and burnt over, hence its common name.

Erect, (*ē-rekt',*) *v. a.* [Lat. *erigo*, to set upright—*erex*, and *rego*, to make straight.] To raise and set in an upright or perpendicular direction, or nearly such: to set up; to raise; to elevate; to construct; to rear; to set up or establish anew; to form; to institute; to found; to raise or exalt; to excite; to animate; to encourage.

—*v. n.* To rise upright. (R.)

—*a.* Upright, or in a perpendicular posture; directed upward; elevated; upright and firm; bold; unshaken; undismayed; raised; stretched; intent; vigorous; extended.

(*Her.*) Applied to any animal, or part of an animal, which, being naturally horizontal, is placed perpendicularly.

Erect'able, *a.* That can be erected.

Erect'er, *n.* One who erects; one who raises or builds.

Erec'tile, *a.* That which may be erected.

E. tissue. (*Anat.*) An extremely sensitive and highly organized tissue of the body, forming a distinct conformation. There are two examples of it in the female, and one in the male.

Erectil'ity, *n.* State or quality of being erectile.

Erec'tion, *n.* [Fr. *érection;* Lat. *erectio*, from *erigo.*] Act of erecting or raising and setting perpendicular to the plane of the horizon; a setting upright; act of raising or building; state of being raised, built, or elevated; establishment; settlement; formation; elevation of sentiments; act of rousing; excitement.

—Anything erected; a building of any kind; an edifice.

Erec'tive, *a.* Setting upright; raising.

Erect'ly, *adv.* In an erect posture.

Erect'ness, *n.* Uprightness of posture or form.

Erec'to-pa'tent, *a.* (*Bot.*) Having a position between erect and spreading.

(*Zoöl.*) Applied to the primary wings of an insect, at rest, when they are erect and the secondary horizontal.

Erect'or, *n.* The person who, or thing which, erects. (*Anat.*) The name of a pair of small muscles, whose duty is to elevate the organs to which they are attached.

Erekli, Eregli, (*e-reg'le.*) a seaport-town of Natolia, on the Black Sea, 130 m. from Constantinople; Lat. 40° 15′ 30″ N., Lon. 31° 30′ E. It has a good port and shipbuilding yards. *Pop.* unascertained. This town stands on the site of the ancient Heraclea, where the 10,000 Greeks, commanded by Xenophon, embarked on their return to Greece.

Erelong, (*ār'long,*) *adv.* [*Ere* and *long.*] Before a long time shall elapse; before long.

"The world, *erelong*, a world of tears must weep." — *Milton.*

Eremacau'sis, *n.* [Gr. *erēmos*, alone, and *kausis*, burning.] (*Chem.*) A retrogressive change brought about in dead animal and vegetable matter by the chemical action of the oxygen of the atmosphere. The process is precisely the same as occurs when fuel is burnt in an ordinary fire-grate; the rapidity of the operation in the latter case, however, causes such a sensible appreciation of the evolved heat and resulting light as to necessitate another word to express the phenomenon, viz. *combustion.* The term *decay* has a wider and looser application than that of eremacausis. It is used to indicate natural disintegration of any kind. Thus old walls are said to *decay*, not from any absorption of oxygen, but chiefly from the *mechanical* action of rain and frost, whilst old dead trees in decaying literally burn slowly away.

—Oxidation from exposure to air and moisture, as in the slow decay of wood.

Er'emite, *n.* [Fr. *ermite;* Lat. *eremita;* late Gr. *erēmites*, from *erēmos*, a desert; probably akin to *ērema*, gently, quietly. See Hermit.] One who lives in a desert or wilderness; a hermit; a recluse; an anchoret. (R.)

"*Eremites* and friars,
White, black, and gray, with all their trumpery." — *Milton.*

Er'emite, *n.* (*Min.*) Same as Monazite, *q. v.*

Eremit'ic, Eremit'ical, *a.* [Fr. *érémitique.*] Living in seclusion from the world; hermitical.

"Multitudes of religious orders, *eremitical* and cenobitical." *Stillingfleet.*

Er'emitism, *n.* State of living as a hermit; seclusion from the world.

Er'ethism, *n.* [From Gr. *erethizo*, to excite or irritate.] (*Med.*) A state of great general over-excitement induced by abuse of mercury, or depressing agents. It shows a small feeble and quick pulse, præcordial sinkings, faintings, &c., and occasionally terminates suddenly in death. The tongue may be clear throughout the disease, and the secretions natural.

Erethis'tic, *a.* [Gr. *erethistikos.*] Pertaining or having reference to erethism.

Erf, *n.*; *pl.* Erven. [Du.] A garden-plot of about half an acre. (Used at the Cape of Good Hope.)

Erfurt, (*ar'foort,*) a town and fortress of Prussia, in Saxony, on the Gera, cap. of ancient Thuringia, about midway between Gotha and Weimar. It has a cathedral, numerous churches, a convent, orphan's asylum, an academy of science, and several literary institutions. *Pop.* 1876, 48,030. — Said to have been founded by Erpes in the 5th century, and called Erpesford: it was in the time of Charlemagne one of the most important commercial towns of Germany. Its university, founded in 1392, is celebrated as having numbered Martin Luther among its students in 1501. In 1664 the town was taken by the French, who ceded it to the Elector of Mayence

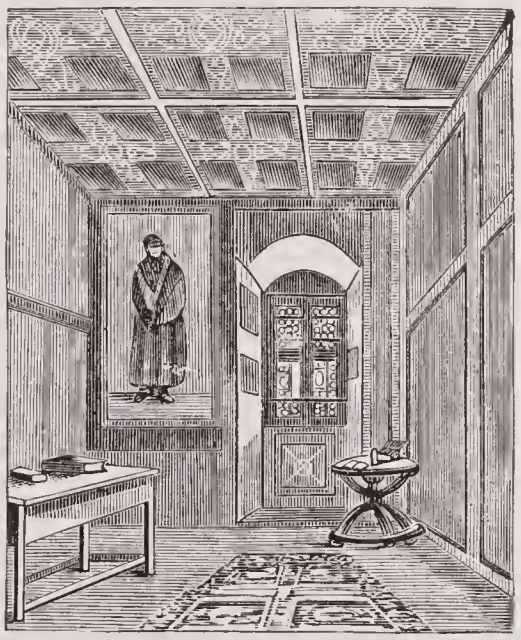


Fig. 958. — LUTHER'S ROOM, ERFURT.

in 1667. In 1803 it was annexed to Prussia, but was again taken by the French under Murat, Oct. 12, 1806, when 14,000 Prussians, including Marshal Mollendorf and the Prince of Orange, were made prisoners. Napoleon I. and the Emperor Alexander of Russia had an interview here, Sept. 27, 1808. It resulted in a letter which they addressed to George III., Oct. 12, desiring him to accede to offers of peace. A reply was sent, Oct. 28, to the effect that England could only treat in concert with Sweden and Spain. Erfurt was restored to Prussia, Jan. 6, 1814. Its university was suppressed in 1816. A German parliament assembled here March 20, 1850.

Er'gata, *n.* [Lat.] A capstan or windlass.

Ergh'en, a river of Central Asia, rising in the Karakorum Mountains, and, after a course of 700 m. under different names, falling into the west end of Lake Lob Nor.

Er'go, *adv.* [Lat.] Consequently; therefore; that follows

Er'got, *n.* [Fr.] (*Bot.*) A disease of the seed of the rye, (see Secale,) produced by the attacks of fungus, which, taking possession of the ovary, destroys it, producing in its room a long, black, hard, hornlike body. Ergot is remarkable for its specific stimulating effects upon the uterus, and is much employed in cases of difficult parturition. Hence it received the name of *Oidium abortifaciens.* It causes dangerous gangrene when taken, as it sometimes has been, among bread-corn; and as it is in some seasons extremely abundant, there can be no doubt that to it may be attributed much of the injury sustained by flocks and herds, either in the shape of gangrene, or by causing them to slip their young. — See Ergotism.



Fig. 959. — ERGOT.

Er'gotine, *n.* (*Chem.*) The acrid bitter principle of ergot.

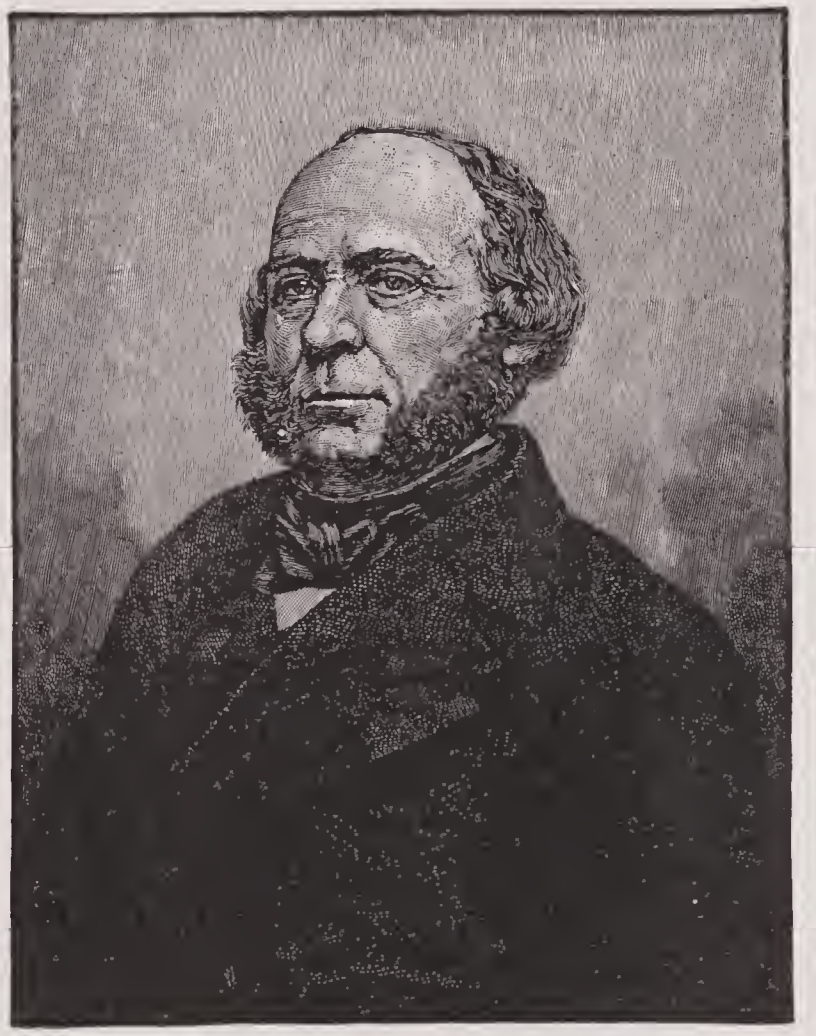
Er'gotism, *n.* [Fr. *ergotisme.*] (*Med.*) The condition produced in those who partake of ergotized or diseased rye as an article of food. The symptoms occurring from ingestion of this poison in small and continuous doses are of very marked character. The disease, often epidemic, is called by the Germans the *Kriebelkrankheit* or creeping sickness. It attacks persons of both sexes and of all ages. The disease is divided into two forms, viz. *convulsive* and *gangrenous* ergotism. The first is characterized by marked head symptoms, such as vertigo, weariness, partial loss of sight and of sensibility, formication, contraction of the muscles of the extremities, and partial jaundice. In the early stage the appetite is voracious; but the severer symptoms soon supervene, and death occurs by convulsion. In the gangrenous form the appetite is voracious, and the sense of formication is also observed as in the convulsive form of the disease. The extremities then become colder than in their natural state, and gangrene sets in. Ergotized rye is used medicinally in several forms of disease, but more especially to increase the expulsatory efforts of the womb in protracted labors, and to restrain uterine hemorrhage. In cases of poisoning by a large dose of ergot, the symptoms are nausea, dryness of throat, pain in the abdomen, stupor, and dilated pupil. In pregnant females abortion occurs.

Er'ia, *n.* [Gr. *erion*, wool.] (*Bot.*) A genus of plants, order *Orchidaceæ*, so called on account of the woolliness of its flowers.

Eric, (*eer'ik.*) [Swed., Henry.] The Swedish kings of this name of whom anything is known are: — Eric Edmundsen, Upsala king; D. 885. — Eric the Victorious, son of the preceding, and joint successor with his brother Olave; celebrated for his victory over Styrbiorn, son of the latter, who claimed the inheritance on his father's death; died 993, or soon after. — Two kings, both bearing the name of Eric, contended for the throne in the civil war which broke out about 1066, and in this war both the kings and all the chief Swedes are said to have fallen. Besides these, four other Erics must have been known traditionally: — St. Eric, who reigned 1155–1160, being called Eric IX. After him comes Eric Knutsen, or Eric X., grandson of the preceding, called the good harvest king, reigned 1210–1216. Eric Ericsen, or Eric XI., a grave and righteous prince, in whom the race of St. Eric expired, reigned 1222–1250. Eric XII., of the house of the Folkungers, who rose to power during the reign of the preceding; king during the lifetime of his father, Magnus Ladislas, and at length poisoned by his mother, Blanche of Namur, 1350–1359. Eric XIII. of Sweden, and VII. of Denmark, before his election duke of Pomerania, chosen in Sweden 1396; co-regent with Margaret of Waldemar up to his dethronement, by Engelbrecht-Engelbrechtsen, in 1434, and after that, having been again acknowledged, dethroned in all the three kingdoms of Sweden, Norway, and Denmark, at the death of that princess, 1439. Eric XIV., son of Gustavus Vasa, B. 1533, succeeded 1560, compelled to abdicate by his brothers 1569, poisoned in prison 1577.

Er'ic. There were 9 kings of Denmark of this name:— two unknown in the 9th century, and then Eric I., called "the Good," reigned 1095–1105. Eric II., reigned 1134–1137. Eric III., called "the Lamb," succeeded the preceding, and abdicated 1147. Eric IV., appointed by his brother, Abel, reigned 1242–1250. Eric V., succeeded 1259, assassinated 1286. Eric VI., reigned 1286–1319. Eric VII., same as Eric XIII. of Sweden.

Eri'ea, *n.* [Gr. *eriko*, to break, in allusion to the brittleness of the stems and branches.] (*Bot.*) The typical genus of the order Ericaceæ, *q. v.*



John Ericsson

1800–1889

Erica'ceæ, *n.* [Lat. *erica*, heath.] (*Bot.*) The Heath-wort family, an order of plants, alliance *Ericales*. Diag. Monopetalous flowers, free stamens all perfect, loose-skinned or tight-skinned seeds, and 2-celled anthers opening by pores. They are shrubby or suffruticose plants, sometimes herbaceous. Leaves simple, alternate or opposite, mostly evergreen, entire or toothed, without stipules. Inflorescence various. Calyx inferior or superior, 5-(seldom 4–6-) leaved, or cleft, rarely entire. Corolla regular or somewhat irregular, 4–5-(rarely 6-)cleft, with an imbricated æstivation. Stamens generally distinct and inserted with the corolla. Anthers as many, or twice as many, as the lobes of the corolla, 2-celled, generally opening by pores, often appendaged. Embryo straight, lying in the axis or in the end of fleshy albumen. They are very abundant at the Cape of Good Hope, and are more or less generally diffused throughout North and South America, Europe, and Asia. Many of the *E.*, particularly species of the genera *Erica*, *Rhododendron*, *Kalmia*, and *Azalea*, are largely cultivated on account of the beauty of their flowers. The three latter are principally American. The ord. includes 42 genera and 850 species, and are chiefly remarkable, medicinally, for their astringent properties. Some, however, are narcotic, and a few even poisonous. The fruits of many are edible.



Fig. 959.
ERICA TETRALIA.

Erica'ceous, *a.* Consisting of, or resembling, heaths.

Er'icales, *n. pl.* (*Bot.*) An alliance of plants, of the sub-class *Hypogynous Exogens*. Diag. Dichlamydeous flowers, symmetrical in the ovary, axile placentæ, definite stamens, and embryo enclosed in a large quantity of fleshy albumen.—This alliance is divided into the six orders *Humiriaceæ*, *Epacridaceæ*, *Pyrolaceæ*, *Francoaceæ*, *Monotropaceæ*, and *Ericaceæ*.

Erich'thidæ, *n. pl.* (*Zoöl.*) A family of long-tailed Decapod crustaceæ, inhabiting the tropical ocean. They are remarkable for the delicate and often transparent and colorless character of their large and undivided thoracic shield or carapace, which is always terminated anteriorly by a styliform rostrum.

Ericsson, John, (*er'ik-son,*) a distinguished engineer, b. in Sweden, 1800. After serving for some years as an officer of engineers in the Swedish army, he removed in 1826 to England, and continued to occupy himself with improvements chiefly on steam-machinery and its application. In 1839 he went to New York, where he has lived since. The invention of the screw-propeller, and of many other useful inventions, have made his name familiar to the world. His caloric engine attracted much attention, as likely to supersede the use of steam, but experiments in 1853 proved successful only for minor purposes. His solar engine was another remarkable invention. Perhaps his greatest achievement was the invention of the turret ship, *Monitor*, which conquered the Confederate *Merrimac* in Hampton Roads, March 9, 1862, and completely revolutionized modern naval warfare. His last important invention, was the war vessel *Destroyer*, completed in 1884, carrying a 16 inch gun, 20 ft. long, throwing under water an explosive projectile of 1,500 lbs., the gun being placed several feet under the water line. Died Mar. 5, 1889.

Erid'anus, *n.* (*Astron.*) A constellation named by Aratus after the river Eridanus. It stretches along the heavens from Phœnix to Orion; it has one star of the first magnitude, and many of the third and fourth.

E'rie, in *Ills.*, a p.-v. of Whitesides co.; in *Ind.*, a twp. of Miami co.; in *Mich.*, a p.-v. and twp. of Monroe co., on Lake Erie; in *Mo.*, a v. of Camden co., on the Osage river.—A p.-v. of McDonald co.

E'rie, in *New York*, a W. co.: *area*, abt. 996 sq. m. *Rivers* Towanda, Cattarangus, Buffalo, Ellicott's, and Conquaga creeks. Lake Erie washes its N.W. border. *Surface*, undulating; *soil*, fertile. *Min.* Iron ore, limestone, water cement, and brick clay. *Cap.* Buffalo. *Pop.* (1890) 322,981.

Erie, in *Ohio*, a N. co., bordering on Lake Erie; *area* abt. 260 sq. m. *Rivers.* Huron and Vermillion rivers and Pike creek. *Surface*, level; *soil*, very fertile. *Min.* Limestone. *Cap.* Sandusky.
—A township of Ottawa co.

Erie, in *Pennsylvania*, a N.W. co., bordering on New York, Ohio, and Lake Erie. *Area*, about 770 sq. m. *Rivers.* French, Conneaut, Walnut, and Elk creeks. *Surface*, rolling, and in some parts elevated; *soil*, fertile. *Min.* Iron and limestone. *Cap.* Erie. *Pop.* (1890) 86,074.
—A fine city, port of entry, and the cap. of Erie co., on Lake Erie, abt. 129 m. N. of Pittsburg; Lat. 42° 8′, N., Lon. 80° 10′ W. The town is well built, upon one of the largest and best harbors of the lake, and carries on an extensive trade in lumber, coal, ship-building and general manufacturing. *Pop.* (1897) about 51,000.

Erie, (Fort,) in prov. of Ontario, at the head of Niagara River, opposite Black Rock, N. Y.

Erie, (Lake,) one of the five great lakes of N. America, between Canada and the United States, included in the middle portion of the basin of the St. Lawrence. It lies between Lat. 41° 22′ and 42° 52′ N., and Lon. 79° and 85° W., having N. the fertile peninsula of Upper Canada, and S. and E. the States of Ohio, Pennsylvania, and New York. Its shape is elliptical; length S.W. to N.E. about 265 m.; breadth varying from 10 m. to about 63 m. in its centre. Its area is variously estimated at 8,030 sq. m. to 12,000 sq. m. It receives near its W. extremity the superabundant waters of the lakes St. Clair, Huron, and the upper lakes by the Detroit River, its own surplus waters being conveyed to Lake Ontario by means of the Niagara, celebrated for its stupendous waterfall. Its mean height above the level of the ocean is estimated at 565 feet, being about 52 feet below that of lakes Michigan and Huron, and 322 feet above that of Ontario. Its depth, which is less than that of any of the other great lakes of the St. Lawrence basin, is nowhere more than 270 feet, and in most parts is considerably under 200 feet. It is also said to be gradually becoming shallower, the land in some places having gained upon it along the S. shore. Its bottom appears to be composed of an alluvial deposit of sand and mud, resting on secondary schistose limestone. Its N. shore is rocky and dangerous; the opposite one has also long lines of rock; and, except at either extremity, none of its shore harbors afford a safe and steady entrance of 7 feet of water. In addition to other impediments to navigation, a current, not perceptible in the other great lakes of the St. Lawrence system, sets constantly W., and N.W. or S.W. winds continually prevail; besides which, in consequence of its shallowness, a part of the lake is frozen over every winter, and traffic on it is obstructed by ice for some weeks in the spring after the navigation of the other lakes is open and unimpeded. Towards the W. extremity there are several groups of small islands, and one—Cunningham Island, belonging to the United States—has an excellent harbor called Put-in Bay, with 12 feet of water. On the N. shore, several promontories jut into the lake, the principal of which are the N. and S. Forelands, and Point Landguard. Except the Detroit, Lake Erie receives few rivers of any consequence, and all, without exception, have bars at their mouths. The Ouse or Welland, which unites with its E. extremity, is its principal affluent, and has been taken advantage of for the construction of the Welland Canal, of which it forms a part, connecting the lakes Erie and Ontario, and avoiding the Falls of Niagara. The Erie Canal, 363 m. long, runs from the city of Buffalo to the Hudson River; the Ohio Canal, 334 m. in length, extends from Cleveland, at the month of the Cuyahoga, to the Scioto, a little S. of Columbus. The former of these canals places Lake Erie in communication with the Atlantic; the latter connects it with the Gulf of Florida. Buffalo, Dunkirk, Ashtabula, Cleveland, Erie, Sandusky, Portland, and Detroit are the principal towns on this lake, within the territories of the United States, and Port Talbot, Dover, and Sherbrooke in those belonging to Great Britain.

Battle of Lake Erie. (*Amer. Hist.*) In the war between the U. S. and Great Britain in 1812, the possession of lakes Erie and Ontario, as a theatre for warlike operations, became an object of importance to both of the belligerents, and, accordingly, strenuous efforts were made by either party to secure for themselves the advantages to be derived therefrom. The chief command of the American naval squadron on Ontario was held by Commodore Chauncey; that of Erie by Master-Commandant Oliver Hazard Perry of Rhode Island, then only 27 years of age. Perry fitted out a squadron of 7 sail at Erie, and succeeded in running the British blockade early in Aug., 1813. On the 10th Sept. following, while lying in Put-in Bay, near the W. extremity of the lake, the British squadron was seen in the offing, when Perry went out to meet it. The enemy consisted of 6 brigs, schooners, &c., mounting 63 guns, and manned by 502 officers and men, under the command of Commodore Barclay, an old Trafalgar hero. Selecting the British flagship *Detroit* (19 guns) as his antagonist, Perry attacked her in the *Lawrence*, a brig of 20 guns, and a general action ensued, the British force, though fewer by 3 vessels, exceeding the American by 9 guns and 12 men. The battle soon became furious, and in about two hours after the action, the *Lawrence* became completely disabled, and struck her flag, upon which Commodore Perry shifted his flag to the *Niagara*, and continued the action, which, after hours more of desperate fighting, was brought to an end by the utter defeat of the British, whose loss in killed was 41 (including Captain Finnis of the *Queen Charlotte*), and 94 wounded (9 of whom were officers): Commodore Barclay himself receiving two serious grape-shot wounds. The American loss was 24 killed, including 3 officers. Important results were achieved by this hard-won action; American supremacy on the lakes being established, and Detroit evacuated..

E'rieville, in *New York*, a post-village of Nelson township, Madison co., abt. 35 m. S.W. of Utica.

Erig'ena, or **Eri'gen,** John Scotus, who seems from his surname to have been a native of Ireland and not of Scotland, was b. about the beginning of the ninth century. *E.* spent the most of his time in France, and at the court of Charles the Bold. About the year 850 he wrote against Gottschalk on predestination; and he also published a work on the Lord's Supper, *de Corpore et Sanguine Domini*, in which he combated the doctrine of transubstantiation. But the great work of this schoolman is that named *De Divisione Naturæ*, &c., printed at Oxford by Thomas Gale in 1681. It is divided into five books, and is composed in the form of a dialogue. This vast and amazing essay treats of a great variety of subjects—of God, and the knowledge of God—of being, and its kinds and modes—of the world, of sin and its nature, &c.—in which abstruse and subtle discussions a species of mystical pantheism may be easily discovered. Few, if any of his contemporaries, could match this remarkable man either in genius or acquirements, in dialectics or sentiment, in intellectual acumen or in stores of erudition. Various portions of his works have been discovered and published at different times by Du Cange, Mabillon, Angelo, Mai, and MM. Ravaison and Cousin. Died about 875.

Erige'nia, *n.* [Gr. *erigeneia*, daughter of the early spring; from its early flowering.] (*Bot.*) A genus of plants, ord. *Apiaceæ*. They are perennial herbs, with tuberous root, radical leaf triternately decompound. Involucrate leaves, solitary biternately compound. Involucels of 3–6 entire, linear-spatulate bracts.

Erig'eron, *n.* [Gr. *er*, the spring, *geron*, an old man; because it is hoary early in the season.] (*Bot.*) A genus of plants, ord. *Asteraceæ*. They are mostly perennial herbs with alternate leaves. Among the American species are *E. Philadelphicum*, the narrow-rayed Robin's Plantain, 1–3 feet high, having 150–200 reddish-purple flesh-colored rays, nearly as slender as hairs; and *E. heterophyllum*, the Common Flea-bane, a common weed, in fields and waste grounds, 2–4 feet high, with 100 or more short white or purplish rays.

Erig'one, a daughter of Icarius, who hung herself when she heard that her father had been killed by some shepherds whom he had intoxicated. She was made a constellation, now known under the name of Virgo.

E'rin. See Ireland.

E'rin, in *Georgia*, a village of Merriwether co., about 60 m. N.W. of Macon.

E'rin, in *Illinois*, a village of McHenry co., about 64 m. N.W. of Chicago.—A township of Stephenson co.

E'rin, in *Iowa*, a township of Hancock co.

E'rin, in *Minnesota*, a township of Rice co.

E'rin, in *New York*, a post-township of Chemung co., abt. 10 m. E.N.E. of Elmira.

E'rin, in *Tennessee*, a post-town, cap. of Houston co., on L. & N. R.R., 28 m. W.S.W. of Clarksville. Has grist, saw and woolen mills; iron works near by. *Pop.* (1897) abt. 800.

E'rin, in *Wisconsin*, a thriving twp. of Washington co.

Erina'ceus, *n.* [Lat., a hedge-hog.] (*Zoöl.*) See Hedge-hog.

Erin'go, *n.* (*Bot.*) See Eryngium.

E'rinite, *n.* (*Min.*) An arseniate of copper from Limerick, Ireland.

Erin'na, a Grecian poetess, who was contemporay with Sappho, and wrote several pieces, fragments of which are extant, and which were published in the Edinburgh edition of Anacreon of 1754. Flourished 600 B. C.

E'rin Prairie, in *Wisconsin*, a township of St. Croix co., abt. 16 m. E.N.E. of Hudson.

Erinys, or **Erinnys.** (*Myth.*) See Eumenides.

Eriocaula'ceæ, *n.* [Gr. *erion*, wool; *kaulos*, a stem.] (*Bot.*) The Pipe-wort family, an order of plants, alliance *Glumales*. Diag. 2–3-celled ovary, a pendulous ovule, 2-celled anthers, a terminal embryo, and a 3-lobed cup within the glumes. They are aquatic or marsh plants, with clustered linear leaves, usually grass-like, and minute unisexual flowers growing in dense heads. They are mostly natives of tropical America and the N. of Australia, and have not been applied to any useful purpose. The order includes 9 genera and 200 species.

Erioden'dron, *n.* [Gr. *erion*, wool; *dendron*, a tree.] (*Bot.*) A genus of plants, order *Sterculiaceæ*. The most remarkable species is *E. samauma*, a native of South America. Its trunk frequently overtops all the surrounding trees before it gives off a single branch. The hairy covering of the seeds of various species of this genus form a kind of vegetable silk much used for stuffing cushions and for similar purposes.

Eriom'eter, *n.* [Gr. *erion*, wool, *metron*, a measure.] (*Opt.*) An instrument for measuring the diameter of minute particles and fibres, by ascertaining the diameter of any one of the series of colored rings which they produce.

Eriopho'rum, *n.* [Gr. *erion*, wool; *phoreo*, I bear; alluding to the copious bristles of the perigynum.] (*Bot.*) A genus of plants, order *Cyperaceæ*. They are grass-like herbs, with stem generally leafy. Spikelets mostly in umbels, finely clothed with long silky hairs, whence their common name of Cotton Grasses. These hairs are sometimes used for stuffing cushions, while the leaves of some species are said to possess astringent properties. There are several American species.

Eriphi'a, *n.* [Gr. *eriphe*, a kid.] A genus of Brachyurous Crustaceans.

Eriphyle, (*er-i-fi'le.*) A sister of Adrastus, king of Argos, who married Amphiaraus. See Alcmæon.

E'ris. (*Myth.*) The Greek goddess of discord, the same as the Discordia of the Latins. See Discordia.

Er'isay, an island of the Hebrides, Scotland, lying between Harris and North Uist.

Erisichthon, (*er-i-sik'thon,*) (*Myth.*) A Thessalian son of Triops, who derided Ceres, and cut down her groves. For this impiety the goddess afflicted him with continual hunger. To satisfy the cravings of his appetite, he squandered all his possessions, and at last devoured his own limbs for want of food. His daughter had the power of transforming herself into whatever animal she pleased, and she made use of it to maintain her father, who sold her, in one shape, after which she assumed another, and became again his property.

Eris'kay, one of the smaller Hebrides, Scotland, lying to the S. of South Uist, where, in 1745, Prince Charles Edward Stuart landed on his ill-starred expedition. *Ext.* about 2 miles long.

Eris'ma, *n.* [Gr., a cause of quarrel; from its variance with others of the same order.] (*Bot.*) A genus of plants, order *Vochyaceæ*, found in tropical America. One of the species, *E. Japura*, is the Japura of Brazil, a tree growing to the height of 100 feet or more, and bearing a red fruit, the kernel of which is eaten raw or boiled.

Eris'tic, Eris'tical, *a.* [Gr. *eristikos.*] Controversial; relating to dispute or debate. (R.)

Er'ivan, Eriwan, Irvan, or **Irivan,** the fortified capital of Russian Armenia, situated to the N. of Ararat, in the elevated plain of Aras or Araxes, Lat. 40° 10′ N., Lon. 44° 32′ E., 3,312 feet above sea. *Pop.* 15,000.

E'rix, *n.* (*Zoöl.*) Same as ERYX, *q. v.*

Er'langen, a town of Bavaria, on the Regnitz, 10 m. N. of Nuremberg. It contains the Protestant university of Bavaria, founded in 1743.

Erlau, (*air'lou.*) [Hung. *Eger.*] An episcopal city of Hungary, cap. of co. Heves, on both banks of the river Erlau, in a delightful valley skirted with vine-clad hills. The *E.* wine is the best red wine of Hungary. *Pop.* 18,244.

Er'melin, Er'milin, *n.* Diminutive of ERMINE, *q. v.*

Ermenonville, (*airm'nawng-veel,*) a village of France, dep. Oise, 5 m. from Senlis. It is celebrated for its beautiful and extensive parks, and as being the resting-place of Rousseau, for which reason it is much visited in summer by strangers from Paris.

Er'mine, *n.* [Fr. *hermine.*] (*Zoöl.*) The *Mustela Erminea*, an animal of the *Mustelidæ* or Weasel family, native of all the northern parts of the world. It is considerably larger than the common weasel, but much resembles it in general form and other characters, as well as in habits. It is not generally known that the *E.* and the *stoat* are the same animal: the confusion arises from the change that takes place in the color of the animal's fur at the different seasons. In the winter it is yellowish-



Fig. 961.—THE ERMINE (*Mustela Erminea*).

white, the yellow hardly showing about the head, but gradually appearing more and more on the body, and increasing in intensity, so that some are of a pale yellow color on their hind parts; then it is known as the ermine. About the end of March, however, the upper parts change to reddish-brown, or rather a dull tint, the lower parts continuing white; the tail remains black at the tip throughout all the changes. It is in the extreme northern regions that this change in the animal's color takes place with greatest distinctness. With regard to the manner in which this change is brought about, naturalists are not unanimous. It is from Norway, Lapland, Siberia, and the Hudson's Bay territories that the *E.* skins of commerce are obtained, which are used for ladies' winter-garments. At one time it was one of the insignia of royalty, and it is still worn by the judges in Europe. In making up *E.* fur, the tails are inserted in a regular manner, so that their rich black shall contrast with the pure white of the rest of the fur.

(*Her.*) One of the furs used for the lining of mantles, crowns, coronets, and caps of maintenance, as well as for the field and charges of armorial bearings. It represents the white skin of the little animal known as the *E.*, with the tail, which is tipped with black, attached to it, as in ladies' muffs, &c., made of that material. It is figured by black spots and stripes, or tails, on a white field, each stripe having two lines, or hairs, diverging from it, one on either side, and being surmounted by three spots, one placed at the extremity, and the others just below it, on each side of the point. There are four varieties of this fur in Her.,—*Ermines*, having white spots and stripes on a black field; *Ermines*, black spots and stripes on a gold ground; *Bean*, gold spots and stripes on a black ground; and *Erminites*, like *E.*, but having a red hair diverging from either side of the stripe, instead of a black one.—*E.* is commonly used to difference the arms of any member of a family connected with the law.

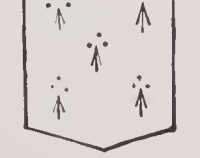


Fig. 962.—ERMINE.

Ermined, (*er'mind,*) *a.* Adorned with the fur of the ermine; as, "*ermin'd* pride."—*Pope.*

Ern, Erne, *n.* [A. S. *earn*, eagle.] The name given in Scotland to the osprey, and also to the golden eagle.

Erne, (*ern,*) a river of Ireland, rising in Lake Ganny, and after a course of abt. 60 m., during which it helps to form two lakes of the same name, distinguished as Upper and Lower, falling into Donegal Bay.

Ernée, (*air'nai,*) a town of France, dep. Mayenne, on a river of same name, 17 m. from Laval. *Manufactures.* Needles.

Ernesti, JOHANN AUGUST, (*air-nes'te,*) a German philologist, B. in Fennstädt, Thuringia, 1707. His critical editions of Greek and Roman classics are justly celebrated. As a theological writer, *E.* belonged to the school of rationalists. His most important work is *Institutio Interpretis Novi Testamenti*, translated into English in 2 v. 12mo., Edinburgh, 1843. His excellent Latin style obtained for *E.* the surname of the German Cicero. D. 1781.

Erode', *v. a.* [Lat. *erodo*—*e*, *ex*, and *rodo*, to gnaw. See RODENT.] To gnaw off or away; to eat in or away; to canker; to corrode.

Erod'ed, *a.* Eaten away; gnawed; corroded.

(*Bot.*) With jagged edges, as if gnawed:—said of a leaf.

Ero'dent, *n.* [See ERODE.] (*Med.*) A substance that eats away or erodes.

Ero'dium, *n.* [Gr. *erodios*, a heron; from the resemblance of the beaked fruit to the heron's bill.] (*Bot.*) A genus of plants, order *Geraniaceæ*. They are annual herbs, with calyx 5-leaved; petals 5; scales 5, alternate with the filaments and nectariferous glands at the base of the stamens; filaments 10, the 5 alternate ones abortive; fruit rostrate, of five aggregate capsules, each tipped with the long spiral style, bearded inside. *E. moschatum*, the Musk Geranium, and *E. ciconium*, the Heron's-bill Geranium, both brought from Europe, are cultivated on account of the beauty of their flowers and the strong musky scent of their herbage.

E'ros. [Gr., love.] (*Myth.*) The Greek god of love, corresponding to the Roman Cupid. In Hesiod, *E.* is one of the great cosmogonic powers, along with Chaos, Gæa, and Tartarus. Latin poets describe him variously as a son of Hermes and Ares, of Artemus and Aphrodite. His chief characteristic is youthfulness and the power of inspiring the passion of love. In the "Veda," Eros appears under the name *Arusha*, one of the most frequent epithets or names of the sun; but, as in the Greek mythology, Arusha is represented as a child. He is the young sun, driving away the dark night, and awakening the earth with his rays, which later poets converted into arrows, like the lances of Phœbus and Heracles.

Erose', *a.* [Lat. *erosus*. See ERODE.] (*Bot.*) Eroded; having jagged edges.

Ero'sion, *n.* [Lat. *erosus*, gnawed or worn away.] The act of gradually wearing away; the state of being gradually worn away.

(*Geol.*) The term employed to distinguish those features which are the results of the slow destructive action of running water, glaciers, the waves, and other agents; thus, valleys of *E.* are those valleys which have been gradually cut out of the solid strata. Many ravines, glens, and river-channels are the results of *E.*, for whatever inequalities of surface may have originally directed the waters into their channels, all the subsequent deepening, scooping out, and widening of the valleys have been owing to the erosive force of running water, laden with sand, gravel, and other triturating *débris*. The destructive action of breakers is very remarkable. All sea-cliffs, crags, and pinnacles of rock, may, as a general rule, be regarded as evidences of the *E.* and destruction of the formerly more widely extended land by the moving surface of the sea. Just as actual sea-cliffs are proofs of the erosive action now in operation, so in almost all cases, inland cliffs, crags, scars, and precipices, as well as valleys, ravines, gorges, and mountain-passes, are proofs of the erosive action of the sea in times when the land stood at a lower level with respect to it. A still more wonderful example of *E.* is frequently afforded in a low and gently undulating district, from which the very mountains themselves, that geologists can prove, once covered it, have been removed. The action of the Niagara River in excavating the deep gorge below the Falls is a striking example of *E.*

Ero'sive, *a.* Having the property of gnawing, eating away, or corroding; corrosive.

Eros'trate, *a.* [Lat. *e*, and *rostrum*, a beak.] (*Bot.*) Without a beak.

Erostratus. See ERATOSTRATUS.

Er'oteme, *n.* [Gr. *erotem*, question.] (*Rhet.*) A note of interrogation.

Erote'sis, *n.* [Gr., from *erotao*, to ask.] (*Rhet.*) A figure by which the speaker adopts the form of interrogation, not to express a doubt, but to make a bold assertion of what he asked; as, "He that planted the ear, shall he not hear?" (*Ps.* xciv. 9.)

Erot'ic, Erot'ical, *a.* [Fr. *érotique*, from Gr. *erōtikos*, from *erōs*, *erōtōs*, love.] Pertaining to, or treating of, love; amatory.

Erot'ic, *n.* An amatory poem; a warmly worded literary composition.—This appellation is particularly applied to a certain class of Greek and Roman authors, both in prose and poetry, of whose writings love formed the principal theme. Of these the most distinguished are Achilles Tatius, Heliodorus, Anacreon, Sappho, Ovid, Tibullus, Propertius, &c.

Erotoma'nia, *n.* [From Gr. *eros*, love, and *mania*, madness.] Moodiness or melancholy produced by love.

Erpetol'ogist, *n.* One versed in the natural history of reptiles; an herpetologist.

Erpetol'ogy, *n.* [See HERPETOLOGY.] That branch of natural history which treats of reptiles.

Er'peton, *a.* [Gr.] (*Zoöl.*) See HERPETON.

Err, *v. n.* [Fr. *errer*; Lat. *erro*, akin to Gr. *errō*, to wander in misery; Ger. *irren*, to stray.] To wander from the right way; to stray; to go astray; to rove; to ramble; to deviate from the true course or purpose.—To deviate or depart from rectitude; to fall from duty; to transgress morally.

"Every woe a tear can claim,
Except an *erring* sister's shame."—*Byron.*

—To mistake or misapprehend; to commit errors; to blunder; as, to *err* in judgment.

Er'rable, *a.* Liable to error.

Er'rableness, *n.* Susceptibility to error; proneness to make mistakes.

Er'rand, *n.* [A. S. *aerend;* Dan. *aerende*, a message; root Sansk. *ri*, to go.] A message; a verbal message; a mandate or order; something to be told or done; any special business to be transacted by a messenger.

"She comes of *errands*, does she?"—*Shaks.*

Er'rant, *a.* [Fr.; Lat. *errans*, from *erro*, to wander.] Wandering; roving; rambling; wandering about in search of adventures; as, a knight-*errant*.—Deviating from a certain course; wild; extravagant; worthless, vile; wicked; arrant.

"Furtive and *errant* from his course of growth."—*Shaks.*

Er'rantry, *n.* An errant or wandering state; a wandering or roving about; a rambling bent of disposition.

"After a short space of *errantry* on the seas, he got safe back to Dunkerque."—*Addison.*

—The vocation or employment of a knight-errant.

Erra'ta, *n. pl.* of ERRATUM, *q. v.*

Errat'ic, Errat'ical, *a.* [Fr. *erratique*: Lat. *erraticus.*] Wandering; having no certain course; roving about without a fixed destination; eccentric: as, an *erratic* individual.—Moving; not fixed or stationary; irregular; mutable; as, an *erratic* planet.

(*Med.*) Applied to diseases which have a disposition to flit from place to place, like gout, rheumatism, or erysipelas.—Flying, wandering, or irregular pains are called *erratic*.

Errat'ically, *adv.* Without rule; irregularly.

Errat'icalness, *n.* State or quality of being erratic.

Errat'ic-block Group, *n.* [Lat. *erraticus*, wandering.] (*Geol.*) A synonym of the boulder clay, from the large transported blocks of stone which occur in it. The blocks or boulders are sometimes briefly termed *erratics*.—See BOULDERS, PLEISTOCENE.

Erra'tum, *n.*; *pl.* ERRATA. [Lat., from *erro*—*erratum*, to wander, to err.] An error or mistake in writing or printing.

Erra'tum, *n.* [Lat.] A term applied to those errors which have been overlooked in the composition or impression of a work.

Erred, (*érd,*) *imp.* of ERR, *q. v.*

Errhine, (*er'rin,*) *a.* [Gr. *errhinon*—*en*, and *rhis*, *rhinos*, the nose. See RHINOCEROS.] (*Med.*) Affecting the nose, or to be snuffed into the nose; occasioning discharges from the nose; provoking sneezing.

—*n.* (*Med.*) One of those medicines which are applied to the mucous membrane of the nostrils. Those which cause sneezing are called *sternutatories*. *E.* may be applied in a dry, soft, liquid, or gaseous state; and may be emollient, astringent, or stimulant:—the first sheathing irritated surfaces; the second restraining inordinate secretion, the consequence of relaxation; and the third favoring the natural mucous discharge, on the return of the secreting surface to a healthy state. The aromatic *E.* most commonly applied are powdered herbs, as mint, lavender, and rosemary; also tobacco as snuff. Ammonia and its carbonates are much employed. Acrid vegetables and poisons, and preparations of mercury, are applied in rare cases.

"Sneezing powder, which the physicians call *errhine*."—*Bacon.*

Er'ris, a maritime district in the co. of Mayo, Ireland, remarkable for the dreary wildness of its mountain scenery; *pop.* abt. 20,000.

Er'rol, in *New Hampshire*, a post-township of Coos co., on Umbagogue Lake, abt. 30 m. N.E. of Lancaster; *pop.* abt. 250.

Erro'neous, *a.* [L. Lat. *erroneus.*] Wandering; unsettled; roving; deviating from a right course; mistaking; wrong; deviating by mistake from the truth; as, an *erroneous* step.—Irregular; deviating from the true course; as, "*erroneous* circulation of the blood." (*Arbuthnot.*)—Not conformable to truth; erring from truth or justice; false; mistaken; as, an *erroneous* opinion.

Erroneously, *adv.* By mistake; not rightly.

Erro'neousness, *n.* State of being erroneous, mistaken, or false; inconformity to truth.

Er'ror, *n.* [Lat.; Fr. *erreur.*] A wandering or deviation from the truth, or any fixed standard; a mistake in judgment; misapprehension; fallacy; a blunder.

"*Error*, wounded, writhes with pain."—*Bryant.*

—Oversight; falsity; inaccuracy: a mistake made in writing or other performance; as, "*errors* excepted."

"*Errors* like straws upon the surface flow"—*Dryden.*

—Deviation from law, justice, or right; mistake in conduct; a fault; an offence; transgression; moral obliquity.—Irregular course; deviation from an appointed way; as, "winds and *errors* of the sea."—*Dryden.*

(*Law.*) See WRIT OF ERROR.

(*Horol.*) That interval of time kept by a clock, which is either faster or slower than the true time.

—*v. a.* To decide or declare to be erroneous in a legal point of view.

Er'rorist, *n.* One who errs; one who promotes and propagates errors.

Ers, *n.* (*Bot.*) The bitter vetch.

Erse, (*érs,*) *n.* [A corruption of IRISH.] The language spoken by the descendants of the Gaels or Celts in the highlands of Scotland.

—*a.* Relating or pertaining to the aboriginal inhabitants of Scotland.

Ersh, Earsh, *n.* An English provincialism for the stubble of grain.

Ers'kine, EBENEZER, B. in the prison of the Bass, Scotland, 1680; was the founder of the Secession church of Scotland, and wrote many sermons and discourses which, in their day, were highly esteemed. D. 1756.

Ers'kine, THOMAS, LORD, a distinguished English jurist, orator, and statesman, B. at Edinburgh, 1750. After a course of studies at Edinburgh, St. Andrew's, and Cambridge universities, he was called to the bar in 1778, and rapidly rose to the highest rank as an advocate. In 1783 he entered parliament, where he joined the Whig party, and became the close ally of Fox, Burke, Windham, and Sheridan. In 1792 *E.* successfully defended Thomas Paine, then being prosecuted for his celebrated work, the "Rights of Man." In 1806, *E.* was appointed

Lord High Chancellor of England, and called to the peerage. Lord *E.* was one of the greatest of English advocates, and during his parliamentary career presented the bill for the abolition of the Slave-Trade, pleaded the cause of the Irish Catholics, and was the tried champion of constitutional reform. D. 1823.

Erst, *adv.* [A. S. *ærest*, superlative of *ära*, *ære*, early, ancient.] Earliest; first; at first; at the beginning.

"*Erst* so lavish and profuse."—*Milton.*

—Once; formerly; long ago; in ancient times.

"The future was destined *erst*."—*Milton.*

—Till then or now; hitherto.

"Opener mine eyes, dim *erst*."—*Milton.*

Erstein, (*airs'tine.*) a town of France, dep. Bas-Rhin, 12 miles from Strasburg. *Manuf.* Cotton, tobacco, &c. *Pop.* 4,709.

Ertraag-oe, (*air-tra'ge(r,)* an island of Norway, 40 m. from Christiansand; Lat. 63° 13′ N., Lon. 8° 20′ E. It is 12 miles long, by a breadth of the same extent. *Pop.* unascertained.

Erubescence, Erubesceney, (*er-ū-bes'ens,*) *n.* [L. Lat. *erubescentia*, from Lat. *erubescens*, *erubesco*—*e*, *ex*, and *ruber*, red. See RUBRIC.] A becoming red; a blushing: redness of the skin or surface of anything.

Erubes'cent, *a.* [Lat. *erubescens.*] Red or reddish; blushing.

Eru'bescite, *n.* (*Min.*) A valuable ore of copper, of a copper-red or brown color. It contains about 60 per cent. of copper, with sulphur and iron.

Eru'ca, *n.* A genus of plants, order *Brassicaceæ.*

(*Zoöl.*) A worm; a caterpillar;—the larva state of insects.—Also the name of a genus of univalve mollusks, allied to *Clausilia* (*q. v.*).

Eruct', Eruc'tate, *v. a.* [Lat. *eructo*—*e*, *ex*, and *ructo*, to belch; Gr. *ereugomai*, to spew out.] To belch or vomit up;—specifically, to fart; to eject from the stomach, as wind.

Eructa'tion, *n.* [Fr., from L. Lat. *eructatio.*] Act of ejecting or belching wind from the stomach; a belch; any sudden burst of wind or matter from the earth.

"Thermæ are hot springs, or fiery *eructations*."—*Woodward.*

Erudite, (*er'ū-dīt,*) *a.* [Lat. *eruditus*—*e*, *ex*, and *rudis*, rough.] Well polished; highly learned; taught; instructed; conversant with books or languages; as, an *erudite* scholar.

Er'uditely, *adv.* With erudition; learnedly; scholarly.

Er'uditeness, *n.* State or quality of being erudite or learned.

Erudition, (*er-ū-dish'on.*) *n.* [Fr.; from Lat. *eruditio.*] Learning; knowledge gained by study, or from books and instruction; learning in literature; scholarship.

Er'ugate, *a.* [Lat. *erugatus.*] Smooth; having no wrinkles.

Eru'ginous, *a.* [Fr. *erugineux;* Lat. *æruginosus*, from *ærugo*, rust of copper, from *æs*, *æris*, copper.] Resembling the rust of copper or brass; of the nature or color of verdigris; rusty; as, "ferreous and *eruginous* earths."

Browne.

Eruu'da, *n.* The name given in Oriental countries to the seed of the castor-oil plant.

Eruption, (*e-rup'shon,*) *n.* [Fr.; from Lat. *eruptio.* See RUPTURE.] A breaking or bursting out or forth; a sudden or violent emission; explosion; outburst; sudden rushing or sallying forth; as, the *eruption* of Mount Vesuvius.—A sudden hostile excursion.

(*Med.*) A breaking out of pimples or pustules on the skin: pimples; pustules; blotches; rash.

Erup'tive, *a.* [Sp. *eruptivo.*] Bursting out or forth.—Attended with eruptions or efflorescence, or producing it.

(*Geol.*) Produced by eruption; as, *eruptive* scoriæ.

Er'ving, in *Massachusetts*, a post-township of Franklin co., on Connecticut river, about 70 miles W.N.W. of Boston. *Pop.* (1897) about 1,000.

Er'vum, *n.* [Lat. *eruo*, I pull up by the roots.] (*Bot.*) A genus of plants, order *Fabaceæ.* They are annual herbs, with leaves abruptly pinnate, of many leaflets and a terminal tendril. The species are common fodder-plants in many parts of the world. The seeds of *E. lens* are called Lentils, and have been used as human food from the earliest ages. Several varieties of the lentil are cultivated in Europe; that which is most esteemed in France is termed *lentille à la reine;* it is very small and of a reddish color. Lentils are very nourishing, but somewhat hard to digest. The seeds of *E. ervilia*, the bitter vetch, are said to be poisonous. The only American species is *E. hirsutum*, the Hairy or Creeping vetch, a weed found in cultivated fields from New York to S. Carolina.

Er'win, in *Illinois*, a village of Schuyler co., abt. 45 m. E.N.E. of Quincy.

Er'win, in *New York*, a township of Steuben co., abt. 20 m. S.S.E. of Bath.

Erwin Centre, in *New York*, a post-village of Steuben co.

Erwin de Stein'bach, (*air'vin,*) a celebrated architect, b. at Steinbach, Baden. He built Strasburg cathedral, with the exception of the tower, which was not finished until the 15th century. D. 1318.

Erwin'na, in *Pennsylvania*, a post-village of Bucks co.

Er'winsville, in *N. Carolina*, a post-village of Cleveland co.

Erymau'thus, a river and mountain of Arcadia, in Greece. The mountain formed the W. point of the N. barrier of Arcadia, and was covered with forests. It was on this mountain that Hercules chased and killed the famous wild boar.

Eryn'go, Eryn'gium, *n.* [Gr. *erygein*, to belch; a supposed remedy for flatulence.] (*Bot.*) A genus of plants, order *Apiaceæ.* They are herbaceous or suffruticose plants. Flowers blue or white bracteate; lower bracts involucrate, the others small and paleaceous. *E. maritimum*, the Sea-Eryngo, or Sea-Holly, is common on sandy sea-shores of W. Europe. *E. aquaticum*, the Rattlesnake-weed, or Button Snake-root, a remarkable plant, appearing like one of the Endogenæ, and found on low prairie grounds in several of the U. States.

Erys'imum, *n.* [Gr. *eryo*, to cure; from its salutary medicinal properties.] (*Bot.*) A genus of plants, order *Brassicaceæ.* They are annual or biennial herbs, with calyx closed; siliques columnar, 4-sided; stigma capitate: seeds in a single series; cotyledons oblong incumbent. *E. cheiranthodes* (Fig. 963) is found in wet grounds



Fig. 963.—ERYSIMUM CHEIRANTHODES.

a, root; *b*, a branch, in which flowering has recently begun; *c*, the summit of a branch in a more advanced state, showing the fruit; *d*, the calyx; *e*, the parts of fructification, divested of floral envelopes; *f*, a flower.

throughout the U. States. *E. Arkansanum*, the Yellow Phlox, or False Wall-flower, is a fine plant, with large, showy flowers, resembling the Wall-flower, and is found in Arkansas and Illinois.

Erysip'elas, *n.* [Gr. *eruo*, I draw, and *pelas*, near or adjoining.] (*Med.*) The name given to a peculiar kind of inflammation of the skin, so called from its tendency to spread to adjoining parts. It is known also as St. Anthony's fire or *ignis sacer*, and in common language as the Rose. It most commonly attacks the head and face; but it also sometimes occurs on other parts of the body. The local inflammation is preceded and accompanied with fever, and there are usually certain premonitory symptoms that precede the outbreak of the disease; the patient feels ill,—shivery, feeble, languid, and often drowsy. After these symptoms have continued for some time, a red spot appears on some part of the body, accompanied with a burning heat and tingling. When attacking the face, it usually makes its appearance on the bridge of the nose, and rapidly extends itself to the eyelids, cheeks, and forehead. The redness is not intense, but rather of a pale rose-color, and goes away temporarily on pressure, but returns immediately on its removal, and no pit remains after the pressure. By the second night, or morning of the third day, after the commencement of the fever, the face begins to swell, the eyes are completely closed, and the form of the features scarcely recognizable. On the fourth or fifth day, vesications appear on the inflamed surface, and break or subside on the fifth or sixth, when the redness changes to a yellowish hue, and the swelling and fever begin to diminish; and on the eighth day they both disappear. The progress of the disease, however, is more rapid and its course of shorter duration in the young and sanguine than in those more advanced in life; the tumefaction in the former being sometimes fully formed on the second day, and the whole terminating on the sixth or seventh, while in the latter it may be protracted to the tenth or twelfth. Suppuration rarely occurs, except occasionally in the eyelids or scalp. Sometimes the inflammation and swelling extend to the neck and throat, and may produce suffocation. In very bad cases, delirium and coma come on, and death ensues from effusion on the brain. No remission of the fever takes place on the appearance of the inflammation; but, on the contrary, it generally increases with the progress of the inflammation, and only ceases when it goes away. When the complaint is mild, the inflammation and fever generally cease gradually without any evident crisis. Among frequent causes of this disease, are exposure to a cold and moist atmosphere, sudden changes of temperature, intemperance and unwholesome articles of food. It is sometimes also induced by wounds or sores, or even by a slight puncture or scratch of the skin in persons predisposed to it. It is likewise contagious, and has to be strictly guarded against by means of ventilation and cleanliness in hospitals. Though the proper seat of the inflammation is the skin, it frequently extends to the parts underneath. Authors usually distinguish four kinds of this disease,—the phlegmonous, œdematous, gangrenous, and erratic. The first of these is characterized by the greatest degree of inflammation. In the œdematous, the inflammatory symptoms are less intense, but the tumefaction is greater. It most commonly affects persons of debilitated constitutions, dropsical persons, and those who have been long subject to other chronic maladies. It is attended with considerable danger when it affects the face, and often terminates fatally on the seventh or eighth day. The gangrenous form most commonly occurs in the face, neck, or shoulders, and is accompanied with symptoms of low fever and delirium, which is succeeded by coma. The color of the affected parts is of a dark red, and scattered vesicles appear upon the surface, which frequently terminate in gangrenous ulcerations. It is always a tedious and often a fatal form of the disease. In erratic *E.* the morbid patches appear one after the other in different parts of the body: sometimes thus travelling progressively from the head to the extremities. It is rarely attended with danger, and usually terminates in a week or ten days. In the treatment of *E.*, very much depends upon the nature of the disease and the condition of the patient. If the patient be young and sanguine, and the inflammation high, bleeding may be resorted to. When, on the other hand, the system is enfeebled, tonics, a nourishing diet, and even stimulants may be necessary in order to strengthen the patient. In general, moderate purgatives, diaphoretics, and strict confinement to bed, are to be adopted. Recent investigation shows that *E.* is caused by the presence of a living organism, a *micrococcus* in the lymphatic vessels of the skin, it is a parasitic disease, local and hypodermatic germicidal treatment is recommended, such as a weak solution of corrosive sublimate, bicyanide of mercury, carbolic or salicylic acid.

Erysipel'atoid, Erysipel'atous, Erysip'elous, Resembling erysipelas, partaking of its nature.

Erythe'ma, *n.* [Gr., redness.] (*Med.*) A redness of the skin, generally observed in patches, and sometimes attended with puffiness of the parts affected. It is a lesser kind of erysipelas, not attended with febrile symptoms of any consequence, except in a form described as *erythema nodosum*, which is characterized by elevated and somewhat indurated nodules of a red color rising on the legs, and sometimes on the arms. These generally are more or less oval in shape. The onset of this form is marked by febrile excitement. The treatment consists in the exhibition of purgatives, tonics, and alteratives. Quinia is especially valuable. Ordinary *E.* rarely gives trouble, subsiding gradually under mild alterative treatment and rest.

Erythemat'ic, *a.* Producing, or pertaining to, erythema.

Erythræ'a, *n.* [Gr. *erythros*, red; from the color of its flowers.] (*Bot.*) A genus of plants, order *Gentianaceæ.* They are annual herbs, with stem subangular. Leaves connate at base. Flowers cymose, roseate, white, or yellow. The most important species is *E. centaurium*, the common Centaury, a native of Europe, having bitter tonic properties, similar to those of gentian. *E. Pickeringii* are found along the marshy shores of the Middle and Eastern States.

Erythræum Mare, (*er-e-thre'um mair'a.*) (*Anc. Geog.*) A part of the ocean on the coast of Arabia. As it communicated with the Persian Gulf and the Red Sea, it has often been mistaken by ancient writers, who by the word *erythrean* understood indiscriminately either the Red Sea or the Persian Gulf. It received this name either from Erythras, or from the redness (ερυθρος, *ruber*) of its sand or waters.

Erythri'na, *n.* [Gr. *erythros*, red.] (*Bot.*) A genus of plants, order *Fabaceæ.* They are small trees, shrubs, and under-shrubs, natives of America and the E. and W. Indies. Nearly all the species are remarkable for the brilliant scarlet color of their flowers, owing to which they are much cultivated as stove-plants, and commonly called the coral-tree.

Er'ythrite, Er'ythrine, *n.* (*Min.*) Arseniate of cobalt, or red cobalt. Contains about 36 per cent. of cobalt, and 38 per cent. of arsenic.

Eryth'rogen, *n.* [Gr. *erythros*, red, and *gennao*, to produce.] (*Chem.*) A neutral, crystalline, fatty matter found in diseased bile.

Erythro'nium, *n.* [Gr. *erythros*, red: in allusion to the color of the flower and leaves of some species.] (*Bot.*) A genus of plants, order *Liliaceæ.* They are perennial plants, with leaves 2, subradial; scape 1-flowered; flowers nodding, liliaceous. *E. Americanum*, the Yellow Erythronium, is a beautiful little plant, and among the earliest of our vernal flowers. It is found in rich open fields or thin woods throughout the U. States and Canada.

Erythroph'loeum, *n.* [Gr. *erythros*, red, and *phloion*, bark.] (*Bot.*) A genus of plants, order *Fabaceæ. E guineense* is the Sassy-tree of W. Africa, the bark of which, under the name of *Ordeal-bark* or *Doom-bark*, is used by certain tribes as an ordeal to which persons suspected of witchcraft or secret poisoning are subjected, from the superstition that their innocence or guilt will be indicated by the effects produced by the bark on the system.

Erythrophyl'line, *n.* [Gr. *erythros*, red, and *phyllon*, leaf.] (*Chem.*) A substance to which the autumnal red tint of some leaves is due.

Erythroxyla'ceæ, *n.* [From *erythroxylon*, from Gr. *erythros*, red, and *xulon*, wood.] (*Bot.*) The Erythroxylon family, an order of plants, alliance *Sapindales.* DIAG. Complete, partially symmetrical flowers, an imbricated calyx, petals with an appendage, sessile pendulous ovules, capitate stigmas, and a straight embryo. They are shrubs or trees. The order contains but one genus, *Erythroxylon*, which includes 75 species, natives of the warmer regions of the world, and especially abundant in Brazil. The order is so closely allied to *Malpighiaceæ* (q. v.), that it scarcely presents characters sufficient to warrant its separation from that order. Some plants are tonic, others purgative, and others stimulant and sedative. The wood of *E. hypericifolium* and the bark of *E. suberosum* are red, and are used for the preparation

of dyes of that color. Red is, in fact, the common color of the wood throughout the genus; hence its name. The most important species is *E. coca*, the leaves of which are much used by the Peruvians and other peoples of South America to form a masticatory, which is prepared by adding to them a very small quantity of alkaline paste made from the ashes of different plants, or even a little common quicklime. The Indians of Peru have always ascribed to the coca marvellous virtues, believing that it will lessen the desire and necessity for ordinary food. Spruce says that an Indian with a chew of this masticatory in his cheek, will go two or three days without food, and feel no desire to go to sleep. Dr. Weddell, however, speaks far less highly of the virtues of the coca: he states that it does not satisfy the appetite, but merely enables those who chew it to support abstinence for a length of time with a feeling of hunger or weakness. The use of coca is said to prevent the difficulty of respiration which is generally experienced in ascending long and steep mountains. Its excessive use is stated to be most injurious, producing effects analogous to those occasioned by the immoderate use of opium and fermented liquors Johnston has computed the annual consumption of coca at 30,000,000 lbs.; and has stated that its chewing is indulged in by abt. 10,000,000 of the human race. The nature of the constituents which give rise to the peculiar, stimulating, hunger-allaying, and narcotic effects of coca, has not yet been satisfactorily determined.

Erythrox'ylon, *n.* See ERYTHROXYLACEÆ.

Erz'berg. [Ger., ore-mountain.] A mining-district of Styria, so called from a mountain of same name, which for upwards of 1,000 years has yielded vast quantities of iron.

Erzeroum, ERZ-RUM, (*erz'room.*) [Ar. *Arzen-el-Roum.*] An important city of Turkish Armenia, cap. of an extensive pachalic of same name, and residence of a Seraskier Pacha; in a plain at the foot of the Tcheldir Mountains, near the sources of the N. arm of the Euphrates, 6,000 or 7,000 feet above the sea, 134 m. S.E of Trebizond, and 156 m. W.S.W. of Mount Ararat; Lat. 39° 59′ 30″ N., Lon. 41° 46′ 15″ E. Previously to the plague of 1829, its population amounted to about 100,000; it was deserted by many Armenian families when the Turks took possession of it in 1835. *E.* is of considerable antiquity, having been a frontier post of the Greek empire of Constantinople. It was an important military center during the Russo-Turkish wars of 1854–55 and 1877–78, being beseiged and taken by the Russians in the latter year, but restored to Turkey on peace being declared. *Pop.* (1897) estimated at 40,000.

Erz'gebirge. [Ger., ore-mountains.] A chain of mountains, rich in metals, stretching in a S.W. direction, on the confines of Saxony and Bohemia, from the valley of the Elbe to the Fichtelgebirge, in Lon. 12° 20′ E. The *E.* is chiefly of the gneiss-granite formation, in which most of the metal strata are to be found. The Keilberg, the highest point of the range, is 3,802 feet above the sea.

Esau, (*e'saw.*) [Heb., hairy or rough.] The eldest son of Isaac and Rebecca. He sold his birthright to his brother Jacob, who also, by deceit, afterwards gained, instead of Esau, his father's blessing. Enraged at this, Esau would have slain Jacob, had the latter not fled into Mesopotamia. On his return, Esau met him, and behaved very generously toward him. He was the father of the Edomites. Lived in the 18th century, B. C.

Escalade', *n.* [Fr.; It. *scaláta*, from Lat. *scala*, a ladder. See SCALE.] (*Mil.*) The assault of a fortress by scaling the walls; a furious attack made by troops on a fortified place, in which ladders are used to pass a ditch, mound, or rampart.

—*v. a.* To scale; to mount and pass or enter by means of ladders.

Escallonia'ceæ, *n.* [In honor of *Escallon*, a Spanish traveller.] (*Bot.*) The Escallonia family, an order of plants, alliance *Grossales*. DIAG. Fruit capsular, placenta axile, style and stamens definite, calyx imbricated. — They are evergreen shrubs, with alternate exstipulate leaves and axillary showy flowers. They are chiefly natives of the mountains of S. America, extending as far S. as the Straits of Magellan. Their properties are unknown. Their leaves often have a powerful odor. The order includes 7 genera and 60 species.

Escalop, Escallop, (*es-kol'up,*) *n.* [Dut. *schalp*, a shell. See SCALLOP.] An inequality of margin in anything; a jagged indentation.

"*Escalops*, curiously indented round the edges." — *Ray.*

(*Zoöl.*) A family of bivalve mollusks, the shells of which are deeply indented. In the centre of the top of the shell is a trigonal sinus, with a hinge consisting of elastic cartilage.

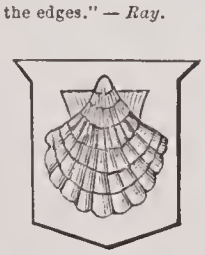


Fig. 964.
ESCALOP-SHELL.

(*Her.*) The *E.* shell is a frequent bearing in the escutcheon, it having been the pilgrims' ensign in their exhibitions to the Holy Land; — often written *scallop-shell.*

Escaloped, Escalloped, (*es-kol'opt,*) *a.* Cut or notched in the form of an escalop; scalloped.

(*Her.*) Applied to an escutcheon when covered with waving lines, like that on the edge of an escalop-shell.

Escam'bia, in *Alabama*, a S. co., bordering on Florida. *Surface*, nearly level; extensive pine forests. *Pop.* (1897) about 10,000. *Cap.* Brewton

Escam'bia, in *Florida*, a N.W. co., bordering on Alabama; *area*, about 680 sq. m. *Rivers*, Perdido and Escambia rivers. The Gulf of Mexico washes its S. border. *Surface*, generally level; *soil*, not fertile. *Pop.* (1890) 20,188. *Cap.* Pensacola.

Escap'able, *a.* That may be avoided.

Escapade, (*es-ka-pād',*) *n.* [Fr., from It. *scappata, scappare*, to escape.] The fling or irregular motion of a horse.

"The horse sprung loose, and flew into an *escapade.*"—*Dryden.*

—An impropriety of speech or behavior of which a person is unconscious; a vagary; a prank; a frolic; as, the *escapades* of a wild youth.

Escape', *v. a.* [Fr. *échapper;* It. *scappare;* Sp. *escapár.* In Low Lat. *escapium* means flight, and is derived by Du Cange from *ex captione se subducere*, to withdraw one's self; from *capturo* — root *capio*, to take.] To flee from, or avoid; to get out of the way of; to shun; to obtain security from; as, to *escape* from prison. — To pass unobserved; to evade notice; to avoid the danger of; as, the matter *escaped* my memory.

—*v. n.* To flee, shun, and be secure from danger; to avoid an evil.

"They *escaped* all safe to land."—*Acts* xxvii. 44.

—To be passed without hurt or danger; as, to *escape* being captured.

—*n.* Flight, to shun danger or injury; act of fleeing from danger; state of being freed from danger without harm; a being passed without receiving injury; as, a lucky *escape* from marrying a tartar.

(*Law.*) A violent or privy evasion out of some lawful restraint; as where a man is arrested or imprisoned, and gets away before he is delivered by due course of law. Officers who, after arrest, negligently permit a felon to escape, are punishable by fine; but it is regarded as a much more serious offence if the escape is effected by the consent and connivance of the officer, and is generally looked upon in law as punishable in the same degree as the offence of which the prisoner is guilty, and for which he is in custody. So, if the offence of the prisoner was a felony, a voluntary escape is a felony on the part of the officer; if negligent, it is a misdemeanor only in any case. In criminal cases, the prisoner is indicted for a misdemeanor, whether the escape be through negligence or voluntary.

Escape'ment, *n.* Escape; flight. (R.)

(*Horol.*) That part of a clock or watch by which the circular motion of the wheels is converted into a vibrating one, as that of the pendulum in a clock, or the balance of a watch. Or, it is a mechanical contrivance for transmitting the maintaining power of a clock or watch to the regulator, whether balance or pendulum.

Escar'buncle, *n.* (*Her.*) The heraldic name for the precious stone called *carbuncle.*

Escarp', *v. a.* [Fr. *escarper*, to cut steep down; said of rocks and mountains, to render them inaccessible. See SCARP.] (*Mil.*) To form into a scarp; to make to slope suddenly.

—*n.* A sudden slope; anything high or precipitous.

(*Fortif.*) The side of the ditch which forms the lower part of the rampart of a fortress, and which is below the natural level of the ground, or the summit of the glacis on the other side, is called the *escarp* or *scarp.* The slope of the *E.* depends on the nature of the earth in which the ditch is cut, and the manner in which it is finished, varying from an angle of 45° with the level of the bottom of the ditch, if it consist of the soil only and loose rubble, to one of 80°, if the *E.* be rivetted with masonry. When the *E.* is not rivetted, it should be defended by lines of palisades projecting from its surface at right angles. At the present time many engineers make the rivetments of the *E.* and counterscarp perpendicular.

Escarp'ment, *n.* [Fr. *escarpement.*] A steep declivity; a precipitous side of any hill or rock.

(*Mil.*) Ground cut away nearly vertically about a position in order to prevent an enemy from arriving at the latter.

Escatap'pa, or DOG RIVER, in *Alabama* and *Mississippi*, rises in Washington co., of the former State, and flowing S.S.W. into Mississippi, empties into Mississippi Sound from Jackson co.

Escaut, (*es'ko,*) the French name for the river SCHELDT, *q. v.*

Eschalot, (*ĕsh-a-lot',*) *n.* [Fr. *échalotte*, from Lat. *Ascalonius*, of Ascalon, the *Askelon* of Scripture. See ASCALON.] (*Hort.*) A species of onion or garlic, commonly called *shallot.*

Eschar, (*ĕs'kär,*) *n.* [Gr. *eschara*, a brazier.] (*Surg.*) A scar or scab on a wound caused by burning; the crust or scab occasioned by burns or caustic applications.

Es'chara, *n.* [Fr. *escare.*](*Zoöl.*) A genus of *Alcyonidæ*, distinguished by their foliate skeleton.

Escharot'ic, *a.* [Fr. *escharotique;* L. Lat. *escaroticus.*] Caustic; having the power of scarring or destroying the flesh.

—*n.* (*Med.*) One of that class of caustic medicines used to eat off, as it is popularly called, fungoid growths, or excessive granulations, or what is known as proud flesh; drugs or compounds which have the power of eroding or dissolving the animal texture, and forming new combinations. The most important of the *E.* are quicklime, lunar caustic, bluestone, burnt alum, arsenic, caustic potash, and the mineral acids. An *E.* may be either as stimulating and violent as the most severe of the potential canteries, or it may be merely slightly or gently stimulating, as powdered sugar, which is sometimes used for the purpose.

Eschatol'ogy, *n.* [Gr. *eschatos*, last, and *logos*, doctrine.] The doctrine of the end of all things, as death, judgment, &c.

Escheat', *n.* [O. Fr. *eschoëtte:* L. Lat. *escheta*, from *escadere* — L. *ex*, and *cadere*, to fall; Fr. *échoir.* See CADENCE.] (*Law.*) That which falls or lapses to the original proprietor, or to the state, as lands or other property, through failure of heirs, or by forfeiture. — The place or circuit within which the king, lord, or state is entitled to escheat. — A reversion; a return.

—*v. n.* To revert, as land, to the lord of a manor, by means of the extinction of the blood of the tenant.

"Lands were thereby saved to their heirs, which should have otherwise *escheated* to her majesty."—*Spenser.*

Escheat'able, *a.* That may be escheated.

Escheat'age, *n.* Right of succession to an escheat.

Escheat'or, *n.* (*Law.*) In England, an officer of the crown who takes cognizance of all escheats within his jurisdiction, and certifies them into the exchequer.

Esch'enbach, WOLFRAM VON, a German minnesinger, was B. in the 2d half of the 12th cent., and derived his name from the village of Eschenbach in Bavaria. He passed his life in knightly fashion, chiefly at the court of Hermann, landgraf of Thuringia. His rich fancy, deep sentiment, and vivid power of representation, as well as his elegant mastery of language and versification, give something of an epic character to his works, the principal of which are *Parcival*, composed before 1212, *Wilhelm von Orange*, and *Titurel.* The best translation of *Parcival* and *Titurel* was executed by Simrock, 2 vols., Stuttgart, 1842.

Es'cherite, *n.* (*Min.*) A variety of EPIDOTE, *q. v.*

Eschew', *v. a.* [O. Fr. *eschever;* Ger. *scheuen;* A.S. *scunian*, to shun. See SHUN.] To shun; to avoid; to flee from; as, to *eschew* evil.

Eschew'er, *n.* One who eschews.

Eschew'ment, *n.* Act of eschewing. (R.)

Escholtz Bay, a portion of the Arctic Ocean, in Alaska, forms the innermost part of Kotzebue Sound, the first great inlet to the N.E. of Behring's Strait. It is about Lon. 161° W., being barely on the outside of the polar circle, and is worthy of notice chiefly on account of its fossil remains.

Eschscholtzia, (*esh-shōlts'ĭ-a.*) [From the botanist *Eschscholtz.*] (*Bot.*) A genus of plants, order *Papaveraceæ*, of which *E. Californica* and other species, natives of California, have been much cultivated of late in our flower-gardens, making a showy appearance with their large deep yellow flowers. The genus is remarkable for the calyx, which separates from the dilated apex of the flower-stalk, being thrown off by the expanding flower, and much resembling in its form the extinguisher of a candle.

Eschweiler, (*ăsh-vīl'air,*) an important manuf. town of Rhenish Prussia, 8 m. E.N.E. of Aix-la-Chapelle. *Pop.* 15,550.

Esclat'te, *n.* (*Her.*) Anything shattered by the stroke of a battle-axe.

Escobar y Mendoza, ANTONIO, a celebrated Spanish Jesuit, B. at Valladolid, 1589. He was a popular preacher, and a voluminous writer. His most noted works are his *Moral Theology*, and his *Cases of Conscience.* His doctrines were vigorously opposed by Pascal in the celebrated *Lettres Provinciales.* D. 1669.

Es'cohol, or ECHOL, in *Michigan*, a village of St. Joseph co., on the St. Joseph River, about 7 m. above Constantine,

Esconaw'ba, or ESCONABA, in *Michigan*, a small river flowing into the Little Bay de Noquet from Delta co. Rises in Marquette co.

Esconaw'ba, in *Michigan*, a post-village, cap. of Delta co., at the mouth of the Esconawba River.

Escondi'do, a harbor on the W. side of the Gulf of California, near Loreto; Lat. 25° 55′ N., Lon. 116° 45′ W.

Escondido, a harbor on the S. coast of Cuba, about 60 m. E. of Santiago.

Escondido, a harbor at the E. extremity of Lake Terminos, in Yucatan; Lat. 18° 50′ N., Lon. 91° 5′ W.

Escondido, a harbor on the E. side of the Bay of Panama, prov. of Cauca, in the Republic of Colombia, about 140 m. S. E. of Panama.

Escondido, a harbor on the N. coast of the peninsula of Paraguana, in the department of Zulia, Venezuela.

Escopet', Escopette', *n.* [Sp. *escopeta.*] A fire-arm, resembling a carbine, used in some Spanish-speaking countries.

Es'cort, *n.* [Fr. *escorte;* It. *scorta*, from Lat. *cohors*, a company of soldiers. See COHORT.] A body of armed men which attends an officer, or baggage, provisions, or munitions conveyed by land, to protect them; as, an *escort* of cavalry. — Protection or safeguard on a journey, expedition, or excursion.

—*v. a.* To attend and guard on a journey or excursion; to accompany as a safeguard; to attend ceremoniously; as, to *escort* a lady to her home.

Escouade, (*ĕs-koo-ād',*) *n.* [Fr.] (*Mil.*) See SQUAD.

Escout', *n.* Same as SCOUT, *q. v.*

Escritoire, (*ĕs-krĭ'twôr,*) *n.* [O. Fr. *escriptoire;* Fr. *écritoire;* Sp. *escritorio*, from Lat. *scribere*, to write. See SCRIBE.] A box or desk with all implements and conveniences for writing; a scrutoire.

Escrito'rial, *a.* Pertaining, or having reference, to an escritoire.

Escrod', *n.* See SCROD.

Escroll', *n.* (*Her.*) A scroll; the representation of a slip of paper, parchment, &c., on which the motto of an escutcheon is inscribed.

Es'crow, *n.* [N. Fr. *escrover*, a scroll.] (*Law.*) A deed delivered to a third party, to be the deed of the party making it upon a future condition when a certain thing is performed, until which it has no effect as a deed.

Es'cuage, *n.* [O. Fr. *escu*, a shield.] (*Feudal Law.*) A pecuniary satisfaction, paid in lieu of military service by tenants in chivalry.

Escudero, (*ĕs-koo-dā'ro,*) *n.* [Sp.] An esquire; a lady's attendant.

Escu'do, an island in the Caribbean Sea, about 9 m. off the N. coast of Veragua; Lat. 9° 6′ 24″ N., Lon. 81° 34′ 30″ W.

Escu'do de Vera'gua, a river separating Central and S. America, and flowing into the Caribbean Sea.

Escuin'tla, a town of Guatemala, on the Pacific coast, about 35 m. S.W. of Guatemala; *pop.* about 3,500.

Esculapian, *a.* [From Lat. *Æsculapius.*] Medical; pertaining to the healing art.

Escula'pius, *n.* (*Myth.*) See ÆSCULAPIUS.

Es'culent, *a.* [Lat. *esculentus,* from *esca,* food — *edo,* to eat.] Eatable; edible; that is or may be used by man for food; as, an *esculent* root.

—*n.* Any vegetable substance that may be used as good and efficient food; any article wholesome as food; though the term is generally confined to roots, fruits, and grains.

Escu'lctine, *n.* (*Chem.*) A crystalline substance obtained from Esculine. *Form.* $C_{18}H_6O_8$.

Escu'lic, *a.* [Lat. *æsculus.*] (*Chem.*) Pertaining to, or extracted from, the horse-chestnut.

Es'culine, *n.* (*Chem.*) A neutral crystalline substance found in horse-chestnut bark. It possesses the property of *fluorescence* in a high degree; one part in a million parts of water appearing blue by reflected light. *Form.* $C_{42}H_{24}O_{26}$.

Escurial, (*ais-koor-e-al'.*) [Sp. *Escorial.*] A famous monastery and palace of Spain, 24 m. from Madrid, built by Philip II., after the plan of St. Peter's, to commemorate his victory over the French at St. Quentin: the monastery was erected in the form of a gridiron in honor of the martyr St. Lawrence. The whole building consisted of a royal palace, the church of St. Lawrence, a monastery of Jeronomites, a free school, cloisters, a library, and shops of different artists, — the whole surrounded by fountains, courts, gardens, and orchards. This immense building, which receives its name from the village in which it stands, cost six millions of crowns, has 14,000 doors, and a proportionate number of windows, and occupied twenty-two years in building. It stands in a dry, barren country, surrounded by rugged mountains, and is composed of gray-stones found in the neighborhood.

Escutcheon, (*es-kŭch'm,*) *n.* [Fr. *écusson,* from O. Fr. *escusson,* from Lat. *scutum,* a shield; Gr. *skutos,* a skin, a hide.] (*Her.*) A shield; the shield on which armorial bearings are depicted. The shield may be of any form, but the shape generally adopted is that of a square, a brace with the central point turned outwards, or two lines projecting outwards, and inclined to each other at a very large obtuse angle, being used at the bottom instead of a horizontal line to connect the sides. The armorial bearings of a lady entitled to bear arms, being

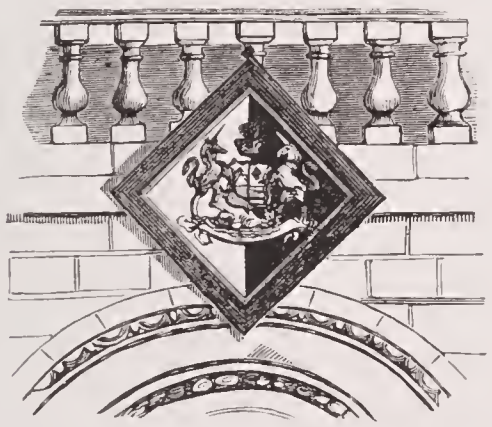


Fig. 965. — FEMALE'S ESCUTCHEON.

unmarried, or a widow, are emblazoned on a shield in the form of a lozenge (Fig. 965). — *E. of pretence.* When a man marries an heiress or co-heiress, he places the armorial bearings of his wife's family on a small shield exactly in the centre of his own coat. This shield is called the *E.* of pretence, and signifies that the children by such a marriage inherit the coat-armor of their mother's family, as well as real property, and are the representatives of that family, as well as that of their father. On the death of the father, the children bear the armorial bearings of their mother's family quarterly with the paternal coat.

(*Naut.*) That part of a vessel's stern on which her name is written.

(*Carp.*) A thin plate of metal which slides over and covers the key-hole of a door.

Escutcheoned, (*es-kuch'und,*) *a.* Having a coat of arms or ensign.

Esdras, (Books of,) (*ez'dras.*) (*Script.*) Though usually ascribed to Ezra, the authorship and date of the first and second books of Esdras are involved in great obscurity. Lawrence supposes the second book to have been written B. C. 28–25. They were admitted as canonical by the Council of Carthage in 397 or 419, but have since been included in the Apocrypha.

Escmplas'tic, *a.* [Gr. *es,* to, *en,* one, and *plastikos,* formed.] Moulded or formed into one.

Esh'boral, the fourth son of Saul, generally called Ishbosheth.

Esh'col, the small and well-watered valley from which the Hebrew spies obtained the specimen of grapes, which they suspended from a staff borne by two men for safe carriage to Moses. This valley is believed to be the one which closely adjoins Hebron on the north, and still furnishes the finest grapes in the country, as well as pomegranates, figs, olives, etc.

Esk, the name of several rivers in Scotland. 1. In Dumfriesshire, falling into the Solway Frith. — 2. (NORTH.) In the county of Edinburgh, joining the sea at Musselburgh. — 3. (NORTH.) In Forfarshire, falling into the German Ocean, 3 miles from Montrose. — 4. (SOUTH.) In the same county, falling into the sea at Montrose. — 5. (SOUTH.) In the county of Peebles, falling into the North Esk below Dalkeith.

—Also a river of Cumberland, England, rising in the Sea Fell, and falling into the Irish Sea near Ravenglass.

Eske, a river of England, rising near Kildare, Yorkshire, and falling into the North Sea at Whitby.

Es'ki-Sa'gra, a town of Eastern Roumelia, at the S. base of the Balkan Mountains, 70 m. N.W. of Adrianople. *Manuf.* Carpets, leather, and hardware. *Pop.* 21,600.

Es'la, a river of Spain, rises in the prov. of Valencia, Old Castile, and, after a S.W. course of 125 m., joins the Douro, 15 m. below the town of Zamora.

Esmark'ite, *n.* (*Min.*) Same as FAHLUNITE, *q. v.*

Es'men, in *Illinois,* a flourishing township of Livingston co.

Esmeral'da, in Brazil, a sierra or mountain-chain, prov. of Minas-Geraes, stretching about 170 m. E. and W.

Esmeral'da, in Ecuador, a river which rises near Quito, and flows N.W. into the Pacific, abt. Lat. 0° 58′ N., Lon. 79° 40′ W. — A sea-port town, abt. 10 m. from the mouth of *E.* River, and 95 m. N.W. of Quito.

Esmeral'da, in Venezuela, a mission settlement, on the Oriuoco River.

Esmeral'da, in *Nevada,* a S.W. co., bordering on California, Utah, and Arizona. *Rivers.* Walker river. It also contains Walker lake. *Surface,* elevated plains; *soil,* sterile. *Min.* Silver, gold, lead, iron, coal, and salt. *Cap.* Hawthorne. *Pop.* (1890), 2,148.

Esmerel'da, in *California,* a post-office of Calaveras co.

Es'mond, in *Illinois,* a post-office of DeKalb co.

Es'mond, in *South Dakota,* a post-village of Kingsbury co.

Es'mont, in *Virginia,* a post-office of Albemarle co.

Es'ne, Esna, or **Esneh,** a town of Upper Egypt, and the last place of any magnitude on the side of Nubia, 25 m. from Thebes. It is the entrépôt of the Sennaar caravans, and is famous for a vast ancient temple, now converted into a cotton factory. *Manuf.* Cotton, shawls, and pottery. *Pop.* (1897) estimated at about 7,000. Near this place Davoust defeated the Mamelukes, 1799.

Esocidæ, *n. pl.* (*Zoöl.*) See PIKE.

Esoph'agus, *n.* (*Anat.*) See ŒSOPHAGUS.

Eso'pian, *a.* [Lat. *Æsopus.*] Pertaining to Æsop; after the manner of Æsop; as, *Esopian* fable.

Eso'pus, in *New York,* a post-village and township of Ulster co., on the Hudson River, about 68 m. S. by W. of Albany.

Eso'pus Creek, in *New York,* enters the Hudson River from Ulster co.

Esoter'ic, *a.* [Fr. *ésoterique,* from Gr. *esōterikos,* inner, intimate, from *esō, eisō,* into, from *eis,* into, to.] Private; secret; mysterious; taught to a select few, as certain doctrines of the ancient philosophers; correlative to *exoteric,* or public.

Esoter'ically, *adv.* In an esoteric manner.

Esotericism, (*es-ō-ter'i-sizm,*) *n.* Esoteric doctrines or principles.

Esoter'ics, *n. sing.* Mysterious or hidden doctrine or science.

Es'otery, *n.* Mystery; secrecy.

E'sox, *n.* [Lat.] (*Zoöl.*) See PIKE.

Es'padon, *n.* [It. *spadone.*] A long, heavy sword used in the decapitation of criminals.

Espal'ier, *n.* [Fr.; It. *spalliera,* probably from Lat. *palus,* a pole.] (*Hort.*) A substitute for a wall on which to train fruit-trees, and sometimes ornamental shrubs. The objects are to expose the foliage of the plants more perfectly to the light, to prevent the branches from being blown about by the wind, and to economize space by confining them within definite limits. The espalier is either constructed of wood or iron; and commonly of two horizontal rails joined by upright rods, six or eight inches apart.

—*v. a.* To form an espalier.

Española. See HAYTI.

Espar'cet, *n.* [Fr.] A plant, being a kind of sainfoin.

Espartero, JOACHIM BALDOMERO, Duke of Victory, (*ais-par-tair'o,*) a Spanish soldier of fortune, B. near Almagro, 1793. Captivated by the charms of a military life, he enlisted in 1808 as a common soldier. On the breaking out of the South American Revolution, he accompanied his regiment to Peru, where he rapidly distinguished himself, and rose to the grade of a commanding officer, and where he remained till the final triumph of the revolution compelled the Royalists to quit the country. Upon the breaking out of the civil war in 1833, *E.* joined the side of the youthful queen, where he soon became the head and directing chief, and was mainly instrumental in seating Christina on the throne of her fathers, for which he was ennobled with the title of Duke of Victory. In 1841, during the minority of the queen Isabella, he was elected Regent of Spain; two years later, civil faction drove him a refugee to England. In 1854 he was again called to assume the reins of government, which he held till 1856. In 1870 he declined the crown of Spain when offered him; and in 1872 was appointed Captain-general of the kingdom. D. Jan. 1879.

Espar'to, *n.* [Sp. and Pg.] A species of grass, the *Stipa* or *Macrochloa tenacissima,* found in Spain and Algiers. It is made into cordage, and is largely used in paper-making; the amt. exp. yearly from the Mediterranean for this purpose has become very valuable.

Espauliere, (*es-pō-le-ar',*) *n.* (*Mil.*) A kind of metal shoulder-piece, used in the 15th century; whence the modern term *epaulet.*

Especial, (*es-pesh'al,*) *a.* [Fr. *spécial.* See SPECIAL.] Principal; chief; special; particular; as, an *especial* proviso.

Espe'cially, *adv.* In an uncommon degree; specially; principally; chiefly; particularly; peculiarly; expressly.

Espe'cialness, *n.* State or object of being especial.

Espejo, (*ais-pai'ho,*) a town of Spain, 20 m. from Cordova; *pop.* 5,248.

Esperance', in *New York,* a post-village and township of Schoharie county, about 28 miles W. by N. of Albany.

Es'perance Bay, on the S. coast of Australia, Lat. 35° 55′ S., Lon. 121° 47′ E.

Esparan'za, in *California,* a post-office of Kings county.

Esper'non, J. L., DE NOGARET DE LA VALETTE, Duke d', a French nobleman, B. 1554, and originally known as Caumont, was one of the most important persons in the reigns of Henry III., Henry IV., and Louis XIII. His intrigues at court were opposed to those of the Duc de Guise, and afterwards of Richelieu, and he was the chief instrument in investing Maria de Medicis with the regency. D. 1642.

Espi'al, *n.* [See ESPY.] Act of espying; observation; notice,

Espi'er, *n.* One who watches, after the manner of a spy.

Es'pinel, *n.* Same as SPINEL, *q. v.*

Espinhaço, or **Espinhaca,** (SIERRA DO,) a mountain-chain of Brazil, extending in a direction generally parallel with the coast, from the right bank of the San Francisco to the head-waters of the Urugnay. Its northern part forms the eastern limit of the basin of the former river. The Sierra, as a whole, is said to be rich in diamonds.

Espionage, (*es'pi-on-āj.*) *n.* [Fr. *espionnage.* See ESPY.] Practice of watching others without being suspected, and giving intelligence of discoveries made.

Espiotte, (*ĕs'pe-ot,*) *n.* [Fr.] A kind of rye.

Espirito Santo, or VILLA VELHA D'ESPIRITO SANTO, the former cap. of the following prov., on the Bay of Espirito Santo; *pop.* about 100.

Espirito Santo, (*ai-spe're-too san-to,*) a maritime prov. of Brazil, bounded N. by Bahia, S. by Rio-Janeiro, W. by Minas-Geraes, and E. by the Atlantic; *area,* 23,000 sq. m. It has a rich but ill cultivated soil. Along the coast are the islands called the Abrolhos. The interior, covered with mountains and dense forests, is mostly peopled by Indians. *Cap.* Vittoria.

Espiritu Santo, a town of Cuba, near the middle of the island; *pop.* 11,000,

Espiritu Santo, the largest island of the New Hebrides, in the Pacific Ocean, being 65 miles long, by 20 broad; Lat. 15° S., Lon. 167° E.

Espiritu Santo, a cape of Terra del Fuego; Lat. 52° 38′ S., Lon. 68° 37′ W.

Espiritu Santo, a group of the Bahama Islands, abt. 18 m. S. of Andros.

Espiritu Santo, an island in the Gulf of California, about 30 m. N. of La Pas. Length about 13 m.; breadth about 5 m.

Espiritu Santo, in *Florida.* See TAMPA BAY.

Espi'ta, a town of Yucatan, Mexico, about 30 m. N. of Valladolid; *pop.* about 3,000.

Esplanade', *n.* [Fr., from Lat. *planus,* plain.] Any clear space used for public exercise.

(*Fort.*) The open space that should surround a citadel, and intervene between the main ditch and any fortifications that may be thrown up around the town near which the citadel is situated. The *E.* should be five or six hundred yards in breadth, measuring from the crest of the glacis. This open space of ground is necessary to deprive an enemy of the protection that buildings close to any citadel would afford to his troops while erecting batteries for the purpose of breaching the walls.

(*Gardening.*) A grass-plot.

Espons'al, *a.* Used in or relating to the act of espousing or betrothment.

—*n.* Act of espousing or betrothing. — Adoption; protection; as, the *espousal* of another's wrongs.

Espous'als, *n. pl.* [O. Fr. *espousailles.*] Act of betrothing or of contracting or affiancing a man and woman to each other; a contract or mutual promise of marriage.

Espouse, (*es-powz',*) *v. a.* [Fr. *épouser;* O. Fr. *espouser;* Lat. *spondeo, sponsus,* to engage or pledge one's self.] To betroth; to promise or engage in marriage by contract in writing or by some pledge.

"Deliver me my wife, Michal, which I *espous'd* to me."—*2 Sam.*

—To take in marriage; to accept as spouse; to marry; to wed.

"*Espoused* Eve deck'd first her nuptial bed."—*Milton.*

—To adopt; to take to one's self with a view to maintain; to adopt; to maintain; to support.

"The city, army, court, *espouse* my cause."—*Dryden.*

Espouse'ment, *n.* Act of espousing.

Espous'er, *n.* One who espouses; one who embraces the cause of another.

Espressivo, (*es-pres-sē'vo.*) [It.] (*Mus.*) With expression.

Espring'gal, *n.* (*Antiq.*) A kind of balista.

Esprit, St., (*es-pre',*) a town of France, dep. Landers, on the Adour, opposite Bayonne, of which it is a suburb; *pop.* 9,000.

Espy', *v. a.* [Fr. *épier;* O. Fr. *espier;* It. *spiare.* See SPY.] To see at a distance; to observe or behold; to seek or search after; to discern; to descry; to discover; to discover or see unexpectedly; as, to *espy* land.

—To inspect narrowly; to examine; to survey.

—*v. n.* To look narrowly; to look about; to watch.

"Stand by the way and *espy.*"—*Jer.* xlviii. 19.

Es'py, JAMES P., an American meteorologist, B. in Washington co., Pennsylvania, 1785. His principal and much valued work is entitled *Philosophy of Storms.* D. 1860.

Es'py, in *Pennsylvania,* a post-village of Columbia co., on the N. bank of the Susquehanna River, abt. 85 m. N.N.E. of Harrisburg.

Es'pyville, in *Pennsylvania*, a post-village of Crawford co., on Shenango Creek, abt. 10 m. N.N.W. of Pittsburg.

Esquimaux, (*es'ke-mo,*) sometimes called *Eskinos*, or "eaters of raw flesh," is the name given to a diminutive people inhabiting the coasts of all the seas, bays, inlets, and islands of America, north of the 60° N. Lat., from the eastern coast of Greenland, in Lon. 20°, to the Strait of Behring, in Lon. 167° W. On the Atlantic, they are to be found along the entire coast of Labrador to the Strait of Belleisle, and down the east side of Hudson's Bay nearly as far as James's Bay: while on the Pacific they reach as far as the Peninsula of Alaska. They are also to be met with on the Asiatic side of Behring's Strait, and though few in number, may be regarded as the most widely spread nation in the world, occupying, according to Mr. Gallatin, not less than 5,400 miles of coast, without including the inlets of the sea. Though inhabiting a country where the Redskins are their closest neighbors, the Esquimaux differ from them in almost all physical points, being extremely short of stature, almost white in complexion, living nearly exclusively on the fat or blubber of the whale, seal, and walrus, and dressed entirely in seal-skins, which he sews together in an extremely neat fashion with thread made from filaments of the long nerves of the whale. The dresses of both men and women are nearly alike. They live either in caverns of the mountains, or in huts made of



Fig. 966. — ESQUIMAU.



Fig. 967. — WINTER VILLAGE OF ESQUIMAUX.

sods and turf, and in the winter in round hovels constructed solely of blocks of snow, in the sides of which they insert sheets of ice to answer the purpose of windows (Fig. 967). In the brief months of what is called their summer they follow the occupation of hunters and fishermen, and during the darkness of their long winter spend the greater part of their time in their huts, mending their fishing-gear and repairing their clothes, or in long stretches of repose. The origin of the *E.* is much contested; but the most accredited opinion is that they belong to the Mongolian race, with which, according to Lathan, they have the flat nose, projecting cheek-bones, eyes often oblique, and skin more brown than red or copper-colored, thus presenting a marked contrast to the North American Indians. Gallatin, Duponceau, and Dr. Prichard, however, give to them the same origin as that of the hunting tribes of the North American Indians; and it seems generally admitted that their language is American in respect to its grammatical structure, being composed of long compound words, and regular, though remarkable, inflections. The habits of the *E.* are filthy and revolting in the extreme. A great part of their food is consumed without any attempt at cooking it; and they drink the blood of newly-killed animals as the greatest delicacy that could be offered them. Their religion consists principally in superstitious observances, but they believe, we are told, in two greater spirits and many lesser ones. The Moravian mission in Greenland, commenced by Hans Egede in 1721, has succeeded in converting many of them to Christianity; and they are represented by the missionaries to be a mild and teachable people, easily led by kindness to distinguish between what is morally right and wrong. Where the missionaries, however, have not penetrated, our arctic voyagers generally speak of them as honest among themselves, but incorrigibly dishonest and prone to lying and exaggeration in their intercourse with strangers. Their commercial places are King-ing, on Cape Prince of Wales, Sesua-ling, at the mouth of the Nu-na-tak, Nig-a-lek, at that of the River Cobville, and Nu-wu-ak, at Pt. Barter.

Es'quimaux, an island and harbor in the Gulf of St. Lawrence, N. America, on the Labrador coast; Lat. 54° 35′ N., Lon. 56° 21′ W.

Es'quimaux Dog, *n.* See DOG.

Esqui'na, a town of the Argentine Republic, La Plata, prov. of Corrientes, on the Parana River; *pop.* abt. 800.

Esquipu'las, a town of Central America, in the State of Guatemala, abt. 18 m. S. by E. of Chiquimula; *pop.* abt. 1,800.

Esquire', *n.* [Fr. *écuyer*, a shield-bearer; Lat. *scutifer.*] In the Middle Ages and the days of chivalry the *E.* was a young gentleman of good family in immediate attendance upon a knight, who carried his shield and performed many duties in this capacity, which were not, however, of a menial nature. The *E.* first served as a page in the knight's household. When he was old enough and possessed of sufficient strength and skill to bear arms, the page was promoted to the rank of *E.*, and attended the knight at tournaments and in the battle-field. He eventually became a knight himself, after exhibiting such prowess in the field or elsewhere as might entitle him to claim the spurs and other insignia of a knight. In the present day, in England, the title of *E.* should give the bearer precedence over gentlemen properly so called, who are entitled to bear coat-armor, but is of no value, owing to its universal assumption by those who have no claim whatever to attach it to their names. In England, the word *E.* is a title of courtesy, added to the names of all those who live in the rank of gentlemen.

—*v. a.* To attend; to wait on; as, to *esquire* a knight.

Esquiros, HENRI ALPHONSE, (*es-kwē'ros.*) a French author, b. in Paris, 1814, and chiefly known as a leader of the French Republican party. In 1841 he was sentenced to some months' imprisonment for supporting the opinions of Lausennair. In 1850 he was elected as a representative of the people to the Legislative Assembly, and was exiled after the *coup d'état*, Dec. 2, 1851. He has since lived in England. His principal works are, *Les Chants d'un Prisonnier* (poems, written in the prison of St. Pélagie), *L'Histoire des Montagnards*, *Les Martyrs de la Liberté*, and *The English at Home* (1862–3); *England and English Life* (1870); and *English Seamen* (1868). In 1871 he entered the National Assembly. D. 1876.

Esquisse, (*es-kēs',*) *n.* [Fr.] (*Fine Arts.*) The first outline of a picture, or model of a statue.

Essay', *v. a.* [Fr. *essayer;* It. *assaggiare*, to taste, to try, to attempt, from *saggiare.* See ASSAY.] To try; to endeavor; to attempt.

"What marvel if I thus *essay* to sing?"—*Byron.*

—To make experiment of; to assay, as metals.

Es'say, *n.* An attempt; a trial; an endeavor; an effort made, or exertion of body or mind, for the performance of anything; as, an *essay* in the right direction.

—A trial or experiment; a test, as of metals.

(*Lit.*) A composition intended to prove or illustrate some particular subject; a tract; a short treatise or dissertation; as, Macaulay's *Essays* [essays.

Es'sayer, Es'sayist, *n.* One who writes an essay or

Es'seck, or ESZEK, a fortified t. of Austria, in Sclavonia, on the Drave, 80 m. from Belgrade.

Es'sen, a town of Rhenish Prussia, situated between the Ruhr and the Emscher, 20 m. N.E. of Düsseldorf. Here are the immense coal, iron and gun works of Herr Krupp, giving employment to over 25,000 men. *Pop.* (1897), with suburbs, about 82,000.

Essence, (*es'sens,*) *n.* [Fr., from Lat. *essentia*, from *sum, esse;* Sansk. *as*, to be.] Being; a being; the nature, substance, or being of anything; formal existence:—sometimes termed *nominal* essence.

—That which makes anything to be what it is; the peculiar nature of a thing; the very substance; existence; as, the *essence* of Christianity.—The quality of being; existent person.

"As far as gods and heavenly *essences* can perish."—*Milton.*

Constituent substance; the predominant qualities or virtues of any plant or drug separated from grosser matter; as, *essence* of clove.

(*Perfumery.*) A solution of one or more essential oils in alcohol, and may be prepared (1) by adding rectified spirit to the odoriferous parts of plants, or to the essential oils, and distilling; or (2) simply by adding the essential oil to the rectified spirit, and agitating till a uniform mixture is obtained. Thus the essence of lemons is merely a solution of the volatile oil of lemons in rectified spirit.

(*Phil.*) A scholastic term, denoting what the Platonists called the idea of a species. The school philosophers give two significations of the word *essence:* the first denoting the whole essential perfection of a being, and consequently its entity, with all its intrinsic and necessary attributes taken together; the second denoting the principal or most important attributes of any thing. The essences of things were held by many to be uncreated, eternal, and immutable.

Essence de Petit Grain, *n.* [Fr.] See CITRUS.

Essence d'Orient, *n.* [Fr.] A term applied to a pearly-looking matter found principally at the base of the scales of the *bleak*, a small fish of the gen. *Cyprinus;* it is used to line the interior of glass bubbles or beads, as in the manufacture of artificial pearls.

—*v. a.* To perfume; to scent; to make aromatic.

"The husband rails at *essenced* fops and tawdry courtiers." *Addison.*

Essenes, (*es'seenz,*) *n.* [Gr. *Essenaion*, from Chald. *âsayâ;* Heb. *asâ*, to heal.] (*Jewish Hist.*) A sect which existed among the Jews during the lifetime of Christ. They are not mentioned in the New Testament, but they are described by Josephus and Philo. The authenticity of the account ascribed to the latter is, however, doubtful, as a work in his name, *De Vitâ Contemplativâ*, is proved to have been written by a Christian monk. According to Josephus, the Jews were divided into 3 sects,—the Pharisees, the Sadducees, and the Essenes. The Sadducees were essentially a political party, and the *E.* were those who carried out the views of the Pharisees to an extent which made them ridiculous in the eyes of the party from which they sprung. Levitical purity hemmed them in with so many restrictions that it soon became necessary for them to live in retired and lonely places. The sect had not a large number of followers, but John the Baptist, and even Christ himself, are considered to have sprung from this division of the Jewish population. They took no part in public affairs, and spent their lives in contemplation. They adopted celibacy, and had no individual property. In matters of belief they held the Scriptures in the highest reverence, interpreting it, however, by an allegorical system of their own: they believed also in the immortality of the soul. Out of Essenism, in the stage of Sabaism, resulted Islamism, in the full development of whose tenets and practices several of the principal rites of the Essenes are preserved.

Es'senism, *n.* Doctrine of the Essenes.

Essential, (*es-sen'shi-al,*) *a.* [Fr. *essentiel*, from L. Lat. *essentialis*, from *essentia*, essence.] Relating to, or containing, the essence necessary to the constitution or existence of a thing; vital: as, *essential* to life.

—Indispensable; requisite; important in the highest degree.

"Judgment 's more *essential* to a general than courage." *Denham.*

—Pure; highly rectified; volatile; containing the essence of; as, an *essential* oil.

E. character. (*Nat. Hist.*) That which distinguishes one genus, species, &c. from another.

E. disease. (*Med.*) A disease not superinduced by another.

—*n.* That which is essential or necessary; the chief point; the most prominent characteristic; first or constituent principle; nature; as, the *essentials* of religion.

Essential'ity, Essen'tialness, *n.* Quality of being essential; first or constituent principles.

Essen'tially, *adv.* In essence; by the constitution of nature; in an important degree; as, these things are *essentially* the same.

Essential Oil, *n.* (*Chem.*) The odorous principle of a plant. Essential oils are also called volatile oils, to distinguish them from the fixed oils. Chemically speaking, they are either hydrocarbons or oxidized hydrocarbons, and oils containing sulphur. They are extracted from different parts of plants, some plants yielding two different essential oils. Thus the orange yields two distinct essential oils, one from the flower, the other from the peel of the fruit. They are prepared in different ways, either by enfleurage, by pressure, or by being distilled with water. The principal use of essential oils is in perfumery; but certain of them are used for flavoring, and in medicine. It would be impossible to give even a summary of the almost infinite number of essential oils; if the reader is curious on the subject, he may find a great deal of valuable information respecting them in Piesse's *Art of Perfumery*, 3d edition.

Essequi'bo, or ESSEQUEBO, a river of British Guiana, S. America, rises in the N. slope of the Acaray Mountains, and flowing generally N., empties into the Atlantic by an æstuary 20 m. in width.

Es'sera, *n.* (*Med.*) The NETTLE-RASH, *q. v.*

Es'sex, EARLS OF. See DEVEREUX.

Es'sex, a maritime county of England, bounded N. by the counties of Cambridge and Suffolk, E. by the German Ocean, S. by the river Thames, and W. by the counties of Hertford and Middlesex. *Area*, 1,657 sq m. On the coast, the land is broken, and indented by arms of the sea, which form a series of islets and peninsulas. *Rivers.* The principal are the Colne, the Blackwater, the Chelmer, the Crouch, the Ingerbourn, the Roding, and the Cam. Besides these, it is bounded by the Thames, the Stour, the Stort, and the Lea. *Prod.* Almost every diversity of soil is to be found within the limits of this county; it is, therefore, generally well adapted for agricultural pursuits, and its farming is placed among the best in England. *Manuf.* Essex was formerly noted for woollen manufactures of various descriptions; but these have declined. A considerable proportion of the inhabitants are employed in its oyster fisheries, which are valuable. *Pop.* (1895) 796,300.

Es'sex, a S. W. co. of prov. of Ontario, forming a peninsula between lakes Erie and St. Clair; *area*, about 670 sq. m. *Rivers.* Detroit river. *Surface*, even; *soil*, fertile. *Cap.* Sandwich. *Pop.* (1891) 55,545.

Es'sex, in *Connecticut*, a post-town and township of Middlesex co., on the Connecticut river, about 30 m. E. of New Haven. *Pop.* (1890) 2,035.

Es'sex, in *Illinois*, a township of Kankakee co., about 20 m. S. by W. of Joliet.

—A township of Stark county.

Es'sex, in *Iowa*, a post-town of Page county.

Es'sex, in *Massachusetts*, a N.E. county; *area*, about 500 sq. m. *Rivers.* Merrimac and Ipswich rivers. Its E. and S.E. borders are washed by the Atlantic ocean and Massachusetts bay respectively. *Surface*, broken and rocky; *soil*, in some parts fertile. *Manuf.* Shoes, leather, &c. *Capitals.* Lawrence, Salem and Newburyport. *Pop.* (1895) 330,393.

—A post-town and township of Essex co., about 28 m. N.E. of Boston.

Es'sex, in *Michigan*, a township of Clinton co.

—A village of Clinton co., abt. 25 m. N. by W. of Lansing.

Es'sex, in *New Jersey*, a N.E. co.; *area*, about 127 sq. m. *Rivers.* Passaic river and Bound Brook. Its borders are also washed by Newark bay and Staten Island sound. *Surface*, level; *soil*, fertile. *Cap.* Newark. *Pop.* (1895) 312,000.

Es'sex, in *New York*, a N.E. co.; *area*, about 1,650 sq. m. *Rivers.* Au Sable, Boquet, and Scroon rivers, as well as the headwaters of the Hudson. Lake Champlain is on the E. border. *Surface*, varied, being level in the E., and mountainous in the W., where Mt. Marcy presents the highest elevation in the State. *Soil*, generally fertile. *Minerals.* Iron, limestone, marble, and black lead. The Adirondack mountains are situated in the N.W. of this co. Magnetic iron ore abounds. *Cap.* Elizabethtown. *Pop.* (1890) 33,052.

—A post-town and township of Essex co., on Lake Champlain, about 130 m. N. by E. of Albany.

Es'sex, in *Ohio*, a village of Union co., about 45 m. N.N.W. of Columbus.

Es'sex, in *Vermont*, a N.E. county; *area*, about 730 sq. m. *Rivers.* Connecticut, Passumpsic, Clyde, and Nulhegan rivers. It contains immerous small lakes. *Surface*, mountainous; *soil*, not fertile. *Cap.* Guildhall. *Pop.* (1890) 9,511.

—A post-village and post-town of Chittenden co., about 35 m. N.W. of Montpelier.

Es'sex, in *Virginia*, an E. county; *area*, about 235 sq. m. *Rivers.* Rappahannock river. *Surface*, generally even; *soil*, fertile. *Cap.* Tappahannock. *Pop.* (1890) 10,047.

Ess'ington. See PORT ESSINGTON.

Ess'ling, a village of Lower Austria, on the left bank of the Danube, 6 m. below Vienna. Between this village and that of Aspern a battle was fought between the French and the Austrians, in which the former were victorious. This victory was dearly paid for, since it cost the life of Marshal Lannes. Marshal Massena received the title of Prince of Essling.

Ess'lingen, a town of Würtemberg, on the Neckar, 6 m. from Stuttgart. *Manuf.* Woollens, cottons, lacquered wares, and musical instruments. *Pop.* 8,711.

Essoin', *n.* [O. Fr. *essoigne*; L. Lat. *essonia.*] (*Eng. Law.*) Allegement of an excuse for one who fails to put in an appearance in court when called upon; presentation of such excuse. — The person excused for nonappearance in court at the appointed day.

Essoin-day, the day on which the court sits to receive essoins.

—*v. a.* (*Eng. Law.*) To put in an excuse for the nonappearance of in court.

Essoin'er, *n.* [O. Fr. *essoigner.*] (*Eng. Law.*) An attorney who presents the excuse of another for nonattendance in court.

Es'sonite, *n.* (*Min.*) Same as CINNAMON-STONE, *q. v.*

Essonnes, (*es'son,*) a town of France, on a river of the same name, abt. 15 m. from Paris, much known for its numerous mills; *pop.* 5,244.

Es'sorant, *a.* [Fr.] (*Her.*) Noting a bird standing on the ground, with the wings expanded, as if making an effort to fly.

Estab'lish, *v. a.* [Fr. *établir*; O. Fr. *establir*, from Lat. *stabilio* — *sta*, root of *sto*, to stand.] To make stable, firm, or steadfast; to make to stand firmly; to set or fix firmly or unalterably; to settle permanently; to found definitively; as, "the *established* laws of the kingdom." *Hale.*

—To institute; to constitute; to form; to erect and fix or settle; as, to *establish* a colony.

—To enact; to decree; to ordain; as, *established* regulations.

—To ratify; to sanction; to confirm; to approve.

"So were the churches *established* in the faith." — *Acts* xvi. 5.

—To found a business; to take precaution against assault or danger; as, an *established* firm, our troops *established* themselves in the heart of the enemy's country.

Estab'lisher, *n.* One who establishes, settles, confirms, or ordains.

Estab'lishment, *n.* [Fr. *établissement.*] Act of establishing or settling firmly; settlement; fixed state; confirmation; ratification. — State of being established, settled, founded, or confirmed. — That which is fixed or established; sanction; fundamental principle; settled law; foundation; basis; ground; form; ordinance; system of laws; constitution of government; stated allowance; means of subsistence; income; salary; wages; a place of residence, or of transacting business; that form of religious worship which is established and supported by the state; settlement or final rest.

Es'tabrook, in *Tennessee*, a village of Anderson co., abt. 160 m. E. of Nashville.

Estacade', *n.* [Fr.; Span. *estacada.*] (*Mil.*) A dike constructed with piles in the sea, a river, or a morass, to hinder the entrance of an enemy.

Estafet', Estafette, *n.* [Fr. *estafette*; Sp. *estafeta.*] A courier; one of a body of couriers in relay.

Es'tagel, a town of France, dep. Pyrénées Orientales, abt. 10 m. from Perpignan. It is famous as the birthplace of Arago, the astronomer. *Pop.* abt. 2,500.

Estaing, (*es-tang',*) CHARLES HECTOR, COUNT D', a French naval officer, served under Count Lally in India, where he was made prisoner by the English. In the American war of independence he was employed as vice-admiral and general of the French armies, and took the island of Grenada. In 1787 he became a member of the Assembly of Notables, and commandant of the national guards at Versailles at the commencement of the Revolution. B. in Anvergne, 1729. Guillotined at Paris, 1794.

Estampes, (*es-tamp',*) ANNE D'HEILLY DE PISSELM. DUCHESSE D', was a mistress of Francis I. of France. She carried on a correspondence with Charles V. of Spain, and informed him of the state of the armies and the country. By her means Charles was enabled to gain considerable advantages, and to humiliate France. After the death of Francis she retired to her country seat, and D. 1576.

Estan'cia, a town of Brazil, abt. 25 m. S.W. of Sergipe, on the Pianhi River; *pop.* abt. 4,000.

Estate', *n.* [Fr. *état*; O. Fr. *estat*, from Lat. *status* — *sto*, to stand.] A standing; position; state; condition; fixedness; established condition; condition or circumstances of any person or thing; rank; quality; as, "fallen from his *estate*." (*Dryden.*) — Landed or other property; possessions; domain; fortune; title or interest which a person has in lands, tenements, stock, &c.; as, a fine *estate*, a bankrupt's *estate*, &c.

—An order or class of men in the body politic, as nobles and commoners, patricians and plebeians.

"Lords, high captains, and chief *estates* of Galilee."—*Mark* vi. 21.

—Possessions of a prince or monarch; as, the *estates* of the realm.

(*Law.*) The word *estate* has several meanings. 1. In its most extensive sense, it is applied to signify everything of which riches or fortune may consist, and includes personal and real property; hence we say, *personal* estate, *real* estate. 2. In its more limited sense, it is applied to lands. It is so applied in two senses. The first describes or points out the land itself, without ascertaining the extent or value of the interest therein; as, "my *estate* at A." The second, which is the proper and technical meaning of estate, is the degree, quantity, nature, and extent of interest which one has in real property; as, an *estate* in fee, whether the same be a fee-simple or fee-tail, or an estate for life or for years.

Este, (*est,*) a river of Hanover, enters the Elbe abt. 6 m. from Altona.

Este, (*es'te,*) a town of Lombardy, abt. 15 m. from Padua. *Manuf.* linen, silk, earthenware, &c. *Pop.* abt. 8,000.

Este, an illustrious house of Italy, which owes its origin to the Carlovingian æra, at the beginning of the 9th century. The most celebrated names are: — ALBERT AZZO D'ESTE, the first who possessed the city of that name, 1020–1117. — OBIZZO, first marquis of Este, lord of Padua in 1182, and afterwards marquis of Milan and Genoa. — His son, AZZO V., who by his marriage acquired the sovereignty of Ferrara, and became chief of the Guelfs of Venice, died 1192. — AZZO VI., son of the preceding, lord of Ferrara and Verona, died 1264. — HERCULES I., lord of Ferrara and Modena, whose court was graced by Ariosto, Boiardo, the Strozzi, &c., 1471–1505. — His son ALPHONSO, married to Lucretia Borgia 1502, a party to the league of Cambrai, reigned 1505–1534. — HIPPOLYTUS, brother of Alphonso, and cardinal of Este, a patron of letters, partisan of Louis XII., and historian of the war of the French against the Venetians, 1479–1520. — ALPHONSO II., grandson of the first of that name, duke of Ferrara and Modena, distinguished as a patron of arts and letters, 1533–1597. — CÆSAR, an illegitimate descendant of Alphonso I., reigned at Modena 1597–1628. — RENAUD, a partisan of Austria in the war of succession, and duke of Modena, 1655–1737. — HERCULES III., grandson of Renaud, and, like him, duke of Modena, was the last of this house in Italy, and his estates passed to Austria, by the marriage of his daughter with the archduke Ferdinand, 1727–1797.

Esteem', *v. a.* [Fr. *estimer*; Lat. *æstimo* — *æs*, copper, brass, money, and an old verb *tumo*, probably from Gr. *timaō*, to value, to prize.] To determine the money value, as of anything; to set a value on, whether high or low; to estimate; to value; to appreciate; to compare in value; to estimate by proportion.

"I preferred her before sceptres and thrones, and *esteemed* riches nothing in comparison of her." — *Wisd.* vii. 8.

—To set a high value on; to regard with reverence, respect, or friendship; to prize; to revere, to respect; to hold in good opinion; to repute.

"To know, to *esteem*, to love, — and then to part,
Makes up life's tale to many a feeling heart." — *Coleridge.*

—*v. n.* To form an estimate in regard to the value of; to consider with respect to value or worth.

"Many would *esteem* little of their own lives." — *Hooker.*

—*n.* [Fr. *estime.*] Estimation; opinion or judgment of merit or demerit; high value or estimation; great regard; favorable opinion; as, "*esteem* for virtuous poverty." — *Dryden.*

Esteem'able, *a.* Worthy of esteem; estimable.

Esteem'er, *n.* One who highly values; one who sets a high value upon anything.

"The proudest *esteemer* of his own parts." — *Locke.*

Estella, (*ais-tel'la,*) a town of Spain, in Navarre, abont 26 m. from Pampelnna. *Manf.* Principally woollens, &c. *Pop.* (1897) abont 6,000.

Estel'la, in *Wisconsin*, a post-office of Chippewa co.

Es'telville, in *New Jersey*, a post-office of Atlantic co.

Estepona, (*ais-tai-po'na,*) a maritime town of Spain, on the Mediterranean Sea, abont 25 m. from Gibraltar; *pop.* abont 9,000.

Es'ther, a Persian name given to Hadassah, a Jewess of the tribe of Benjamin, daughter of Abihail, and cousin to Mordecai. Ahasuerus, king of Persia, married her after divorcing his queen Vashti. His favorite minister, Haman, out of resentment to Mordecai, having plotted the destruction of all the Jews in the empire, she in their behalf supplicated the king, who revoked the decree, and ordered Haman to be hanged on the gallows which he had prepared for Mordecai. In memory of this deliverance, the Jews celebrate the yearly feast of Purim.

Esther, (Book of.) (*Script.*) One of the historical books of the Old Testament, placed after that of Nehemiah, and containing the history of the above Jewess. According to the opinions of the most learned and unprejudiced critics, the date of its composition must be placed after the downfall of the Persian monarchy. The language is much later than that of Ezra, to which it has been attributed, and the fact of occasional explanations of Persian customs fits the period of the Seleucidæ better than an earlier one. The Hebrew text is that which has been followed in the English version; but the Septuagint is full of late interpolations and additions by Alexandrian Jews. The book is held in the highest reverence by the Jews; so much so, that Maimonides declared that, in the days of the Messiah, every Jewish scripture would be forgotten except the book of Esther and the Pentateuch. The book is not written in a theocratic spirit, like the rest of Jewish literature. Nothing is directly attributed to God; in fact, his name is not once mentioned. Neither is there the remotest trace of religious feeling of any kind.

Es'therville, in *Iowa*, a post-village, cap. of Emmett co., about 40 m. N.W. of Algona.

Esthet'ic, *a.* Relating to the science which treats of taste and beauty.

Esthet'ics, *n. sing.* See ÆSTHETICS.

Esthonia, (*es-tho'ne-a.*) or REVEL, a government of the Russian empire, bounded on the W. by the Baltic, N. by the Gulf of Finland, E. by Ingria, and S. by Livonia; Lat. 58° 15′–59° 40′ N., Lon. 22° 10′–28° 5′ E. *Area*, about 7,800 sq. m. *Surface*, generally level; *soil*, sandy and not fertile. *Rivers.* Narva, Keyl, and Loksa rivers. *Produce.* Hemp, flax, hops, and tobacco. *E.* was for a long time the object of contention between the Russians, Poles, and Swedes, and was finally confirmed to the latter by the peace of Oliva in 1660; Peter the Great subdued it in 1710, and it was ceded to the Russian empire in 1721. *Pop.* 327,816.

Estif'erous, *a.* [From Lat. *æstus*, fire, and *ferre*, to bear.] Producing caloric.

Es'till, in *Kentucky*, an E. central co.; *area*, about 250 sq. m. *Rivers.* Kentucky and Red rivers. *Surface*, hilly; *soil*, fertile. *Mining.* Iron and coal. *Capital*, Irvine. *Pop.* (1890) 10,836.

Es'tillville, in *Virginia*, former name of the capital of Scott co.; now GATE CITY.

Es'timable, *a.* [Fr.] That is capable of being estimated or valued; as, *estimable* loss. — Valuable; worth a high price.

"Man's flesh ... is not so *estimable*...as flesh of muttons."—*Shaks.*

—Worthy of esteem or respect; deserving of good opinion, consideration, or regard; as, an *estimable* woman.

—*n.* Anything deserving good opinion or regard. (R.)

"One of the peculiar *estimables* of her country." — *Browne.*

Es'timableness, *n.* The quality of meriting respect or regard.

Es'timably, *adv.* In an estimable manner.

Es'timate, *v. a.* [Lat. *æstimo, æstimatus.* See ESTEEM.] To fix or set a price or money value upon; to judge and form an opinion of the value of; to rate by judgment; to calculate; to reckon; to compute; to rate; to appraise; to appreciate; to value; to prize; to esteem; as, to *estimate* a man's abilities, to *estimate* the value of a commodity, to *estimate* the profits of a commercial venture, &c.

—*n.* A valuing or rating in the mind; a judgment or opinion of the value, degree, extent, or quantity of anything; valuation; estimation; approximate calculation of the probable cost of any undertaking.

Estima'tion, *n.* [Fr., from Lat. *æstimatio.*] Act of estimating or valuing. — Estimate; valuation; appreciation; appraisement; calculation; computation; a reckoning; as, an *estimation* of distance. — Opinion; judgment; notion; esteem; regard; respect; honor.

"I know the gentleman ... to be of worthy *estimation*."—*Shaks.*

Es'timative, *a.* [Fr. *estimatif.*] Serving or tending to estimate.

"We find in animals an *estimative* or judicial faculty." — *Hale.*

Es'timator, *n.* [Lat. *æstimator.*] One who estimates, computes, or values.

Es'tival, *a.* [Lat. *æstivus*, from *æstas*, summer; allied to Gr. *aithō*, to burn.] Pertaining to summer; æstival; continuing through the summer.

Estiva'tion, *n.* [Fr.; Lat. *æstivatio.*] Act of passing the summer.

"A grotto is a place of shade or *estivation*." — *Bacon.*

(*Bot.*) See ÆSTIVATION.

Estoilée, (*es-twō-la',*) *a.* [O. Fr.] (*Her.*) Applied to a star with only four long rays in the form of a cross, broad in the centre, terminating in a sharp point, and called *Cross estoilée.*

Estop', *v. a.* [L. Lat. *stopare.*] (*Law.*) To bar; to stop; to preclude.

Estopil'la, *n.* [Sp.] A kind of mixed linen fabric.

Estop'pel, *n.* [See ESTOP.] (*Law.*) An impediment or bar to a right of action, arising from a man's own act, or that of one to whom the party estopped is privy. As, if a party is bound by a particular name in an obligation, and afterwards sued by that name on the same obligation, he is estopped, *i. e.* forbidden in law to say in abatement that he is misnamed; as he cannot say contrary to that which he has admitted by his own deed. All parties to a deed are estopped to say anything against what is contained in it; and privies are also bound.

Esto'vers, *n. pl.* [O. Fr.] (*Law.*) Necessaries allowed by law, as sustenance, alimony, &c.—Also the right which a tenant has to furnish himself with so much wood from the demised premises as may be sufficient or necessary for his fuel, fences, and other agricultural operations.

Estrade', *n.* [Fr.] The portion of the floor of a room raised two or three steps above the general level, for the purpose of receiving a bed or throne; it is used now for any portion of a raised floor.

Estramaeon, (*es-trăm'a-son,*) *n.* [Fr.; It. *stramazzone*] A kind of two-edged sword used in former times.—Also, a blow from such a sword.

Estrange, (*es-trānj',*) *v. a.* [Fr. *étranger ;* O. Fr. *estranger*, from L. Lat. *extraneus*, alien, foreign, from Lat. *extra*, outward.] To alienate; to keep away, aloof, or at a distance; to withdraw; to cease to frequent and be familiar with.

"Infidels *estranged* from the house of God."—*Hooker.*

—To divert from its original use or possessor.

—To alienate, as the affections; to turn from love and kindness to indifference or malevolence; as, a wife *estranged* from her husband.

Estran'gedness, *n.* State of being estranged; estrangement.

Estrange'ment, *n.* Alienation; a keeping at a distance; removal; voluntary abstraction.

Estran'ger, *n.* One who brings about an estrangement.

Estrapade', *n.* [Fr.; Sp. *estrapada.*] (*Man.*) The action of a horse that will not obey, and, seeking to get rid of its rider, rises up before, and, while his forehand is yet in the air, jerks his hind legs furiously out.

Estray', *n.* [O. Fr. *estrayer.* See STRAY.] (*Law.*) A tame beast, as a horse, ox, ass, or sheep, which is found straying or wandering, or without an owner. They belong to the lord of the soil.

Estreat, *n.* [O. Fr. *estrait*, from Lat. *extractus.*] (*Eng. Law.*) The extract copy, or note of some original writing or record, and especially of fines and amercements, entered on the rolls of the court, to be levied by its bailiff or other officer.

—*v. a.* (*Law.*) To take from, by way of fine.

Estrées, GABRIELLE D'. See GABRIELLE D'ESTRÉES.

Estrel'la, a river of S. America, empties into the Pacific Ocean from Costa Rica, near Quaypo.

Estrel'la, a town of the Republic of Colombia, prov. of Antioquia, about 5 m. S. W. of Medellin.

Estrel'la, in *California*, a post-village of San Luis Obispo co., about 40 m. N. N. E. of San Luis Obispo.

Estrel'la, Porta da, a seaport-town of Brazil, on the Bay of Rio de Janeiro, abt. 16 m. N. of Rio.

Estrel'la, Serra da, a mountain-chain of Brazil, prov. of Rio de Janeiro. Length from E. to W. abt. 18 m.

Estrel'la, Serra de, a mountain range of Portugal, in the province of Beira. Length abt. 75 m. Highest peak 7,520 ft.

Estremadura, (*ais-trāi-ma-door'a,*) an extensive prov. of Spain, lying between 37° 54′ and 40° 38′ N. Lat., and 4° 50′ and 7° 24′ W. Lon. It has Salamanca, and parts of Avila, on the N.; Toledo, La Mancha, and part of Cordova, on the E.; Seville on the S.; and Alentejo and Beira, in Portugal, on the W.; *area*, 14,329 sq. m. Estremadura is now divided into the two provs. of Badajoz and Caceres. Although a continuation of the high table-land of New Castile, *E.* is, like it, a uniform plain, but is mountainous on the N. and S., and is well watered, the slopes of the hills being covered with wood, and the valleys with rich grass. Notwithstanding the fertility of the soil, the land has lain desolate and uncultivated ever since the expulsion of the Moors in the 13th century. The breeding of goats, swine, horses, asses, and mules is much attended to. The mines, which were formerly very productive, are no longer worked. Commerce is confined almost entirely to a contraband trade with Portugal. The inhabitants are poor, and, from the want of roads, isolated from the rest of Spain, and consequently in a low state of civilization. *Pop.* 743,800.

Estremadura, a large prov. of Portugal, including Lisbon, the capital. It extends along the Atlantic, to the N. and S. of Lisbon; being bounded N. by Beira, and E. by Alentejo; *area* 8,180 sq. m. The country is generally hilly. To the W. of the æstuary of the Tagus are the granite mountains of the Sierra da Cintra, varying from 1,500 to 1,800 feet in height, and terminating in the Cabo de Roca. To the S. of the Tagus are barren moors, partly broken by morasses, and the limestone chain of Arrabida, rising to a height of 1,000 feet, and terminating in the Cabo de Espichel. Many districts are extremely fertile, others are barren and uncultivated. *Prod.* Wine, oil, fruits, corn, and cork; but even the sandy plains are covered with cistus, rosemary, myrtles, and other flowering and fragrant plants. The breeding of cattle is not much attended to. *Minerals.* Marble, coal, and sea-salt. This province has been frequently visited by earthquakes. *Pop.* 815,000.

Estreme'nian, *a.* (*Geog.*) Relating or pertaining to the province of Estremadura, Spain.

—*n.* A native or inhabitant of Estremadura.

Estremez, Estremoz, Estremos, (*ais'trai-mos,*) a fortified town of Portugal, prov. Alentejo, on the Tarra, 22 m. from Evora; *pop.* 7,886.

Estremoz', a town of Brazil, prov. of Rio Grande do Norte, on Lake Guajiru, abt. 16 m. N. of Natal; *pop.* 2,000.

Estrepe', *v. a.* [O. Fr. *estreper*, from Lat *extirpare*, to root up.] (*Law.*) To commit waste or spoil in lands, houses, &c., to another's damage, as by cutting down trees, &c.

Estrepe'ment, *n.* [O. Fr.] (*Law.*) Any spoil or waste made by the tenant for life upon any lands or woods, to the prejudice of him in reversion; also making land barren by continual ploughing.

Estrich, Estridge, (*est'rij,*) *n.* (*Com.*) The fine down taken from beneath the feathers of the ostrich.

Est'uary, *n.* See ÆSTUARY.

Est'uate, *v. n.* [Lat. *æstuare.*] To boil; to swell, seethe, and rage; to be in a state of violent commotion.

Estua'tion, *n.* [Lat. *æstuatio.*] Act of estuating; violent commotion, perturbation, or excitement; as, *estuation* of the blood.

Eszek, Esseck, Esseg, a town and fortress of Austria, cap. of Slavonia, on the Drave, 13 m. from its confluence with the Danube; *pop.* 14,000.

Etærio, (*e-te're-o,*) *n.* [Gr. *etaireia*, society.] (*Bot.*) A kind of fruit, examples of which are afforded by the Strawberry, Ranuncules, and Adonis. When the achænia (see ACHÆNIUM) borne by a single flower are so numerous that they form more than a single whorl or series, they constitute collectively an *E.* In the ranuncules and adonis, the achænia are placed on a convex thalamus of a dry nature; in the strawberry they are placed upon a fleshy thalamus. The so-called seeds of the strawberry are in reality so many separate achænia; while the part to which the strawberry owes its value as a fruit is merely the succulent thalamus. In the fruit of the rose, the achænia, instead of being placed on an elevated thalamus, are situated upon a concave one, to which the calyx is attached. This modification of the ordinary *E.* is regarded as a distinct fruit by some botanists, who have distinguished it by the name of *Cynnorhodam.* In the raspberry and blackberry, a kind of *E.* is formed of little drupes or drupels, crowded together upon a dry thalamus.

Etagère, (*ĕt-a-zhar',*) *n.* [Fr.] An article of household furniture with a set of shelves, as a side-board, a what-not, or the English davenport.

Etampes, (*et'amp,*) a town of France, dep. Seine et Oise, abt. 20 m. from Versailles. It has a considerable trade in flour and wool, and more than 60 mills. *Pop.* 10,842.

Etaples, (*ai-tapl,*) a seaport of France, in the Pas-de-Calais, abt. 11 m. from Boulogne. *E.* is memorable as the place where the treaty of peace was concluded between Henry VII. of England and Charles VIII. of France, when the latter was on the point of setting out on his Italian expedition.

Etat Major, (*ā-tā'mā-zhôr,*) *n.* [Fr., from *état*, state; Lat. *status*, and *major*, greater.] (*Mil.*) The staff-officers; staff.

Etats-Unis. [Fr.] See UNITED STATES.

Etawah, (*et-a-waw,*) a fortress and cap. of a dist. of British India, between the rivers Jumna and Ganges, abt. 60 m. from Agra; *area* of dist. abt. 1,675 sq. m. *Pop.* abt. 500,000. Thuggism formerly prevailed in this dist.

Etcætera, (*et-sĕt'e-ra.*) [Lat.] (Contracted into *etc.* or *&c.*) And the rest, or others of the kind; and so on; and so forth.

Etch, (*ech,*) *v. a.* [D. *etsen ;* Ger. *ätzen*, to corrode by acid; root, Sansk. *ad*, to eat.] To produce figures or designs on copper or other metallic plates by means of lines or sketches first drawn.—To sketch; to delineate; to illustrate.

—*v. n.* To practise the art of etching.

Et'chemin, or **Echemin,** a river of Upper Canada, rises in a lake of the same name in Lat. 46° 21′ N., Lon. 70° 37′ W., and enters the St. Lawrence abt. 4 m. above Quebec. Length, abt. 50 m.

Etch'er, *n.* One who practises etching.

Etch'ing, *n.* Act or art of etching; a mode of engraving.—Impressions taken from an etched plate.—See ENGRAVING, and ELECTRO-ETCHING.

Etch'ing-needle, *n.* A finely-pointed steel instrument, used by etchers for tracing out lines, &c., on a metallic plate.

Eteocles, (*e-te'o-klees,*) a son of Œdipus and Jocasta. After his father's death, it was agreed between him and his brother Polynices, that they should both share the royalty, and each reign alternately a year. *E.*, by right of seniority, first ascended the throne; but after the first year of his reign he refused to resign in favor of his brother. Polynices resolved to punish him, and for this purpose sought the assistance of his father-in-law, Adrastus, king of Argos, who assisted him with a large army. War commencing, and having been carried on with various success for some time, it was at last decided by the two brothers, that they should end their dispute by engaging in single combat. They both fell, and it is said that their ashes separated themselves on the burning pile, as if sensible of resentment, and hostile to reconciliation.

Eteos'tic, *n.* [Gr. *ĕteos*, year, and *stichos*, verse.] A chronogram.

Eter'nal, *a.* [Fr. *éternal;* Lat. *æternus, æviternus, ævum ;* Gr. *aion*, a lifetime, and *ternos*, denoting continuance. The Gr. *aion* is akin to *aei*, always, forever.] Without beginning or end of existence; that has always been and always shall be.

"The *eternal* God is thy refuge."—*Deut.* xxxiii. 27.

—Without end of existence, or duration; endless; immortal.

"But in them nature's copy not *eternal*."—*Shaks.*

—Ceaseless; perpetual; interminable; without intermission.

"And fires *eternal* in thy temple shine."—*Dryden.*

—Unchangeable; immutable; as, "*eternal* truth." *Dryden.*

—*n.* An appellation of God.

Eter'nalist, *n.* One who believes in the doctrine of the existence of matter being dependent upon eternity.

Eter'nally, *adv.* Without beginning or end of duration, or without end only; forever; unchangeably; invariably; at all times; perpetually; without intermission.

Eter'nity, *n.* [Fr. *éternité;* Lat. *æternitas.*] Duration or continuance without beginning or end; duration without end; the state of time after death.

(*Phil.*) An attribute of the Deity, the existence of whom, according to the true principles of religion, is without beginning or end. It is a negative idea clothed with a positive name. To whatever it is applied, it supposes a present existence, and it is the negation or denial of any beginning or end to that self-same state of existence. As applied to the Deity, it has not been controverted by those who acknowledge a deity at all. On the common basis of argumentative philosophy, there never could have been a time when nothing ever existed, as assuredly that state of nothing impalpable must have necessarily have continued up to the present time. In strictness, however, we have nothing to do with duration prior to that of the visible world; it is sufficient for us to know that the contriver existed before his handiwork. Eternity being infinite, is inconceivable by our finite understandings; at the same time, we cannot imagine an infinite being to exist without it. There is a distinction made between an *anterior* and a *posterior* eternity; the latter belongs to beings whom God proposes to preserve forever, the former to himself alone.

Eter'nize, *v. a.* [Fr. *éterniser.*] To make eternal or endless; to perpetuate; to make forever famous; to immortalize.

Etesian, (*e-te'zi-an,*) *a.* [Gr. *etesiai* (*anemoi*, winds, being understood), periodical winds, monsoons; *etésias*, for a year, every year, from *etos*, a year.] Annual; yearly; periodical; blowing at stated times of the year, as the monsoons and trade-winds.—See WIND.

E'thal, *n.* [From the first syllables of *ether* and *alcohol.*] (*Chem.*) When spermaceti is saponified, it yields ethal instead of glycerine, as is the case with the ordinary fats. It is a white solid, fusible at 118° Fahr., and soluble in alcohol, crystallizing in plates as it cools. It possesses the constitution and properties of a true alcohol, and stands in the same relation to palmitic acid that ordinary vinous alcohol does to acetic acid. *Form.* $C_{32}H_{34}O_2$.

E'than, [Heb., their strength.] A station of the Israelites, soon after leaving Egypt, (*Ex.* xiii. 20; *Num.* xxxiii. 6.) It lay near the head of the west gulf of the Red Sea, and the wilderness east of it was often called by the same name.

E'than. (*Script.*) I. One of four men renowned for wisdom, though excelled by Solomon, (1 *Kin.* iv. 31; 1 *Chr.* ii. 6.) He appears to have been a son of Zerah or Ezra, and grandson of the patriarch Judah.—II. A Levite, son of Kishi, and one of the three masters of the temple-music, (1 *Chr.* vi. 44; xv. 17–19.)—III. A person to whom Psalm 89 is inscribed.

Ethan'im, [Heb., constantly flowing.] (*Script.*) A month so named before the captivity, because the autumnal rains then began to fill the dry river-channels. It was afterwards called Tishri, and answers nearly to our October. On this month Solomon's temple was dedicated, (1 *Kin.* viii. 2.)

Eth'elbald, king of Wessex, was the eldest surviving son of Ethelwolf. He married his stepmother, Judith of France, but was forced to abandon that connection, and she became the wife of Baldwin, count of Flanders, and the ancestress of Matilda, wife of William the Conqueror, and, through her, of the kings of England. Ethelbald was engaged in military conflicts with the Danes, and distinguished himself by the common quality of bravery, but otherwise holds no remarkable place in history. D. 860.

Eth'elbert, king of Kent, succeeded to the throne A.D. 560. About five years later he married Bertha, daughter of Charibert, king of Paris, a Christian princess, who came to Britain accompanied by a Gallic bishop. Ethelbert was acknowledged Bretwalda on the fall of Ceawlin, king of Wessex, about 590. The mission of St. Augustine took place in 597, Ethelbert was baptized, and Augustine was made Archbishop of Canterbury. Christianity was soon after established among the East Saxons and in Northumbria. The code of laws which Ethelbert published in English, about 600, is the first of our written laws, and the earliest in any modern language. Ethelbert died in 616, and was afterwards canonized.

Eth'elbert, king of England, the second son of Ethelwolf, whose kingdom he shared with his brother Ethelbald in 858, and succeeded to the whole on Ethelbald's death in 860. He was a virtuous prince, and beloved by his subjects. D. 866.

Eth'elred I., king of England, the third son of Ethelwolf, succeeded his brother Ethelbert in 866. He was a virtuous prince, beloved by his subjects, and mostly engaged in repelling the incursions of the Danes. D. 871.

ETHELRED II., king of England, the son of Edgar, succeeded his brother, Edward the Martyr, in 979. His unmanly spirit submitted to pay a tribute to the Danes, by a tax levied on his subjects, called Danegelt. To free himself from this oppression, he caused the Danes to be treacherously massacred, throughout the country, in one day. On this, Sweyn, king of Denmark, entered his kingdom, and compelled him to flee to Normandy; but Sweyn dying soon after, Ethelred returned, and, after an inglorious reign of 37 years, died 1016.

Eth'elwolf, king of England, came to the crown in 837, and has rendered his reign famous for being that in which tithes were instituted. He was a mild and religious prince, and went to Rome with his youngest son Alfred. D. 857.

E'ther, *n.* [Fr. *éther*, from Lat. *æther ;* Gr. *aithēr*, from *aithō*, to light up, to kindle, to burn or blaze: Sansk. *atapa*, the heat of the sun—root, *tap*, to make hot.]

(*Physics.*) That which is above the element of fire; the clear upper air: pure refined air; a thin, subtile matter, much finer and rarer than air, which, according to some philosophers, begins from the limits of the atmosphere, and occupies the heavenly space.

(*Chem.*) Ether is used as a generic term to denote a series of organic bodies having the general formula $H_n + {}_1(C_nH_{n+1})O$. They are looked upon as being derived from corresponding alcohols by the abstraction of one equivalent of water; or, in other words, they are regarded as the oxide of a radical represented by the formula within the brackets, of which their alcohols are the hydrated oxides. This theory has undergone a modification of late years, the followers of Gerhardt laying it down as a principle that the equivalent of an ether when existing alone is double, and that its compounds are formed by substitution. There are strong reasons in support of this theory, as will be seen when we consider the double and compound ethers. Ethers are subdivided into — 1. *Simple ethers*, of which ordinary *vinous ether* may be taken as a type ($C_2H_5OC_2H_5$); 2. *the double ethers*, which consist of two equivalents of different ethers united, as the *methyl-ethylic ether* ($C_2H_5OCH_3$); and the compound ethers, which contain an equivalent of an ether united to an equivalent of an acid or halogen, and correspond to salts; thus, nitric ether is C_2H_5O,NO_5; hydrochloric ether, C_2H_5Cl. From the formulas given of the double and compound ethers, it will be seen that they may be considered as double atoms of the original ether, in which one atom is replaced by another ether in one case, and by an anhydrous acid or a halogen in the other. In common parlance, ether is generally taken to mean the ordinary sulphuric ether, as it is improperly

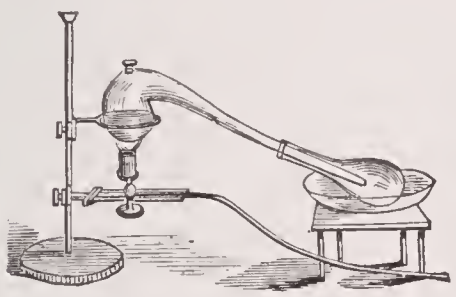


Fig. 968.

termed from being obtained from alcohol by the action of sulphuric acid. Pure ether is an extremely limpid, colorless, transparent fluid, very volatile, and refracting light with great power. Its odor is peculiarly powerful and penetrating if inhaled; at first producing exhilaration, and afterwards stimulating effects, followed by insensibility to pain. As an anæsthetic it is, if not so powerful, at least less dangerous than chloroform. It has a specific gravity of 0·724 at 55° F., and boils at 94·8° F. It is used for producing cold artificially by rapid evaporation. Its vapor is extremely dense, sinking heavily in air; great care should therefore be taken not to pour it out with a flame below it, otherwise an explosion of a dangerous character might ensue. Mixed with certain proportions of air, it forms a highly explosive compound. It dissolves readily in alcohol, but very sparingly in water. It is much used in medicine; but its principal commercial application is as a solvent for pyroxylin in the manufacture of collodion. In analysis it is used as a solvent for fats, is prepared from alcohol by the action of sulphuric acid at an elevated temperature. On the small scale, the apparatus which may be employed for the purpose is the retort and receiver (*Fig.* 968) into which a mixture of equal weights of spirits of wine, or rectified spirit and oil of vitriol, or, by volume, 2 of alcohol and 1 of sulphuric acid, are placed, and heat being cautiously applied, a liquid distils over, which consists of ether and water. In a short time, the contents of the retort begin to blacken, and the operation must be stopped, or the distillate will become contaminated with sulphurous acid. On the large scale, the process of Boulay, or the *continuous process*, as it is termed, is now generally in use. Equal measures of alcohol and sulphuric acid are heated in a capacious retort, which is connected with a reservoir of alcohol in such a manner that, as fast as the ether distils off, a corresponding amount of alcohol makes up the deficiency. The process is continued until thirty times the original amount of alcohol is used, the sulphuric acid acting over and over again as the agent by which an equivalent of water is abstracted from an equivalent of alcohol. See SECTION II.

Ethe'real, *a.* [Lat. *ætherius.*] Formed of ether; containing or filled with ether; heavenly; celestial; relating to or existing in the air.

Ethe'realism, Ethereal'ity, *n.* Quality of being ethereal.

Ethe'realize, *v. a.* To convert into ether or into a very subtile fluid; to render ethereal or spiritual.

Ethe'realized, *p. a.* (*Chem.*) Converted into ether; made ethereal or spiritual.

Ethe'really, *adv.* In an ethereal or heavenly manner.

Ethe'realness, *n.* Quality of being ethereal.

Ethe'ria, *n.* (*Zoöl.*) A genus of fresh-water bivalve *Mollusca*, living attached to shells and stones in the Nile and other rivers of Africa. The mantle lobes are free, with a large quadrate foot like that of the *Unionidæ*, and the shell is pearly and blistered internally, and covered externally with a green epidermis which is often eroded.

Eth'eridge, in *Georgia*, a village of Jones co., abt. 17 m. W. by N. of Milledgeville.

Etherification, (*e-ther-if-e-kai'shun,*) *n.* [Fr.] (*Chem.*) The process by which the same amount of sulphuric acid serves continuously for the abstraction of an equivalent of water from an almost indefinite number of equivalents of alcohol, has been much discussed among chemists. Numerous researches have been made on the subject by Liebig, Mitscherlich, Graham, and others, and the general explanation arrived at, is that the sulphuric acid unites with the alcohol to form sulphethylic acid and water. The sulphethylic acid then splits up into ether, which distils over, and sulphuric acid, which again unites with the alcohol to form a second portion of sulphethylic acid, which is in its turn decomposed. The great difficulty in admitting this view arises from the circumstance that sulphethylic acid should be first formed and then immediately decomposed, under precisely similar circumstances of temperature. Mitscherlich and Graham consider that the sulphuric acid acts in a catalytic manner, simply inducing composition in other bodies by its pressure, somewhat in the manner of a ferment. — For a fuller discussion of this very interesting subject, the reader is referred to Miller's *Elements of Chemistry*, vol. iii., 3d edition.

Ether'iform, *a.* Having the form of ether.

Eth'erine, *n.* (*Chem.*) A volatile, oily hydrocarbon formed during the preparation of ether, and known as *light oil of wine.*

Etheriza'tion, *n.* (*Med.*) The administration of ether by inhalation, as an anæsthetic.

E'therize, *v. a.* To convert into ether; to stupefy with ether.

Eth'ic, or **Eth'ical,** *a.* [Fr. *éthique*; Lat. *ethicus*: Gr. *ethikos*, from *ethos*, custom, usage, manners, habits.] Relating to manners or morals; treating of morality; delivering precepts of morality.

Eth'ically, *adv.* According to the doctrines of morality.

Eth'ics, *n. sing.* or *pl.* [Fr. *éthique*; Gr. *ethica*, from *ethos.*] The science which treats of the laws of voluntary action, and thus seeks to determine the nature and extent of moral duty. This branch of knowledge has been divided by modern writers into two parts, the one comprehending the *theory* of moral science, and the other its *practical* doctrines. On the former side, the first part investigates that principle of our constitution by which we are led to form the notion of moral distinctions; and on the latter side it inquires into the proper object of moral approbation. In other words, this science endeavors to give an answer to the question, — Is it by the same faculty that perceives the existence of truth and falsehood in other departments of knowledge, or by a peculiar power of moral perception, which is pleased with one set of qualities and displeased with another, on which the peculiar obligation of moral conduct is founded? What is the common quality or qualities, in short, belonging to all the different forms of virtue? Is it benevolence—is it sympathy—is it a rational self-love? Thus the scope of the one question is to ascertain the origin of our moral ideas; that of the other to refer the various moral phenomena to their most simple and general laws. Again, the practical doctrines of morality comprehend the rules formed to direct human conduct, and the best means of compassing this general end. These two questions, when properly treated, seem to exhaust the entire theory of morals. Ethics, then, is a word which shall be employed in the succeeding article as altogether synonymous with moral philosophy. One of its best and latest German expounders observes: "The best name for this science is Ethic, or doctrine of morals, as is clear from the relation of this word to the three fundamental conceptions of morals — law or duty, virtue, and chief good." *E.*, or morals, has properly to do with action rather than with thought; and hence the name of the *active powers* that Reid and Stuart have employed in their works to designate this field of inquiry; not that action belongs exclusively to morals and not also to the intellectual faculties; but that it belongs more obtrusively and overtly to this department than it does to the other. Action in general is twofold: it is either instinctive and constitutional, as hunger, thirst, and the love of sex; or it is voluntary and designed, as when men pursue a course of ambition, or spend a long life in the endeavor to master some department of knowledge. Of those two lines of action, one is necessary, compulsory, and absolute while it lasts; while the other is contingent, voluntary, and relative. I may resist the strong urgings of ambition or of glory; but I cannot resist the demands of hunger. It is at the choice of Napoleon whether he leave Elba or not, although it is quite necessary that he should have his breakfast on that inauspicious morning. It thus appears, that while the one class of actions is necessary to our existence, the other is by no means necessary; and many persons would be all the happier to resist those urgent longings which besiege their wills and often carry them captive. Another consequence follows from this consideration, which it is all-important to note on the present occasion — that it depends altogether on whether the will of man be consciously free, as to whether his acts can carry with them any moral responsibility. If a stone accidentally falls on my head, and materially injures me, I do not blame the stone, I simply lay the charge on my own evil fortune. If I am bitten severely by my neighbor's dog, I may pronounce the dog dangerous to the lieges, I cannot hold him guilty of assault. But if I am knocked down and robbed by a ruffian in the next lane, I shall use all my endeavor to have him brought before the magistrate, and punished; for unless he be an imbecile or a madman, he cannot set up a plea of moral incompetence, which everybody would urge in favor of the previous cases. Nor am I responsible for an act performed by me while I was under moral or physical compulsion; for by being so constrained, my will, my voluntary guiding power, is deprived of its accustomed freedom, and I am no longer at liberty to act as I please. It hence appears that for all practical moral purposes, the will must be consciously free, otherwise there can be no responsibility. And not only so; the other faculties, which always go to aid the moral judgment in pronouncing its awards, must be in a normally healthy condition, otherwise no moral blame is attachable to a vicious act more than to a virtuous one. Were our law courts capable of publicly recognizing the more delicate shades of character and of guilt that frequently come before them for judgment, and were human nature better able to appreciate the finer traits and more delicate lineaments of men's dispositions, there can be little doubt that our civil and criminal codes would experience an entire modification of their peculiar rigor against peculiar offences and crimes often committed with but little moral cogitation, and with but little moral guilt. For how often are men's passions strong where their moral perception is not of the highest! And when malevolent emotions become heated, do they not blind men's minds to every other consideration but what this wicked passion points them to? Then the history of the growth and formation of human character is nearly a *terra incognita*, and such should always be taken into account in anything approaching a perfect code of moral, or even of criminal law. Whatever is calculated to shake or to confirm the will in its moral endeavors, is calculated to shake or to confirm the comparative perfection of the moral character. With the view, accordingly, of ascertaining and of classifying the various sources of our activity, various ethical inquirers have analyzed our various propensities into nearly the following principles: 1. There are our *appetites* of hunger, thirst, and sex, which take their rise from the body, and which ally us with the brutes. To those natural appetites belong the acquired ones: such as the liking for tobacco and other narcotics, and for intoxicating drinks. All stimulants are of this class. 2. There are the *desires*, which may be conveniently distributed into the desire for knowledge (curiosity), the desire of society, the desire of esteem, the desire of power (ambition), the desire of superiority (emulation). Then there are the acquired desires, or, as Dr. Hutchinson termed them, "secondary desires:" such as the desire for wealth, for dress, for equipage, for retinue, and for furniture, which are all readily explainable on the principle of association. 3. Then there are the *affections*, or those active principles whose direct and ultimate object is the communication of pleasure or of pain to any of our fellow-creatures. These are distinguished, according to their tendency, into benevolent and malevolent affections. To the former class belong the parental and the filial emotions — those of kindred, love, friendship, patriotism, universal benevolence, pity, gratitude, &c. It is to be remarked, regarding those affections, that this classification is simply offered from its convenience, not from its being exhaustive. There is one peculiarity observable with respect to these emotions, that, accompanied as they all are with exquisite pleasure, they have, nevertheless, nothing selfish in their origin. This has been fully demonstrated by many writers. It is a remark of Bishop Butler, that the final cause of so much agreeable emotion connected with the exercise of benevolence is, in all likelihood, meant to induce us to cultivate with peculiar care a class of our active principles so immediately subservient to the happiness of human society. Our malevolent passions, or affections, are usually distributed into hatred, jealousy, envy, revenge, and some kinds of resentment. As the former class of affections are always accompanied with pleasant emotions, so the malevolent ones are invariably attended by disagreeable ones. It is obvious from this, that the latter are only to be used with a great degree of caution, and on no occasion in greater intensity than the urgent necessities of the case demand. They are like those poisonous cures that are sometimes administered to us to restore our frames to their accustomed health. If the prescribed dose be overstepped, the chances are that we must atone for our rashness with our lives. Such would be the constitution of man, were no inheritance of reason or of conscience to fall to his share. Reason, however, renders the nature of man altogether different from what it would otherwise be. It is by this faculty, in its multifarious forms, that man is capable of availing himself fully of his past experience in avoiding those temporary pleasures that he knows will be succeeded by a corresponding suffering, and in submitting to those lesser ills of life which he knows will ultimately minister to a greater accession of good. In a word, he can form that more enlarged and liberal idea of happiness with which every cultivated man is acquainted, and he can deliberate about the best means of attaining to this wished-for goal. It is impossible to pronounce the word happiness in the hearing of any man without at the same time enkindling in his mind various ideas, more or less attainable, of an exceedingly desirable object. 4. *Self-love*, accordingly, or that species of desire which longs for personal happiness as an end in itself, is a rational principle of our nature, altogether legitimate and praiseworthy when kept in its own place. The pursuit of one's interest in an enlightened way is perfectly lawful as an ethical end; it only becomes unlawful when, by its excess, it shuts out that essentially higher principle which men have variously termed the moral faculty, the moral sense, the conscience. Self-interest, or self-love, differs from selfishness, which always indicates a peculiarly low and vulgar state of character, which is only content with the perpetual gratification of a morbid sensuality. This enlightened regard to our own interest was, by many of the ancient philosophers, regarded as the whole

of virtue, and they thought they had accomplished the duties of sages when they had laid down rules, of more or less particularity, for the attainment of this "supreme good," this *summum bonum*. Nor is it to be wondered at, that they placed the whole of virtue in this prudential self-regard; for the two principles — that of self-interest and of the moral faculty — lead to nearly the same course of action in practical life. That the principles are not identical — on the contrary are radically and abidingly distinct, may be established from a variety of considerations. It is from experience that we learn the connection of virtue and happiness; and hence virtue, the cause, must certainly precede the existence of self-love, as the effect. In all languages, the words employed to denote the ideas of duty and interest are distinct. The *to kalon* and the *kathekon* of the Greeks, and the *honestum* and *utile* of the Latins, express exactly what we mean when we speak of duty and of interest. A similar conclusion likewise finds countenance in the early period at which our moral judgments make their appearance. it being always a considerable while before it is possible that we should be capable of forming the general notion of our own happiness. To escape the force of some of the foregoing arguments, it has been alleged that this notion of right and wrong, as a separate existence in human nature, was first of all discovered by philosophers and politicians, and the influence of education has effected the rest on the growing mind of the race. Now education is no doubt a powerful instrument; but there is no example on record that can be pointed out to illustrate the case of a new creation being implanted in men's minds by means of this potent organ of culture. No doubt sufficient allowance must be made for the different circumstances of mankind in different periods of society, and for the diversity of their speculative opinions, as well as for the different moral significance of the same action, performed under different systems of external behavior. But while education may, and does, in this way modify in important respects the moral sentiments of mankind, as well as their opinions regarding the beautiful and the sublime, we would be far from maintaining that it can effect such wonders as to create our notions of right and wrong, or our æsthetical ideas. — The science of *E.* gives rise to an infinite number of inquiries, the principal of which are considered under Beauty, Conscience, Freedom, Necess.ty, Revelation, Virtue, &c. See also the heads of the several systems of philosophy.

Ethion'ic Acid, *n.* [Gr. *aither*, air, and *theion*, sulphur.] (*Chem.*) It may be viewed as the bisulphate of the diatomic radical ethylene. It is ethylene united with two equivalents of water, and four of sulphuric acid.

Ethiopia, (*ē-the-o'pe-a.*) [Gr. *aithō-ōps*, sunburnt.] (*Anc. Geog.*) Originally, all men of dark-brown or black color were called Ethiopians. Later, this name was given more particularly to the inhabitants of the countries south of Libya and Egypt, or the Upper Nile, extending from 10° to 25° N. Lat., and 45° to 58° E. Lon., *i. e.* the Cush or Kush of the Bible, and the present Nubia, Sennaar, Kordofan, Abyssinia. The accounts which the ancients have left us with respect to this people are, even where they are not of an entirely fabulous nature, extremely scanty and untrustworthy, as both Greeks and Romans never got beyond Napata, 19° N. Lat. We will just mention that from the Homeric age down to Ptolemy — who is somewhat better informed — these regions were peopled by Pygmies, Troglodytes (dwellers in caverns), Bleminyes (hideous men), Macrobii (long-lived men), &c., besides being divided into the lands of cinnamon, myrrh, of elephant-eaters. fish-eaters, tortoise-eaters, serpent-eaters, &c. The only portion of ancient records which does contain something akin to historical accounts, is that which refers to Meroë, an island formed by the rivers Astaphus and Astaboras, tributaries of the Nile. — See Abyssinia, Meroe, and Nubia.

Ethio'pian, *a.* Pertaining to Ethiopia.
—*n.* A native of Ethiopia.

Ethiop'ic, *a.* Relating to Ethiopia.
—*n.* The language of Ethiopia.

E'thiop's Mineral, *n.* (*Chem.*) Subsulphide of mercury. It is obtained as a black powder by transmitting a current of sulphuretted hydrogen through a solution of a mercurial subsalt, or by triturating 18 parts of moist sulphur with 200 of mercury. *Form.* H_2S.

Eth'moid, Ethmoid'al, *a.* [From Gr. *ethmos*, a sieve, and *eidos*, form.] Pertaining to the ethmoid bone.

Eth'moid Bone, *n.* (*Anat.*) One of the bones of the head, which is exceedingly soft and spongy, consisting of many convoluted plates, which form a network like a honeycomb. It is somewhat cubical in form, and is situated between the two orbitary processes of the frontal bone, at the root of the nose. The olfactory nerves shoot down through the numerous small perforations of this bone into the organs of smell.

Eth'nic, Eth'nical, *a.* [Lat. *ethnicus*; Gr. *ethnikos*, from *ethnos*, a nation or people.] Relating to a nation or people; relating to the races or classes of mankind. — Heathen; pagan, (opposed to Jewish or Christian.)

Ethnog'rapher, *n.* [Gr. *ethnos*, a nation, and *grapho*, to describe.] One who is versed in ethnography.

Ethnograph'ic, or Ethnographical, *a.* Relating to ethnography.

Ethnog'raphy, *n.* [Gr. *ethnos*, a nation or a class of people, and *graphō*, to describe.] A description of the different races of men, their manners, customs, institutions, and languages, or a work on that subject.

Ethnolog'ic, or Ethnological, *a.* Relating to ethnology

Ethnol'ogist, *n.* One who is versed in ethnology.

Ethnol'ogy, *n.* [Gr. *ethnos*, a nation, and *logos*, a discourse.] That branch of science which treats of the different races of men, their distinguishing characteristics, their origin, migrations, and settlements, and their relation to each other in regard to civilization, numbers, and powers. *References:* Agassiz, *Types of Mankind*; Dr. Latham, *Descriptive Ethnology*.

Ethologic, or Ethological, *a.* Treating of morality.

Ethol'ogist, *n.* One who is versed in ethics or ethology.

Ethol'ogy, *n.* [Gr. *ethos* or *ēthos*, custom, usage, and *logos*, a discourse.] A treatise on ethics; the science of ethics; a treatise on morality.

Eth'yl, Eth'ule, *n.* [Gr. *aither*, air, and *ule*, the material of which a thing is made.] (*Chem.*) The second and most important member of the series of alcohol radicals. When a mixture of granulated zinc and iodide of ethyl is heated to a temperature of 300° in a tube from which the air has been exhausted, a number of compounds are formed, ethyl, the radical in question, amongst them. By breaking the tube under water, the liquid compounds are ejected in a gaseous form; and by carefully collecting the portions which come off last, the ethyl is obtained nearly in a state of purity. Ethyl is a colorless gas with slightly ethereal smell, and burns with a luminous flame. It may be liquefied at 38° Fahr. by a pressure of 2½ atmospheres. Frankland estimates its boiling-point at —9°. It is the radical of ether and alcohol, and as such deserves especial notice. It dissolves readily in alcohol, but not in water. *Form.* $(C_2H_5)_2$.

Eth'ylene, or Olefiant Gas, *n.* (*Chem.*) The second hydrocarbon in the olefiant gas series. *Form.* C_2H_4. These hydrocarbons are described under the head of Olefiant Gas.

Eth'ylene-di'amine, *n.* (*Chem.*) See Diamine.

Etienne, St., (*ai'te-en,*) an important manufacturing town of France, cap. of dep. Loire, 32 m. S S.W. of Lyons, and about 288 m. S.S.E. of Paris, on the Turens, an affluent of the Loire, in the centre of a valuable and extensive coal-field. It is surrounded by coal-mines, is seated upon coal-deposits, and has galleries driven even beneath its streets. The stream on which the town is built furnishes invaluable water-power to move its machinery, and its waters are also of great use tor tempering iron and steel. The most noteworthy building is the Hôtel-de-Ville, which contains the *Musée Industriel*, with specimens of the manufactures of the town, and of the minerals and fossils of the neighborhood. *St. E.* is famous for its manufactures of ribbons and fire-arms. The ribbon-manufactories contain 30,000 looms, and the annual value of their produce is estimated at 60,000,000 francs ($12,500,000) in value. They are unrivalled in elegance of design, and in richness and delicacy of color, and are exported to all parts of the world. There are extensive private manufactories of fire-arms, besides an imperial fire-arms manufactory, which supplies most of the muskets of the French army. *St. E.* has also extensive manufactures of bayonets, scythes, nails, sawblades, foils, anvils, vices, files, and also of silks, velvets, lace, embroidery, muslins, glass, leather, and paper. From the coal-fields on which *St. E.* is situated, about 600,000 tons are raised annually. *Pop.* 121,744.

E'tiolate, *v. n.* To become white; to become whitened or bleached.

Etiola'tion, *n.* (*Bot.*) That condition of a plant in which all the green color is absent. Such a state is produced by want of light. When it is artificially obtained by keeping plants in the dark in order to insure their being more tender and insipid than is natural to them, it is called *blanching*, as in the case of celery. Etiolated parts become green by exposure to light.

(*Med.*) This term is sometimes used in *Pathology* to denote the paleness produced in those persons who have been kept long without light, or a similar paleness resulting from a chronic disease.

Etiolog'ical, *a.* Pertaining to ætiology or etiology.

Etiol'ogy, *n.* See Ætiology.

Etiquette, (*et-e-ket',*) *n.* [Fr., a ticket, ceremony.] The forms of manners and behavior that prevail in polite society, established by usage and good breeding. The name is probably derived from the custom that prevailed, on state occasions, of delivering a ticket to each person, instructing him as to the part which he was to take in the ceremony. At no time, probably, was the spirit of *E.* so predominant and so tyrannical as at the court of Louis XIV. of France. At the present day, the *E.* of European courts is becoming less and less strict; and in private society, many of the old and absurd forms are given up. "*E.*," says a writer on this subject, "is the barrier which society draws around itself as a protection against offences the *law* cannot touch; it is a shield against the intrusion of the impertinent, the improper, and the vulgar; a guard against those obtuse persons who, having neither talent nor delicacy, would be continually thrusting themselves into the society of men to whom their presence might (from the difference of feeling and habit) be offensive and even insupportable." The rules that are laid down on this subject are various, and are to be properly learned only by experience. Generally, however, a person going into society should maintain a certain degree of self-respect, and regard for the feelings of others, and should endeavor to make himself agreeable.

Et'na, or **Æt'na,** *n.* A volcanic mountain of Sicily, on the E. coast of the island, and about 10 m. from Catania. Circumference at its base, 63 m. Height, 10,784 feet above the level of the sea. This is one of the most celebrated mountains in Europe, and is divided by the Sicilians into three parts or regions: the lava or lower, the wooded or middle, and the upper. The lower contains vineyards, corn-fields, and pastures, and many towns, villages, and convents; the middle is crowded with forests of oak, chestnut, ash, fir, and pine, and with an infinite number of aromatic plants; the upper is entirely destitute of vegetation, and the summit is always covered with ice and snow, except here and there, where it is overspread with a thick layer of black ashes. The first eruption of *E.* on record is that mentioned by Diodorus Siculus, without fixing the period when it happened; but the second, recorded by Thucydides, was in the year 734 B. C. From this period to the year 1447 there were 18 more eruptions. After this it ceased to



Fig. 969. — DISTANT VIEW OF ETNA.

emit fire nearly 90 years; when, in 1536, another took place. Others followed in 1554, 1567, 1603, 1669, 1682, and 1693, which last was very terrible, and attended with an earthquake that overturned the town of Catania. Smaller eruptions afterward happened in 1755, 1763, 1764, 1766, 1780, and 1787. From the great crater at the top issues continually a sulphureous smoke; but eruptions from it are very rare, as before rising to that height, the lava breaks out at some fissure where it finds the least opposition. Besides the fruits, which are the finest in the island, and the wood for fuel which Etna affords, the inhabitants likewise derive a great benefit from its snow. This is an indispensable necessity in Sicily and the S. part of Naples, and is in great request. An eruption of *E.* took place in 1879, attended with considerable loss of life and destruction to property. An astronomical observatory was erected near the summit of *E.* in 1882, and is the most elevated inhabited building in Europe. The view from this building is of vast extent and grandeur. See Rodwell's *E.* (Lond. 1879).

Et'na, in *Ill.*, a P. O. of Coles co.—In *Ind.*, a v. of Huntingdon co., abt. 90 m. N.E. of Indianapolis.—A township of Koscinsko co.—In *Iowa*, a township of Hardin co.—In *Maine*, a p.-v. and twp. of Penobscot co., abt. 30 m. N.E. of Augusta.—In *Minn.*, a p.-v. of Fillmore co., abt. 15 m. W.S.W. of Preston.—In *Mo.*, a p.-v. of Scotland co., abt. 35 m. W. of Keokuk, Iowa.—In *N. Y.*, a p.-v. of Tompkins co., on Fall Creek, abt. 160 m. W. by S. of Albany.—In *Ohio*, a p.-v. and twp. of Licking co., abt. 18 m. E. of Columbus.

Etna, in *New Hampshire*, a post-office of Grafton co.

Etna, in *Oregon*, a village of Polk co., about 8 m. N.E. of Dallas.

Etna, in *Penna.*, a post-borough of Allegheny co., on Allegheny river, 4 m. above Pittsburg. *Pop.* 4,000.

Etna, in *Wisconsin*, a post-village of Lafayette co., abt. 15 m. S.W. of Darlington.

Et'na Centre, in *Maine*, a P. O. of Penobscot co.

Et'na Green, in *Indiana*, a P. O. of Koscinsko co.

Et'na Mills, in *California*, a post-village of Siskiyou co., about 30 m. S. of Yreka.

Etne'an, *a.* (*Geog.*) Pertaining to Etna.

E'ton, a town of England, in Buckinghamshire, on the Thames, opposite Windsor, with which it is connected by a bridge, and within a short distance of the Windsor Station of the Great Western Railway. It is chiefly celebrated for containing a royal seminary of education, called *Eton College*, founded by King Henry VI. in 1446. The average number of "boys" resident here, is about 600, and they are principally composed of the sons of the aristocratic and wealthy. *Pop.* 4,300.

Etourderie, (*ā-tôrd'rē,*) *n.* [Fr.] Heedlessness; thoughtlessness; light-headedness.

Et'owah, or Hightower, in *Georgia*, a small river, rising in Lumpkin co., and flowing W. by S. joins the Oostenaula at Rome, to form the Coosa. Gold has been found along its shores.

Etru'ria, or Tuscia, [Gr. *Tyrrhenia.*] designated, at a period anterior to the foundation of Rome, nearly the whole of Italy, together with some of the most important western islands. Its northern part, from the Alps to the Apennines, was known under the name of *E. Circumpadana*; its southern, from the Tiber down to the Gulf of Pæstum, or, according to some, to the Sicilian Sea, under that of *E. Campaniana*; while the central portion, bounded on the N. by the Apennines and the River Macra, S. and E. by the Tiber, and W. by the Tyrrhenian Sea, was called *E. Propria*. The two first, however, did not long remain Etruscan territory, but were either reconquered by the surrounding tribes to whom they had originally belonged, or fell into the hands of new immigrants. No historical records of that brief period of any moment having yet come to light. *E.* Proper, forming the greatest part of Tuscany, the former duchy of Lucca, and a part of the Pontifical States, deserves special interest. See Tuscany. *Cities and Cemeteries of E.*, Dennis.

Etrus'can, *a.* Relating to Etruria; as, *Etruscan* vase, for which see Vase.

Et'taville, in *Minn.*, a former P. O. of Fillmore co.
Et'teu, a village of the Netherlands, 8 m. from Breda; *Pop.* 6,047.
Et'ters, in *Pennsylvania*, the P. O. name of the borough of Goldsborough, in York co.
Ett'lingen, a town of Baden, 5 m. from Carlsruhe. *Manuf.* Paper, cotton goods, and gunpowder. *Pop.* 5,800.
Et'trick, a river of Scotland, in Selkirkshire, joins the Tweed near Melrose.
Et'trick, in *Wisconsin*, a post-township of Trempealeau co., abt. 8 m. N.E. of Galesville.
Et'ty, WILLIAM, an English painter, B. at York, 1787. His *Judith* and *Joan of Arc*, each a series of three large pictures, are reputed his best compositions. D. 1850.
Etude, *n.* [Fr.] A composition in music, or in the fine arts, which is intended, or may serve, for a study.
Etui, (*ā-twī'*.) *n.* [Fr.] A case for tweezers and such instruments.
Et'ym, *n.* An etymon. (R.)
Etymolog'ic, or ETYMOLOG'ICAL, *a.* [Fr. *étymologique.*] Pertaining to etymology, or the derivation of words, according to or by means of etymology.
Etymolog'ically, *adv.* According to etymology.
Etymolog'icon, *n.* A treatise on etymology.
Etymol'ogist, *n.* [Fr. *étymologiste.*] One versed in etymology; one who searches into the origin of words.
Etymol'ogize, *v. a.* and *n.* To search into the origin of words; to give the etymology of a word.
Etymol'ogy, *n.* [Gr. *etymos*, from *eteos*, true, real, genuine, probably from *eimi*, to be; *etymon*, the true literal sense of a word according to its derivation, the derivation of a word from its root, and *logos*, account.] That part of grammar which treats of words by themselves, or their classification, their formation, and the alteration of their forms by derivation and inflection. It teaches the deduction of one word from another, and the various modifications by which the sense of the same word is diversified. The recent philological researches have given to this department of grammar a much more extensive and important field of inquiry, by bringing together whole groups of languages, and showing the connection existing between them in word and form.
Et'ymon, *n.* [Gr. and Lat. *etymon*, pl. *etyma.*] An original; a root, or primitive word.
Eu. [Gr. *εὖ.*] A prefix signifying well, easy, good.
Eu, (*oo,*) a town of France, dep. Seine Inférieure, 18 m. from Dieppe. It is remarkable for its château. The forest of Eu extends for a considerable way on the E. and S. sides of the town.
Eu'bauks, in *Georgia*, a post-village of Columbia co., about 80 m. N.E. by E. of Milledgeville.
Eubœa, (*u-be'a.*) [Anc. *Euboia*; Turkish, *Egripo*; It. *Negroponte.*] The largest island in the Ægean Sea, formerly called Negropont; Lat. between 37° 57′ and 39° 2′ N., Lon. between 22° 40′ and 24° 40′ E. It is bounded on the N. by the Trikeri Channel, and on the W. by those of Talanta and Egripo. It extends in a direction parallel to the mainland; and is 105 m. long by 30 m. in extreme breadth, although in one part its breadth is scarcely four miles. At the narrowest part it is connected with the mainland by a bridge. The island is intersected by a chain of mountains, running N.W. and S.E., and attaining in the centre, in the range of Mount Delphi, an elevation of about 4,500 feet. Copper and other metals are obtained in the island, which also contains numerous hot springs. The pastures are excellent, and the declivities of the mountains covered with forests of fir-trees. The climate is salubrious, the valleys well watered and very fertile, but little cultivated. The chief products are cotton, oil, wine, wheat, fruit, and honey. The inhabitants are chiefly engaged in the breeding of cattle. The chief town is Chalcis, (*q. v.*) *E.* was peopled in the early historic times chiefly by Ionic Greeks, and afterwards by colonists from Athens, who formed a number of independent cities or states. After the Persian wars, *E.* was subjugated by the Athenians, under whose rule it continued till they, in their turn, were subdued by Philip of Macedon. By the Romans it was finally united with the province of Achaia under Vespasian. In 1204 it came into the possession of the Venetians, and received the name of Negroponte. In the year 1470, the island was taken by the Turks, in whose hands it remained till 1821, when the inhabitants rose to vindicate their independence at the call of the beautiful Modena Maurogenia. It forms now a portion of the kingdom of Greece. *Pop.* 70,000.
Eu'cairite, *n.* (*Min.*) A seleniuret of silver and copper. It is a soft, silver-white mineral, containing about 42 per cent. of silver, and 25 of copper.
Eucalyp'tus, *n.* [Gr. *eu*, well; *kalypto*, I cover.] (*Bot.*) A genus of plants, order *Myrtaceæ.* They are trees having hard wood, alternate, entire coriaceous leaves, and yellow flowers, growing in corymbs. They are natives of Australia and Tasmania. The most important species is *E. resinifera*, the iron bark, which yields on incision an astringent substance called *Botany Bay Kino.* This contains a peculiar substance, to which the name *Eucalyptin* has been given. It has been employed as a remedy in diarrhœa. The leaves of *E. mamnifera* and other species spontaneously exude a saccharine substance resembling manna, and hence termed Australian manna. It is said to drop from trees in pieces sometimes as large as an almond. The secretions of the *Eucalypti* are commonly of a gummy nature, and on this account the trees are sometimes called gum-trees. The bark of some of them separates in fibrous layers; and this peculiarity has also obtained for them the name of stringy-bark trees. They frequently attain a prodigious height, 200 ft. or more, the trunks being destitute of branches to a height of 100 to 150 ft.
Eu'charist, *n.* [Fr. *eucharist*; Gr. *eucharistia*, the giving of thanks.] In a theological sense, the Lord's Supper. The term is not found in the New Testament; but in the history of the institution of this ordinance the word *eucharistesas* occurs; and this probably led Justin Martyr and others to adopt the word, — gratitude for divine mercy and grace being a chief requisite in those who would worthily partake. During the first three centuries the *E.* was celebrated every Sunday; but afterwards it came to be administered only three times in the year, — at Easter, Whitsuntide, and Christmas. In early times, the *E.* was celebrated in the churches with closed doors, to the exclusion of all but the initiated, and it ordinarily took place at night. The use of tapers on the occasion is traced to these nocturnal celebrations. The mixing of water with the wine was generally regarded by the early Church as essential to the due performance of the rite; and hence the three elements of bread, wine, and water are mentioned. At first the communion bread was that in common use; but about the 7th century a peculiar kind of bread began to be prepared exclusively for it, of a circular form, and impressed with the sign of the cross. The communion in both kinds, *i. e.* the bread and the cup, to both laity and clergy, appears to have prevailed in the Church until about the 12th century, when the cup began to be gradually withdrawn from the laity, which was authorized by the Council of Constance in 1415, and confirmed by that of Trent in 1562. The Roman Catholic Church profess to believe that Christ's whole and entire body, soul, and divinity, are contained in either species and in the smallest particle of each. Hence they infer, that, whether the communicant receives only the bread or the wine, he enjoys the full benefit of the sacrament. In the early Church, communicants appear to have received the sacrament standing.
Eucharis'tic, or EUCHARIS'TICAL, *a.* [Fr. *eucharistique.*] (*Eccl.*) Containing expressions of thanks; pertaining to the Lord's Supper.
Eu'chee (or U'CHEE) **Creek,** in *Alabama*, enters the Chattahoochee River from Russell county, near Fort Mitchell.
Euchirus, *n.*; *pl.* EUCHIRIDÆ. (*Zoöl.*) The Long-handed beetle, a genus and family of lamellicorn coleoptera, the longest known species of which (*E. longimanus*) is represented in Fig. 970. It is of a rich reddish-brown color, and is found in the East Indies, where it seems to be by no means common.



Fig. 970.
EUCHIRUS LONGIMANUS.

Euchlo'ric, *a.* That has a distinct green color.
Eu'chlorine, *n.* (*Chem.*) An oxide of chlorine.
Euchol'ogion, Euchol'ogy, *n.* [From Gr. *euche*, prayer, and *logos*, discourse.] A formulary of prayers; a missal or breviary.
Euchre, (*yu'ker,*) *n.* A game of cards introduced into this country from Germany, and a favorite play in many of the States. It is usually played by 2 or 4 persons, with a pack from which all the cards from 2 to 6 inclusive have been withdrawn. Before commencing the game, the players draw in rotation for the deal, which belongs to him who first draws a knave. The pack having been cut by his opponent, or, if in 4-handed *E.*, by his right-hand adversary, the dealer distributes 5 cards to each player, including himself, commencing at his left, and turns up the 11th card (in 4 handed *E.* the 21st). The cards have the same relative value as in Whist, except that the knave of trumps, called the right bower, is the highest card in the pack, and the other knave of the same color, called the left bower, the next highest, (so that if the knave of spades be the right bower, the knave of clubs is the left,) after which come ace, king, &c. Players must in all cases follow suit, and the left bower is invariably to be considered trumps. The game consists of 5 points. The deal having been completed, the elder hand has the privilege of deciding whether the suit turned up shall be trumps. If he desires to retain it as such, he "orders up" the trump-card, in which case the dealer rejects a card from his hand and assumes that which he has turned up. In that case, however, the elder hand must take 3 tricks, constituting a point, or he is, technically speaking, "euchred," that is, his adversary is entitled to score 2 points. If, on the other hand, he does not choose to order up the card, he says, "I pass," and the same privilege, with similar conditions, belong to the next player, and so on. When all the players, including the dealer, have "passed," the latter turns down the card, and the elder hand has the privilege of designating the suit which shall be trumps, which must, however, be another than that previously turned up. If he names a trump, he must score his point or be euchred; and if he is unwilling to take the risk, he "passes" again. When all the players have passed for the second time, they throw up their cards, and the elder hand succeeds to the deal. A player taking all 5 tricks makes what is called a "march," and is entitled to score 2; taking either 3 or 4 tricks, he scores but 1. In 4-handed *E.*, in which the players sitting opposite to each other are partners, as in Whist, a player having good cards will sometimes desire to "play the hand alone," without the assistance of his partner. If under these circumstances he makes a march, he scores 4 points; but if euchred, his adversaries score 4.
Eu'chroite, *n.* (*Min.*) An arseniate of copper, of a beautiful, emerald green color.
Euchymy, (*yū'ke-me,*) *n.* [From Gr. *eu*, well, and *chymos*, juice.] (*Med.*) A good state of the humerus.
Eu'clase, *n.* [Gr. *eu*, well, and *klao*, to break.] (*Min.*) A silicate of alumina and glucina, occurring in oblique rhombic prisms of a pale-green color, a vitreous lustre, and transparent. Hardness 7·5; gravity 3·1; composition: silica 41·1, alumina 35·3, glucina 17·4, water 6·2. It receives a fine polish, but is too brittle to be cut for jewelry. Found in Peru, and with topaz in Brazil.
Euclid, (*u'klid,*) of Megare, an eminent Greek philosopher, was one of the earliest disciples of Socrates. After the death of his master he established a school of his own, which received the name of the Megaric School. His death took place about 424 B. C. The basis of his system was the Eleatic dogma of a one, only, universal substance or existence. Blending with this the Socratic idea of the predominance of the moral element, *E.* held this one real existence to be *the good*, though it receives various names under its special manifestations.
Euclid, a celebrated mathematician, sometimes called the Father of Mathematics, B. at Alexandria about 300 B. C. We know little more of his history than that he belonged to the Platonic school of philosophy, and taught mathematics in the famous school of Alexandria, during the reign of Ptolemy Soter. Though he did not create the science of mathematics, as is sometimes represented, he made prodigious advances, especially by his rigorous method and arrangement. In this respect he has, perhaps, never been excelled, and his *Elements of Geometry* continue to the present day to hold their place as a text-book of that science.
Eu'clid, in *New York*, a post-village of Onondaga co., abt. 11 m. N. by W. of Syracuse.
Euclid, in *Ohio*, a post-village and township of Cuyahoga county, on Lake Erie, about 10 m. N.E. of Cleveland.
Eu'colite, *n.* (*Min.*) Same as EUDIALYTE, *q. v.*
Eu'crasy, *n.* [From Gr. *eu*, well, and *krasis*, temperature.] (*Med.*) A well-proportioned mixture of qualities, by which a body is said to be in good order, and disposed for a good state of health.
Eudæ'monism, Eudemonism, *n.* [From Gr. *eudaimon*, having a good genius.] A system of moral philosophy which makes morality to depend on the production of happiness.
Eudi'alyte, *n.* [Gr. *eudialitos*, easily dissolved.] (*Min.*) A silicate of zirconia, lime, soda, and iron. Found in West Greenland in rhombohedral crystals of a vitreous lustre, red color, and translucent to sub-translucent. Hardness 5·5; gravity 2·898 to 3·01. It gelatinizes in muriatic acid, and fuses in the blowpipe flame to a light green opaque glass.
Eudiom'eter, *n.* [See EUDIOMETRY.] A term applied to instruments used for the analysis of atmospheric air and other gases. — See EUDIOMETRY.
Eudiomet'ric, Eudiomet'rical, *a.* Relating to eudiometry.
Eudiom'etry, *n.* [Fr. *eudiométrie*, from Gr. *eu*, well, *dios*, air, *metron*, measure.] The art of analyzing and investigating gaseous bodies by means of the instrument called the eudiometer. If, for instance, it be desired to estimate the amount of oxygen in the air, to three measures of atmospheric air contained in the eudiometer (A. Fig. 971) add two measures of pure hydrogen, — detonate, and, upon the cooling of the vessel, observe the absorption; divide its amount by 3, and the quotient will represent the amount of oxygen. This method was invented by Volta. The best form of eudiometer is that invented by Dr. Ure. It consists of a siphon formed of glass, with legs of nearly equal length, open at one extremity, which is funnel-shaped, and hermetically sealed at the other, which is supplied with platinum detonating wires. The siphon leg, which is sealed up, is graduated into 100 equal parts or subdivisions of the cubic inch. In order to make use of this simple instrument, it must be filled with mercury and inverted in the pneumatic trough; a convenient supply of the gas to be measured is inserted, and having applied a finger to the orifice at the end of the open leg, the tube is removed from the trough and inverted, so as to transfer the gas to the sealed leg, where its quantity can be accurately measured. A portion of mercury must then be poured from the open end of the siphon, so as to leave a space of abt. 2 inches; and closing the aperture again, detonate by the electric spark.— The included portion of air serves as a spring, and,

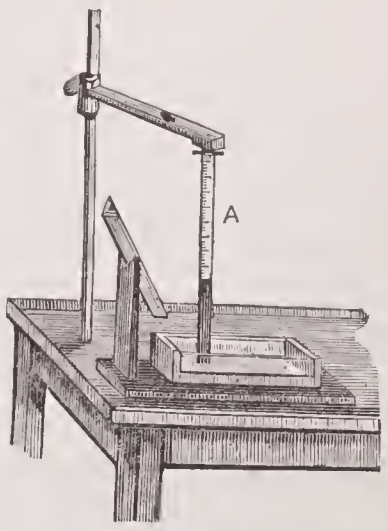


Fig. 971. — EUDIOMETER.

on withdrawing the thumb, which closed the open aperture, and adding mercury to restore the level, the change of bulk produced in the gas by detonation can easily be read off. Any liquid or solid that is required for the analysis of the residuary gas may then be passed up into the closed end, and the different results noted. The eudiometer employed by Cavendish for the synthesis of water consists of a stroug glass vessel, a firmly secured stopper at one end, a brass stop-cock at the other, and provided with two platinum wires which pass through the stopper, and approach very near to each other within the eudiometer, so that the electric spark may easily pass between them. The eudiometer may be exhausted by screwing the stop-cock into the plate of an air-pump. It is then filled with a mixture of two measures of hydrogen with one of oxygen, which is exploded by the electric spark. The water formed by the union of the gases condenses into fiue drops of dew on the inside of the vessel.

Eud'nophite, *n.* (*Min.*) A silicate of alumina and soda, which occurs commonly in cleavable masses of a white, grayish, or brownish color. Hardness 5·5, gravity 2·27. Gelatinizes with acid, and fuses to a colorless glass. Found on the island Lamoë, Norway.

Eudocia, or **Athenais,** (*u-do'shi-a,*) a learned Athenian lady, daughter of Leontius, the philosophical sophist, who left her only a small legacy, bequeathing the rest of his property to his two sons. Conceiving herself ill-used, *E.* went to Constantinople to lay her complaint before the emperor, Theodosius II. She there embraced the Christian religion, and, under the name of *Eudocia*, became empress in A. D. 421. She was afterwards divorced, and retired to Jerusalem, where she led a life of devotion, and D. 460. She is said to have written some Greek poems, and also a life of Christ.

Eudokeef, or Fog'gy Islands, in *Alaska*, a group of small islands off the S.E. coast of the peninsula.

Eudo'ra, in *Kansas*, a post-village and township of Douglas co.

Eudoxus, (*u-dox'us,*) a distinguished Greek mathematician and astronomer, who probably lived from 406 to 350 B. C. He became a disciple of Plato and Archytas, is reported to have visited Egypt and received astronomical instruction from the priests, and to have also visited Mausolus, king of Caria, for whom the celebrated mausoleum was built, and Dionysius the Younger, of Syracuse. He chiefly lived at Cyzicus. Plato referred the Delians to *E.* for a solution of a difficult mathematical problem, as more competent than himself. *E.* had an observatory at Cnidos, and was an enthusiastic student of the heavens, of which he wrote a comprehensive description in his two works now lost, the *Mirror* and the *Phænomena*. The latter was versified by Aratus, whose poem, translated into Latin verse, was in use till the 6th century of our æra. Eudoxus was the first Greek astronomer who attempted to form a theory of the planetary motions, and his theory was substantially identical with the Ptolemaic system.

Euer'getes, *n.* [Gr., a benefactor.] (*Anc. Hist.*) A title of honor frequently bestowed by the Greeks on those who had served the state well, and given more especially to some of the Egyptian Ptolemies. Reference is made to this practice in *St. Luke* xxii. 25.

Eufau'la, in *Alabama*, a thriving manuf. city, the cap. of Barbour co., on the Chattahoochee river, 80 miles E. S. E. of Montgomery. *Pop.* (1897) about 4,800.

Eugène, François, (*oo'zhain,*) Prince of Savoy Carignan, known as Prince Eugène, was the son of the Count of Soissons, by the niece of Cardinal Mazarin, and was B. at Paris, 1663. He was intended for the church; but his predilection for a military life was so strong, that on being refused a regiment in the French army, he entered the service of the emperor, as a volunteer against the Turks; where his bravery attracting notice, he was soon appointed to the command of a regiment of dragoons. He was afterwards placed at the head of the army of Hungary; and so highly did Louis XIV. think of his abilities, that he offered him a marshal's staff, a pension, and the govt. of Champagne; but these he indignantly refused. He was the companion in arms of the great duke of Marlborough, and participated in the victories of Blenheim, Oudenarde, &c. He likewise saved Turin, expelled the French from Italy, reduced Lisle, and, in short, raised his name to the very pinnacle of military renown by repeated demonstrations of skill and bravery. He routed the Turks at Peterwardein in 1716, and compelled Belgrade to surrender, after inflicting on them another ruinous defeat. After the peace in 1718 he retired to private life, and spent his time in cultivating and patronizing the arts, till he was again, in 1733, called into the field as commander on the Rhine: this service, however, was unproductive of any remarkable action. He D., aged 72, in 1736; and, independently of his military renown, he left behind him a character in private life worthy of imitation.

Eugene', in *Indiana*, a post-township of Vermillion co., on Big Vermillion river, about 80 miles W. by N. of Indianapolis. A fine farming and grazing region.

Eugene, in *Iowa*, a former P. O. of Ringgold co.

Eugene, in *Ohio*, a post-office of Knox co.

Eugene, in *Oregon*, a thriving town, cap of Lane co., on Williamette river, and N. Pac. R. R., 45 miles S. of Albany; seat of University of Oregon. Has extensive manufactures. *Pop.* (1897) about 4,500.

Eugenglauz, *n.* (*Min.*) Same as Polybasite, *q. v.*

Euge'nia, *n.* [In honor of Prince Eugène, of Savoy.] (*Bot.*) A gen. of plants, ord. *Myrtaceæ*. They are trees and shrubs, with opposite, entire leaves, axillary white flowers, and black or red berries. *E. pimenta* is the most important species. Its dried unripe fruit constitutes pimento or Jamaica pepper, commonly known as allspice. The latter name is given to it because it is thought to have combined the flavors of cinnamon, clove, and nutmeg. It is used as a spice, and in medicine as an aromatic stimulant. Its properties are dependent on the presence of a volatile oil. The rose-apples of the East, which are much esteemed as dessert fruits, are the produce of *E. malaccensis*, *E. aquæ*, *E. jambos*, and other species of this genus. In Brazil, the fruit of *E. cauliflora*, and *Jabuticaba*, is also much esteemed. The leaves of *E. ugni* are used in Chili as a substitute for Paraguay tea.

Euge'nie-Marie de Guzman, Countess of Téba, Empress of the French, B. 1826, is the daughter of Donna Marie Manuela Kirkpatriek of Closeburn, countess-dowager of Montijo, connected by her husband, the Count de Montijo, with the houses of the dukes of Frias and Fyars, and others of the highest rank, including the descendants of the kings of Aragon. In 1851, the Countess Téba, accompanied by her mother, paid a lengthened visit to Paris, and was distinguished at the various entertainments given at the Tuileries by the dignity and elegance of her demeanor, and by great personal beauty. Her mental gifts were not less attractive, her education being very superior to that generally bestowed upon Spanish women. She was an object of admiration to the emperor of the French, who married her on the 30th Jan., 1853, at Notre Dame. On that occasion an amnesty was granted to 4,312 political prisoners. The Prince Imperial, the heir to the French throne, was born 16th March, 1856. In the absence of the emperor during the Italian war of 1859, she exercised the office of regent with the assistanee of a council. The ex-Empress *E.* is a devoted supporter of the claims of the Holy See, and to her influence much of the policy of the emperor towards Italy, in this respect, has been attributed. Accompanied by the emperor, she visited the cholera hospitals in 1865, and her conduct on that occasion was very highly commended. At the end of 1869 she visited Venice and Constantinople, on her way to Egypt, where she represented France at the opening of the canal of Suez. From Aug. 1, to Sept. 4, 1870, she acted as Regent of France: and, since the downfall of the Empire, has resided in England.

Eu'genine, *n.* (*Chem.*) A crystalline substance extracted by alcohol from cloves.

Euge'nius I., a pope and saint, succeeded Martin I. in 654. He is praised for his liberality and piety. Died 657.

Eugenius II., succeeded Paseal I. in 824, and D. 827.

Eugenius III., succeeded Lucius II. in 1145. Rome was at that time in a turbulent state, and finding that he could do little good, *E.* retired to Pisa, and thence to Paris. D. at Tivoli, 1153.

Eugenius IV. (Gabriele Condulmero), succeeded Martin V. in 1431. The great event in his career was the schism created in the Church by the proceedings of the Council of Basil, *q. v.* *E.*'s pontificate was stormy and unhappy, and in his old age is said to have regretted that he ever left his monastery. D. at Rome, 1447.

Eu'geny, *n.* [Gr. *eugenia*, from *eu*, well, and *genos*, race, stock.] Nobleness of birth.

Eugh, (*yu,*) *n.* [A. S. *iw.*] A tree; the yew.

Euharlee Creek, in *Georgia*, enters the Etowah River from Cass co.

Euharmou'ic, *a.* [Gr. *eu*, well, and *harmonic.*] That produces harmony.

Eula'lia, in *Pennsylvania*, a post-township of Potter co.

Euler, Leonard, (*oi'ler,*) B. at Basle, Switzerland, 1707, was one of the greatest analysts of the last century,—not indeed ranking with Descartes, Newton, or Leibnitz, but by the unbroken accord of the world of science claiming equality beside Daniel Bernouilli and D'Alembert. A bare catalogue of the immense labors and voluminous writings of this illustrious person would occupy all our space; it may, indeed, be said of him, *nihil tetigit quod non ornavit;* and his eager genius, surpassing industry, and exhaustless resources, led him through all the sphere of mathematical and physical science. Living immediately after the discovery of the infinitesimal calculus, no man did so much to unfold its powers and simplify its methods; his great works on that subject are still models of composition; and amid what sprung from his abundant, his amazing fertility, the germs are found of the most important of subsequent advances; his work on *Isoperimeters* may be said to have provoked the calculus of Variations of *Lagrange*. With Bernouilli, Euler divided several prizes; these two great men ran a strikingly corresponding race. The work by which he is popularly known is his *Letters to a German Princess*, a work instinct with acuteness, and evincing marvellous powers of exposition, but on the whole, perhaps, his only failure. He hopelessly tries in it to break a lance with Leibnitz—offering a refutation of the scheme of monads. *E.* was not a metaphysician, and his reputation betrays no sufficient comprehension of the meaning of the great German thinker. D. at St. Petersburg, 1783.

Eu'lima, *n.* (*Zoöl.*) A genus of gasteropodous *Mollusca* belonging to the family *Pyramidellidæ*, and containing a number of species, the shells of which are small, white, elongated, with an entire mouth, and a remarkable polished and shining exterior. The operculum is small, horny, and subspiral. Several species inhabit the Mediterranean; others, and those the largest, are found in India and the Pacific Ocean; while a still greater number are found fossil. Fig. 972 represents the species *E. dolobrata*, of the W. Indies.



Fig. 972.

Eulog'ic, or Eulogical, *a.* [L. Lat. *eulogicus.*] Containing eulogy or praise; commendatory.

Eulog'ically, *adv.* In a manner to convey praise.

Eu'logist, *n.* One who praises or commends another.

Eulogis'tic, *a.* Commendatory; full of praise.

Eulogis'tically, *adv.* With commendation.

Eulo'gium, *n.* [Gr. *eulogia.* See Eulogy.] Eulogy; praise; encomium; a speech or writing in commendation of some one.

Eu'logize, *v. a.* [Gr. *euloge-ō.*] To speak well of; to praise; to speak or write in commendation of another; to extol.

Eulogy, (*u'lo-ji,*) *n.* [Gr. *eulogia*—*eu*, and *logos*, a saying or speaking; Fr. *éloge.*] A speaking well of; a speech or writing in commendation of a person; praise; encomium; panegyric.

Eulo'phia, *n.* [Gr. *eulophos*, a handsome crest.] (*Bot.*) A genus of plants, order *Orchidaceæ*. The tubercular roots of *E. vera* and *E. campestris* are much used in India for the preparation of the nutritious substance known by the names of salep, salop, and saleop.

Eu'lysite, *n.* (*Min.*) A gneissoid rock consisting in part of augite and garnet, at Junaberg in Sweden.

Eu'lytite, *n.* (*Min.*) A silicate of bismuth found near Schneeberg, Saxony, and near Freiburg.

Eumæ'us, a herdsman and stewart of Ulysses, who recognized his master, at his return home from the Trojan war, after twenty years' absence, and assisted him in removing Penelope's suitors.

Eu'manite, *n.* (*Min.*) Same as Brookite, *q. v.*

Eumelus, (*u-me'lus,*) son of Admetus, king of Pheræ, went to the Trojan war, and had the fleetest horses in the Grecian army. He distinguished himself in the games appointed in honor of Patroclus.—There are others of this name in ancient history.

Eumenes, (*u'me-nees,*) king of Pergamus, succeeded his uncle Philæterus, 263 B. C., and reigned 22 years.—Eumenes II., nephew of the preceding, succeeded his father, Attalus, 197 B.C. He assisted the Romans against Antiochus the Great, and reigned 38 years.—Both of these sovereigns were greatly attached to learned pursuits, and the latter enriched the famous library of Pergamus, which had been founded by his predecessors, in imitation of the Alexandrine collection of the Ptolemies.

Eu'menes, a Greek commander, and accounted the most worthy of all the officers of Alexander to succeed him after his death. He conquered Paphlagonia and Cappadocia, of which he obtained the government, till the power and jealousy of Antigonus obliged him to retire. He then joined his forces to those of Perdiccas, and defeated Craterus and Neoptolemus. He was put to death by order of Antigonus, 531 B. C. The latter, however, honored his remains with a splendid funeral, and conveyed his ashes to his wife and family at Cappadocia.

Eumeu'idæ, *n. pl.* (*Zoöl.*) Same as Vesparіæ, *q. v.*

Eumenides, (*u-men'e-dees.*) [Gr., the well-minded, or benign goddesses.] (*Myth.*) The euphemistic name given to the Erinyes, *q. v.* By later poets, the name was confined to the three sisters commonly known as the Furies—Allecto, Megæra, and Tisiphone.

Eumo'nia, *n.* (*Astron.*) An asteroid discovered by De Gasparіel, in 1851. It is the 15th in order of discovery.

Eundo morando et redeundo. [Lat., going, remaining, and returning.] (*Law.*) This phrase is employed in cases where a person, either as party, a witness, or one acting in some other capacity, as an elector, is privileged from arrest, in order to give him the freedom necessary to the performance of his respective obligations, to signify that he is protected from arrest *eundo morando et redeundo.*

Eunuch, (*u'nuk,*) *n.* [Fr. *eunuque;* Gr. *eune*, a bed, and *echein*, to have the care of.] Literally, one who has the care of a bed,—a name given to this class of persons in the East, from their being intrusted with the care of the women's apartment, or harems. The practice is of great antiquity, and even in the time of Herodotus it was carried to a great extent among the Persians, who not merely intrusted the care of their wives and daughters to eunuchs, but considered them as more trustworthy than other men. The practice of making eunuchs does not seem to have prevailed to any great extent in Greece or Rome; but during the Eastern Empire it was very common, and the chief of the eunuchs was one of the most important functionaries at court. Zeal for religion has caused many persons to undergo this operation. As early as the 3d century, there arose a class of enthusiasts, who, animated by the example of Origen, not only castrated those of their own persuasion, but even all persons on whom they could lay their hands. Several of the Christian emperors of Rome forbade the practice of making eunuchs; and Justinian imposed a law of retaliation on such as were guilty of such inhumanity. The Council of Nice, at a later period, excluded from the pale of the church all who, from whatever cause, made eunuchs of themselves. The practice is said to have prevailed in Italy, with the view of preserving the voice of singers for the operas of Europe; and in the East, at the present day, the seraglios are chiefly guarded by eunuchs.

Eu'nuchism, *n.* The state of being a eunuch.

Eunus, (*u'nus,*) a Sicilian slave, who inflamed the minds of the people by pretended inspiration and enthusiasm. Oppression and misery compelled 2,000 slaves to join his cause, and he soon found himself at the head of 50,000 men. With this force he defeated the Roman armies, till Perpenna forced him to surrender by famine, and he and the greater number of his followers were impaled on crosses, 132 B. C.

Euom'phalus, *n.* [From Gr. *eu*, wide, *omphalos*, umbilicus.] (*Pal.*) A genus of fossil gasteropodous mollusca, family *Turbinidæ*. Many species have been described, occurring in the lower silurian formation, and consisting of depressed or discoidal shells of considerable size, with a polygonal aperture, and a very wide umbilicus.



Fig. 973.—EUOMPHALUS PENTANGULATUS.

Euon'ymus, *n.* [Gr. *eu*, well, and *onoma*, a name.] (*Bot.*) A genus of plants, order *Celastraceæ*. They are erect or trailing shrubs, with opposite leaves. The principal American species are *E. atropurpureus*, the Spindle-tree; and *E. Americanus*, the Burning Bush; they are found E. of the Mississippi and N. as far as Canada. In France, the charcoal prepared from *E. Europæus* is largely used in the manufacture of gunpowder; while the young shoots, in a charred condition, are employed as rough crayons for sketching. The seeds are stated to be purgative and emetic, and also to be poisonous to sheep. The bark of the *E. tingues* can be used as a yellow dye-stuff.

Eu'osmite, *n.* (*Min.*) A hydrocarbon found in clefts in brown-coal at Baiershof, Germany. It is of a brownish-yellow color, looks like common pitch, and has an odor between that of rosin and camphor. Hardness 1·5, gravity 1·2 to 1·5, dissolves in alcohol and ether. Composition: carbon, 81·89, hydrogen, 11·73, oxygen 6·38.

Eu'pathy, *n.* [Gr. *eupatheia* — *eu*, and *epathos*, feeling, from *paschō*, to suffer. See PASCHAL.] Right feeling.

Eupa'tor, a surname given to many of the Asiatic princes, such as Mithridates, &c.

Eupatoria, or **Koslov,** (*u-pa-tor'e-a,*) a town of Russia, on the W. coast of Crimea, 65 m. from Perekop. It was occupied by the French and English armies in 1854, and successfully defended by the Turks against the Russians the following year. *Pop.* 15,000.

Eupato'rium, *n.* [Derived by Linnæus from Mithridates Eupator, who first used it as a counter-poison.] (*Bot.*) A genus of plants, order *Asteraceæ*. They are perennial herbs, with opposite or verticillate leaves. Heads corymbose. Flowers of the cyanic series, that is, white, blue, red, &c., never yellow. The leaves of *E. glutinosum* constitute a sort of matico, which is employed as a styptic. *E. ayapana* and *perfoliatum* are employed as antidotes to the bites of venomous reptiles. There are no less than 17 species of this genus in America, the most familiar of which are *E. fistulosum*, the Trumpet-weed; *E. maculatum*, the Spotted Eupatorium; *E. rotundifolium*, the Hoarhound; *E. perfoliatum*, the Thoroughwort, or Boneset; *E. ageratoides*, the nettle-leaved Eupatorium; and *E. aromaticum*, the Aromatic Eupatorium.

Eu patrid, *n.* [Gr. *eu*, well, and *pater*, a father.] A person who is well-born.

Eupen, (*oi'pen,*) a flourishing manufacturing town of Rhenish Prussia, on the Weeze, 10 m. from Aix-la-Chapelle. *Manuf.* Woollens, soap, paper, &c. *Pop.* 14,224.

Eu'pepsy, or **Eupep'sia,** *n.* [Gr. *eupepsia* — *eu*, and *pepsis*, digestion, from *pessō*, *pepto*, to digest.] (*Med.*) Good digestion or concoction in the stomach; good digestion.

Eupep'tic, *a.* Having good digestion.

Euphe'mia, in *Ohio*, a post-village of Preble co., abt. 57 m. N. of Cincinnati.

Eu'phemism, *n.* [Fr. *euphemisme;* Gr. *euphemismos* — *en*, and *phemi*, to speak.] A speaking well or delicately; a representation of good qualities.

(*Rhet.*) A figure by which a delicate word or expression is substituted for one which is offensive.

Euphemis'tic, or EUPHEMIS'TICAL, *a.* Containing euphemism; rendering more decent or delicate in expression.

Eu'phemize, *v. a.* To make use of euphemistic expressions.

Epho'niad, *n.* [Gr. *eu*, well, and *phoneo*, to sound.] (*Mus.*) An instrument invented by P. S. & G. Grosh, of Petersburg, Pa., combining the tones of the organ, clarinet, horn, bassoon, and violin.

Euphon'ic, or EUPHONICAL, *a.* [Fr. *euphonique.*] Having euphony; agreeable in sound; pleasing to the ear.

Euphon'icon, *n.* (*Mus.*) A kind of upright pianoforte.

Epho'nious, *a.* [Gr. *euphōnos*, sweet-voiced.] Having euphony; agreeable in sound.

Epho'niously, *adv.* With euphony; harmoniously.

Eu'phonism, *n.* An agreeable combination of sounds.

Eu'phonize, *v. a.* To make euphonious or agreeable in sound.

Eu'phonon, *n.* (*Mus.*) An instrument invented by Chladni in 1790. It is similar in tone to the harmonica, and, like it, the tone is produced from the sounding body by the finger direct, without mechanism, and is regulated in quality and effect by the taste and feelings of the performer, who can produce tones from the most delicate pianissimo to fortissimo.

Eu'phonous, *a.* Euphonical; Euphonious.

Eu'phony, *n.* [Fr. *euphonie;* Gr. *euphonia* — *eu*, and *phone*, sound.] An agreeable or harmonious sound; an easy, smooth enunciation of sounds.

Euphor'bia, *n.* [Named after *Euphorbus*, physician to Juba, king of Mauritania.] (*Bot.*) The typical genus of the order *Euphorbiaceæ*. They are herbs or shrubs, with milky juice. Leaves generally opposite, sometimes wanting, often stipulate. Involucre axillary or subumbellate. The genus includes about 300 species, many of which have valuable properties. The acrid resin commonly known as gum Euphorbium is the produce of certain undetermined species, the principal of which are probably *E. antiquorum*, *canariensis*, and *officinarum*. It is a dangerous cathartic, emetic, and rubefacient, and produces severe inflammation of the nostrils if those who powder it do not guard themselves from the dust. It is produced from the wounded stems, and collected in leather bags. In India it is said to be mixed with the oil expressed from the seeds *Sesamum orientale*, and employed externally in rheumatic affections, and internally in cases of obstinate constipation. The Arabs are stated to make up violent diuretic pills by rubbing over the juice of the species *E. antiquorum* with flour; their camels, however, are said to eat the branches of the plant when cooked. The juice of the species *E. cereiformis*, *heptagona*, and *virosa*, African plants, furnish the Ethiopians with a mortal poison for their arrows; whilst that of *E. cotinifolia* serves the like purpose for the Brazilian Indians. The species *E. hibernica* is extensively used by the peasantry of Kerry for the purpose of stupefying fish; and so powerful are its properties said to be, that a small kreel or basket filled with the bruised herb suffices to stupefy the fish for several miles down the river. *E. hypericifolia*, the Spurge or Eyebright, a plant of tropical America, is astringent and somewhat narcotic, and is employed in the diarrhœa of children and as a vermifuge; and *E. thymifolia* is employed for a like purpose in India. The root of *E. ipecacuanha*, the Ipecac Spurge, is said to be equal to the true ipecacuanha, and is commonly used in the United States. Another species, *E. corollata*, the Flowering Spurge (Fig. 974), is also used here as an emetic. The fruits of *E. lathyris*, the Caper Spurge or Mole-tree, are sometimes pickled and eaten, instead of ordinary capers; but although the process of pickling appears to destroy in a great measure the acrid purgative properties which the fruits possess in a fresh state,



Fig. 974. — EUPHORBIA COROLLATA.

their use is by no means free from danger. A very active cathartic oil may be expressed from the seeds of the caper-spurge. The leaves of *E. nerefolia* are prescribed by the native practitioners of India, both internally as a purge, and externally, mixed with Margosa oil, in certain cases of contracted limb. The roots of *E. palustris* and *pilosa* are used as purgatives, and are said to have proved useful in hydrophobia. Many other species are purgative. *E. tirucalli*, a native of India, is common in the Madras presidency, and makes an excellent hedge, as no cattle will touch its leaves. The sap of *E. phosphorea* is said to shine with a phosphorescent light in the forests of Brazil on warm nights.

Euphorbia'ceæ, *n.* (*Bot.*) The Spurgewort family, an order of plants, alliance *Euphorbiales*. DIAG. Definite suspended and inverted ovules, scattered flowers, and tricoccous fruit.—They are trees, shrubs, and herbaceous plants, generally with an acrid milky juice. The flowers are unisexual, monœcious or diœcious, axillary or terminal, sometimes inclosed in a calyx like involucre; achlamydeous, or with a lobed inferior calyx, having on its inside glandular or scaly appendages, or even evident petals, which are either distinct or united. The anthers are two-celled. The female flowers have a superior ovary, which is either elevated upon a stalk or sessile upon the thalamus, one-, two-, three-, or many-celled. The styles are either absent or corresponding in number to the cells of the ovary, entire or divided. The stigmas are equal in number to the cells of the ovary, or, when the styles are divided, corresponding in number to their divisions; the ovules, one or two in each cell, are pended from the inner angles of the cell. The fruit is either dry, when its parts separate from each other, and from the axis, usually opening with elasticity, or succulent and indehiscent. Seeds one or two in each cell, suspended, often with an aril or carunculate. Embryo inclosed in fleshy albumen, cotyledons flat, radicle superior. The plants of this ord. are more or less distributed over the globe, but are especially abundant in warm regions, particularly in equinoctial America. Many are extremely poisonous, the poisonous principle being contained in the milky juice, and pervading all parts of the plant more or less. Many have been employed medicinally, as rubefacients, suppurants, emetics, diuretics, and cathartics. Some, as cascarilla, are tonic, aromatic, and stimulant, and are perfectly devoid of any acrid or poisonous principle. Others, as manihot, yield starch, which is largely employed for food. Caoutchouc and resin are obtained from the milky juice of others. The seeds of many yield oils, either of a bland or of an irritating nature. A few of the fruits, and some of the roots, are said to be eatable. Timber is yielded by some, as the box; and dye-stuffs by others. The hairs of some are stinging. The order includes 191 genera and about 2,500 species.

Euphor'biales, *n. pl.* (*Bot.*) An alliance of diclinous exogen plants. DIAG. Scattered monodichlamydeous flowers, superior consolidated carpels, axile placentæ, and a large embryo surrounded by abundant albumen. This alliance includes the orders *Euphorbiaceæ*, *Scepaceæ*, *Callitrichaceæ*, *Empetraceæ*, and *Nepenthaceæ*.

Euphor'bium, *n.* (*Med.*) An acrid gum-resin, the product of *Euphorbia officinarum* and other species; it is virulently purgative and emetic, and the dust of it is dangerously stimulant to the nose.

Euphor'bus, a famous Trojan, and the first who wounded Patroclus, whom Hector killed. Pythagoras, the founder of the doctrine of the metempsychosis, affirmed that he himself was once Euphorbus, and that his soul recollected many exploits which had been done while it animated that Trojan's body.

Euphrates, (*u'frai-tees,*) the largest river in Western Asia, and, with the Tigris, forms the most important river-system of that quarter of the world. It has its source in the heart of Armenia in two branches — the Kara Su and the Murad, of which the former rises 25 m. N.E. of Erzerum, and flows S.W. to a point 10 m. N. of Keban' Ma'den, where it is met by the Murad, which rises on the S. slope of Alá Tagh, and flows W.S.W. to the point of confluence. From Keban' Ma'den, the *E.* flows in a general southern direction towards the Mediterranean. In this part of its course it breaks through the Taurus, and flows among the mountains for 45 m., emerging at Sumeisat, whence it continues navigable to the sea — a distance of 1,195 m. After passing Samosta, it changes its direction, and flowing S. separates for a considerable distance Mesopotamia from Syria and the deserts of Syrian Arabia. Curving to the S. E., it flows on without receiving any important tributaries for about 700 m., until it is joined at Kurnah or Kornah by the waters of the Tigris. From Kurnah, the river, taking the name of the Shatt-el-Arab, continues to flow in a S.E. direction, until, after being united by a canal with the Karun from the mountains of Persia, it empties itself, by several arms, into the Persian Gulf, 90 m. below Kurnah. The total length of the *E.* is 1,600 m.; the area drained by all the waters which enter the Persian Gulf by the Shatt-el-Arab, is 108,000 m.; and the volume of water discharged by it is 401,010 cubic feet per second, or 72,910 cubic feet more than that discharged by the Danube in the same time. The average width of the Shutt-el-Arab is upwards of 600 feet; it is navigable in mid-stream for vessels of 500 tons. The water of the *E.*, although muddy, is not unwholesome. Its inundations, caused by the melting of the snows, take place chiefly from the beginning of March till the end of May; and in ancient times, when canals and embankments regulated these inundations, exercised the same beneficial effect on the country as those of the Nile on Egypt.

Eu'phuism, *n.* [Fr. *euphuisme*, from Gr. *euphyes*, well-shaped, goodly, graceful, elegant — *eu*, and *phy-ē*, growth, stature.] (*Lit.*) An affected style of speaking and writing, which became a fashion during the reign of Queen Elizabeth. The taste of an age which was gradually becoming conscious of the powers of the English language, tended to a love of affected conceits, which was carried to absurd lengths by John Lilly in his *Euphues* (Gr., *graceful or witty*). The extravagant antitheses and illustrations of this worthless book were received with delight by critics who worshipped the "curious invention" of the author. This style has been ridiculed by Shakspeare and Ben Jonson; but it should be remembered that Sir Walter Scott's imitations introduced into his romance *The Monastery* preserve little of their real character. (Hallam, *Literature of Europe*, part ii. ch. vii.)

Eu'phuist, *n.* [Fr. *enphuïste;* Gr. *euphyēs.*] (*Rhet.*) One who affects excessive refinement and elegance of language.

Euphuis'tic, *a.* Belonging to euphuism or euphuists.

Eu'phyllite, *n.* (*Min.*) A variety of MICA. *q. v.*

Eu'pion, *n.* [Gr., very fat.] (*Chem.*) A very limpid liquid which stains paper like oil, and which exists in the tar produced during the destructive distillation of many animal and vegetable substances. Its specific gravity is 0·74, and it boils and evaporates at 340°. It is insoluble in water, but dissolves in ether and alcohol. It is insipid and inodorous, but highly inflammable.

Euplas'tic, *a.* [Gr. *eu*, well, and *plasso*, I form.] (*Med.*) Having the faculty of becoming organizable in a high degree, — as in false membrane resulting from acute inflammation in a healthy person

—*n.* The organizable matter by which the tissues of the body are renewed.

Eu'poda, *n.* [Gr., well-footed.] (*Zoöl.*) A family of coleopterous insects, deriving their name from the great size of the hinder thighs of many of the species. They feed on the stems and leaves of plants, some of them on aquatic plants, the roots of which afford food to their larvæ. The body is oblong; the antennæ filiform. Some of the eupoda are among the most splendid of tropical insects. The *Crioceris asparagi*, which belongs to this family, is of a blue color, with the thorax red, and the elytra yellowish-white, with blue markings. It feeds

in the larvæ state on the young sprigs of asparagus, and is sometimes so abundant as to do considerable damage to the garden.

Eu'polis, a comic poet of Athens, who severely condemned the vices and immoralities of his age. It is said that he had composed 17 dramatic pieces at the age of 17. Some suppose that Alcibiades put Eupolis to death because he had ridiculed him in his verses; but Suidas maintains that he perished in a sea-fight between the Athenians and the Lacedæmonians in the Hellespont. Lived in the 5th century B. C.

Eupyr'chroite, *n.* (*Min.*) A variety of phosphate of lime.

Eupy'riau, *n.* [Gr. *eu*, and *pyr*, fire.] A term applied to several contrivances for obtaining instantaneous light, such as lucifer-matches, &c.

Eura'sian, *n.* [A contraction from *Europe* and *Asia*.] A descendant of an European born in Asia.

Eure, (*oor*,) a river of France, rising in the dep. Orne, and falling into the Seine near Pont-de-l'Arche.

Eure, a dep. of France, comprising the E. part of Normandy, and situate on the æstuary of the Seine; Lat. between 48° 37′ and 49° 28′ N.; *area*, 2,414 sq. m. It is divided into 5 arrond., — Evreux, Louviers, Les Andelys, Bernay, and Pont-Audemer. *Cap.* Evreux. Along the Seine the soil in some parts is sandy, stony, and barren, but the greater part is very fertile. The chief natural products are corn, hemp, flax, vegetables, and fruit, particularly apples and pears, from which large quantities of cider and perry are made. The breeding of cattle, horses, and sheep is favored by extensive meadows and pasture-lands. Iron is found in considerable quantities. There are extensive iron and copper works and pin manufactories. Cotton goods, cloth, linen, paper, glass, and stoneware are likewise manufactured.

Eure-et-Loir, a dep. of France, formed chiefly from the prov. of Orléanais, bet. Lat. 47° 57′ to 48° 55′ N., and Lon. 0° 47′ to 2° E.; *area*, 2,248 sq. m. It is watered mainly by the Eure in the N. and the Loir in the S., the two rivers from which it takes its name. This dep. lies on the water-shed between the Bay of Biscay and the English Channel. It is in general level, with a soil very fertile. In the forests the oak and birch are the prevailing trees. The rivers, none of which are navigable in this dep., furnish valuable water-power for the numerous mills of various kinds that are situated on their banks Iron is the only mineral found and worked to any great extent; but the chief articles of trade are corn, flour, and wool. The dep. is divided into the four arrond. of Chartres, Château-dun, Drenx, and Nogent-le-Rotrou, with the town of Chartres for capital. *Pop.* 311,340.

Eure'ka, *n.* [Gr., I have found it. See ARCHIMEDES.] Discovery.

Eure'ka, in *Alabama*, a post-office of Talladega co.

Eure'ka, in *Arizona*, a village of Yuma co., on the Colorado river, about 170 m. S.W. of Prescott.

Eure'ka, in *California*, a thriving city, cap. of Humboldt co., on Humboldt Bay, 2 m. from Pacific Ocean, 225 m. N.W. of Sacramento. Has 2 railroads and steamboat connections; lumber mills and other industries; is in the redwood forest region. *Pop.* (1897) about 8,450.

—A township of Nevada co., containing rich gold mines.

Eure'ka, in *Illinois*, a post-village of Woodford co., about 20 m. E. of Peoria.

Eure'ka, in *Indiana*, a post-village of Spencer co., about 10 m. W. of Rockport.

Eure'ka, in *Kansas*, a city, cap. of Greenwood co., on A., T. & S. F. and Mo. Pac. R. Rs., 48 m. S. of Emporia. Has a large shipping trade in grain, cattle, &c. *Pop.* (1897) about 3,000.

Eure'ka, in *Michigan*, a post-office of Clinton co.

—A township of Montcalm co.

Eure'ka, in *Minnesota*, a township of Dakota co., about 25 m. S. by W. of St. Paul.

—A village of Nicollet co., on the Minnesota river, about 15 m. S.W. of St. Peter.

Eure'ka, in *Missouri*, a post-village of St. Louis co., about 30 m. W. by S. of St. Louis.

Eure'ka, in *Ohio*, a post-office of Gallia co.

Eure'ka, in *Wisconsin*, a post-village of Winnebago co., on Fox river, about 16 m. W. of Oshkosh.

Eure'ka Springs, in *Arkansas*, a city, cap. of Carroll co., 85 m. S.W. of Springfield, Mo. Has valuable mineral springs. *Pop.* (1897) about 4,000.

Euripides, (*u-rip'i-dees*,) one of the great Greek tragic poets, was B. at Salamis, about B. C. 481. According to a legend, his birth took place on the very day of the battle of Salamis. He was taught rhetoric by Prodicus, excelled in gymnastic exercises, studied painting, and applied himself to physical science and philosophy. He was a disciple of Anaxagoras, and afterwards of Socrates. His first play was exhibited B. C. 455, the year that Æschylus died; and his last in 408. He soon after went to the court of Archelaus, king of Macedonia, and in 406 was killed by the king's hounds, which savagely attacked him in a lonely place. Euripides was of a serious and speculative turn, could not believe in the popular mythology, yet took from it the subjects of his plays, making any changes to adapt them to his purpose, especially stripping the persons of all ideal greatness. He brought tragedy down to the level of every-day life, and painted men as they are, not as they ought to be. He greatly excelled in delineating the characters and habits of women, and the workings of strong passion. His plays abound in neat quotable sayings applicable to all circumstances of human life. He wrote in all 75, or perhaps 92, plays, of which 18 are still extant, among which the most admired are the *Alcestis*, *Medea*, *Ion*, *Hecuba*, *Iphigenia in Tauris*, and *Iphigenia in Aulis*. The *Cyclops* is interesting as the only specimen left us of what was called the *satyric drama*. To *E.* chiefly was owing the introduction of the prologue, and the *Deus ex machina*, or the practice of solving the difficulties of the plot by direct visible interposition of a god. *E.* was the contemporary and rival of Sophocles, and was one of the victims of the satire of Aristophanes.

Eu'ripus, Eu'ripos, a narrow strait separating the island of Eubæa from the coast of Bœotia. The flux and reflux of its tide, continuing regularly for 18 or 19 days, and becoming stationary for the remainder of the month, was a matter of deep inquiry among the ancients.

Euroc'lydon, *n.* [Gr.] A violent wind, mentioned in Acts xxvii. The name seems to signify a storm from the east; but the readings vary greatly, and among these variations occurs the form *εὐρακύλων*, in the Latin Vulgate, *euro-aquilo*, the north-east wind.

Euro'pa. (*Myth.*) The daughter of Agenor and Telephassa, and sister of Cadmus the founder of Thebes. According to some legends, her birthplace was in Phœnicia. Thence she was carried away by Zeus or Jupiter in the form of a white bull, and became by him, in Crete, the mother of Minos, Rhadamanthus, and Æacus.

Europe (*yū'rŏp*), the most densely peopled, but, with the exception of Australasia, the smallest of the divisions of the globe, being about a fifth part of the size of Asia or America, and a third part of that of Africa. *E.* is mostly situated within the temperate zone, and no part of her surface approaches within many degrees of the intertropical regions. The climate is therefore rather inclined to cold; but it is comparatively temperate, and is neither so cold in winter nor so hot in summer as the countries in the corresponding latitudes of Asia and America, so that while comfortable lodging and warm clothing are indispensable, the exertions of the inhabitants are not impeded by the too great intensity of cold on the one hand, or of heat on the other. The surface, too, of the country is infinitely varied and picturesque, and it has the advantage of being more intersected than any other continent by great arms of the sea, supplying facilities to internal and foreign commerce that are all but wholly denied to Asia, Africa, and Australasia, and only enjoyed in an equal degree by America. The soil of *E.* also seems to be of the quality best suited to stimulate and reward the efforts of the husbandman; for though it is nowhere so fertile as to produce crops without laborious diligence, and consequently does not foster indolence or a want of attention, it never fails liberally to reward the efforts of the industrious and skilful cultivator. — Owing to its peninsular conformation, the present boundaries of *E.* are on three sides easily stated: its W. shores form the irregular rim of the great basin of the North Atlantic; on the N. it lies along the Arctic Ocean; and on the S. it is separated from Africa and Asia by the Mediterranean, the Sea of Marmora, the Black Sea, and their connecting straits. Towards the E., on the other hand, the boundary is almost purely conventional: the Ural Mountains may be regarded as furnishing a sort of natural barrier, but they leave a considerable gap both towards the N. and the S. In the S., the river Ural is usually accepted as the line of demarcation, though the plain through which it flows is perfectly similar on both sides.—The four corners of *E.* are marked by the mouth of the Kara on the Arctic Ocean in the N.E., lat. 69° N., lon. 65° E.; by the North Cape on the Arctic Ocean in the N.W., lat. 71° 11′ N., lon. 25° 50′ E.; by Cape Tarifa on the Atlantic in the S.W., lat. 36° N., lon. 5° 36′ W.; and by Cape Apsheron on the Caspian Sea in the S.E., lat. 40° 12′ N., lon. 50° 20′ E. A line drawn from Cape St. Vincent in Portugal to the Ural Mountains near Ekaterinburg has a length of 3,293 m., and finds its centre in the W. of Russian Poland. From the mouth of the Kara to the mouth of the Ural river the direct distance is 1,600 m., but the boundary line has a length of 2,400 m.—The total coast-line is est. at 19,820 m., of which about 3,600 belong to the Arctic Ocean, 8,390 to the Atlantic, and 7,830 to the Black Sea and the Mediterranean. —The political divisions of *E.* in 1897, with their areas and populations modified by recent events, as the Franco-Prussian War and the Berlin Treaty (*q.v.*), were as follows:—

Pol. Divisions.	*Gov't.*	*Area in English Sq. Miles.*	*Pop.*	*Capitals.*
Russia in Europe	Empire	2,095,054	91,212,888	St. Petersb'g.
Germany . .	Empire	211,149	52,250,394	Berlin.
Austria & Hung'y	Empire	240,456	41,358,886	Vienna.
Bosnia, Herzegovina, &c. (occupied by Austria		23,179	1,404,000	
France . . .	Republic	204,092	38,228,989	Paris.
Gt.Brit.& Ireland	U. K'g'm	120,832	39,134,166	London.
Italy	Kingdom	114,410	31,102,833	Rome.
Spain	Kingdom	197.670	17,974,323	Madrid.
Sweden& Norway	Kingd'ms	293,848	6,920,177	{ Stockh'm & { Christiana.
Belgium . . .	Kingdom	11,373	6,341.958	Brussels.
Roumania . . .	Kingdom	48,307	5 038,342	Bucharest.
Turkey in Europe	Empire	63,850	4,785,545	Constantin'le
Portugal . . .	Kingdom	36,028	5,049,729	Lisbon.
Netherlands . .	Kingdom	12,648	4,859,451	Amsterdam.
Switzerland. .	Fed. Rep.	15,892	2,986,848	Berne.
Denmark . . .	Kingdom	14,124	2,185,159	Copenhagen.
Bulgaria . . .	Princip'y	38,560	3,309,816	Philippopolis.
Servia	Princip'y	18,750	2,314,153	Belgrade.
Greece . . .	Kingdom	25,014	2,187,208	Athens.
Montenegro . .	Princip'y	3,630	220,000	Cettigné.
Luxemburg . .	Gr.Duc'y	1,706	212,041	Luxemburg.
Andorra . . .	Republic	175	6,000	Andorra.
Liechtenstein .	Princip'y	70	8,320	Liechtenst'n.
San Marino . .	Republic	32	8,200	San Marino.
Monaco . . .	Princip'y	8	13,304	Monaco.
TOTALS OF EUROPE .		3,790,857	358,906,730	

Seas, Gulfs, Bays, and Channels. The Mediterranean, Baltic, Black, Irish, North and White seas, Sea of Azof, Sea of Marmora, and German Ocean. In the Mediterranean are the gulfs of Lyons and Venice, or Adriatic Sea; in the Baltic are the gulfs of Bothnia, Finland, and Riga, the Skager Rack in the North Sea, and the Cattegat. The Bay of Biscay is in the Atlantic, and the principal channels are the English and St. George's.— *Straits.* Dover, Gibraltar, Messina, Bonifacio, Constantinople, Dardanelles, Yenikale, and the Great and Little Belts. — *Capes.* Nordkyn in Lapland, N. Cape on the island of Mageroe, the Naze, the Land's End; capes Wrath, Clear, Ortegal, Finisterre, Rocca, St. Vincent, Tarifa, and Matapan. — *Islands.* The principal are Great Britain and Ireland in the Atlantic, and the largest in Europe; Sicily, Sardinia, Corsica, Majorca, Minorca, Malta, Elba, Candia, and Negroponte in the Mediterranean; Zealand, Funen, Rügen, Laaland, Falster, Bornholm, and Aland, in the Baltic. To these may be added the dreary regions of Spitzbergen and Nova Zembla. Iceland we have assigned to America, as more properly belonging to that continent. — *Mountains.* The principal ranges are the Scandinavian, separating Sweden from Norway in the N., and extending from the Naze to the North Cape; the Alps, the Pyrenees, the Apennines, the Carpathians, and the Balkan, in the S. In the Alps are Monts Blanc and Rosa, the highest peaks in Europe: in the Pyrenees are Maladetta and Mont Perdu. Some of the peaks of the Carpathians have an elevation of upwards of 9,000 feet, as have, also, those of the Balkan. Between Europe and Asia, on the E., is the great Uralian chain, and on the S., the Caucasian, culminating in Mount Elbuz, 18,493 feet above the level of the sea. — *Plains.* The great plain commences at the foot of the Pyrenees, and terminates in the Ural Mountains, on the E. It comprehends France, Holland, Belgium, and part of Denmark, the N. provinces of Germany, and a large portion of Russia. Indeed, nearly the whole of European Russia is a plain, diversified only by gentle undulations. The other plains are those of Bohemia and Hungary, the latter with an area of 40,000 sq. m. — *Rivers.* The Danube, Volga, Rhine, Seine, Dnieper, Vistula, Dniester, Don, Dwina, Oder, Elbe, Tagus, Douro, Guadalquiver, Loire, Rhone, Garonne. The longest of these are the Volga and the Danube. On the principal islands are the Thames in England, the Shannon in Ireland, and the Clyde in Scotland. — *Lakes.* The principal are Ladoga, Onega, Maggiore, Como, and Garda, in Italy; the Peipus in Russia; the Wenner, Wetter, and Mälar, in Sweden; with the less extensive, but much better known lakes of Geneva in Switzerland, Constance between Switzerland and Germany, and Lough Neagh in Ireland. — *Climate.* Temperate. On the S. the continent is within 12° of the tropics; and on the N. it nowhere reaches the line of perpetual congelation. On the W. coast it is warmer than on its east; and under the same latitudes, the east coast of N. America is much colder than the west coast of Europe. In some places this difference has been found to range as high as 10° of latitude. — *Vegetation.* The most extensive forests are those of Russia, Norway, Sweden, and Germany: and the principal trees of which they consist are the oak, elm, beech, lime, fir, birch, and chestnut. The kingdom of European vegetation, however, might be divided into four zones: the first, or most northern, being that of the birch and fir, which extends south to the 62d degree in Russia; the second, that of the oak and the beech, extending from this limit to the 48th parallel; the third, that of the vine and chestnut, occupying the region between this parallel and the mountain chains of the south; the fourth, that of the olive and evergreen woods, comprehending the southern peninsulas. — *Zoölogy.* The wild animals are comparatively few: they are the bear, wild boar, wolf, lynx, elk, reindeer, chamois, ibex, wild sheep, and wild ox. In the great forests of Germany the wolf, wild boar, and brown bear are still met with; and the forests of Russia and Poland afford shelter to the elk. The chamois and ibex inhabit the mountains of the Alps, and the wild ox is still found in the woods of Russia. Wolves are still numerous in Russia, Hungary, &c. The domestic animals are everywhere the same, and consist of the horse, ox, dog, pig, and sheep; the ass is common in the south countries. The *birds*, though mostly destitute of that gorgeous richness of plumage which characterizes those of tropical regions, are compensated by a rare brilliancy of song. The principal *insects* are silkworms, bees, Spanish flies, gall-worms, and locusts. Fish abound in the seas and rivers, and are of great value. Serpents and lizards are found only in the south. — *Prod.* The principal objects of culture are wheat, rye, oats, barley, and potatoes, in the north and middle regions. The apple, pear, plum, cherry, and berries of various kinds are also cultivated. Rice, the olive, the orange, and the lemon grow to the south of the great mountain-range; and, in the extreme south, the date-palm, sugar-cane, and cotton-plant are cultivated. The vine is cultivated as high as 51°, and the apple to 55°. — *Minerals.* Gold, silver, tin, copper, quicksilver, lead, iron, zinc, coal, salt, and marble. In the precious metals Europe is not rich; but with the useful minerals, as coal, iron, tin, and copper, she is abundantly supplied. Nearly a third of the iron made use of in Europe is supplied by England, and almost all the tin. — *Race.* Mostly Circassian, divided into three principal families—the Teutonic in the north, the Greek-Latin in the south, and the Sclavonic in the east. Besides these, there are the Finnish family, in the N. of Russia; the Celtic, in Wales and the Highlands of Scotland; the Basque, in Spain; the Turcoman, in Turkey; and the Tartar, or Mongolian race, in the N. and S.E. of Russia. — *Language.* The Italian, French, Span-

[Europe.]


ARCTIC OCEAN
ATLANTIC OCEAN
ICELAND
ARCTIC CIRCLE
NORWAY
SWEDEN
GULF OF BOTHNIA
FINLAND
GULF OF FINLAND
LAKE LADOGA
LAKE ONEGA
WHITE SEA
KOLA PENINSULA
RUSSIA
URAL MOUNTAINS
BRITISH ISLES
NORTH SEA
DENMARK
GERMANY
FRANCE
SPAIN
PORTUGAL
BAY OF BISCAY
ENGLISH CHANNEL
IRISH SEA
MEDITERRANEAN SEA
BALEARIC ISLANDS
CORSICA
SARDINIA
SICILY
TYRRHENIAN SEA
STRAIT OF GIBRALTAR
MOROCCO
ALGERIA
TUNIS
AUSTRIA-HUNGARY
SWITZERLAND
ITALY
ROUMANIA
SERVIA
BULGARIA
EASTERN ROUMELIA
TURKEY
GREECE
BLACK SEA
SEA OF AZOV
CASPIAN SEA
CAUCASUS MOUNTAINS
ASIA MINOR
CRETE OR CANDIA
CYPRUS
ST. PETERSBURG
MOSCOW
STOCKHOLM
CHRISTIANIA
COPENHAGEN
BERLIN
VIENNA
BUDAPEST
ROME
CONSTANTINOPLE
LONDON
EDINBURGH
DUBLIN
Longitude West from Greenwich.
Longitude East from Greenwich.
SCALES.
Statute Miles, 69.16 = 1 Degree.
Kilometres, 111.307=1 Degree.
Mean Temperature for each Capital Given Thus.(0°)
Rand, McNally & Co.'s New 14 x 21 Map of Europe
Copyright, 1885, by Rand, McNally & Co.

EUROPE

ANDORRA....F 5
(Republic)
Area...175 sq. m.
Pop. 6,000

AUSTRIA-
HUNGARY..I 4
(Monarchy)
Area,
264,512 sq. m.
Pop.....42,694,977

BELGIUM.... F 3
(Kingdom)
Area, 11,373 sq.m.
Pop.....6,484,940

BRITISH ISLES
(Kingdom) D 2
Area,
120,979 sq. m.
Pop.....38,104,975

BULGARIA...L 5
(Principality)
Area, 37,860 sq.m.
Pop.....3,154,375

DENMARK... H 2
(Kingdom)
Area, 15,289 sq.m.
Pop.....2,185,159

FRANCE. .... F 4
(Republic)
Area,
204,092 sq. m.
Pop.....38,343,192

GERMANY... H 3
(Empire)
Area,
211,163 sq. m.
Pop.....49,422,925

GIBRALTAR..E 6
(Colony)
Area, 1 9-10 sq. m.
Pop. 25,755

GREECE..... K 6
(Kingdom)
Area, 25,041 sq.m.
Pop.....2,187,208

ITALY.....H 5
(Kingdom)
Area,
114,410 sq. m.
Pop.....28,459,628

LUXEMBURG G 4
(Grand Duchy)
Area...998 sq. m.
Pop..... 211,083

MONACO .....G 5
(Principality)
Area.....8 sq. m.
Pop..... 12,000

MONTENEGRO I 5
(Principality)
Area, 3,630 sq. m.
Pop..... 236,000

NETHERLANDS
(The)..G 3
(Kingdom)
Area, 12,648 sq.m.
Pop..... 4,511,415

NORWAY.... H 1
(Kingdom)
Area,
124,445 sq. m.
Pop.....1,999,176

PORTUGAL...D 6
(Kingdom)
Area, 32,528 sq.m.
Pop.....4,306,554

ROUMANIA.. L 5
(Kingdom)
Area,48,307 sq m.
Pop.....5,500,000

RUSSIA..... N 2
(Empire)
Area,
2,095,504 sq. m.
Pop.....99,323,191

SAN MARINO H 5
(Republic)
Area....32 sq. m.
Pop. 8,000

SERVIA .....K 5
(Kingdom)
Area,19,050 sq. m.
Pop.....2,157,477

SPAIN.....E 5
(Kingdom)
Area,
197,670 sq. m.
Pop.....17,257,482

SWEDEN.....I 1
(Kingdom)
Area,
172,876 sq. m.
Pop.....4,774,409

SWITZERLAND
(Republic) .G 4
Area,
15,976 sq. m.
Pop. 2,933,612

TURKEY..... K 5
(Empire)
Area,
61,200 sq. m.
Pop.....4,790,000

ish, and Portuguese, which are partly a corruption of the Latin; the German, Flemish, Dutch, Swedish, Danish, and English, which proceed from the Tentonic; the Sclavonic, which predominates in the language of Poland, Russia, Bohemia, and a great part of Turkey in Europe; the Celtic, of which there are dialects in Wales, Scotland, Ireland, the N.W. of France, and Lapland; the modern Greek, and some others. — *Rel.* The inhabitants, however divided into sects, are all Christians, with the exception of the Turks, and scattered settlements of Jews. The Christians in Europe are composed of three great bodies — the Catholics, the Protestants, and the Greek Church. — *Hist.* According to the mythology of the poets, Europe received its name from Europa, who was carried there by Jupiter. Bochart derives the name from the Phœnician *urappa*, which he makes equivalent to the Greek *leukoprosōpos*, of a white or fair aspect: and considers it as applying to the continent of *E.*, from the fairer visages and complexions of its inhabitants. M. Gebelin, on the other hand, deduces the word from the Hebrew *ereb*, west, as indicating the country lying in that direction from Asia. The first inhabitants of Europe came from Asia; and during the period when large and powerful empires flourished in that quarter of the globe. *E.* remained for a length of time plunged in barbarism. Greece first emerged from this barbaric state, and soon attained a high degree of civilization, at the same time spreading her colonies over southern Italy, as well as on the coasts of Gaul and Spain. In the 8th century B. C., Rome was founded, and, by degrees, conquered the whole of Italy, finally extending her dominion over nearly all *E.*, with the exception of its more northern nations. After the fall of the Roman empire, the barbarians, coming for some part from Asia, overran Europe, and for many ages after their advent there existed on the continent an entire anarchy. The empire of the Visigoths was formed in Spain, that of the Franks in Gaul, the Lombards in Italy, the Saxons in the north of Germany, the Avari in the south, and, afterwards the Saxons and Angles, or Anglo-Saxons, in Britain. The Greek empire at Constantinople, the only remnant of the Roman domination, subsisted, nevertheless, in eastern *E.* About the year 800 A. D., the great conqueror and administrator, Charlemagne, moulded, for a time, the heterogeneous mass into one vast empire, embracing the greater part of western *E.* His successors were unable to hold together what the genius of their ancestor had formed; and from the ruins of his large possessions arose the separate kingdoms of France, Germany, Italy, Lorraine, Provence, Burgundy, &c. In the 10th century, the great nations of the North came forth from their obscurity, and Russia, Sweden, Norway, and Denmark took rank as European powers, at the same time that the Moors, who had invaded and held the fairest portions of the Spanish peninsula, from the 8th century till this period, began to retire before the Christian kings of Leon, Castile, Aragon, and Portugal. At length, in the 15th century, on the taking of Constantinople by the Turks, 1453, all the great states of Europe may be considered to have been founded. In the 16th century, the United Netherlands detached themselves from the Spanish crown, and the Prussian monarchy was not formed until the 18th. The general war which broke out on the French revolution of 1789, changed, for a time, the aspect of the continent, Napoleon I. being everywhere victorious. After the fall of his empire, the old order of things was in a great measure re-established. The territories of the various states, as fixed by the treaties of 1815, are those which now subsist, with the exceptions below noted. In 1827 Greece separated from the Turkish empire. In 1831, the kingdom of the Netherlands was divided into the kingdoms of Belgium and of Holland. In 1859, with the assistance of France, the Italians drove Austria out of Lombardy, and in 1861 the kingdom of Italy was constituted. In 1864 the Danish prov. of Schleswig-Holstein became a German prov. By the treaty of Prague, 1866, Austria ceded the Venetia to Italy, and recognized the German Confederation constituted under the direction of Prussia. By the treaty of May 10, 1871, France ceded Alsace and Lorraine to Germany, and the same year the king of Prussia became Emperor of Germany. In 1878 Turkey lost a large portion of its possessions in Europe (see BERLIN TREATY), and besides ceded Cyprus to England. In 1881 the new boundary between Greece and Turkey was established. See GREECE; TURKEY.

Europe'an, *a.* Belonging or relating to Europe, or to its inhabitants.

—*n.* A native of Europe.

Europe'anism, *n.* Quality of being European.

Europe'anize, *v. a.* To cause to become like the Europeans in manners or character; to habituate or accustom to European usages; to cause to become naturalized or domesticated in Europe.

Euro'tas. (*Anc. Geog.*) The name of an ancient river in Greece. The Spartans gave it divine honors. Its modern name is Vasili.

Eu'rus, *n.* The east wind.

Eury'ale, *n.* (*Bot.*) A gen. of plants, ord. *Nymphæaceæ*. *E. ferox* is a water-lily with small red or violet-colored flowers, leaves about a foot in diameter, the leaf-stalk and calyces covered with stiff prickles; native of India and China. The fruit is round, soft, pulpy, the size of a small orange, composed of a number of carpels, and containing round black seeds as large as peas, which are full of a nutritious farina, and eaten roasted. The root contains starch, which may be used for food, or be itself eaten. It is said to have been in cultivation in China for upwards of 3,000 years.—(*Zoöl.*) See top of next col.

Euryc'erous, *a.* [Gr. *eurus*, broad, and *kerus*, a horn.] That has a broad horn.

(*Zoöl.*) A remarkable genus of radiate animals, family *Asteriadæ*, or Star-fishes, in which each division of the rays is branched again and again, so that the whole resembles a bunch of serpents tails. Fig. 975 represents the whole of the body, with only two of the rays given in detail. They are sometimes known by the name of *Medusa's heads*. Those little branches must be of singular use to the animal in securing its prey.



Fig. 975. — EURYALE VERRUCOSUM.
See also Fig. 1995.

Eury'dice. (*Myth.*) See ORPHEUS.

Eurys'thenes, a son of Aristodemus, who lived in perpetual dissension with his twin-brother Procles, while they both sat on the Spartan throne. It was unknown which of the two was born first; the mother, who wished to see both her sons raised to the throne, refused to declare it, and they were appointed joint kings of Sparta, by order of the oracle of Delphi, 1102 B. C. The descendants of Eurysthenes were called Eurysthenidæ, and those of Procles, Proclidæ. Eurysthenes had a son called Agis, who succeeded him. His descendants were called Agidæ. There sat on the throne of Sparta 31 kings of the family of Eurysthenes, and only 24 of the Proclidæ. The former were the more illustrious.

Eurys'theus, a king of Argos and Mycenæ, whose birth was hastened by Juno two months, that he might come into the world before Hercules, the son of Alcmena, as the younger of the two was doomed, by order of Jupiter, to be subservient to the will of the other. This natural right was cruelly exercised by Eurystheus, who imposed upon Hercules the most dangerous enterprises, well known by the name of the twelve labors of Hercules. See ALCMENA.

Eurythmy, (*u'rith-me,*) *n.* [Gr. *eurythmia* — *eu*, and *rythmos*, measure, proportion, or symmetry of parts. See RHYTHM.] Good rhythm, time, or proportion; ease, majesty, and elegance of the parts of a body, arising from just proportions.

(*Med.*) Regularity of pulse.

Euse'bian, *n.* (*Eccl. Hist.*) A follower of Eusebius, *q. v.*; an Arian.

Euse'bius, PAMPHILI, (*i. e.* the friend of Pamphilus,) the father of ecclesiastical history, B. at Cesarea about 270. Pamphilus was his earliest friend in Cesarea, and gave the young student access to the large library which he had collected. Pamphilus was at length imprisoned, and Eusebius remained his attached and inseparable companion. And when the prisoner suffered martyrdom under Galerius, in 309, Eusebius fled first to Tyre, and then to Egypt. On his return, about 314, he was made bishop of his native city, and continued in that diocese till his death. In the year 325 he attended the Council of Nice, and delivered a formal address to the emperor. The Nicene creed, which condemned Arianism, was in its earliest draught composed by him; but he scrupled at length to subscribe to it, after several important verbal alterations had been made upon it. His caution and moderation afterwards subjected him to the charge of that very heresy which the Nicene council had been summoned to confute. His views on the Trinity approached those of Origen, and he seems to have held a species of subordination among the persons of the Godhead, which was incompatible with a consistent belief in the supreme deity of the Son. At the Council of Tyre, in 335, he joined in deposing Athanasius on a charge of contumacy. Prior to this period, in 330, he was offered the patriarchate of Antioch, but refused it; and he died about the year 340. Eusebius was a divine of great learning, accomplishments, and industry. Not a few of his numerous works have been preserved, which have been of great service to theology, especially to church history. His *Præparatio Evangelica*, in fifteen books, was, as its title implies, intended to prepare the pagan mind for the reception of Christianity, by showing the vast inferiority of other religions; and his *Demonstratio Evangelica*, in twenty books, of which ten have been preserved, was meant for the Jewish mind, and as a positive evidence for Christianity, especially in its connection with the oracles and prophecies of the Old Testament. His *Historia Ecclesiastica*, in ten books, reaches from the birth of Christ to the defeat of Licinius in 324, and is an important and valuable record. Besides his *Life of Constantine*, his *Oration* in praise of the same emperor, his *Onomasticon*, his tract against Hierocles, and his *Eloge* on the martyrs, we have his *Chronicon*, a Latin version of the second part of which, by Jerome, has been long known. But an Armenian version of the whole work was found some years ago, and published at Venice in 1818; other discoveries have been made by the famous Angelo Mai. The *Theophania*, another treatise of Eusebius, was discovered in a Syrian version, by Mr. Tattam, in an Egyptian monastery, and has been translated into English.

Esta'chian Tube, *n.* (*Anat.*) The name given, after the Italian anatomist Eustachius, to the communication existing between the ear and the mouth. It begins in the anterior part of the tympanum, and runs in a bony canal forwards and inwards, terminating with the petrous portion of the temporal bone. It then proceeds, partly cartilaginous and partly membranous, gradually enlarging to its termination behind the soft palate (see Fig. 896). It is through this tube of communication with the ear that persons who have a perforated tympanum blow tobacco-smoke. When the Eustachian tube is stopped or obliterated, it produces deafness.

Esta'chian Valve, *n.* (*Anat.*) A semilinear, membranous valve, which separates the right auricle of the heart from the inferior *vena cava*, first described by Eustachius.

Esta'chius, or **Eustachio,** BARTOLOMEO, an eminent Italian physician of the 16th century. He settled at Rome, where he formed his anatomical tables, and made several important discoveries, among which is the *Eustachian tube*, q. v. Boerhaave published this author's *Opuscula Anatomica* in 1707. D. 1570.

Esta'tius, or **Esta'tia,** (**St.,**) one of the Dutch Leeward Caribbee Islands, in the W. Indies, 10 m. from St. Christopher's; *area*, 190 sq. m. It rises out of the ocean in the form of a huge, volcanic, pyramidal rock, tapering to its summit, and, in proportion to its size, is one of the finest and best cultivated islands of all the Caribbees. *Pop.* 3,000.

Eu'style, *n.* [Gr. *eustylos*, from *eu*, well, and *stylos*, a column.] (*Arch.*) The intercolumniation or space between columns, which, as the name imports, was considered the most beautiful, being two diameters and a quarter of the column in width.

Eu'synchite, *n.* (*Min.*) Same as DECHENITE (*q. v.*).

Eu'taw, in *Alabama*, a post-town, cap. of Greene co., about 100 m. W.N.W. of Montgomery.

Eutaw, in *Mississippi*, a post-office of Bolivar co.

Eutaw Indians. See UTAH.

Eutaw Springs, in *S. Carolina*, a small tributary of the Santee river, in Charleston co. A battle was fought on the banks of this stream in 1781, between about 2,000 Americans under Gen. Greene, and about 2,300 British under Col. Stuart. The latter were defeated and driven from their camp; but the American soldiers in their search for plunder becoming disorganized and scattered, the British returned and Greene was compelled to retire. In the night, however, the British retreated toward Charleston, leaving 138 killed and wounded, and about 500 prisoners. The Americans lost about 550 in killed, wounded, and missing.

Eu'terpe. (*Myth.*) One of the Muses, daughter of Jupiter and Mnemosyne. She presided over music, and was looked upon as the inventress of the flute. She is represented as crowned with flowers, and holding a flute in her hands.



Fig. 976.—EUTERPE.

(*Bot.*) A genus of plants, order *Palmaceæ*. The species *E. montana* is one of the Cabbage-palms, so called because the young leaf-buds are boiled and eaten like cabbage. From the fruits of other species, particularly *E. assai* and *edulis*, pleasant beverages are prepared.

Euter'pean, *a.* Relating to Euterpe, or to an association for the practice of music.

Euthana'sia, Euthanasy, *n.* [From Gr. *eu*, well, and *thanatos*, death.] Literally, an easy death. By political writers it is employed in various senses to indicate such peculiar theories as have the best tendency to uphold the state or disentangle it from difficulties. Thus, for instance, it is maintained that the issue of inconvertible paper-money is the true *euthanasia* of public debts in modern countries.

Eutroph'ic, *n.* [From Gr. *eu*, well, and *trophe*, nourishment.] (*Med.*) A term introduced for an agent whose action is exerted on the system of nutrition, without necessarily occasioning manifest increase of any of the secretions. The chief eutrophics are — mercurials, the preparations of iodine, bromine, cod-liver oil, the preparations of gold and silver, sulphur, sugar, and sarsaparilla.

Eu'trophy, *n.* (*Med.*) A good state of nutrition.

Eu'tyches, the founder of the sect of the EUTYCHIANS, *q. v.*

Eutych'ianism, *n.* The system or doctrines of Eutyches.

Eutych'ians, *n. pl.* (*Eccl. Hist.*) A religious sect of the 5th century, named after their founder Eutyches, abbot of a monastery in Constantinople. They were marked by the vehemence of their opposition to the heresy of the Nestorians. The latter had asserted the distinctness of the two natures in Christ; the *E.* fell into the opposite extreme, and held that the human nature of Christ was absorbed in the divine, and that his body had no real existence. Their views were condemned in a synod held at Constantinople, in 448, by Flavian, patriarch of that city, and Eutyches deposed; but this decision was controverted by another council held at Ephesus the following year. Eutychianism, however, was finally condemned in 451, at the general council of Chalcedon, which declared "that in Christ two distinct natures were united in one person, and that without any change, mixture, or confusion."

Eux'enite, *n.* (*Min.*) A rare mineral found in Norway. It is a columbo-tantalate, containing titanic acid.

yttrium, and uranium. Color, brownish-black; hardness, 6·5; sp. gr. 4·60 to 4·99.

Eux'ine, *n.* [Gr. *euxinos*, hospitable.] The name given by the ancients to the BLACK SEA (*q. v.*).

Eu'zolith, En'zolite, *n.* (*Min.*) A variety of STILBITE (*q. v.*).

E'va, in *Alabama*, a post-office of Morgan co.

Evac'uant, *a.* [Lat. *evacuans*. See EVACUATE.] (*Med.*) Emptying; freeing from; purgative; cathartic.

—*n.* (*Med.*) A medium which promotes evacuation; a cathartic.

Evac'uate, *v. a.* [Fr. *évacuer;* Lat. *evacuo, evacuatus —e, ex*, and *vacuo*, to empty, from *vaco*. See VACANT.] To empty out; to make empty; to throw or draw out the contents of; to free from anything contained; to eject; to void; to empty; to quit; to withdraw from a place.

Evac'uated, *p. a.* Emptied; cleared; freed from the contents; quitted; ejected; discharged; vacated.

Evacua'tion, *n.* [Fr., from L. Lat. *evacuatio.*] Act of emptying or clearing of the contents.

—Discharge of any matter by the natural passages of the body, or by an artificial opening.

(*Mil.*) The act of quitting or withdrawing from a place.

Evac'uative, *a.* (*Med.*) That evacuates; purgative; cathartic.

Evac'uator, *n.* [L. Lat. *evacuator.*] One who evacuates or makes void.

Evade', *v. n.* [Fr. *évader;* Lat. *evado —e, ex*, and *vado*, to go or walk hastily, akin to Gr. *baino*, to go; *badizo*, to go or walk slowly; Heb. *bô*, to go or come in, to enter; Sansk. *vach*, to go.] To go out or away hastily; to go forth; to get or slip away; to escape; to attempt to escape; to practise artifice or sophistry for the purpose of eluding; to prevaricate; to equivocate; to shuffle.

—*v. a.* To traverse or pass over; to avoid by dexterity; to avoid or escape by artifice or stratagem; to slip away from; to elude by subterfuge, sophistry, address, or ingenuity; to escape; to baffle.

Evad'ible, *a.* That may be evaded.

Evaga'tion, *n.* [Lat. *evagatio; evagor*, to roam about.] The act of wandering; excursion; deviation.

Evagina'tion, *n.* [Lat. *e*, and *vagina*, a sheath.] The act of unsheathing.

Evag'oras, a Greek historian, who wrote a *History of Egypt*, the *Life of Tamagenes*, and other works. Lived in the 1st century, A. D.

Evalua'tion, *n.* Same as VALUATION, *q. v.*

Evan'der, an adventurer, who went from Arcadia to Italy, and drove the aborigines from their ancient possessions, and reigned in that part of the country where Rome was afterwards founded. He gave Æneas assistance against the Rutuli, and distinguished himself by his hospitality. It is said that he first brought the Greek alphabet into Italy, and introduced there the worship of the Greek deities. He was honored as a god after death, and his subjects raised him an altar on Mount Aventine. — A philosopher of the second academy, who flourished 215 B. C.

Evanesce', *v. n.* [Lat. *evanesco.*] To vanish; to disappear.

Evanes'cence, *n.* [From Lat. *evanescens*, from *evanesco —e, ex*, and *vanesco*, from *vanus*, empty, void, vacant. See VANISH.] A vanishing away; a waning or decreasing; a disappearing; a gradual departure from sight or possession; state of being liable to vanish.

Evanes'cent, *a.* [Lat. *evanescens.*] Vanishing away; waning; decreasing; decaying; disappearing, subject to vanishing; fleeting; passing away; liable to dissipation; insensible; imperceptible.

Evanes'cently, *adv.* In a vanishing manner.

Evan'gel, *n.* [Gr. *evangelion*, good tidings.] The gospel of Christ. — Good tidings.

Evange'lian, *a.* Rendering thanks for favor. (R.)

Evangel'ic, Evangel'ical, *a.* [Fr. *évangélique;* L. Lat. *evangelicus;* Gr. *euang-gelicos —eu*, and *angello*, to bear a message, to bring tidings, to proclaim. See ANGEL.] Pertaining to good tidings; according to the gospel; consonant to the doctrines and precepts of the gospel; contained in the gospel; sound in the doctrines of the gospel; orthodox.

Evangel'ical, *a.* Agreeable to, or in conformity with, the doctrines of the Gospel. — It is frequently applied to those who make the atonement of Christ alone, and not the performance of moral duties, the ground of salvation: and hence it is frequently used as synonymous with orthodox. In Prussia the term is employed to designate the national Protestant Church, which is formed by a union of both Calvinists and Lutherans, being an attempt to unite the two parties.

Evangel'ical Alliance, *n.* (*Eccl.*) An association of Christians of various denominations, formally organized in London in 1846. Its object is to promote unity and co-operation among the different sects of Protestants, and to unite their efforts against the advance of Romanism and infidelity. Their object is also to encourage and strengthen laborers in the cause of Christianity in all parts of the world, particularly such as are struggling with difficulties and hardships. They also exert themselves in behalf of religious toleration in all parts of the world. The branch associations of the Alliance are seven in number, as follows: 1. Great Britain and Ireland; 2. United States of North America; 3. France, Belgium, and the French portion of Switzerland; 4. Northern Germany; 5. South Germany, and the German portion of Switzerland; 6. British North America; 7. West Indies. — The members of the Alliance are such as hold evangelical views on the following points: the divine inspiration of the Holy Scriptures, and the right of private judgment; the Trinity; depravity of human nature; the incarnation; justification by faith alone; the work of the Holy Spirit in conversion; the immortality of the soul; resurrection and judgment; the divine institution of the Christian ministry; and the obligation of the ordinances of baptism and the Lord's Supper. They hold, at irregular intervals, conferences for devotion and mutual consultation in London, Paris, Berlin, New York, Geneva, and other cities.

Evangel'ical Association, *n.* (*Eccl.*) A religious body which took its rise in Pennsylvania, in 1800, and has since spread over most of the U. States and a great part of Canada. Its founder was Jacob Albrecht, a German Lutheran, who, impressed with the want of religious life, and the corruption that prevailed among the German churches, commenced a course of itinerant preaching, and made many followers. They devote themselves much to missionary labor, especially among the German population. In theology, they are Arminian: but on other points they agree in the essentials of Christianity with the various evangelical churches, with whom they seek to cultivate friendly feelings.

Evangel'ical Union, *n.* (*Eccl.*) See MORRISONIANS.

Evangel'icalism, Evangel'icism, *n.* Evangelical principles.

Evangel'ically, *adv.* In a manner according to the Gospel.

Evangel'icalness, Evangeloc'ity, *n.* Quality of being evangelical.

Evan'gelism, *n.* The promulgation of the Gospel; evangelical religion or doctrine; evangelicism.

Evan'gelist, *n.* [Fr. *évangéliste;* Gr. *euang-gelistes.* See EVANGELIC.] One who brings good tidings; a preacher of the Gospel; a missionary. — Hence the writers of the four gospels are called evangelists, because they proclaim the glad tidings of salvation through Christ. *E.* was also the name given to a particular class of Christian teachers chosen by the apostles to preach the Gospel, and ranking after the apostles and prophets, but before the pastors and teachers. They had no particular flocks assigned to them, but travelled from place to place under the direction of the apostles. This order is supposed to have been merely temporary, like that of the apostles and prophets; and the term is now only applied to those writers in the New Testament who have given us the history of Christ: Matthew, Mark, Luke, and John. Matthew's is assigned by different authorities to various dates between 38 and 64; Mark's to 60 or 63; Luke's to 63 or 64; and John's to 97 or 98.

Evan'gelistary, *n.* A selection from the Gospels, to be read, as a lesson, in divine service.

Evangelis'tic, *a.* Relating to evangelism; evangelical.

Evan'gelist Islands, a cluster of rocky islets off the W. coast of Patagonia, S. America, forming a good land-mark for the W. entrance to the Strait of Magellan, the southernmost being in Lat. 52° 24′ S., Lon. 75° 7′ W.

Evangeliza'tion, *n.* Act of evangelizing.

Evan'gelize, *v. a.* [Fr. *évangéliser;* L. Lat. *evangelizo;* Gr. *euang-gelizomai*, from *euang-gelos*, bringing good news.] To bring or announce good news to; to instruct in the Gospel; to teach or preach the gospel to, and convert to a belief of the Gospel.

—*v. n.* To preach the Gospel.

Evan'gelized, *p. a.* Instructed in the Gospel; converted to a belief of the Gospel, or to Christianity.

Evan'ish, *v. n.* [Fr. *évanouir;* Lat. *evanesco.* See EVANESCENCE.] To vanish away; to wane; to decrease; to disappear; to escape from sight or perception.

Evan'ishment, *n.* The act of vanishing, or suddenly disappearing. (R.)

Ev'ans, SIR DE LACY, a British general, B. in Moig, Ireland, 1787. He entered the army in 1807, and after serving several years in India, returned and fought the campaigns of 1812, 1813, and 1814 against France with distinction. In 1835 he volunteered to command the British legion in Spain, and for his valor throughout the campaigns in which he served against the Carlists, he was invested with the Order of the Bath and the Cross of San Ferdinand and San Charles of Spain. In 1854 he became commander of the 2d division of the army of the East, and greatly distinguished himself at the battle of the Alma. He had a seat in parliament since 1831. D. 1870.

Ev'ans, in *Colorado*, a post-village of Weld co., 47 m. N. by E. of Denver.

Evans, in *New York*, a post-town and township of Erie county, on Lake Erie, about 20 m. S. S. W. of Buffalo. *Pop.* (1897) about 2,800.

Ev'ansburgh, in *Ohio*, a post-village of Coshocton co., about 85 m. N. E. of Columbus.

Evansburgh, in *Pennsylvania*, a village of Butler co., about 220 m. W. by N. of Harrisburg.

—A post-borough of Crawford co., about 90 m. N. N. W. of Pittsburgh. (P. O., STONY POINT.)

—A village of Montgomery co., about 7 m. N. W. of Norristown.

Evans' Creek, in *Michigan*, enters Raisin river from Lenawee county.

Ev'ansham, in *Virginia*. See WYTHEVILLE.

Ev'ansite, *n.* (*Min.*) A phosphate of alumnia. Colorless or milk-white, sometimes tinged with yellow or blue. Hardness 3·5–4; sp. gr. 1·939; composition, phosphoric acid 18·4, alumina 39·7, water 41·9. It occurs at Zsetcznik, Hungary, in concretions on brown hematite.

Evans' Mills, in *New York*, a post-village of Jefferson co., about 160 m. N. W. of Albany.

Ev'ansport, in *Ohio*, a post-village of Defiance co., on Tiffin river, about 10 m. N. of Defiance.

Ev'anston, in *Illinois*, a handsome suburb of Chicago, in Cook co., on Lake Michigan, 12 m. N. of Chicago. Seat of Northwestern University, Garrett Biblical Institute, &c. *Pop.* (1897) about 25,000.

Ev'ansville, in *Arkansas*, a P. O. of Washington co.

Ev'ansville, in *California*, a village of Butte co., about 20 m. N. N. E. of Marysville.

Evansville, in *Illinois*, a post-village of Randolph co., on the Kaskaskia river, about 135 m. S. of Springfield.

Evansville, in *Indiana*, a city, port of entry, and the cap. of Vanderburg co., on the Ohio river, about 200 m. from its mouth. It is surrounded by extensive beds of coal, is the center of a great tobacco-producing section, is one of the largest hard wood lumber markets in the U. S., and has an extensive shipping business in corn, wheat, pork and tobacco. Here is the Willard Library and Art Gallery, and a U. S. Marine Hospital. *Pop.* (1897) about 58,500.

Evansville, in *Minnesota*, a post-village of Douglas co., about 22 m. W. N. W. of Alexandria.

Evansville, in *Pennsylvania*, a P. O. of Columbia co.

Evansville, in *Wisconsin*, a post-village of Rock co., on Allen creek, about 22 m. N. W. of Beloit.

Evansville, in *West Va.*, a post-village of Preston co.

Evaporable, *a.* That may evaporate or be evaporated; that may be dissipated by evaporation.

Evap'orate, *v. n.* [Fr. *évaporer;* Lat. *evaporo, evaporatus —e, ex*, and *vapōro*, from *vapor*, steam, vapor. See VAPOR.] To escape or pass off in vapor or fumes, as a fluid; to escape and be dissipated; to exhale; to escape or pass off without effect; to be dissipated; to be wasted.

—*v. a.* To convert into vapor; to disperse in vapors; to dissipate in fumes, steam, or minute particles.

—*a.* Converted into vapor; evaporated.

Evap'orated, *p. a.* Converted into vapor or steam and dissipated; dissipated in insensible particles, as a fluid; dissipated.

Evapora'tion, *n.* [Fr. *évaporation*, from Lat. *evaporatio.*] Act of evaporating; the conversion of a fluid into vapor; act of flying off in fumes; vent; discharge.

(*Chem.*) The conversion of liquid or solid bodies into elastic vapors or gases, by means of heat. *E.* goes on slowly or rapidly according to circumstances. Water evaporates gradually at ordinary temperatures all over the surface of the globe. It rises in the air as vapor, and when condensed by change of temperature, forms rain or dew, and descends again to the earth. When, however, *E.* takes place rapidly, as in the case of ebullition, it is generally called *vaporization*. The quantity of vapor which rises from the surface of a liquid in the open air not only depends upon the quantity of surface exposed, but also on the state of the atmosphere at the time. In warm and dry weather, both in winter and summer, *E.* is greatest. It was found by Dr. Dalton that water raised to 212° evaporated at the rate of 4·244 grains per minute. Mercury does not evaporate till it is raised to 60° or 80°. Below that temperature the gravity of the constituent atoms is greater than their elastic force. In all liquids whose boiling-points are high, the elastic force of the vapor is very small. The elastic forces of the vapors of most solid bodies are so low that they cannot be evaporated by the highest natural temperatures. The *E.* of a liquid is a cooling process to the liquid itself. This fact is made use of in India in order to produce ice. Water is exposed in shallow, unglazed, earthen vessels, resting upon imperfectly conducting substances, such as sugar-canes, &c. During the dry clear nights *E.* goes on, and a thin film of ice is formed. The cold produced by the formation of vapor may easily be observed by placing a cloth dipped in ether or alcohol on the bulb of a thermometer. The mercury will continue to descend as long as the *E.* lasts. If mercury is placed in the receiver of an air-pump, together with sulphuret of carbon, when the air is withdrawn, the cold produced by the *E.* of the sulphuret of carbon is sufficient to freeze the mercury. See HYGROMETER, METEOROLOGY, RAIN.

Evap'orative, *a.* That evaporates; causing evaporation.

Evaporom'eter, *n.* An instrument to measure evaporation; a hygroscope; an atmometer.

Eva'sible, *a.* That may be evaded.

Eva'sion, *n.* [Fr. *évasion;* Lat. *evasio*, from *evado, evasus.* See EVADE.] Act of evading, eluding, or avoiding; artifice to elude; shift; subterfuge; shuffling; prevarication; equivocation.

Eva'sive, *a.* [Fr. *évasif.*] That evades; using evasion or artifice to avoid; elusive; shuffling; equivocating; containing evasion; artfully contrived to elude a question, charge, or argument.

Eva'sively, *adv.* By evasion or subterfuge; elusively; in a manner to avoid a direct reply or a charge.

Eva'siveness, *n.* Quality or state of being evasive.

Eve, *n.* [Heb. *chava*, life, from obsolete *chaia*, to live.] The consort of Adam, and the mother of the human race; so called by Adam because she was the mother of all living.

Eve, or EVEN, *n.* [A. S. *æfen, æfyn;* Ger. *abend;* allied to Sax. *ebban*, to ebb, ebbe: O. Ger. *ebbo*, the retiring of the sea. Root Sans. *ava*, and *apa*, from. See EBB.] The departure of day; the latter part or close of the day, and beginning of the night. — The evening before a holiday. — The period just preceding some important event.

Evec'tion, *n.* [Lat. *evectio*, from *evĕho —e, ex*, and *vĕho*, to carry.] A carrying out or away; a lifting or extolling; exaltation.

(*Astron.*) An inequality of the moon's motion, depending on the position of the transverse axis of the lunar orbit in respect of the line of syzygies, or line joining the sun and earth.

Eve'land, in *Iowa*, a P. O. of Mahaska co.

Evelyn, in *Missouri*, a post-office of Macon co.

E'ven, *a.* [A. S. *æfen;* Gael. *ion*, fit, right, allied to Lat. *æquus*, level, fair, equitable.] Having a surface one and the same, or without inequalities; level; smooth; of an equal surface; flat; free from elevations or depressions; not rough or wavering; uniform; equal; equable; calm;

not easily ruffled or disturbed; level with; parallel to; equally favorable: equal on both sides; fair; just; owing nothing on either side; having accounts balanced; settled; balanced.—Capable of being divided into two equal parts without a remainder; not odd.

—*v. a.* To make even or level; to level; to lay smooth; to equalize; to place in an equal state, as an obligation, or in a state in which nothing is due on either side; to balance accounts.

—*adv.* Equally; noting a level or equality; or emphatically, a like manner or degree; noting equality or sameness of time; hence, emphatically, the very time; noting, emphatically, identity of person; likewise; in a like manner; exactly; verily; so much as.

E'vener, *n.* One who makes even.

E'ven-handed, *a.* Impartial; equitable; just.

E'ven-handedness, *n.* State of being even-handed; justice; fairness.

E'vening, *n.* [See EVE, EVEN.] The departure or parting of the day; the latter part and close of the day, and the beginning of darkness or night.—The decline or latter part of life.—The decline of anything

(*Script.*) The Hebrews reckoned two evenings in each day; as in the phrase, "between the two evenings." (*Ex.* xii. 6; *Num.* ix. 3; xxviii. 4, margin.) In this interval the passover was to be killed, and the daily evening sacrifice offered. (*Ex.* xxix. 39–41, Hebrew.) According to the Caraïtes, this time between the two evenings is the interval from sunset to complete darkness, that is, the evening twilight. According to the Pharisees and the rabbins, the first evening began when the sun inclined to descend more rapidly, that is, at the 9th hour; while the second or real evening commenced at sunset.

—*a.* Being at the close of day.

Evening-flower, *n.* (*Bot.*) A name common to many species of plants, the flowers of which expand at evening.

Evening-school, *n.* See SCHOOL.

Even Keel, *n.* (*Naut.*) A ship is said to be on an even keel when she draws the same water abaft as forward; the expression, however, often implies, though inaccurately, *not inclined to either side*, or *upright*.

E'venly, *adv.* In an even manner.

E'ven-minded, *a.* Having equanimity.

E'venness, *n.* State of being even, level, or smooth; equality of surface; uniformity; regularity; equal distance from either extreme; horizontal position; levelness of surface; impartiality between parties; equal respect; calmness; equanimity.

E'ven-song, *n.* An evening song or hymn.

> "Thee, 'chantress oft the woods among,
> I woo to hear thy *even-song*."—*Milton.*

—The evening; the close of the day.

> "He tun'd his notes both *even-song* and morn."—*Dryden.*

E'vensville, in *Tennessee*, a post-office of Rhea co.

Event', *n.* [Lat. *eventus*, from *evenio*—*e*, *ex*, and *venio*, to come. See VENTURE.] That which comes or falls out; that which comes, arrives, or happens; an incident; an occurrence; an adventure; the consequence of anything; that in which an action, operation, or series of operations terminates; issue; result; termination; conclusion.

Event'ful, *a.* Full of events or incidents; producing numerous or great changes, either in public or private affairs.

E'ven-tide, *n.* [*Even*, and Sax. *tid*, time.] The time of evening; evening.

Eventila'tion, *n.* The art of supplying with air; ventilation.

Eventra'tion, *n.* [Lat. *e*, out of, and *venter*, the belly.] (*Med.*) A tumor formed by a general ralaxation of the parietes of the abdomen, and containing a great part of the abdominal viscera. Also, *ventral hernia*, or that which occurs in any other way than through the natural openings of the abdominal parietes. Lastly, any very extensive wound of the abdominal parietes, with issue of the greater part of the intestines.

Event'ual, *a.* [Fr. *éventuel.*] Coming forth or happening as a consequence or result of anything; consequential; final; terminating; ultimate.

Eventual'ity, *n.* (*Phren.*) A propensity to take cognizance of facts or events.

Event'ually, *adv.* In the event; in the final issue.

Event'uate, *v. n.* To happen; to issue; to take effect; to terminate.

Ev'er, *adv.* [Sax. *æfer*, *æfre*, always; *á*, *aa*, aye, for ever; Lat. *ævum*; Gr. *aiōn*, a space or period of time, eternity; Sansk. *âyus*, an age, the period of life, from *i*, to go.] Through or during life; through the period of life; at all times; always; perpetually; everlastingly; incessantly; continually; unceasingly; constantly; at any time; at any period or point of time, past or future; in any degree.

Ev'erberg, a town of Belgium, 22 m. from Tournay; *pop.* 5,742.

Ev'erett, ALEXANDER HILL, an American diplomatist and author, b. in Boston, 1792. He began life as a tutor in an academy, but afterwards entered into the office of John Quincy Adams, as a student of the law. In 1809 he went to Russia as an *attaché* of the mission of Mr. Adams, and spent two years in St. Petersburg, studying political economy, and making himself acquainted with the modern languages. On returning to America, he connected himself, in Boston, with both law and literature. From 1818 to 1824 he served as *charge d'affaires* in the Netherlands, where he pursued his literary studies, and, in 1821, published a work entitled *Europe, or a General Survey of the Principal Powers, &c.*, which was highly spoken of. In the following year he published another, which entered into a consideration of the Godwin and Malthusian theories of population. In 1825 he became American minister at the court of Spain, which he held for nearly five years, during which he continued to devote himself to his studies, and produced a political work entitled *America, or a General Survey of the Political Situation of the several Powers of the Western Continent*, whilst, at the same time, contributing to the *North American Review*, then under the editorship of his brother. In 1841 he was chosen president of Jefferson College, Louisiana, and, in 1846, minister plenipotentiary to China. D. at Canton, 1847.

Ev'erett, EDWARD, an American statesman, orator, and author, a younger brother of the above, b. at Dorchester, Massachusetts, 1794. He studied divinity with a view to the office of pastor, and became, before he was twenty, minister of a large Unitarian congregation at Boston. In 1815 he relinquished the pulpit for the professional chair of the Greek Language and Literature in Harvard University. Previous to his entering upon his duties, he visited Europe, and for two years settled at Göttingen, studying German, and making himself acquainted with the best modes of instruction adopted in the German universities. After a sojourn of five years, during which he visited various European countries, he returned to America, and entered upon his university duties with large stores of accumulated learning and knowledge. In 1820 he added to the duties of his chair those of editor of the *North American Review*, which he continued to perform for four years. In 1824 he was elected to the House of Representatives, and, in 1836, became governor of Massachusetts. In 1841 he was appointed minister to the English court, which post he held for about five years, and, on his return, was elected president of Harvard University, which he was subsequently compelled to resign on account of ill-health. In 1853 he was elected a member of the Senate for Massachusetts. Throughout his career, Mr. Everett evinced an ardent attachment to literary pursuits, and published two volumes of orations, delivered by him on various occasions. He also appended, to the works of Daniel Webster, a life of that statesman. Died 1865.

Ev'erett, in *Massachusetts*, a post-town of Middlesex co., 3 miles from Boston, connected with it by street railway. Has 8 churches, Young Ladies' Seminary; iron works, chemical works and numerous other manufactories. *Pop.* (1895) 18,573.

Everett, in *Michigan*, a township of Newaygo co.

Everett, in *Missouri*, a post-village of Cass co., about 45 m. S. by E. of Kansas City.

Ev'ergetes, *n.* A name given to many kings in ancient times, and signifying *benefactor*.

Evergh'em (*ev'er-gaim*), a town of Belgium, 3 m. from Ghent; *pop.* 8,800.

Ev'erglade, *n.* A low marshy tract of country, inundated with water, and interspersed with patches or portions covered with high grass, as in Florida.

Ev'ergreen, *a.* Always green; verdant throughout the year.

—*n.* A plant the leaves of which remain perfect upon a stem beyond a single season; as the Holly, the Fir, and the Ivy.—Opposed to deciduous.

Ev'ergreen, in *Alabama*, a post-village, cap. of Conecuh co., about 110 m. S.S.W. of Montgomery.

Evergreen, in *Arkansas*, a post-office of Washington co.

Evergreen, in *Iowa*, a post-office of Tama co.

Evergreen, in *Louisiana*, a P. O. of Avoyelles parish.

Evergreen, in *Michigan*, a township of Montcalm co.

Evergreen, in *Texas*, a post-office of San Jacinto co.

Evergreen, in *Virginia*, a P. O. of Appomattox co.

Ev'erittstown, in *New Jersey*, a post-village of Hunterdon co., abt. 11 m. W.N.W. of Flemington.

Ev'erittsville, in *N. Carolina*, a village of Wayne co., on the Neuse River, abt. 50 m. S.E. of Raleigh.

Everlast'ing, *a.* Lasting or enduring for ever; continuing without end; eternal; immortal; endless; unceasing; continual; perpetual; continuing indefinitely, or during the present state of things.

—*n.* Eternity; eternal duration, past and future; something which lasts or endures for a long time.

—The Eternal Being.

(*Bot.*) A genus of plants. See GNAPHALIUM.

E. flowers. Certain flowers, chiefly of the *Asteraceæ*, whose hard tissue and deficient moisture enables them to retain their color for several months after being gathered.

Everlast'ingly, *adv.* Eternally; perpetually; continually.

Everlast'ingness, *n.* Eternity; perpetuity.

Everlasting-pea, *n.* (*Bot.*) See LATHYRUS.

Ever-liv'ing, *a.* Living without end; eternal; immortal; having eternal existence.

Ev'ermore, *adv.* Always; eternally; at all times.

Everric'nium, *n.* [Lat., from *everro*, to sweep out.] (*Surg.*) An instrument for removing fragments of stone, &c., from the bladder, after the operation of lithotomy.

Ever'sion, *n.* [Lat. *eversio*, from *everto*, to turn out, to overturn, *eversus*—*e*, *ex*, and *verto*, to turn. See VERSION.] An overthrowing; destruction; subversion.

Ever'sive, *a.* That tends to overthrow.

Evert', *v. a.* [Lat. *everto.*] To destroy; to overthrow.

Ev'erton, a township of England; it is a suburb of Liverpool; *pop.* 30,000.

Ev'erton, in *Indiana*, a post-village of Fayette co., abt. 25 m. S.S.W. of Richmond.

Ev'ery, *a.* [O. Eng. *everich*; Sax. *æfre*, ever, and *ælc*, each.] Each one; each individual of a whole collection or aggregate number; all taken separately.

Ev'ery-day, *a.* Used or being every day; common; usual.

Ev'erywhere, *adv.* In every place; in all places.

Eves'drop, *v. n.* See EAVESDROP.

Eves'dropper, *n.* See EAVESDROPPER.

Eves'ham, a town of England, in Worcestershire, on the Avon, 14 m. from Worcester. *Manf.* Stockings. *Pop.* 5,080.

Eves'ham, in *New Jersey*, a village and township of Burlington co.

Evict', *v. a.* [Lat. *evinco*, *evictum*—*e*, *ex*, and *vinco*, to overcome. See VICTOR.] (*Law.*) To dispossess by a judicial process or course of legal proceedings; to recover, as lands or tenements by law; to take away by sentence of law.

Evic'tion, *n.* [L. Lat. *evictio.*] (*Law.*) Dispossession by judicial sentence; the recovery of lands or tenements from another's possession by due course of law.

Ev'idence, *n.* [Fr. *évidence*, from Lat. *evidentia*—*e*, *ex*, and *video*, to see. See VISION.] That which makes clear and distinct; that which elucidates, and enables the mind to see truth; testimony; proof arising from our own perceptions by the senses, or from the testimony of others, or from inductions of reason.

(*Law.*) All the means by which any alleged matter of fact, the truth of which is submitted to investigation, is established or disproved. All that which is legally submitted to a jury, to enable them to decide upon the question in dispute or issues, as pointed out by the pleadings, and distinguished from all comment and argument, is termed evidence; as a public document, a judicial writing, a deed, a contract, a will, the testimony of a witness, &c.

—*v. a.* To make clear; to elucidate; to evince; to prove; to make clear to the mind; to show.

Ev'ident, *a.* [Fr.; Lat. *evidens.*] Visible; clear; obvious; plain; manifest; open to be seen; clear to the mental eye.

Eviden'tial, *a.* Affording evidence; clearly proving.

Eviden'tially, *adv.* In an evidential manner.

Eviden'tiary, *a.* Affording evidence.

Ev'idently, *adv.* In an evident manner; plainly; clearly; manifestly; certainly; notoriously.

Ev'identness, *n.* State of being evident or manifest.

E'vil, *a.* [Sax. *yfel*; Du. *euvel*; Ger. *übel*; Goth. *ublis*; probably from Sans. *av*, from *ap*, from, noting departure from, separation = Gr. *apo*, Lat. *ab*, Goth. *af*; *arama*, vile, abject; thus, *apa*—*mana*, dishonor—*apa*, from, and *mana*, honor; Heb. *chabal*, to spoil, to destroy; Gr. *ollūmi*, to destroy, to make an end of.] Not well; not good; having bad qualities of a natural or moral kind; bad; ill; mischievous; pernicious; injurious; hurtful; wicked; corrupt; destructive; wrong; vicious; sinful; unhappy; unfortunate; calamitous.

—*n.* That which is not well or not good; anything which produces pain, suffering, distress, loss, or calamity; harm; mischief; misfortune; ill; injury; calamity; wrong; depravity; wickedness; malignity; sin; malady;—in a word, the antithesis or negative of good.

(*Phil.*) Evil is want of conformity to the standard of good, whatever that may be: in the concrete, evil is anything that comes short of what is perfectly good. A very superficial view of things as they exist in this world is sufficient to convince one of the existence of evil; *i. e.* that all things come short of our ideal of goodness and perfection. *E.* is usually divided into *physical* and *moral*—the former including whatever is opposed to good in the sense of happiness; the latter, whatever is opposed to good in the sense of virtue. The question concerning the origin of *E.* has exercised the ingenuity of speculative men from the earliest times, and various theories have been proposed. The oldest and most widely spread of these is the *dualistic*, which supposes two opposite agencies or co-eternal and independent principles, the one the author of all the good, the other of all the evil in the universe. This doctrine prevails in the heathen systems of the East, and was also held by the Manichæans and others. A favorite hypothesis among the ancient philosophers was that of pre-existence; according to which, the evils which we suffer at present are punishments and expiations of moral delinquencies committed in a former stage of our being. The doctrine of *optimism* supposes that all events are ordered for the best, and that the evils which we suffer are parts of a great system conducted by almighty power under the direction of infinite wisdom and goodness. This comprises two very different classes of philosophers—those who admit and those who deny the freedom of human actions and the accountableness of man as a moral agent. None of these modes of solving the difficulty appears satisfactory, and the Bible throws little light upon the subject. The Bible, however, fully authorizes the only conclusions to which reason can safely come on this dark subject, viz.: 1. That God is not the author of evil in any sense; 2. That, though able to prevent it, he has permitted it to exist; 3. That the evil permitted in the universe is not only less than the good directly willed by God, but is characterized as something intrusive and transitory, while the good is something fundamental and permanent; 4. That God, in permitting evil, has not left it uncontrolled, but ever holds it in his power and makes it subservient to his purposes; 5. That he will ultimately overrule the evil which he has permitted, so as to evolve a larger amount of good for his universe than if evil had not been permitted; and, in fine, that all that is perplexing to us in the existence of *E.* arises out of the limitation of our understanding; that the phenomenon of *E.*, which to us is so full of difficulty, may by higher intelligences—must by the highest—be seen to be in perfect accordance with the noblest order and the purest rectitude.

E'vil, *adv.* Not well; ill; not with justice or propriety; not virtuously; unsuitably; not innocently; not happily; unfortunately; injuriously; not kindly.

Evil-doer, *n.* One who does evil; a malefactor; a wrong-doer.

E'vil-entreat', *v. a.* To treat with injustice; to injure, to abuse.
E'vil-eye, *n.* A malignant influence, superstitiously ascribed to certain persons, in virtue of which they are supposed to injure those on whom they cast an envious or hostile look. — A look expressive of malice, jealousy, or envy.
E'vil-fa'vored, *n.* Of ill countenance or appearance.
E'vil-Mer'odach, the son of Nebuchadnezzar, and father of Belshazzar.
E'vil-minded, *a.* Having evil dispositions or intentions; disposed to mischief or sin; malicious; malignant; wicked.
Evil Mountain, in *Maryland* and *Pennsylvania*, an elevated ridge extending from Alleghany co., Maryland, to the central part of Bedford co., Pennsylvania.
E'vilness, *n.* State of being evil.
E'vil One, *n.* The great enemy of souls; Satan.
E'vil-speaking, *n.* Slander; defamation; calumny; censoriousness.
E'vil-worker, *n.* One who does evil.
Evince', *v. a.* [Lat. *evinco — e, ex*, and *vinco*, to vanquish, to overcome.] To show in a clear manner; to prove beyond any reasonable doubt; to make evident; to demonstrate; to manifest; to argue.
Evince'ment, *n.* Act of evincing. (R.)
Evin'cible, *a.* That may be evinced or proved; capable of proof; demonstrable.
Evin'cibly, *adv.* In a manner to force conviction.
Evin'cive, *a.* Tending to evince or prove; having the power to demonstrate.
Evis'cerate, *v. a.* [Lat. *eviscero, evisceratus — e, ex*, and *viscera*, the entrails.] To take out the entrails or bowels of; to embowel or disembowel.
Eviscera'tion, *n.* [L. Lat. *evisceratio.*] Act of evisceratiug, or taking out the bowels.
Ev'itable, *a.* [Lat. *evitabilis.*] Avoidable.
Evoca'tion, *n.* [Fr. *évocation.*] The act of evoking or calling forth. (R.)
Ev'ocator, *n.* One who evokes or calls forth. (R.)
Evoke', *v. a.* [Lat. *evoco — e, ex*, and *voco*, to call. See Voice.] To call forth or out; to summon forth; to call from one tribunal to another; to remove.
Evolat'ic, Evolat'ical, *a.* [From Lat. *e*, from, and *volo*, to fly.] Apt to fly away; flying about.
Evola'tion, *n.* Act of flying away.
Ev'olute, *n.* [Lat. *evolutus*, part. of *evolvo*, I roll out.] (*Geom.*) If a perfectly flexible and inextensible string be conceived to be wrapped around any plane curve, then, on unwrapping the same under tension, each point of the string will describe a curve of which the first curve is said to be the evolute. The curve described by the several points of the string, therefore, have the same evolute; they constitute a series of *parallel curves*, which are said to be *involutes* of the curve by whose evolution they are generated. The nature of evolutes was first considered by Huyghens, who showed that the evolute to a common cycloid is another equal cycloid, a property of that curve which he employed in making a pendulum vibrate in a cycloid. To describe the involute of a circle, proceed as follows: Let *a* be the centre of the circle, and *b* the extremity of the string to be unwound from its circumference. Divide the circle, or part of the circle, according to the length of curve required, into any number of equal parts, as *c, d, e*, &c.; through these, from *a*, draw radial lines; from the points where these touch the circle, draw, at right angles to the lines *a c, a d*, &c., other lines, as in the diagram. With the distance *c b* as radius, from the point *c*, describe an arc *b* 1, cutting the line *c* 1 in 1. From the point *d*, with *d* 1, describe an arc 1 2, cutting the line *d* 2 in 2. From *e*, with *e* 2, describe an arc 2 3, cutting the line *e* 3 in 3. With radius *f* 3, from *f*, describe an arc 3 4, cutting *f* 4 in the point 4. Proceed in this way,

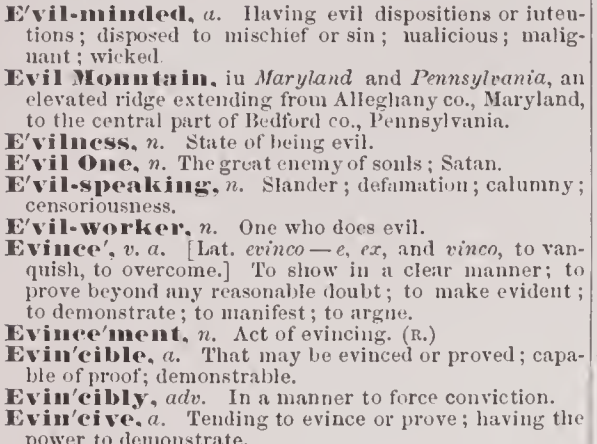


Fig. 977.

describing arcs which pass through the points 5, 6, 7, 8, and 9. The involute will thus be formed.
Evolu'tion, *n.* [Fr. *évolution*, from L. Lat. *evolutio*, from *evolvo, evolutus — e, ex*, and *volvo*, to roll. See Voluble.] An unfolding, unrolling, or unwinding; a development; a series of things unrolled or unfolded.
(*Arith.* and *Algebra.*) The extraction of roots; in other words, the inverse operation to involution. The object of involution, therefore, is to ascertain the quantity which, multiplied by itself a stated number of times, yields a given result.
(*Physiol.*) That theory of generation in which the germ is held to pre-exist in the parent, and its parts to be unfolded and expanded, but not actually formed, by the procreative acts. The principal and most consistent supporters of this theory maintain that the first created individuals contained the germs of all future possible successors, successively included one within the other; and that generation is merely the act of unfolding, or an evolution of the germ: Swammerdam, Bennet, Spallanzani, Haller, and Cuvier maintain this theory. The theory of evolution is opposed to that of epigenesis generation, in which the germ is held to be actually formed as well as expanded by virtue of the procreative powers of the parent. This topic will be further discussed in Section II. See also: Darwinian Theory; Descent of Man; Degeneration of Organisms, &c.
pl. (*Mil.*) The movements by which troops change the order, position, and direction of their primary formation. All evolutions are performed according to a regulated system, which differs in its details in the armies of various nations; though in all of them simplicity, facility, and rapidity of movement are the points aimed at.
Evolu'tionary, *a.* Pertaining to evolution.
Evolu'tionist, *n.* One skilled in the more complicated military movements.
Evolve', *v. a.* [Lat. *evolvo — e, ex*, and *volvo*, to roll.] To unfold, unroll, or unwind; to develop; to disclose; to open and expand; to throw out; to emit; to follow out and detect through intricacies; to unravel.
—*v. n.* To open itself; to disclose itself.
Evolve'ment, *n.* Act of evolving; the state of being evolved.
Evol'vent, *n.* (*Geom.*) The curve or involute resulting from the evolution of a curve.
Evor'a, a fortified town of Portugal, prov. Alentejo, 85 m. from Lisbon; *pop.* 11,000.
Evreux, (*e'vre(r,*) a city of France, cap. of department Eure, on the Iton, 60 miles W.N.W. of Paris. *Manuf.* Cotton twist, woollen and cotton fabrics. *Pop.* 13,884.
Evul'sion, *n.* [Lat. *evulsio*, from *evello, evulsis — e, ex*, and *vello*, to pluck.] Act of plucking or pulling out by force.
E'wald, Georg Heinrich August von, a German orientalist, b. at Göttingen, 1803. After a course of education in the college and university of his native town, he devoted himself to the study of Oriental languages; at the age of twenty he was nominated professor at the College of Wolfenbüttel; in 1824 he was recalled to Göttingen, where he settled, and where he was appointed, in 1831, to the chair of Philosophy, and afterwards to those of Oriental Langnages and Theology, which he held, when, in 1837, the present king of Hanover having ascended the throne, the protest of Dahlmann, the two Grimms, Gervinus, Weber, and others, against the policy of the new government, appeared. Having signed it with the rest, he was suspended from his professorships, quitted Göttingen, and spent some years in examining the libraries of England and France. In 1838 he accepted the chair of Theology at the University of Tübingen, where he remained until the revolution of 1848 recalled him to his old functions in his native town. About this time he published a pamphlet *On my Departure from the University of Tübingen, with some Considerations upon the Present Epoch.* Prof. Ewald has written *The Composition of Genesis*, published in 1823; *Upon the Metres of Arabic Poetry*, in 1825; *The Song of Songs*, in 1826; *A Critical Grammar of the Hebrew Language used in the Old Testament*, in 1835; *A Hebrew Grammar*, in 1842; *History of the People of Israel up to the Advent of Christ*, in 1843–50; several other works, and a great number of scientific reviews. D. 1875.
E'wald, Johannes, an eminent Danish poet, was the son of a clergyman, and b. at Copenhagen 1743. Having lost his father while young, and disliking the clerical life, he left his home when but 15 years of age, and enlisted in the Prussian army. Deserting to the Austrian service, he was made a sergeant, but not being able to obtain his discharge when he wished, he deserted again and returned to Denmark. He now pursued a literary life with great ardor, and produced several very excellent works; that to which he owed his earliest distinction as a poet, was the *Temple of Fortune.* His masterpiece is the dramatic poem entitled *Balder's Death*, published in 1773. His *Songs of the Scalds*, and other pieces after the manner of Ossian, gave him great reputation; and he may be said to have surpassed all preceding Danish poets in spirit and originality. Died 1781.
Ew'an's Mills, in *New Jersey*, a P. O. of Gloucester co.
Ewe, (*u.*) *n.* [Sax. *eowu*; Lat. *ovis*; Gr. *oïs*; Sansk. *avi*, a sheep.] A female sheep.
Ewe, (Loch,) an inlet of the North Sea, in Rosshire, Scotland, connected with Loch Maree by a short river.
Ewer, (*u'er,*) *n.* [Sax. *huer*, or *hwer*, a ewer, a kettle; O. Fr. *eauier*, a gutter, a channel, or sewer, for carrying off water; *euer*, to water, from *eau*, water; Sax. *ea*; Pers. *ab.*] A kind of pitcher or vessel for holding water, which accompanies a wash-hand basin.
Ew'ing, Thomas, LL.D., an American statesman and jurist, b. in Ohio co., Virginia, 1789, was the son of an officer who served during the revolutionary war. He evinced at an early age a great passion for books, and when twenty years old left home and worked in the Kanawha salt establishment, until he saved up money to enter Ohio University, where he obtained the degree of B. A. in 1815. He was admitted to the Bar in 1816, was appointed U. S. senator in 1831, and espousing the interests of the Whig party, became associated with Clay and Webster in their resistance to the so-called encroachments of the Executive. He supported Mr. Clay's Protective Tariff Bill, and opposed the nomination of Mr. Van Buren as envoy to the English court. In 1837, his senatorial term having expired, Mr. Ewing resumed the practice of his profession. In 1840 he supported the election of Gen. Harrison to the presidency, and became Secretary of the Treasury, a post in which he was retained by President Tyler, but afterwards resigned. Having held other official posts, in 1851 Mr. Ewing retired from political life, and devoted himself to the practice of his professiou. D. 1871.
Ew'ing, in *Arkansas*, a township of Boone co.
Ew'ing, in *Illinois*, a post-office of Franklin co.
Ew'ing, in *Indiana*, a post-office of Jackson co.
Ew'ing, in *Kentucky*, a post-office of Fleming co.
Ew'ing, in *Nebraska*, a post-village and township of Holt co.
Ew'ing, in *New Jersey*, a flourishing township of Mercer co.
Ew'ing, in *Ohio*, a post-village of Hocking co., about 32 m. E. N. E. of Chilicothe.
Ewingford, in *Kentucky*, a post-office of Trimble co.
Ew'ington, in *Kentucky*, a P. O. of Montgomery co.
Ew'ington, in *Minnesota*, a township of Jackson co.
Ew'ington, in *Ohio*, a post-office of Gallia co.
Ew'ingville, in *New Jersey*, a post-office of Mercer co.
Ew'ry, *n.* An office in the household of the kings of England, where they take care of the linen for the king's table, lay the cloth, and serve up water after dinner.
Ex, a Latin preposition or prefix, signifying *out of, out, proceeding from*, and sometimes implying *off, from*, or *out.* In some words it is merely emphatic; *ex*, prefixed to names of office, denotes that a person has formerly held that office, but has resigned, been deposed, abdicated, or dismissed, as *ex*-chancellor, *ex*-minister. When prefixed to a functionary, it becomes a legal term, as *ex-officio*, or by virtue of his office. Thus, in England, all justices of the peace are ex-officio members of the board of guardians in the union in which their jurisdiction lies.
Exacerbate, (*eks-as'er-bate,*) *v. a.* [Lat. *exacerbo, exacerbatus — ex*, and *acerbo*, from *acerbus*, harsh, sharp, sour. See Acerb.] To make harsh, sharp, or sour; to exasperate; to imbitter; to irritate; to provoke; to incense; to inflame; to increase the malignant qualities of; to increase the violence of a disease.
Exacerba'tion, Exacerbes'cence, *n.* [Fr.; from L. Lat. *exacerbatio.*] Act of imbittering or exasperating; the irritation of angry or malignant passions or qualities; increase of malignity.
(*Med.*) A periodical increase of violence in a disease.
Exac'inate, *v. a.* [From Lat. *ex*, out of, and *acinas*, a kernel.] To take out the kernel of.
Exacina'tion, *n.* Act of exacinating.
Exact, (*egz-akt',*) *a.* [Fr., from Lat. *exactus*, from *exigo — ex* and *ago.* See the verb.] Done or performed thoroughly; strictly accurate; closely correct or regular; scrupulously careful; conformed to rule; methodical; nice; strict; careful; punctual; precise; accurate; true.
—*v. a.* [Lat. *exigo, exactum — ex*, and *ago*, to move, to drive, to lead, to do, to act, to labor. See Act.] To drive or thrust out; to force out or from; to enforce; to force or compel to pay or yield; to demand or require authoritatively; to extort by means of authority; to demand of right; to claim; to enjoin; to compel; to enjoin with pressing urgency.
—*v. n.* To practise extortion.
Exact'er, *n.* One who exacts; an extortioner.
Exact'ing, *p. a.* Demanding and compelling; requiring authoritatively; extorting; compelling by necessity.
Exac'tion, *n.* [Fr., from Lat. *exactio.*] Act of exacting or of demanding with authority, and compelling to pay or yield; authoritative demand; a driving to compliance; extortion; a wresting from one unjustly: that which is exacted; tribute, fees, rewards, or contributions demanded or levied with severity or injustice.
Exac'titude, *n.* Exactness; nicety. (R.)
Exact'ly, *adv.* In an exact manner; precisely; nicely; accurately: correctly.
Exact'ness, *n.* Quality of being exact; accuracy; precision; nicety; regularity; careful observance of method and conformity to truth.
Exact'or, *n.* [Lat.] One who exacts; an extortioner; one who compels another to pay more than is legal or reasonable; he who demands by authority; one who is unreasonably severe in his demands.
Exact'ress, *n.* She who exacts.
Ex'acum, *n.* [Lat., from *ex*, from, and *ago*, to drive.] (*Bot*). A genus of plants, order *Gentianaceæ.* Some species have medicinal properties.
Ex æ'quo et bo'no. [L.] In justice and good dealing.
Exære'sis, *n.* [Gr., a taking away.] (*Surg.*) One of the divisions of surgery adopted by old writers, and confined to operations concerned in the removal of parts of the body.
Exaggerate, (*egz-aj'er-ate.*) *v. a.* [Fr. *éxagerer*; Lat. *exaggero, exaggeratus — ex*, and *aggero, aggeratus*, from *agger*, to heap, from *aggero*, to bear to a place — *ad*, and *gero*, to bear, to carry. See Gestation.] To heap on or upon; to enlarge by heaping up; to accumulate; to heighten; to enlarge beyond the truth; to amplify; to represent as greater than strict truth will warrant; to depict or delineate extravagantly.
Exag'gerated, *p. a.* Heaped up; enlarged or amplified beyond the truth.
Exaggera'tion, *n.* [Fr. *éxagération*; Lat. *exaggeratio.*] A heaping or damming up; heap; accumulation; amplification; a representation of things beyond the truth; hyperbolical representation; representation or delineation of things too strong for the life.
Exag'gerative, *a.* [Fr. *éxagératif.*] Having the power or tendency to exaggerate.
Exag'geratory, *a.* Tending to exaggerate.
Exalbu'minous, *a.* [Lat. *ex*, priv., and *albumen*, the white of the egg.] (*Bot.*) Noting seeds without albumen.
Exalt', *v. a.* [Fr. *éxalter*; Lat. *exalto — ex*, and *altus*,

grown or become great by nourishing; high; elevated; lofty; from *alo*, to nourish. See ALTITUDE.] To raise high; to lift up; to elevate; to raise to power, wealth, or dignity; to fill with exultation, joy, or confidence; to raise with pride; to magnify; to praise; to extol; to make sublime.

(*Chem.*) To purify; to subtilize; to refine.

Exalta'do, *n.* A term which, in the reigns of Ferdinand and Isabella, was applied in Spain to the liberal or progressive party.

Exalta'tion, *n.* [Fr. *exaltation*, from L. Lat. *exaltatio.*] Act of exalting or raising on high; elevation to power, office, rank, dignity, or excellence; elevated state; state of greatness or dignity.

(*Chem.*) The refinement or subtilization of bodies, or their qualities and virtues.

E. of the cross. (*Eccl.*) A Roman Catholic feast, celebrated on September 14, to commemorate the restoration to Calvary, in 628, of the Cross, which had been carried off fourteen years before by the Persian king Chosroes.

Exalt'ed, *p. a.* Raised to a lofty height; elevated; honored with office or rank; extolled; magnified; refined; dignified; sublime.

Exalt'edness, *n.* State of being exalted or raised.

Exalt'er, *n.* One who exalts.

Examen, (*egz-ā'men,*) *n.* [Lat.] Examination; a scrutiny; inquiry.

Exam'inable, *a.* That may be examined; proper for judicial examination or inquiry.

Examina'tion, *n.* [L. Lat. *examinatio.*] Act of examining; careful observation or inspection; close inquiry into facts, circumstances, qualifications, &c., by interrogation; scrutiny by study or experiment; investigation; search; research; trial; scrutiny; inquisition. — In colleges and universities, the mode of ascertaining the nature and extent of one's attainments.

Exam'inator, *n.* An examiner. (O.)

Exam'ine, *v. a.* [Fr. *examiner;* Lat. *examino*, from *examen*, probably for *exagimen*, the tongue or beam of a balance — *ex*, and *ago*, to set in motion, a balance being necessarily put in motion in the process of weighing. See ACT.] To weigh; to balance; to try by experiments, or by rule of law; to inspect or observe carefully; to search or inquire into; to interrogate, as a witness, a student, &c.: to put questions to; to try by questioning; to search; to scrutinize; to investigate; to explore; to discuss; to try.

Examinee', *n.* One who is examined.

Exam'iner, *n.* One who examines, tries, or inspects; one who interrogates a witness or an offender.

Exam'ining, *p. a.* Inspecting carefully; searching or inquiring into; interrogating; trying or assaying by experiment; having power to examine; appointed to examine.

Exam'ple, *n.* [Fr.; Lat. *exemplum*, from *eximo*, to take out or away, to remove — *ex*, and *emo*, to take, to receive, to buy, to purchase. See SAMPLE.] That which is taken out of a larger quantity, as a sample to be shown to a buyer; a sample; a pattern; a copy; a model; he or that which is proposed to be imitated; a precedent to be followed or avoided; a precedent to serve as a warning or admonition; a precedent which disposes to imitation; a particular case or proposition illustrating a general rule, position, or truth; an instance; an exemplification; an illustration.

Exan'gulous, *a.* [Lat. *ex*, priv., and *angulus*, an angle.] Having no corners.

Exan'imate, *a.* [Lat. *exanimus.*] Deprived of life; lifeless; dead.

Exanima'tion, *n.* [Lat. *exanimatio.*] State of being lifeless.

Ex an'imo. [Lat., from the mind.] Sincerely; earnestly; zealously.

Exan'thalose, *n.* (*Min.*) A white efflorescence, such as results from the exposure to the air of GLAUBER'S-SALT, *q. v.*

Exan'them, *n.* [Gr., from *ek*, from, and *antheo*, to bloom.] (*Med.*) A more or less vivid, circumscribed, or diffused redness of the skin, which diminishes, or disappears transiently, under the pressure of the finger.

Exanthe'ma, *n.; pl.* EXANTHEM'ATA. [Gr., a flower.] (*Med.*) Exanthem.

Exanthemat'ic, Exanthem'atous, *a.* Pertaining to exanthem; pustulous; eruptive.

Exanthe'sis, *n.* [Gr.] (*Med.*) A cutaneous efflorescence; an efflorescent eruption of the skin. — See ENANTHESIS.

Ex'arch. *n.* [Gr. *exarchos.*] (*Hist.*) The title of the viceroys of the Byzantine emperors in the provinces of Italy and Africa after they had been recouquered by Justinian. The exarch of the former province fixed the seat of his government at Ravenna. They were also styled *patricians.* The exarch of a diocese was at first on a par with the primate. The term was also applied in the Eastern Church to the general or superior over several monasteries; and it since further denotes the deputy of the patriarch, whose duty it is to visit the churches and clergy in the provinces allotted to him.

Ex'archate, *n.* The office or government of an exarch.

Exar'illate, *a.* [Lat. *ex*, priv., and Eng. *aril*] (*Bot.*) Applied to plants without an aril.

Exarticula'tion, *n.* [Lat. *ex*, from, and *articulus*, a joint.] Dislocation of a joint.

Exas'perate, *v. a.* [Lat. *exaspero, exasperatus* — *ex*, and *aspero*, from *asper*, rough, harsh. See ASPIRATE.] To make rough or harsh; to make sharp or bitter; to embitter; to irritate; to enrage; to inflame; to incense; to provoke; to excite or rouse to anger, rage, violence, &c.; to increase the malignity of; to make worse; to aggravate.

Exas'perated, *p. a.* Highly incensed or irritated; provoked; enraged; embittered.

Exas'perater, *n.* One who exasperates.

Exas'perating, *p. a.* Exciting keen resentment; inflaming anger; irritating; increasing violence.

Exaspera'tion, *n.* [Fr. *exaspération;* L. Lat. *exasperatio.*] Act of exasperating; irritation; act of exciting; violent anger; provocation; extreme degree of anger; violent passion; rage; fury; increase of violence or malignity.

Exæca'ria, *n.* [Lat. *excæco*, to make blind.] (*Bot.*) A genus of plants, order *Euphorbiaceæ.* The *E. agallochum* is a small tree with acrid milky juice, which if it gets into the eyes causes blindness. The wood is sometimes used as firewood, but the smoke from it is said to cause intolerable pain in the eyes. The greater part of the species are West Indian or S. American.

Excandes'cence, Excandes'ceney, *n.* [From Lat. *excandesco, excandescens*, to take fire.] State of growing hot. — State of growing angry.

Excandes'cent, *a.* Very hot; white with heat.

Excarna'tion, *n.* [Fr.] The act of divesting, or the state of being divested, of flesh; — opposed to *incarnation.*

(*Anat.*) A mode of making anatomical preparations, which consists in separating injected vessels from the parts in which they are situate. This is done by means of corrosion by an acid, or by putrefaction.

Excar'nificate, *v. a.* [Lat. *excarnifico*, to tear the flesh to pieces.] To clear from flesh.

Excarnifica'tion, *n.* Act of clearing from flesh; excarnation.

Ex cathe'dra, (*eks ka-the'dra,*) *adv.* or *a.* [Lat. *ex*, and *cathedra*, from Gr. *kathedra*, a chair. See CATHEDRAL.] From the chair, as of authority or instruction: with authority or dogmatism; with an air of official authority.

Ex'cavate, *v. a.* [Lat. *excavo, excavatus* — *ex*, and *cavo*, from *cavus*, hollow. See CAVE.] To hollow out; to cut, dig, scoop, or wear out the inner part of anything to make it hollow.

Ex'cavated, *p. a.* Hollowed out; made hollow.

Ex'cavating, *p. a.* Hollowing out; making hollow; making, or capable of making, an excavation; as, an *excavating* machine.

Excava'tion, *n.* [Lat. *excavatio.*] Act of hollowing out or making hollow; a hollow or cavity formed by removing the interior substance.

Ex'cavator, *n.* One who excavates; a machine for excavating.

Exceed', *v. a.* [Fr. *excéder;* Lat. *excedo* — *ex*, and *cedo*, to go. See CEDE.] To go out or away from; to depart from; to pass or go beyond; to proceed beyond any given or supposed limit, measure, or quantity, or beyond anything else; to surpass; to excel; to outgo; to transcend; to outdo; to outvie.

—*v. n.* To go too far; to pass the proper bounds; to go over any given limit, number, or measure; to bear the greater proportion; to be more or larger.

Exceed'ing, *p. a.* Going beyond; surpassing; outdoing; excelling.

—*a.* Great in extent, quantity, or duration; very large.

—*adv.* In a very great degree; unusually.

Exceed'ingly, *adv.* To a very great degree; in a degree beyond what is usual; greatly; very much.

Excel, (*ek-sel',*) *v. a.* [Lat. *excello* — *ex*, and obs. *cello;* Gr. *kello*, to impel, to urge on; whence Lat. *celsus*, driven to a high place, raised high.] To rise high above; to go or rise above; to surmount; to exceed; to surpass; to go beyond; to transcend; to outdo.

—*v. n.* To mount up; to soar aloft; to have good qualities, or to perform meritorious actions in an unusual degree; to be eminent, illustrious, or distinguished.

Ex'cellence, or **Ex'celleney,** *n.* [Lat. *excellentia.*] State of excelling, or of possessing good qualities in an unusual or eminent degree; superiority in dignity or in the scale of existence; preëminence; supereminence; greatness; that in which any one excels; any good or valuable quality in persons or things; worth; purity; goodness; virtue.

—A title of honor given to persons in high official situations, now restricted to *excellency.* — This title was first borne by the Lombard kings, and afterwards assumed by several emperors of the West. It was afterwards transferred to the inferior princes, especially in Italy, until they also gave it up, after Pope Urban VIII., in 1630, had bestowed the title of "Eminence" on the cardinals. Since that period the title of *E.* has become a title of office or service, neither hereditary nor transferable from one member of a family to another, but always belonging to the office. In Europe it is borne only by ministers in actual service, by the highest court and military dignitaries, and by ambassadors and plenipotentiaries. Governors of English colonies also receive the title of *E.* In this country, the governor of Massachusetts receives the title by a provision of the constitution of that State; it is often, however, applied popularly to the President and to the governors of the other States.

Ex'cellent, *a.* [Fr., from Lat. *excellens.*] Rising above or surpassing in dignity, value, worth, or virtues, or in great and good qualities; eminent or distinguished for what is amiable, valuable, or laudable; being of great value or use; remarkable for good properties; distinguished for superior attainments; choice; primo; valuable; exquisite; transcendent.

Ex'cellently, *adv.* In an excellent manner; well in a high degree; in an eminent degree.

Excel'sior, *a.* [Lat.] More lofty.

Excel'sior, in *Georgia*, a post-office of Bullock co.

Excelsior, in *Minnesota*, a post-township of Hennepin co., about 22 miles W. of St. Paul.

Excelsior, in *Missouri*, a post-office of Morgan co.

Excel'sior, in *Wisconsin*, a P. O. of Richland co. —A township of Sauk co. 6 miles N. of Baraboo.

Excelsior Springs, in *Missouri*, a city of Clay co., on C. M. & St. P. R. R., 25 m. N.E. of Kansas City. Has a medicinal spring of considerable value. *Pop.* (1897) about 2,200.

Excen'tral, *a.* Out of the centre.

Excen'tric, *a.* See ECCENTRIC.

Except', *v. a.* [Fr. *excepter;* Lat. *excipio, exceptus* — *ex*, and *capio*, to take. See CAPTURE.] To take or leave out of any number specified; to exclude; to take or leave out, as any particular or particulars from a general description.

—*v. n.* To object; to make exception; — followed by *to.*

—*prep.* Exclusively of; without; unless.

Except'ant, *a.* Implying exception.

Except'ing, *prep.* With exception of; excluding; except.

Exeep'tion, *n.* [Fr., from Lat. *exceptio.*] Act of excepting or excluding; state of being excepted; exclusion; that which is excepted or excluded; the person or thing specified as distinct or not included; an objection; a cavil; offence.

Exeep'tionable, *a.* Liable to objection: objectionable.

Exeep'tionableness, *n.* Quality of being exceptionable.

Exeep'tional, *a.* Forming or making an exception.

Exeept'ive, *a.* That excepts; including an exception.

Exeept'or, *n.* [L. Lat.] One who makes exceptions, or who objects.

Exeerebra'tion, *n.* [From Lat. *ex*, priv., and *cerebrum*, the brain.] Act of beating out the brain.

Exeer'ebrose, *a.* Having no brain, or deficient in brain.

Excerpt', *n.* [Lat. *excerptum*, from *excerpo* — *ex*, and *carpo*, to pick, to pluck, to gather. See CARP.] That which is picked out; an extract; a passage selected from an author.

Exeerp'ta, *n. pl.* Selections; extracts; excerpts. (R.)

Exeerp'tor, *n.* A picker or culler. (R.)

Excess', *n.* [Fr. *excès;* Lat. *excessus*, from *excedo.* See EXCEED.] State of exceeding; that which exceeds; more than enough; superfluity; superabundance; redundancy; that which is beyond the common measure, proportion, or due quantity; any transgression of due limits; immoderate and intemperate conduct; riotousness; extravagance; profusion; that by which one number, quantity, or magnitude exceeds another.

Exees'sive, *a.* [Fr. *excessif.*] Being in excess; beyond any given degree, measure, or limit, or beyond the common measure or proportion; beyond due bounds; immoderate; intemperate; extreme; extravagant; violent; vehement; exceeding.

Exees'sively, *adv.* In an extreme degree; beyond measure; exceedingly; vehemently; violently.

Exees'siveness, *n.* The state or quality of being excessive; excess.

Exchange', *v. a.* [Fr. *échanger* — *ex*, and *changer*, to change, *q. v.*] To change or give as one thing or commodity for another; to barter; to lay aside, quit, or resign one thing, state, or condition, and take another in the place of it; to give and receive reciprocally; to change; to commute; to bargain; to interchange.

—*v. n.* To pass in exchange.

(*Com.*) The means by which the debts of persons residing at a distance from their creditors are discharged without the transmission of money or goods. This is effected by means of what are known as Bills of Exchange. A *Bill of Exchange* is simply an order addressed to some person at a distance, directing him to pay a certain amount to the person in whose favor the bill is drawn, or to his order. A merchant in New York owing a sum of money for goods to a merchant in Paris, instead of remitting money or goods to the amount of the debt, goes into the market and buys from another merchant, who has a debtor in Paris, a bill of exchange for the amount, and sends it to his creditor in Paris, who in this way gets payment of his debt from a person in his own town, the debtor of the second merchant. Bills of exchange are of two kinds, *inland* and *foreign;* inland, when both parties reside in the same state or country; and foreign, when the drawer and drawee reside in countries foreign to each other. In this respect the states of the United States are held foreign as to each other. In cities or countries having considerable interconrse together, the debts mutually due by the one to the other generally approach an equality. Between countries making use of different currencies there exists what is known as a *par of E.*, which is the equivalency of a certain amount of the currency of one country to the currency of the other, the currencies of both being supposed to be of the precise weight and purity fixed by their respective mints. Among the causes that affect the par of *E.*, in addition to a rise or fall in the price of the precious metals, are (1) changes made by authority in the quantity of pure metal contained in the coin by way of increase or diminution; (2) depreciation from the use of paper money; (3) clipping; (4) wear and tear. When two countries trade together, and each buys of the other exactly to the amount that it sells, their claims will balance each other, and the *E.* will be at par. This, however, is rarely the case; for there is almost always a balance owing on the one side or the other, and this balance affects the rate of *E.* Thus, if New York sends to Paris more goods than she receives from it, there will be a greater demand for bills upon New York in Paris than of bills upon Paris in New York, and their value will proportionally advance above par, while in N. York, in like manner, they will fall below it. It is evident, however, that these fluctuations in the real

E. are subject to certain limits beyond which they cannot advance. Thus the price of bills of *E.* on any place can never exceed the expense of sending bullion to that place, otherwise the merchant will find it to his advantage to transmit bullion in place of bills. The tendency of any advance in the rate of *E.* is to stimulate exportation, and to check importation. — The term is also applied to the place where the merchants, brokers, and bankers of a commercial city meet to transact business at certain hours.

Exchange', in *Pennsylvania*, a P. O. of Montour co.

Exchangeabil'ity, *n.* Quality or state of being exchangeable.

Exchange'able, *a.* That may be exchanged; capable, fit, or proper to be exchanged.

Exchange'-broker, *n.* (*Com.*) One whose business is to negotiate foreign bills of exchange, for which he receives a commission.

Exchang'er, *n.* One who exchanges; one who practises exchange.

Excheat', *n.* See ESCHEAT.

Exchequer, (*eks-chek'er,*) *n.* [Fr. *échiquier*, a chess-board; said to have been so called from the checkered cloth, resembling a chess-board, which covered the table there. See CHECKER.] A court of record in London, consisting of two divisions — a court of revenue, and a court of common law.

—*v. a.* To institute a process against a person in the Court of Exchequer.

Excheq'uer Bill, *n.* One of the bills of exchange issued by the English government in anticipation of revenue, and on the confidence of the annual financial income. They bear interest at a fixed rate, this rate being computed at the time of their issue, at a sum proportioned to the current market-rate, the fluctuations in the value of these securities depending on the proportion which such a rate bears to successive changes in the market-price of money; when this is high, the security will be at a *discount;* when low, at a *premium.*

Excide', *v. a.* [Lat. *excido.*] To cut off. (R.)

Excip'ient, *n.* An excipor. (R.)

(*Med.*) A substance which is a medical prescription, gives form and consistence to it, and serves as a *vehicle* or *medium* for the exhibition of the other ingredients.

Excis'able, *a.* Liable or subject to excise.

Excise', *n.* [Fr., from Lat. *excido, excisum* — *ex*, and *cædo*, to cut. See CÆSURA.] In England, an inland tax or impost on articles produced and consumed within the state or kingdom, and also on licenses to deal in certain commodities.

—*v. a.* To lay or impose a duty on articles produced and consumed at home.

Excise'man, *n.* An English officer who inspects commodities, and rates the excise duty on them.

Exci'sion, (*eks-sizh'n,*) *n.* [Fr., from L. Lat. *excisio* — *ex*, and *cædo, cæsum*, to cut.] A cutting out or off any part; the cutting off of a person or nation, as a judgment; extirpation; destruction.

(*Eccl.*) Excommunication.

(*Surg.*) Amputation. The term is usually confined to the removal of the elbow-joint or ankle, and portions of other bones.

Excitabil'ity, *n.* [Fr. *excitabilité.*] Quality of being capable of excitement; susceptibility of increased vital action.

(*Med.*) That state of system which is more or less susceptible of morbid excitement.

Excit'able, *a.* [L. Lat. *excitabilis.*] Capable of being excited.

Excit'ant, *n.* [Lat. *excitans.* See EXCITE.] (*Med.*) That which produces, or may produce, increased action in a living body; a stimulant.

Excita'tion, *n.* [L. Lat. *excitatio.*] Act of exciting; excitement.

Exci'tative, *a.* [Fr. *excitatif.*] That excites, or has power to excite.

Excita'tor, *n.* [Lat.] (*Elect.*) An instrument used to discharge a Leyden jar, or other electrical apparatus, without exposing the operator to the consequences of the shock.

Exci'tatory, *a.* Tending to excite.

Excite', *v. a.* [Fr. *exciter*, from Lat. *excito, excitatus* — *ex*, and *cito*, to put in rapid motion, to call or summon to, freq. of *cico*, to put in motion, to shake, to rouse. See CITE.] To call out or forth; to bring or send out; to wake up; to call into action; to stir up; to raise; to awaken; to animate; to incite; to arouse; to stimulate; to inspirit; to irritate.

Excit'ed, *p. a.* Roused; awakened; animated; put in motion; stimulated; inflamed.

Excite'ment, *n.* [Fr.] Act of exciting; stimulation; state of being roused into action; agitation; sensation; that which rouses, moves, stirs, or induces to action; commotion.

Excit'er, *n.* He or that which excites.

Excit'ing, *p. a.* Calling or rousing into action; stimulating.

Excit'ingly, *adv.* In an exciting manner.

Exci'tive, *n.* That which excites.

—*a.* Causing excitement. (R.)

Exci'to-mo'tory, *a.* (*Physiol.*) A term applied by some physiologists to the first class of nervous actions defined as those secretory vibrations which are excited in the external organs, and ascend towards the brain, when they arrive in their ascent at the origins of the motor nerves. These, arising from the same common trunk, plexus, or ganglion, with the sensory ones affected, detach a part of themselves at each of those origins down the motory nerves; which part, by agitating the small particles of the muscular fibres, excites them to contraction. "The actions of sneezing, swallowing, coughing, hiccoughing, vomiting, and expelling the fæces and urine, and others of a like nature, are to be deduced from the first and fourth classes of motor vibrations; *i. e.*, either from those vibrations which first ascend up the sensory nerves, and then are detached down the motory nerves, which communicate by some common trunk, plexus, or ganglion; or else from those vibrations that run along the surfaces of uniform membranes, and so affect all the muscles which lie contiguous to any part of the membranes."

Exclaim', *v. n.* [Fr. *exclamer;* Lat. *exclamo* — *ex*, and *clamo*, to call, to cry out. See CLAMOR.] To call or cry out; to call or cry aloud; to raise an outcry; to shout; to utter the voice with vehemence; to declare with loud vociferation.

Exclaim'er, *n.* One who exclaims.

Exclama'tion, *n.* [Fr., from Lat *exclamatio*, from *exclamo.* See EXCLAIM.] Act of exclaiming; outcry; noisy talk; clamor; vehement vociferation; noisy utterance of censure; a vehement extension or exertion of the voice.

(*Rhet.*) A sentence of passionate import, or passionately uttered; a word expressing outcry; an interjection.

(*Print.*) A note by which emphatical utterance or outcry is marked, thus (!).

Exclam'ative, *a.* Exclamatory; exclaiming.

Exclam'atively, Exclam'atorily, *adv.* With exclamation.

Exclam'atory, *a.* Using exclamation; containing or expressing exclamation.

Exclude', *v. a.* [Lat. *excludo, exclusus* — *ex*, and *claudo*, to shut. See CLAUSE.] To shut out; to thrust out; to eject; to hinder from entering or admission; to debar; to prohibit; to preclude; to expel; to emit; to except; not to comprehend or include.

Exclud'ed, *p. a.* Shut out; thrust out; hindered or prohibited from entrance or admission; debarred.

Exclu'sion, *n.* [Fr., from L. Lat. *exclusio.*] Act of excluding; a shutting or thrusting out; ejection; act of debarring; state of being excluded; prohibition; preclusion; rejection; ejection or emission.

Exclu'sionary, *a.* Tending to exclude or debar.

Exclu'sioner, *n.* One who excludes.

Exclu'sionism, *n.* Exclusive principles; exclusivism.

Exclu'sionist, *n.* One who would preclude another from some privilege.

Exclu'sive, *a.* [Fr. *exclusif.*] Tending to exclude or shut out; excluding; debarring from participation; not including or comprehending; excepting; debarring from fellowship; not admitting to social intercourse; illiberal.

—*n.* One of a coterie who exclude others from their society or fellowship.

Exclu'sively, *adv.* In an exclusive manner.

Exclu'siveness, Exclu'sivism, *n.* State or quality of being exclusive.

Exclu'sory, *a.* [Lat. *exclusorius.*] That has power to exclude; exclusive.

Excog'itate, *v. a.* [Lat. *excogito, excogitatus* — *ex*, and *cogito*, from *con*, and *agito*, to pursue mentally, freq. from *ago*, to drive, to urge. See ACT.] To strike out by thinking; to find out by thinking, or by earnest study; to invent, contrive, or devise by serious thinking or consideration.

Excogita'tion, *n.* [Lat. *excogitatio.*] Act of excogitating; invention or contrivance by serious and earnest thinking; cogitation.

Excommu'nicable, *a.* Liable to be excommunicated.

Excommu'nicant, *n.* One who has been excommunicated.

Excommu'nicate, *v. a.* [Lat. *ex*, and *communico, communicatus*, to make common, to communicate. See COMMUNICATE.] To expel or exclude from communion or fellowship; to eject or interdict from the communion of the church.

—*a.* Excommunicated.

—*n.* One who is excommunicated; an excommunicant.

Excommu'nicated, *p. a.* Expelled or separated from communion with a church.

Excommunica'tion, *n.* [Fr., from L. Lat. *excommunicatio.*] (*Eccl.*) Act of excommunicating or ejecting from the Church; expulsion or exclusion from the communion of a Church and deprivation of its rights, privileges, and advantages. It is distinguished by the Roman Cath. writers as greater (*anathema*) or lesser (*excommunicatio*); the former entirely cutting off the offender from the body of the Church and the society of the faithful, and being proclaimed only when a sin has been mortal, manifest, and scandalous; the latter prohibiting from participation in the sacraments and in public worship; and being imposed especially upon those who cherish intercourse with anathematized persons. Only the latter *E.* is in practice among most Protestants, though the Anglican Church recognizes them both. — A form of *E.* used in the Middle Ages, was termed *Bell, Book, and Candle.* The bell was tolled to summon the people, the sentence read out of a book, and a candle, which the priest held, was thrown upon the ground and extinguished in token of the fate of the delinquent.

Excommu'nicator, *n.* [L. Lat.] One who excommunicates.

Excommu'nicatory, *a.* Relating to or causing excommunication.

Ex conces'so. [Lat.] From what has been granted or conceded.

Ex contrac'to. [Lat.] See EX DELICTO.

Exco'riate, *v. a.* To strip the skin from; to skin; to abrade.

Excoria'tion, *n.* The act of excoriating; the state of being excoriated.

(*Med.*) An abrasion of the cuticle.

Excortica'tion, *n.* [Fr.] A pulling off of the bark; decortication.

Ex'crement, *n.* [Lat. *excrementum*, from *excerno, excretus* — *ex*, and *cerno*, to separate, to sift. See DISCERN.] The refuse; that which is separated from the nutriment by digestion, and discharged from the animal body as being superfluous; fæcal matter; ordure; dung.

Excremental, *a.* [Fr. *excrémentiel.*] Excreted or ejected by the natural passages of the body.

Excrementi'tial, *a.* Containing, or resembling, excrement.

Excrementi'tious, *a.* [Fr. *excrementeux.*] Pertaining to, consisting of, or containing excrement.

Excres'cence, *n.* [Fr. *excrescence, excroissance*, from L. Lat *excrescentia*, from Lat. *excrescens*, from *excresco* — *ex*, and *cresco*, to grow. See CRESCENT.] That which grows out or up; a preternatural protuberance growing on any part of the body; a superfluous part; any preternatural enlargement of a plant, like a wart or tumor; a preternatural production.

Excres'cent, *a.* [Lat. *excrescens.*] Growing out of something else, in a preternatural manner; superfluous.

Excrete', *v. a.* [Lat. *excerno, excretus.* See EXCREMENT.] To sift out or separate; to separate and throw off, as by natural passages; to evacuate; to discharge; to eject.

Excret'ed, *p. a.* Passed from the body by excretion.

Excre'tion, *n.* [Fr. *excrétion;* L. *excretio.*] Act or process of excreting; separation or ejection of excrementitious matter from the animal system; that which is excreted.

Ex'cretive, *a.* Having the power of separating and ejecting excrementitious matter from the body; excretory.

Ex'cretory, *a.* [Fr. *excrétoire.*] That excretes; having the quality of excreting or throwing off excrementitious matter by the glands.

—*n.* (*Physiol.*) One of the little ducts or vessels destined to receive secreted fluids from the glands, and to excrete them.

Excru'ciate, *v. a.* [Lat. *excrucio, excruciatus* — *ex*, and *crucio*, from *crux*, a cross, *q. v.*] To torture or torment excessively, as if on a cross; to afflict with extreme pain or agony; to rack.

Excru'ciating, *p. a.* Extremely painful; agonizing; distressing.

Excruciation, *n.* Act of excruciating; extreme pain; agony; torture; acute vexation.

Exculpable, *a.* That may be exculpated.

Exculpate, *v. a.* [Lat. *ex*, and *culpo, culpatus*, from *culpa*, a crime, a fault; Fr. *disculper;* It. *scolpare.*] To free from crime, fault, blame, or censure; to clear by words from a charge or imputation of fault or guilt; to exonerate; to absolve; to excuse; to justify; to vindicate.

Exculpation, *n.* [L. Lat. *exculpatio.*] Act of exculpating or of vindicating from a charge of fault or crime; excuse.

Exculpatory, *a.* Able to clear from the charge of fault or guilt; excusing; containing excuse; clearing from imputation.

Ex curia. [Lat.] (*Law.*) Out of court.

Excurrent, *a.* [Lat. *excurrens*, running out.] (*Bot.*) Applied to the ramifications of any body whose axis always remains in the centre, the other parts being regularly disposed around it, as the stem of *Abies excelsa.*

Excursion, *n.* [Fr., from Lat. *excursio*, from *excurro, excursum* — *ex*, and *curro*, to run.] A rambling or roving about; progression beyond fixed limits. — Digression; a wandering from a subject or main design. — An expedition or journey; any rambling from a point or place, and return to the same point or place; a ramble; a tour; a trip or jaunt for pleasure.

Excursionist, *n.* One who travels from one place to another for pleasure.

Excursive, *a.* Rambling; wandering; deviating.

Excursively, *adv.* In a wandering manner.

Excursiveness, *n.* Quality of being excursive; act of wandering, or of passing usual limits.

Excursus, *n.* [Lat., a digression.] A literary exercise, task, or performance; a discussion; a disquisition; a dissertation.

Excusable, *a.* [Fr., from Lat. *excusabilis.*] That may be excused; pardonable; admitting of excuse or justification.

Excusably, *adv.* In an excusable manner; pardonably.

Excusatory, *a.* Making excuse; containing excuse or apology; apologetical.

Excuse, (*eks-kūz'.*) *v. a.* [Fr. *excuser*; Lat. *excuso* — *ex*, and *causor*, from *causa*, a cause, a suit, a process. See CAUSE.] To free from the imputation of a fault or blame; to acquit of guilt; to pardon, as a fault; to forgive entirely, or to admit to be little censurable, and to overlook; to free from an obligation or duty; to release; to remit; not to exact; to admit an apology for; to throw off an imputation by apology; to exculpate; to absolve; to pardon; to justify; to vindicate.

—*n.* Act of excusing or apologizing; a plea offered in extenuation of a fault or a breach of deportment; apology; that which excuses or extenuates a fault.

Excuse'less, *a.* That is without excuse.

Excus'er, *n.* One who offers excuses, or pleads for another.

Excuss', *v. a.* [Lat. *excussio, excussus*, to shake off.] To shake off.

(*Law.*) To seize and detain by law.

Excus'sion, *n.* (*Law.*) Seizure by law.

Exe, a river of England, which rises in the W. of Som-

ersetshire, and, after a course of 54 miles, flows into the English Channel at Exmouth.

Ex delic'to. [Lat.] (*Law.*) From wrong or test. A division of actions is made in the common and civil law into those arising *ex contractu* (from contract), and *ex delicto*, i. e. in consequence of a crime, misdemeanor, fault, or test.

Ex'eat, *n.* [Lat., he may go out.] In the European universities, a permission of temporary absence. — Permission given by a bishop for a priest to go out of his diocese.

Ex'ecrable, *a.* [Fr. *exécrable*, from Lat. *execrabilis.*] Deserving to be execrated or cursed; very hateful; detestable; abominable; accursed.

Ex'ecrableness, *n.* State of being execrable; hatefulness.

Ex'ecrably, *adv.* Cursedly; detestably.

Ex'ecrate, *v. a.* [Fr. *exécrer*, from Lat. *execror* — *ex*, and *sacro*, from *sacer*, consecrated or dedicated to a deity, devoted, accursed.] To exclude from sacred things; to curse; to denounce evil against, or to imprecate evil upon; hence, to detest utterly; to abhor; to abominate.

Ex'ecrated, *p. a.* Cursed; denounced; imprecated.

Execra'tion, *n.* [Fr. *exécration*, from Lat. *execratio.*] Act of execrating, or cursing; a curse pronounced; imprecation of evil; malediction; detestation expressed; object execrated; an abomination.

Ex'ecratory, *n.* A formulary of execration.

Exec'utable, *a.* That may be executed.

Ex'ecute, *v. a.* [Fr. *exécuter;* Lat. *exequor, executus* —*ex*, and *sequor*, to follow.] To follow up; to prosecute; to carry out; to accomplish; to perform; to effect; to do; to fulfil; to achieve; to finish; to complete; to carry into effect; to transact; to inflict capital punishment on; to put to death; to slay.

—*v. n.* To perform the proper office.

Ex'ecuter, *n.* One who executes; one who performs or carries into effect.

Execu'tion, *n.* [Fr. *exécution;* Lat. *executio.*] Act of executing; act of completing or accomplishing; performance; operation; practice; completion; accomplishment.

(*Law.*) The last stage of a suit giving possession of anything recovered at law or in equity after the decision of the court,— the putting in force of the sentence of the court. This is performed by different writs of execution, according to the nature of the action, and of judgment. In ordinary actions, the judgment is, in general, for the recovery of money only, either by way of debt or damages. In such case, the practice of the court allows the judgment-creditor to resort to one of the four following writs of execution: — (1) Writ of *capias ad satisfaciendum*, to imprison the body of the debtor till satisfaction be made for the debt, or damages and costs, in the States where such mode of execution is not abolished; (2) writ of *fieri facias*, by which the goods and chattels of the party against whom the judgment is recovered may be seized upon and sold; (3) writ of *Levari facias*, which commands the sheriff to levy the debt on the lands and goods of the party against whom it is issued; (4) writ of *elegit*, (see ELEGIT.) Where the judgment is for the recovery of goods themselves which are detained, there is a special writ of execution, called a *distringas*, to compel the defendant to deliver his goods by repeated distresses on his chattels, or else a *scire facias* against any third person in whose hands they may happen to be, to show cause why they should not be delivered; and if the defendant still continues obstinate, then the sheriff shall summon an inquest, to ascertain the value of the goods and the plaintiff's damages, which shall be levied on the person or goods of the defendant. — *E. of deeds* is the signing, sealing, and delivery of them by the parties, as their own acts and deeds, in the presence of witnesses.

(*Crim. Law.*) The last stage in criminal proceedings —the depriving the criminal of his life. — See PUNISHMENT (CAPITAL.)

(*Fine Arts.*) The mode of performing a work of art, and the dexterity with which it is accomplished.

(*Mus.*) The mode of expressing or rendering musical notation by the voice or by an instrument; facility of the voice or of the fingers in running rapid divisions, and other difficult and intricate passages.

Execu'tioner, *n.* One who carries anything into effect. — One whose duty is to put to death criminals condemned by law.

Exec'utive, *a.* [Fr. *exécutif.*] That executes; having the quality of executing or performing; carrying the laws into effect, or superintending the enforcement of the laws.

—*n.* (*Pol.*) A power in a state, distinct from the legislative or judicial. The power that deliberates and enacts laws is the *legislative*, that which judges or applies the laws to particular cases is the *judicial*, while the *executive* is that which carries the laws into effect, or superintends the enforcement of them. In the U. States the executive is, by the Constitution, vested in the President and such inferior officers as he may appoint, with the agreement of the Senate.

Exec'utively, *adv.* In the way of executing or performing.

Exec'utor, *n.* [Lat. *exsequi;* Fr. *exécuteur.*] One who performs; a doer; as, an *executor* of business.

(*Law.*) A person intrusted by a testator to carry out the directions and requests in his will, and to dispose of his property as directed therein, after his decease. Before *probate* of the will, an *E.* may effectually do most of the acts that he could enforce afterwards; but an expected administrator can properly do no act whatever before obtaining letters of administration. An administrator, after receiving letters of administration, is in most respects in the same position as an *E.*, and the cases relating to the one apply, in general, to those of the other. An administrator is required to enter into bond with sureties for the faithful execution of his trust. An *E.* may refuse to act; but, having once acted, he cannot divest himself of the office or its responsibilities. If a person take upon himself to act as *E.* without any just authority, as by intermeddling with the goods of the deceased, he is called an *E. de son tort*, *i. e.*, to his own hurt, and is liable to all the trouble of his office, without any of the profits or advantages; but merely doing acts of necessity or humanity, as locking up the goods, or burying the deceased, will not be so construed. An alien cannot be either an executor or administrator, unless he is an inhabitant of the State. The duties of an executor are to bury the deceased in a suitable manner, to prove the will, and make up an inventory of the personal estate; to collect the goods and chattels of the deceased, and to pay his creditors in the order of legal priority. The legacies are then to be paid as far as the assets extend, observing the distinction between a specific and a general legacy; the residue, if any, going to the next of kin. The office of an executor is one of great trust and responsibility, as he not only represents the deceased, but is also a trustee for the behoof of the creditors, legatees, and next of kin of the deceased. He is liable for any loss occurring to the estate through negligence; for paying sums not due, unless upon decrees; for paying simple-contract creditors before special creditors, or legatees before all the debts are discharged, if there should be any deficiency in the estate. If he intromit with the funds or movables, so as to lead to a suspicion of fraud, or so as to leave no means of ascertaining its extent, he is liable for all the debts of the deceased; otherwise an *E.* is liable for the debts of the deceased only to the amount of the inventory.

Exec'utory, *a.* [Fr. *exécutoire.*] Performing official duties; executive.

(*Law.*) Designed to be executed in future, or to take effect upon a future contingency; as, an *executory* devise.

Exec'utrix, or EXECUTRESS, *n.* [Fr. *exécutrice.*] A female executor; a woman appointed by a testator to execute his will.

Exe'dra, or EXHEDRA, *n.* [Gr.] (*Arch.*) In ancient architecture, recesses in the baths and other buildings, appropriated for conversation. They appear to have been similar to the modern alcove, though larger.

Exegesis, (*eks-e-je'sis,*) *n.* [Gr. *ex*, out of, and *egeomai*, I lead.] The exposition or interpretation of any writing, but applied particularly to the interpretation of the Holy Scriptures. The distinction between *E.* and hermeneutics may be thus defined: Hermeneutics is the science which lays down the principles of the art of interpretation, and *E.* is the application of these principles to particular instances. As the sacred books were written in foreign languages, by authors of a different age, and living in a country different from ours, it is evident that, in order to understand them thoroughly, requires not only an intimate acquaintance with those languages, but also a large mass of historical, geographical, and antiquarian knowledge. In the early ages of the Church, several of the fathers distinguished themselves as exegetical authors, as Origen, Chrysostom, Diodorus of Tarsus, and Jerome; but during the Middle Ages, from the ignorance of the sacred languages that then prevailed, the subject was almost entirely neglected. The Reformation revived this study in the labors of Luther, Melancthon, Calvin, Zwinglius, Beza, and others. Since that time this subject has received much attention from scholars, and never more than at the present time.

Ex'egete, *n.* [Fr. *exégète;* Gr. *exegetes.*] One versed in the scientific interpretation of the sacred writings.

Exeget'ic, Exeget'ical, *a.* [Fr. *exégétique;* Gr. *exegetikos.*] Pertaining to exegesis; explanatory; tending to illustrate.

Exeget'ically, *adv.* By way of explanation.

Exeget'ics, *n.* (*Eccl.*) That branch of theology which includes polemics, hermeneutics, and the history of the sacred canons. — See EXEGESIS.

Ex'egetist, *n.* One versed in exegetics.

Ex'elmaus, HENRI JOSEPH ISIDORE, a celebrated French marshal, B. at Bar le Duc, 1771, was engaged in most of the campaigns of Napoleon, and D. in 1852.

Exem'plar, *n.* [Lat. *exemplum.*] A model to be copied; a pattern; a copy; the image by which the artist conducts his work.

Exem'plarily, *adv.* In an exemplary manner; in a way worthy of imitation.

Exem'plariness, *n.* The state of being fitted to serve as an example.

Ex'emplary, *a.* [Fr. *exemplaire;* Lat. *exemplaris.*] Serving as a model for imitation; worthy of imitation; serving as a warning to deter others from vice or crime; serving to attract notice and imitation; illustrative; explanatory.

Exem'plifiable, *a.* That may be exemplified.

Exemplifica'tion, *n.* Act of exemplifying; a copy; a showing or illustrating by example; a transcript; an attested copy.

Exem'plifier, *n.* One who illustrates by following a copy.

Exem'plify, *v. a.* [L. Lat. *exemplificare.*] To show or illustrate by example; to transcribe, or copy; to take an attested copy; to prove by an attested copy.

Exem'pli gra'tia. [Lat.] For the sake of example; for instance; usually abbreviated *ex. gr.* or *e. g.*

Exempt', *v. a.* [Fr. *exempter;* Lat. *exemptus*, from *eximo.*] To take out; to take away; to remove; to free from; to except; to release; to exonerate; to grant immunity from; to privilege.

—*a.* Taken or left out; free by privilege; not included; not liable; clear.

—*n.* One free or exempt from a duty devolving on others.

—A petty officer of the English Yeomen of the Royal Guard.

Exemption, (*egs-emp'shun,*) *n.* [Fr. *exemption;* Lat. *exemptio;* It. *esenzione;* Sp. *esencion.*] The act of exempting; the state of being exempt; freedom from duty or service, to which others are subject; immunity; privilege.

Exen'terate, *v. a.* [Lat. *exenterare;* Gr. *ex*, out, *enteron*, intestine.] To embowel; to eviscerate.

Exentera'tion, *n.* Evisceration.

Exequa'tur, *n.* [Lat., let him perform.] (*Pol.*) A writing officially recognizing any accredited agent of a foreign government, and authorizing him to perform the duties which he was sent to discharge.

Exe'quial, *a.* [Lat. *exequialis.*] Pertaining to funerals.

Ex'equies, *n. pl.* [Lat. *exsequiæ*, the following the corpse beyond the walls, from *ex*, out, and *sequi*, to follow.] Funeral procession, or rites; ceremonies of burial.

Ex'ercisable, or **Ex'ercisible,** *a.* Capable of being employed or exercised.

Ex'ercise, *n.* [Fr. *exercise;* Lat. *exercitium*, from *exerceo.* See the verb.] Act of exercising; a driving on; a keeping in practice, use, or constantly regular employment; labor; work; use; practice; employment; exertion; application; mental or bodily exertion for improvement; use or practice to acquire skill; application of the mental powers; task; act of divine worship.

—*v. a.* [Lat. *exerceo*, from *ex*, off, and *arceo*, to ward; Gr. *exarkeo*, to shut off, to suffice.] To drive or bring out of an inclosure or confinement; to bring from a sluggish state; to urge or drive; to busy; to move; to exert; to cause to act; to exert one's powers; to train to use.

—*v. n.* To use action or exertion; to practise or take exercise.

Ex'erciser, *n.* One who exercises.

Exercita'tion, *n.* [Lat. *exercitatio*, from *exercitare*, to practise frequently.] Exercise; practice; use.

Exer'citor, *n.* One who charters a vessel for a given voyage.

Exergue', *n.* [Fr. *exergon*, from *ex*, out, and *ergon*, work.] (*Numismatics.*) The basis or lower limb of a coin or medal, when separated by a line from the rest of the face, which usually contains words giving the date, place, &c., of the coin, or other subsidiary matter.

Exert', *v. a.* [Lat. *exsero, exsertum*, to plant or put in.] To thrust forth, emit, push out, bring out, or cause to come forth; to produce; to strain; to put in action; to do; to perform.

Exer'tion, *n.* Act of exerting or straining; act of putting into motion; endeavor; striving or struggle; trial.

Exer'tive, *a.* Using exertion.

Ex'eter, a very ancient city, sea-port, and episcopal see of England, cap. of Devonshire, on the Exe, 10 m. from its mouth, and 64 from Bristol. Its magnificent cathedral was begun in 932. *Manuf.* Woollens, paper, and there are several breweries and iron foundries. *P.* (1897) 37,595.

Ex'eter, in *Illinois*, a post-town of Scott co., about 50 m. W. of Springfield.

Ex'eter, in *Maine*, a post-town and township of Penobscot county, about 60 miles N.E. of the city of Augusta.

Ex'eter, in *Michigan*, a post-township of Monroe co.

Ex'eter, in *New Hampshire*, a post-village and township, semi-cap. of Rockingham county, about 50 m. N. of Boston.

Ex'eter, or SQUAMSCOT RIVER, in *New Hampshire*, enters the Piscataqua River from Rockingham co.

Ex'eter, in *New York*, a post-village and township of Otsego co., on Canandaigua Lake, about 75 m. W. by N. of Albany.

Ex'eter, in *Pennsylvania*, a township of Berks co.

—A post-township of Luzerne co., on the N. branch of the Susquehanna River. The battle celebrated in Campbell's *Gertrude of Wyoming*, was fought here in 1778.

—A township of Wyoming co.

Ex'eter, in *Rhode Island*, a post-village and township of Washington county, abt. 25 m. S.S.W. of Providence.

Ex'eter, in *Wisconsin*, a post-village and township of Green co.

Ex'eter Mills, in *Maine*, a P. O. of Penobscot co.

Ex'eunt om'nes. [Lat., they all go out.] A phrase which, in play-books, denotes the time when all the actors leave the stage.

Exfeta'tion, *n.* [Lat. *ex*, out of, and *fœtus*, embryo.] (*Med.*) Imperfect fetation outside the uterus.

Exfo'liate, *v. n.* [Lat. *exfoliare*, from *ex*, off, and *folium*, leaf.] To separate and come off in scales; to scale off.

—*v. a.* To free from scales or splinters; to scale off.

Exfolia'tion, *n.* [Fr.] A scaling off.

(*Surg.*) A term applied to a diseased bone which has entirely, or in part, gone through the process of inflammation and mortification, and begins to throw off the dead scales, or *lamellæ*, which ultimately escape through the flesh by ulceration.

Exfo'liative, *a.* Having the power to cause a scaling off.

—*n.* That which has the power to produce a scaling off.

Exhal'able, *a.* [L. Lat. *exhalabilis.*] Capable of exhalation or evaporation.

Exhal'ant, *a.* [Lat. *exhalans.*] Having the power of evaporating.

Exhala'tion, *n.* [Fr. *exhalation;* Lat. *exhalatio.*] Process of evaporation; that which is exhaled or emitted.

—Vapor; steam; miasma.

(*Bot.*) A vital function by which the stomata, or breathing-pores, are made to discharge a large portion of the water introduced by absorption through the roots. The quantity of water exhaled from the leaves during

active vegetation is very great. In one of the well-known experiments of Hales, a Sunflower 3½ feet high, with a surface of 5·616 sq. inches exposed to the air, was found to perspire at the rate of 20 to 30 ounces avoirdupois every 12 hours, or 17 times more than a man. A Vine, with 12 sq. feet of foliage, exhaled at the rate of 5 or 6 ounces a day; and a seedling Apple-tree, with 11 sq. ft. of foliage, lost 9 ounces a day. The amount varies with the degree of warmth and dryness of the air, and of exposure to light; and is also very different in different species, some exhaling more copiously even than the Sunflower. But when we consider the vast perspiring surface presented by a large tree in full leaf, it is evident that the quantity of watery vapor it exhales must be immense.

Exhale', *v. a.* [Fr. *exhaler;* Lat. *exhalare*, from *ex*, and *halare*, to breathe.] To send out or emit breath, odor, vapor, or minute particles of fluid or other substance; to cause to be emitted in vapor; to evaporate.

—*v. n.* To fly off, or vanish, as vapor.

Exhaust', *v. a.* [Lat. *exhaurio, exhaustum*, from *ex*, and *haurio*, to draw out.] To draw up, or out, as liquids; to empty by drawing out; to use, expend, or consume; to expend the whole by exertion.

—*a.* [Lat. *exhaustus.*] Drained; having lost its energy.

—*n.* The steam emitted from the cylinder after being used.

Exhaust'er, *n.* That which exhausts, or draws out.

Exhaust'ible, *a.* That may be exhausted.

Exhaus'tion, *n.* [Fr., from Lat. *exhaustio.*] Act of exhausting, drawing out, draining out, or throwing off; act of emptying completely of the contents; state of being exhausted.

(*Geom.*) An ancient geometrical method which has been replaced by the modern differential calculus. The ancients employed this method in their difficult researches, particularly in the theory of curve lines and surfaces, and in determining areas and volumes. As they admitted no demonstrations but such as are perfectly rigorous, they did not consider curves as polygons of a great number of sides; but in attempting to discover the properties of any curve, they regarded it as the fixed term or limit to which the inscribed and circumscribed polygons continually approach, and approach the nearer as the number of their sides is increased. Thus they *exhausted*, as it were, the space between the polygons and the curve; and hence this method of procedure was called the *method of exhaustion.*

Exhaust'ive, *a.* That exhausts.

Exhaust'less, *a.* Not to be exhausted; not to be wholly drawn off or emptied; inexhaustible.

Exhe'dra, *n.* See EXEDRA.

Exhereda'tion, *n.* [Fr. *exhérédation.*] (*Law.*) The act of disinheriting. (R.)

Exhib'it, *v. a.* [Fr. *exhiber;* Lat. *exhibeo, exhibitum* — *ex*, and *habeo*, to hold. See HAVE.] To hold or reach out; to hold forth; to offer or present to view; to show; to display; to manifest publicly; to present; to offer publicly or officially.

Exhib'iter, *n.* One who exhibits.

Exhibi'tion, *n.* [Fr., from Lat. *exhibitio.*] Act of exhibiting for inspection; a showing or presenting to view; display; public show; representation of feats or actions in public; display of oratory in public; any public show, especially of works of art, industry, manufactures, &c.

(*Eng. Universities.*) Allowance of meat and drink; pension to indigent students.

(*Med.*) The act of administering medicines.

(*Hist.*) The idea of collecting objects of industrial manufacture first occurred to the Marquis d'Avèze, in 1797; but he was unable to carry it out until 1798, when he opened at Paris what is termed in France an "exposition" of French goods. The undertaking proved so successful that the idea was adopted by the French Government, and similar collections were exhibited in 1801, 1802, 1806, 1819, 1823, 1827, 1834, and since then every five years. A similar *E.* was opened at Ghent in 1820, at Berlin in 1834, at Vienna in 1835, and at New York in 1853. This led to the idea of a general *E.*, in which different nations should be competitors. The first on this extended scale were the *Great E.'s* in London in 1851 and 1862, followed by Paris, 1867, Vienna, 1873, Philadelphia, 1876, Paris, 1878–89, Chicago, 1893, Atlanta, 1895, Buda-Pesth, 1896, Stockholm, 1897, Nashville, 1897, &c., which see, for details.

Exhibi'tionist, *n.* An exhibitor; one who frequents exhibitions, or shows of works of art.

Exhib'itive, *a.* Serving for exhibition; representative.

Exhib'itor, *n.* One who exhibits.

Exhib'itory, *a.* Exhibiting; showing; displaying.

Exhil'arant, *a.* [Lat. *exhilarans.*] Exhilarating; exciting joy, mirth, or pleasure.

—*n.* That which exhilarates or enlivens.

Exhil'arate, *v. a.* [Lat. *exhilaro, exhilaratus* — *ex*, and *hilaro*, from *hilaria*, cheerful, lively, gay. See HILARIOUS.] To make cheerful or merry; to make glad or joyous; to cheer; to enliven; to animate; to inspirit; to delight; to gladden.

Exhil'arating, *p. a.* Enlivening; giving life and vigor to the spirits; cheering; gladdening.

Exhilarating Gas, *n.* See NITROUS OXIDE.

Exhil'aratingly, *adv.* In an exhilarating manner.

Exhilara'tion, *n.* [L. Lat. *exhilaratio.*] Act of exhilarating or enlivening the spirits; act of making glad or cheerful; state of being enlivened or cheerful; joyousness; gayety; gladness; cheerfulness.

Exhort', *v. a.* [Fr. *exhorter;* Lat. *exhortor, exhortatus* — *ex*, and *hortor*, to urge strongly, to incite, to encourage. See HORTATORY.] To incite by words or advice; to encourage; to excite; to animate or urge by arguments to a good deed; to encourage to do well; to advise; to warn; to caution; to incite or stimulate to exertion.

—*v. n.* To deliver exhortation; to use words or arguments to incite to good deeds.

Exhorta'tion, *n.* [Fr., from Lat. *exhortatio.*] Act or practice of exhorting; act of inciting to laudable deeds; incitement; the form of words intended to incite and encourage; advice; counsel.

Exhor'tative, *a.* [Lat. *exhortativus.*] Pertaining to, or containing, exhortation.

Exhor'tator, *n.* [L. Lat.] An exhorter; an encourager.

Exhor'tatory, *a.* [L. Lat. *exhortatorius.*] That exhorts; tending to exhort.

Exhort'er, *n.* One who exhorts or encourages.

Exhuma'tion, *n.* [Fr. *exhumer.*] Act of exhuming or of disinterring; the disinterring of a corpse; the digging up of anything buried.

Exhume', *v. a.* [Fr. *exhumer;* Lat. *ex*, and *humus*, earth, ground. See HUMID.] To take out of the ground; to unbury; to disinter.

Exid'ia, *n.* (*Bot.*) A genus of plants, order *Fungales.* The species *E. Auricula Judæ*, Jew's-ear, is reported to possess astringent and discutient properties, when applied externally as a decoction or poultice. *E. hispidula* is used in China as a styptic, and as food mixed in soups and hashes. It is known there under the name of *Moghi*, which signifies *ears of trees.*

Ex'igence, or **Ex'igency**, *n.* [Fr. *exigence*, from L. Lat. *exigentia*, from Lat. *exigens*, from *exigo* — *ex*, and *ago*, to drive. See ACT.] That which drives or thrusts out or forth; urgent need or want; pressing necessity; urgency; demand; distress; pressure; emergency; necessity.

Ex'igently, *a.* [Lat. *exigens.*] Driving or forcing out or forth; urgent; pressing; requiring immediate aid or action.

Ex'ile, *n.* [Fr. *exil*, banishment, *exilé*, an exiled person, from Lat. *exsilium*, banishment, *exsul*, a banished person — *ex*, and *solum*, soil, land, country, region. See SOIL.] State of being expelled from one's native soil, or country, or place of residence; banishment; proscription; expulsion; expatriation; an abandonment of one's country, or removal to a foreign country for residence; the person banished or separated from his country.

(*Hist.*) In Roman law, the punishment of banishment, or, more strictly speaking, the consequence of the interdiction from the use of fire and water, pronounced as a sentence against great offenders, compelling them to expatriate themselves. It appears that the direct sentence of exile was not known to ancient Roman jurisprudence. (Cicero, *ad Herenn.*) In modern France (before the Revolution), there was a distinction between banishment and exile. The former was a punishment assigned by the law, and producing infamy; the latter a measure of discipline, inflicted by the arbitrary act of the monarch (usually through lettres de cachet). Thus political offenders were frequently exiled to their estates, to a certain distance from court, &c.

Exile', *v. a.* [Fr. *exiler.*] To banish from a country or home; to drive away, expel, or transport from one's country; to drive from one's country by misfortune, necessity, or distress.

Exiled', *p. a.* Banished; expelled from one's country by authority.

Exin'tine, *n.* [From Lat. *ex*, from, and *intus*, within.] (*Bot.*) A membrane situated between the extine and intine in the pollen of yew, juniper, cypress, &c.

Exi'ra, in *Iowa*, a post-village and township of Audubon co., on C., R. I. & P. R. R., 16 m. N. E. of Atlantic co. *Pop.* (1897) about 800.

Exist', *v. n.* [Fr. *exister*, from Lat. *existo* — *ex*, and *sisto*, to stand, *q. v.*] To stand out or forth; to come forth; to emerge; to appear; to be; to have an essence or real being; to live; to have life or animation; to remain; to endure; to continue in being.

Exist'ence, *n.* [Fr., from L. Lat. *existentia*, from Lat. *existens.*] State of being or existing; life; animation; continued being; duration; continuation; anything that exists; a being; an entity.

Exist'ent, *a.* [Lat. *existens.*] Being; existing; having being or existence.

Exist'ing, *p. a.* Having existence, being, or life.

Ex'it, *n.* [Lat. 3d pers. sing. prcs. indic. of *exeo* — *ex*, and *eo*, *ire*, to go.] A going out; departure; the departure of a player from the stage; act of quitting the stage of action or of life; death; decease; a way of departure; passage out of a place.

Ex mo're. [Lat.] According to custom.

Ex'mouth, a town and watering-place of Devonshire, 9 m. from Exeter; *pop.* 5,750.

Ex'mouth, EDWARD PELLEW, VISCOUNT, a distinguished British naval commander, B. at Dover, 1757. He entered the navy when 13 years of age, and first attracted notice by his gallant conduct in the battle on Lake Champlain, October 11, 1776. In 1793, having been appointed to the command of the *Nymphe*, a frigate of 36 guns, he encountered, and, after a hard-fought battle, captured *La Cleopatre*, a French frigate, which carried the same number of guns. For this victory he was knighted. In 1799 he received the command of the *Impétueux*, 78 guns, and was sent to the French coast, where many of his most brilliant actions took place. In 1804 he was advanced to the rank of Rear-admiral of the Red; in 1808, to that of Vice-admiral of the Blue; and, in 1814, he was raised to the peerage, with the title of Baron Exmouth of Canonteign. In 1816 he was sent to Algiers, to enforce the terms of a treaty regarding the abolition of Christian slavery, which the Dey of Algiers had violated. With a combined fleet of 25 English and Dutch vessels he bombarded the city for seven hours, and inflicted such immense damage, destroying all the Algerino fleet and many of the public buildings, that the Dey consented to every demand. *E.*, who had been wounded in the leg and cheek in this action, received, on his return to England, the thanks of both Houses of Parliament, and was promoted to the rank of viscount. In 1821 he retired from public service, loaded with honors. D. 1833.

Exoce'tus, *n.; pl.* EXOCŒ'TIDÆ. [Gr. *exokoitos*, a fish which comes upon the beach to slip.] (*Zoöl.*) The flying-fishes, a genus and family of Malacopterygious fishes, characterized by the excessive development of the pectorals, which are about the length of the body, and enable the possessors to support themselves in the air for a few moments. Fishes of this family are found in all warm and temperate seas, and there are many species from 3 to 12 inches in length.



Fig. 3585. — FLYING-FISH. (*Exocetus volitans.*)

Exodus, (*eks'o-dus,*) *n.* [Gr. *exodos*, a going out, a departure.] (*Script.*) The name of the second book of the Old Testament, containing a narrative of the departure of the children of Israel out of Egypt under the guidance of Moses. In Hebrew it is termed *Ve-alah-shemoth* (these are the names), from the words with which the book begins. *E.* may be divided into two principal parts: 1. Historical (i. 1–xviii. 27), comprising the preparation for the deliverance of Israel from their bondage in Egypt, and the accomplishment of that deliverance; and 2. Legislative (xix. 1–xl. 38). In the first section we have an account of the great increase of Jacob's posterity in the land of Egypt, and their oppression under the "king that knew not Joseph;" an account of the birth, education, and flight of Moses; his solemn call to be the deliverer of Israel, and his return to Egypt; his interviews with Pharaoh, the infliction of the ten plagues, and the institution of the Passover. Then follows a narrative of their departure from Egypt, the passage of the Red Sea, with the destruction of Pharaoh and his host in the midst of it; the principal events on the journey from the Red Sea to Mount Sinai; the bitter waters at Marah, the quails, the manna, the water from the rock at Rephidim; the battle with the Amalekites, and the arrival of Jethro with Moses' wife and children in the Israelitish camp. In the second part of the book we have the promulgation of the law on Mt. Sinai, the preparation of the people by Moses for the renewing of the covenant with God, the promulgation of the moral law, the judicial law, and, lastly, the ceremonial law, including the construction and erection of the tabernacle. In chaps. xxxii.–xxxiv. we have an account of the idolatry of the Israelites, the breaking of the two tables of the law, the divine chastisement of the people, and the renewal of the tables of the covenant. This book comprises a history of the events that took place during the period of 145 years, from the year of the world 2369 to 2514 inclusive, or from the death of Joseph to the erection of the tabernacle. Twenty-five passages, according to Rivet, are quoted from *E.* by Christ and his apostles in express words, and nineteen allusions to the same are made in the New Testament. The authorship of the book is generally ascribed to Moses, though there have been many learned critics, both Jews and Christians, of a contrary opinion.

Ex'ogen, *n.* [Gr. *exo*, outward, and *genos*, race, offspring, class, from *gignomai*, anciently *genō*, to come into being. See GENDER.] (*Bot.*) A plant whose stem is formed by successive additions to the outside of the wood; one of the class Exogens.

Ex'ogens, *n. pl.* (*Bot.*) In the classification of Lindley, the 7th and largest class of plants. It is characterized by having the leaves reticulated; the stems with a distinct deposition of bark, wood, and pith; the embryo with two cotyledons; and the flowers usually formed on a quinary type. A transverse slice of the stem (Fig. 53) exhibits a central cellular substance or pith, an external cellular and fibrous ring or bark, and an intermediate woody mass, with certain fine lines radiating from the pith to the bark through the wood, called *medullary rays.* They are called *Exogens* because they add to their wood by successive external additions. The class *Exogens* corresponds to the class *Dicotyledones* of other botanists. See DICOTYLEDON, and, chiefly, AGE OF PLANTS.

Exogenous, (*eks-oj'en-us,*) *a.* Pertaining to the class of plants that grow on the outside; growing by successive additions to the outside of the wood, as the stems of the greater number of plants.

Exogo'nium, *n.* [Gr. *exo*, without, and *gonia*, angle.] (*Bot.*) A genus of plants, ord. *Convolvulaceæ.* The species *E. purga* is a native of Mexico, near Chincanquiaco. Its tubercular roots constitute the true jalap of the Materia Medica, so well known as a purgative.

Ex offi'cio. [Lat., by virtue of office or duty.] In general language, every act done by an officer either in prosecution of the general duty of his office, or in execution of some duty imposed by it, is said to be done *ex officio.* But, in more strict phraseology, a proceeding *ex officio* is one taken by an officer of his own will, in execution of what he takes to be the duty of his office; as where a justice of the peace demands and takes surety at his own discretion, without the request of the injured party.

Exomologe'sis, *n.* [Gr., from *ex*, from, and *omologeo*, to agree to anything.] A common confession.

Exom'phalos, Exom'phalus, *n.* [Gr., from *ex*, from, and *omphales*, the navel.] (*Med.*) A hernia or rupture at, or near, the navel.

Exon'erate, *v. a.* [Fr. *exonerer;* Lat. *exonero, exone-*

ratus — *ex.* and *onus, oneris*, a burden. See ONEROUS.] To free from a burden; to disburden; to unload; to cast off, as a charge, or as blame resting on one; to exculpate; to absolve; to acquit; to clear; to justify; to discharge.

Exonera'tion, *n.* [L. Lat. *exoneratio.*] Act of exonerating or disburdening, or discharging; act of freeing from a charge.

Exon'erative, *a.* That exonerates; freeing from an obligation.

Exophthal'mia, *n.* [Gr., from *ex*, out from, and *ophthalmos*, the eye.] The protrusion of the eyeball from the orbit. It is usually the consequence of concussion or blows; sometimes it is produced by a tumor in the orbit, which gradually pushes the eyeball out of its socket.

Exophyl'lous, *a.* [Gr. *ex*, from, and *phyllon*, a leaf.] (*Bot.*) Applied to the young leaves of Exogens, since they are said to be ever naked, while those of Endogens sheathe each other.

Exopta'tion, *n.* [Lat. *exopto, exoptatus*, to long for.] Earnest wish or desire.

Exop'tile, *a.* [From Gr. *ex*, from, and *ptilon*, a feather.] (*Bot.*) Applied to Dicotyledonous plants, because their pluma is naked.

Ex'orable, *a.* [Lat. *exorabilis*, from *exoro, exoratus* — *ex*, and *oro*, to plead, to entreat, to pray. See ORATOR.] Easy to be entreated; that can be persuaded; placable.

Exor'bitance, or EXORBITANCY, *n.* [L.Lat. *exorbitantia*, from *exorbitans*, from *exorbito* — Lat. *ex*, and *orbita*, a track or rut made by a wheel, from *orbis*, a circle, a ring. See ORB.] A going beyond or without the track or usual limit; irregularity; enormity; extravagance; a deviation from rule or the ordinary limits of right or propriety.

Exor'bitant, *a.* [Fr., from L. Lat. *exorbitans.*] Departing from the usual course; excessive; extravagant; enormous; anomalous; not comprehended in a settled rule or method.

Exor'bitantly, *adv.* Enormously; excessively.

Ex'oreise, *v. n.* [Fr. *exorciser*, from Gr. *exorkisō* — *ex*, intensive, and *orkizō*, to bind by oath, from *orkos*, an oath, from *erygō, eirgō*, to shut in, to confine, to restrain.] To administer an oath to: to charge upon oath; to adjure by some holy name; to pretend to expel evil spirits by conjurations, prayers, and ceremonies; to purify from unclean spirits by adjurations and ceremonies; to deliver from the influence of malignant spirits or demons.

Ex'oreism, *n.* [Gr. *exorkizo*, I conjure.] The conjuration of evil spirits, in the name of God or Christ, to depart out of a person possessed. About the 4th century, when all idolaters came to be looked upon as possessed of devils, it became customary to exorcise them previous to their being baptized. Soon afterwards it came to be a form generally employed in baptism even of children of Christian parents, who were also regarded as possessed of the devil before baptism. The words employed were, "I adjure thee, unclean spirit, that thou come out of this servant of Jesus Christ, in the name of the Father, and the Son, and the Holy Ghost." The Roman Catholics employ *E.* in three different cases: — in baptism, in demoniacal possession, and in blessing the chrism or holy water.

Ex'orcist, *n.* [Fr. *exorciste;* L. Lat. *exorcista;* Gr. *exorkistēs.*] One who pretends to expel evil spirits by conjuration, prayers, and ceremonies.

Exor'dial, *a.* Pertaining to the exordium.

Exor'dium, *n.*, or EXORDIUMS, *n. pl.* [Lat., from *exordior*, to begin a web, to lay the warp — *ex*, and *ordior*, to begin a web, from obsolete *ordium*, a term in weaving, from Lat. *ordo*, a straight row. See ORDER.] (*Rhet.*) The beginning part of an oration. According to Cicero and Quintilian, it ought to have one or other of three ends in view: — (1) to render the hearers benevolent, or to conciliate their good will; (2) to excite their attention; or (3) to render them docile, or open to persuasions. An *E.* should be easy and natural, and drawn either from the subject itself, or from the situation of the speaker. The ancients distinguished two kinds of introductions — the *principium* and the *insinuatio*. The former is where the orator plainly and directly professes his aim in speaking. In the latter the orator must take a larger compass, and presuming the disposition of the audience to be against him, he must gradually reconcile them to hear him before he plainly unfolds the point he has in view.

Exorrhi'zæ, *n. pl.* [From Gr. *exo*, without, and *riza*, a root.] (*Bot.*) A term applied to the embryo of Dicotyledons, or exogens, inasmuch as the radicle always elongates downwards, directly from the outside of the base of the embryo.

Exor'rhizal, Exor'rhizous, *a.* (*Bot.*) Noting the mode of germinating in exogens.

Exosmose', Exosmo'sis, *n.* [Gr. *exo*, without, and *osmos*, impulsion.] (*Physiol.*) The passage of gases, vapors, or liquids through membranes or porous media from within outwards. M. Dutrochet found that if two fluids of unequal density are separated by an animal or vegetable membrane, the denser will attract the less dense through the membrane that divides them: this property he called *endosmose* when the attraction is from the outside to the inside; and *exosmose* when it operates from the inside to the outside of the body acted upon.

Exos'seous, *a.* Destitute of bones; boneless.

Exostome', *n.* [Gr. *ex*, from, and *stoma*, a mouth.] (*Bot.*) A term sometimes applied to the passage through the outer integument of an ovule, commonly called the *foramen*.

Exosto'sis, *n.* [Gr., from *ex*, out of, and *osteon*, a bone.] (*Surg.*) A morbid enlargement or hard tumor of a bone. Exostoses are easily distinguished from other swellings by their being fixed and immovable, and at first unattended with any pain or inconvenience. There are three varieties, the *solid*, the *hollow*, and the *foliated*. There is no bone that may not become the seat of this disease, though some are much more subject to it than others. No external treatment is of any benefit in this disease. When it is necessary that they be removed, and it can be done with safety, it is effected by sawing or cutting.

(*Bot.*) A disease to which the roots and stems of trees are subject, when knots or large tumors are formed upon or among the wood. It is caused by a stoppage of growth on the one hand, and an attempt at excessive development on the other. These knots are sometimes called *knaurs*, and from them some of the most beautiful wood used by cabinet-makers is obtained.

Exoter'ic, or **Exoter'ical,** *a.* [Fr. *exotérique;* Gr. *exoterikos*, belonging to the outside, from *exo*, outward.] External; public; opposed to *esoteric* or secret. The exoteric doctrines of the ancient philosophers were those which were openly professed and taught.

Exoter'icism, *n.* Exoteric doctrine or principles.

Exot'ic, or **Exot'ical,** *a.* [Fr. *exotique;* Gr. *exotikos*, from *exo*, outward.] External; foreign; introduced from a foreign country; not native; extraneous.

—*n.* A plant, shrub, or tree not native; a plant introduced from a foreign country; a word of foreign origin introduced into a language.

Expand', *v. a.* [Lat. *expando* — *ex*, and *pando*, to spread out, to extend, to open, allied to Heb. *patach*, to open.] To spread out; to spread apart; to open; to enlarge a surface; to diffuse; to dilate; to enlarge in bulk; to distend; to enlarge; to extend.

—*v. n.* To open or spread out; to spread; to dilate; to extend in bulk or surface; to enlarge.

Expand'ed, *p. a.* Opened; spread out; extended; dilated; enlarged; diffused.

Expand'ing, *p. a.* Opening; spreading out; extending; dilating; diffusing.

Expanse', *n.* [Lat. *expansum*, from *expando.*] That which is spread or stretched out; a surface widely extended; extent; a wide extent of space or body.

Expansibil'ity, *n.* The capacity of being expanded; capacity of extension in surface or bulk.

Expan'sible, *a.* [Fr.] Capable of being expanded or spread; capable of being extended, dilated, or diffused.

Expan'sibly, *adv.* In an expansible manner.

Expan'sile, *a.* Capable of being expanded; producing expansion.

Expan'sion, *n.* [Fr.; Lat. *expansio.*] (*Physics.*) The enlargement or increase of bulk in bodies; generally the effect of heat. It is the result of raising the temperature of all bodies, solid, liquid, and aëriform. The *E.* of solids is comparatively small, the metals being the most affected by heat and cold. It is necessary to make provisions for *E.* in metallic structures, otherwise destructive effects must ensue, even from the changes in the usual range of atmospheric temperature. *E.* in metals and liquids is variable, some expanding under the influence of the same temperature more than others, and the rate of *E.* is not generally uniform for equal increments of heat. In most cases, all bodies contract when the temperature is lowered; but there is a remarkable exception to this rule in the case of water, which begins to expand when lowered to 40° Fahr. The power evolved in the *E.* of water is very great. (See WATER.) A brass globe having a cavity an inch in diameter can be burst by filling it with water and freezing, when the absolute force necessary to produce a like result is equal to 27,720 lbs. weight. Aëriform bodies are the most expansible forms of matter, and they all expand and contract alike. As examples of *E.*, the expansibility of mercury is applied in the construction of the common thermometer (*q. v.*); and in consequence of the *E.* or contraction of their pendulums and balance-wheels, clocks and watches go faster in cold weather, and slower in hot. — See PENDULUM.

Expan'sion-joint, *n.* (*Mech.*) The stuffing-box joint connecting the steam-pipes, so as to allow one of them to slide within the enlarged end of the other when the length increases by expansion.

Expan'sion-valve, *n.* (*Mech.*) An auxiliary valve placed between the slide-valve and the steam cylinder; it is worked by a cam or other contrivance, so as to cut off the steam at a given period, and cause the remainder of the stroke to be performed by expansion.

Expan'sive, *a.* [Fr. *expansif.*] That has power to expand; that expands; diffusive.

Expan'siveness, *n.* The quality or capacity of being expanded.

Ex parte. [Lat., of the one part.] (*Law.*) Proceeding from only one part of a matter in question.

Expa'tiate, *v. n.* [Lat. *ex*, out, and *spatiari*, to spread out.] To get out of the course; to move about; to rove at large; to enlarge in discourse or writing; to be copious in illustration.

—*v. a.* To cause to roam abroad; to diffuse; to extend.

Expatia'tion, *n.* The act of expatiating.

Expa'tiator, *n.* One who descants at large.

Expa'tiatory, *a.* Diffusive in language.

Expa'triate, *v. a.* [Fr. *expatrier*, from Lat. *ex*, and *patria*, country.] To expel or remove from one's country; to banish; to exile.

Expatria'tion, *n.* [Fr.] The being banished from one's country, or voluntarily forsaking it.

Expect', *v. a.* [Lat. *expectare*, to look for.] To look carefully or eagerly for; to await; to have an apprehension of something future; to hope or long for; to apprehend; to entertain a belief or hope that something will happen; to require or demand.

Expect'able, *a.* [Lat.] To be expected or looked for.

Expect'ance, or **Expectancy,** *n.* [L. Lat. *expectantia.*] The act or state of expecting; something expected; hope.

Expect'ant, *a.* [Lat. *expectans.*] Looking earnestly for; looking for; waiting for; depending upon something suspended.

—*n.* One who awaits in hope or expectance; one held in dependence by his hope of receiving some good.

Expecta'tion, *n.* [Fr., from Lat. *expectatio.*] Act or state of looking forward to an event, with at least some hope or belief that it will take place; anticipation of future good or evil; prospect of good to come; trust in the future; the qualities that promise future excellence; the value of any property which depends upon a contingency.

(*Med.*) Leaving a disease to the efforts of nature.

Expec'tative, *a.* Anticipating.

—*n.* Something expected.

Expect'er, *n.* One who waits for some person or thing.

Expect'ingly, *adv.* In a state of expectation.

Expec'torant, *a.* [Fr., from Lat. *expectorans*, from *ex*, and *pectus*, the breast.] Tending to promote discharges from the throat and lungs.

—*n.* (*Med.*) Medicine which increases the secretion of the tracheal and bronchial mucus. The substances that are used with this view are very different, and act in different ways. Vapors are the only agents that can act directly upon the organs affected; those that are taken into the stomach being capable of acting only in an indirect manner. The inhaling of the vapor of warm water simply, or mixed with certain medicinal substances, as vinegar, is very useful in this way. Most medicines which, taken in large doses, act as emetics, are used as *E.*, as squills, ipecacuanha, gum ammoniacum, &c. That most used in ordinary cases is syrup of squills. All substances, also, which excite irritation at the upper part of the wind-pipe, and produce coughing, act as *E.* When there is inflammation, the best *E.* are such as lessen the inflammatory state. Care is necessary in the selection of the agent to be employed in each case, as great injury may be done by using such as are unsuitable.

Expec'torate, *v. a.* To eject from the throat or lungs; to discharge phlegm, &c., by coughing.

—*v. n.* To discharge from the throat by hawking; to spit.

Expectora'tion, *n.* [Fr., from Lat. *expectoratio.*] Act of discharging phlegm or mucus from the throat or lungs: the matter so discharged.

(*Med.*) In a state of perfect health, the vessels about the pharynx and larynx are constantly exuding a certain amount of mucus to insure the integrity of those organs, and which passes into the gullet without thought or notice. But the secretion that arises when disease takes place becomes of great consequence; for every condition of what is discharged, or of the *sputa*, as it is called, is a symptom, and shows the medical man the nature of the affection that causes it: for the discharge may vary from a thin, watery liquid, like saliva, to a tough, leathery-looking phlegm, and from a jelly-like mucus to a pure pus, or matter; while each, and all may assume every variety of shade and color, from a white form, to a green or blood-stained discharge. — A *thin, frothy* expectoration indicates influenza, bronchitis, or a common severe cold; when it is *stringy*, white, or yellow, the probability is that the bronchitis has become chronic, or that whooping-cough has set in: when the expectoration becomes purulent, but thin, it indicates a serious affection of the lungs or air-passages; and when thick, and blended with *lumpy masses*, is a proof that ulceration of the lungs is present, or some abscess in the organ has broken. When, again, the expectoration is *stringy* and of a dull red or brick-dust color, it shows the presence of inflammation of the substance of the lungs, or pneumonia; and so on with all the other differences, each pointing to some disease or stage of mischief.

Expec'torative, *a.* Having the quality of promoting expectoration.

Expe'dience, or **Expediency,** *n.* [L. Lat. *expedientia.*] Aptness; fitness; suitableness; propriety; advantage; usefulness.

—Self-seeking at the expense of moral right.

Expe'dient, *a.* Hastening or advancing a proposed object; fit; profitable; useful; advantageous.

—*n.* A quick way or means; whatever tends to advance an end or object; shift; contrivance; resort.

Expedien'tial, *a.* Governed by expedience and convenience.

Expe'diently, *adv.* Fitly; suitably: conveniently.

Exped'itate, *v. a.* [L. Lat. *expedito*, from *ex*, and *pes*, the foot.] To exsect the claws, so that a dog may not pursue game.

Expedita'tion, *n.* The exsecting of the claws of a dog.

Ex'pedite, *v. a.* [Lat. *expedio*, from *ex*, and *pes*, the foot, *quasi*, to extricate the foot.] To free from hinderance; to hasten or quicken the motion of; to dispatch; to send from; to hasten by rendering easy.

—*a.* Unimpeded; easy; agile; quick; prompt; unincumbered.

Ex'peditely, *adv.* Readily; speedily; hastily.

Expedi'tion, *n.* [Fr. *expédition;* Lat. *expeditio.*] Readiness; haste; speed; quickness; dispatch. — The march of an army or voyage of a fleet to a distant place for hostile purposes. — The attempt to do some unfriendly act by a number of persons. — The body of persons who attempt such an act.

Expedi'tionary, *a.* Pertaining to an expedition.

Expedi'tionist, *n.* Any member of an expedition.

Expedi'tious, *a.* Quick; hasty; speedy; prompt; nimble.

Expedi'tionsly, *adv.* Speedily; with celerity and dispatch.
Expedi'tionsness, *n.* The quality of being rapid.
Expel', *v. a.* [Lat. *ex*, and *pellere*, to drive out.] To force to leave; to eject; to banish; to exile; to reject.
Expel'lable, *a.* Capable of being driven out.
Expel'ler, *n.* He who drives out.
Expend', *v. a.* [Lat. *ex.* and *pendere*, to weigh out.] To lay out money; to pay out; to disburse, spend, deliver, or distribute; to use, or employ; to dissipate; to waste.
—*v. n.* To be laid out, used, or consumed.
Expen'diture, *n.* Act of expending; disbursement; money expended.
Expense', *n.* [L. Lat. *expensa.* See PECUNIA.] Outlay; consumption; cost; charge.
Expen'sive, *a.* Requiring much expense; costly; dear; given to expense; free in the use of money; extravagant; lavish.
Expen'sively, *adv.* With great expense; at great cost or charge.
Expen'siveness, *n.* Quality of being expensive; costliness; quality of being addicted to expense; extravagance.
Experience, *n.* [Fr. *expérience;* Lat. *experientia*, from *experior* — *ex*, and obsolete *perior;* Gr. *peirao*, to attempt, to endeavor, to try.] Trial; proof; test; essay; attempt; experiment; a series of trials or experiments; active effort or attempt to do or to prove something, or repeated efforts; observation of a fact, or of the same facts or events happening under like circumstances; trial from suffering or enjoyment; suffering itself; the use of the senses; knowledge derived from trials, use, practice, or from a series of observations.
—*v. a.* To try; to prove; to essay; to make trial of; to try by use, by suffering, or by enjoyment; to know by practice or trial; to gain knowledge or skill by practice, or by a series of observations.
Experienced, *p. a.* Tried; used; practised; suffered; enjoyed; taught by practice, or by repeated observations; skilful or wise by means of trials, use, or observation.
Experiment, *n.* [Lat. *experimentum*, from *experior*, to try.] A trial; a proof; an act or operation designed to discover some unknown truth, principle, or effect, or to establish it when discovered.
—*v. n.* To make trial; to try; to search by trial; to make an experiment; to operate on a body in such a manner as to discover some unknown fact, or to establish it when known.
Experiment, in *Virginia*, a post-office of Amherst county.
Experimen'tal, *a.* [Fr. *expérimental.*] Pertaining to experiments; known by experiment or trial; derived from experiment; built on experiments; founded on trial and observations, or on a series of results, the effects of operations; taught by experience; having personal experience; as, *experimental* Christians.
Experimen'talist, *n.* One who makes experiments.
Experimen'tally, *adv.* By experiment or experience; by trial.
Experimen'tal Philosophy deduces the laws of nature, the properties of bodies, and their mutual actions upon one another, from experiment and observation. The distinction between deductive and experimental philosophy is clearly pointed out in the following quotation from Sir John Herschel: "A clever man shut up alone and allowed unlimited time, might reason out for himself all the truths of *mathematics* by proceeding from those simple notions of space and number of which he cannot divest himself without ceasing to think; but he could never tell by any effort of reasoning what would become of a lump of sugar if immersed in water, or what impression would be produced on the eye by mixing the colors yellow and blue." *E. P.* then is founded on ocular demonstration, or that which cannot be denied without violating common sense or clear perception.
Experimenter, *n.* One who makes experiments; one skilled in experiments.
Experimentist, *n.* One who makes experiments.
Experimen'tum Cru'cis. [Lat., experiment of the cross.] A term applied by Bacon to any leading or decisive experiment: — either from its being like a cross or direction-post, placed by the roadside to guide travellers in the right path, or on account of its being a kind of torture to elicit the truth, as the cross was used like the rack for that purpose in ancient times.
Ex'pert, *n.* (*Law.*) A person selected by a court, or by parties in a cause, on account of his knowledge or skill, to examine, estimate, and ascertain things, and make a report of his opinion.
Expert', *a.* [Fr. *expert*, from Lat. *expertus*, from *experior.* See EXPERIENCE.] Tried; proved; experienced; taught by use, practice, or experience; — hence, skilful; well instructed; having familiar knowledge of; dexterous; adroit; ready; prompt; clever; having a facility of operation or performance from practice.
Expert'ly, *adv.* In a skilful or dexterous manner; adroitly; with readiness and accuracy.
Expert'ness, *n.* Quality of being expert; skill derived from practice; readiness; dexterity; adroitness; cleverness; tact.
Ex'piable, *a.* [L. Lat. *expiabilis.*] That may be expiated; that may be atoned for and done away.
Ex'piate, *v. a.* [Fr. *expier;* Lat. *expio, expiatus* — *ex*, and *peo*, from *pius*, dutiful, pious, devout. See PIOUS.] To make satisfaction or atonement for; to atone for; to extinguish the guilt of a crime by subsequent acts of piety or worship, by which the obligation to punish the crime is cancelled; to make reparation for.
Expia'tion, *n.* [Fr., from Lat. *expiatio.*] Act of expiating or atoning for a crime; the act of making satisfaction for an offence; atonement; satisfaction; the means by which atonement for crimes is made.
Ex'piator, *n.* [L. Lat.] One who expiates.
Ex'piatory, *a.* [Fr. *expiatoire;* Lat. *expiatorius.*] Having the power to make atonement or expiation.
Expir'able, *a.* That may expire; that may come to an end.
Expira'tion, *n.* [Fr., from Lat. *expiratio.*] (*Physiol.*) The movement by which the air that has been changed by the respiratory process is expelled from the lungs. It is chiefly due to the elastic contraction of the lungs and the walls of the chest, after they have been dilated by the act of *inspiration.* The last emission of breath; death. — Exhalation; vapor; fume. — Cessation; close; end; conclusion; termination of a limited time.
Expi'ratory, *a.* That expires; pertaining to the emission or expiration of breath from the lungs.
Expire', *v. a.* [Lat. *expiro* — *ex*, and *spiro*, to breathe. See SPIRIT.] To breathe out; to throw out, as the breath from the lungs; to exhale. — To emit in minute particles, as a fluid or volatile matter.
—*v. n.* To emit the last breath, as an animal: to die; to breathe the last; to perish; to end; to fail or be destroyed. — To come to nothing; to be frustrated. — To cease; to terminate; to close or conclude; to come to an end, as a given period.
Expir'ing, *a.* Dying; pertaining to, or uttered at, the time of dying.
Expis'cate, *v. a.* [Lat. *expiscor* — *ex*, and *piscor, piscatus*, to fish, from *piscis*, a fish. See PISCATORY.] To fish out; to search out; to obtain by artful means. (R.)
Explain', *v. a.* [Lat. *explano* — *ex*, and *plano*, from *planus*, even, level, flat, plain. See PLAIN.] To make plain, manifest, or intelligible; to clear of obscurity; to expound; to interpret; to illustrate; to elucidate; to clear up.
—*v. n.* To give explanations.
Explain'able, *a.* Capable of being explained or made plain to the understanding; capable of being interpreted.
Explain'er, *n.* One who explains; an expositor.
Explain'ing, *p. a.* Expounding; illustrating; interpreting; opening to the understanding; clearing of obscurity.
—*n.* Explanation.
Ex'planate, *a.* (*Bot.*) Outspread or broadly flatteued.

(*Zoöl.*) Applied to the prothorax of an insect, when so depressed and dilated as to form a broad margin.
Explana'tion, *n.* [Lat. *explanatio.*] Act of explaining, expounding, or interpreting; act of clearing from obscurity and making intelligible; the sense given by the expounder or interpreter; explication; exposition; illustration; interpretation; detail; a mutual exposition of terms, meaning, or motives, with a view to adjust a misunderstanding and reconcile differences; reconciliation.
Explan'atoriness, *n.* Quality of being explanatory.
Explan'atory, *a.* [L. Lat. *explanatorius.*] Serving to explain; containing explanation.
Ex'pletive, *a.* [Fr. *explétif;* L. Lat. *expletivus*, from *expleo, expletus* — *ex*, and *pleo*, to fill. See PLENARY.] Serving to fill out, or to supply a vacancy; added for supply or ornament.
—*n.* A word or syllable not necessary to the sense, but inserted to fill a vacancy or for ornament.
Ex'pletively, *adv.* In the manner of an expletive.
Ex'pletory, *a.* Serving to fill out; expletive.
Ex'plicable, *a.* [Fr., from Lat. *explicabilis.*] That may be unfolded to the mind; explainable; that may be made intelligible; that may be accounted for.
Ex'plicableness, *n.* Quality of being explicable.
Ex'plicate, *v. a.* [Fr. *expliquer;* Lat. *explico* — *ex*, and *plico*, to fold.] To unfold; to expand; to open; to unfold the meaning or sense of; to explain; to clear of difficulties or obscurity; to interpret.
—*a.* Evolved: unfolded; explained.
Explica'tion, *n.* [Fr., from Lat. *explicitus.* See PLY.] Act of explaining; explanation; exposition; interpretation; the sense given by an expositor or interpreter.
Ex'plicative, or EX'PLICATORY, *a.* [Fr. *explicatif.*] Serving to unfold or explain; tending to lay open to the understanding.
Ex'plicator, *n.* One who unfolds or explains.
Explic'it, *a.* [Fr. *explicite;* Lat. *explicitus.*] Unfolded; plain in language; clear; not obscure or ambiguous; express, not merely implied; open; unreserved; definite; having no disguised meaning or reservation.
Explic'itly, *adv.* In an explicit manner; plainly; expressly.
Explic'itness, *n.* State of being explicit; plainness of language or expression; clearness; direct expression.
Explode', *v. a.* [Lat. *explodo* — *ex*, and *plaudo*, to clap, strike, or beat upon. See PLAUDIT.] To drive out or expel with marks of disapprobation; to reject, or repudiate, with disapprobation, disdain, or contempt; to drive out of use or practice; to discharge; to drive out, or cause to burst with violence and noise.
—*v. n.* To utter a report with sudden violence; to burst and expand with force and a violent report.
Exploded, *p. a.* Driven away by hisses or noise; rejected; condemned; cried down; burst violently.
Exploder, *n.* One who explodes.
Exploit', *n.* [O. Fr. *exploict;* Fr. *exploit*, from Lat. *explicare, explicatus*, to unfold. See EXPLICATE.] That which is developed, exhibited, performed, accomplished, or achieved; a deed or act; more especially, an heroic act; a deed of renown; a great or noble feat or achievement.
Explora'tion, *n.* [Fr., from Lat. *exploratio.*] Act of exploring; close search; strict or careful examination.
Ex'plorator, *n.* [Lat.; Fr. *explorateur.*] He or that which explores.
Explo'ratory, *a.* [Lat. *exploratorius.*] Serving to explore; searching out; examining.
Explore', *v. a.* [Lat. *exploro* — *ex*, and *ploro*, to cry out, to wail.] To seek to obtain by weeping; to search out; to seek to discover; to view with care; to examine closely by the eye; to search by any means; to try, as the sea with a plummet; to scrutinize; to search or pry into; to inquire into with care; to examine closely with a view to discover truth.
Explored', *p. a.* Searched; viewed; examined closely.
Explor'er, *n.* One who explores.
Explor'ing, *p. a.* Searching; viewing; examining.
Explo'sion, *n.* [Fr.; Lat. *explosio.*] (*Phys.*) The sudden and violent expansion of the sides of any object, accompanied by a loud report. *E.* is always sudden and of momentary duration, while expansion is the effect of some gradual, continued power acting uniformly for some considerable time. *E.* of some solids, as gunpowder, &c., results from their elements suddenly entering into new combinations and assuming the gaseous state.
Explo'sive, *a.* That explodes; driving or bursting out with violence and noise; causing explosion.
Explo'sively, *adv.* In an explosive manner.
Expo'nent, *n.* [Lat. *exponens*, from *expono* — *ex*, and *pono*, to set, to place. See POSITION.] That which sets forth; that which points out or indicates; an index; one who stands as an index or representative.

(*Algeb.*) The index of a power; a number, or a symbol representing a number, which, when written above and to the right of any symbol of quantity, indicates that a corresponding power of that quantity is to be taken.
Exponen'tial, *a.* [Fr. *exponentiel.*] Pertaining to an exponent or exponents.

E. equation. (*Math.*) An equation which involves terms wherein the unknown quantity appears as an exponent or as a constituent of an exponent. The simplest form of exponential equation is $a^x = b$; one of its solutions is the *logarithm of* b *to the base of* a, or, what is the same thing, the ratio of the logarithm of b to that of a, the bases being the same, but arbitrary. This is only one solution; the equation has innumerable other imaginary roots, and is consequently *transcendental.* A curve in whose equation the coördinates appear as exponents is, in like manner, called an *exponential curve.*
Export', *v. a.* [Fr. *exporter;* Lat. *exportare*, to carry out.] To bear or carry out; to convey or transport produce or goods from one country to another.
—*n.* A commodity actually conveyed in traffic from one country to another;—used chiefly in the plural—*exports.* — The act of exporting; exportation.
Export'able, *a.* That may be exported.
Exporta'tion, *n.* [Fr., from Lat. *exportatio.*] Act of conveying in traffic goods or productions from one country to another.
Export'er, *n.* One who exports;—opposed to *importer.*
Expose', *v. a.* [Fr. *exposer;* Lat. *exponere*, to put out.] To put or lay open; to set out to public view; to disclose; to draw from concealment; to make bare. — To promulgate; to explain; to exhibit; to offer for sale.
Exposé, *n.* [*pp.* of Fr. *exposer.*] A formal statement, oral or written.
Exposed', *p. a.* Unprotected; liable to attack.
Expos'edness, *n.* Act of exposing, or state of being exposed.
Expos'er, *n.* One who exposes.
Exposi'tion, *n.* [Fr., from Lat. *expositio.*] Act of exposing; laying open; setting to public view; a public exhibition or show. — Interpretation; expounding; explanation. — Situation with reference to view or climate.
Expos'itive, *a.* [Fr. *expositif.*] That sets forth; laying open; explanatory.
Expos'itor, *n.* [Fr. *expositeur*, from Lat. *exponere.*] One who expounds or explains; an interpreter.—A book that expounds and explains.
Expos'itory, *a.* Explanatory; serving to illustrate; exegetical.
Ex post fac'to. [L. Lat., literally, by something done afterwards.] (*Law.*) A phrase used to denote something done after the conclusion of another thing; retrospective. An estate granted may be made good by matter *ex post facto*, which was not good at first. *Ex post facto* laws are such as are made to operate or bear upon acts committed previously to the making of such laws, and are therefore retrospective in their operations. In criminal cases, an *ex post facto* law is one that renders an act punishable in a manner in which it was not punishable at the time it was committed; or altering the rules of evidence, so as to allow different or less evidence to convict the offender than was required when the crime was first perpetrated. By the Constitution of the U. States, Art. 1, § 9, Congress is forbidden to pass *ex post facto* laws; and by § 10, subdiv. 1, of the same instrument, as well as by the constitutions of many, if not all, of the States, a similar restriction is imposed upon the State legislatures.
Expos'tulate, *v. a.* [Lat. *expostulare*, to ask from.] To demand urgently; to require; to find fault; to remonstrate; to debate; to reason earnestly with any one on the impropriety of his conduct.
Expostula'tion, *n.* [Lat. *expostulatio.*] The act of reasoning with a person in opposition to his conduct: remonstrance.
Expos'tulator, *n.* [L. Lat.] One who expostulates.
Expos'tulatory, *a.* Containing remonstrance.
Expos'ure, *n.* [See EXPOSE.] Act of laying open; state of being laid open to any danger or inconvenience; condition of a place as regards being exposed to the access of air or light, or to the points of the compass.

"The *exposure* of this house is unwholesome."—*Pugin.*

Expound', *v. a.* [Lat. *exponere*, to lay or set out.] To set out; to explain the meaning of; to interpret.

Expound'er, *n.* One who explains the meaning of; an interpreter.

Express', *v. a.* [Fr., from Lat. *expressus*, pp. of *exprimere*, to press out.] To set forth in words; to speak, write, or engrave; to utter, declare, or assert; to exhibit by copy; to form a resemblance of; to indicate.

—*a.* Clear; plain; direct; not ambignous; intended for a purpose; employed for regular and speedy conveyance.

—*n.* A messenger or vehicle sent on a special occasion; the message or despatch sent; any regular conveyance of messages or despatches.

(*Com.*) In the U. S., a system organized for the transportation of merchandise and parcels, and for the collection and transmission of money. Upon the completion of a railroad between New York and Boston, residents of those cities and the intermediate towns made a practice of sending parcels back and forth in care of the train men. This habit soon grew into an abuse; and, as an outcome of the railroad company's efforts to break it up, one of the conductors on the Boston & Worcester Railway—W. F. Harnden—was summarily discharged. In 1838 Harnden and J. W. Hale effected an arrangement with the companies for a regular "express" service, via Providence; and this went into effect March 4, 1839. Alvan Adams started a rival express business between New York and Boston, via Norwich in 1840. From this time the railroads generally took up the idea, and by 1845 there was an express service connecting all the principal cities of the East and West. For a time the companies carried letters, but the government shortly prohibited this. The Wells, Fargo & Co. express was established between St. Louis and San Francisco in 1854, doing an immense business billion in shipments by overland coaches, besides carrying the mails, under the name of the Overland Mail Co., until the completion of the Union Pacific railroad. This company is still one of the great express carriers of the U. S.; others are the Adams, the American, the United States, the Pacific, the National, &c. Within recent years the companies have introduced a money-order system, in most respects resembling that of the Post-Office Department, which has proved very successful and popular. The collection of bills on delivery of goods ("C. O. D.") is an important branch of the service. International express companies are also established, whose operations extend throughout the world. The statistics of the business in 1897 are substantially as follows: Capital of the companies, $60,000,000; length of routes, 200,000 miles; packages carried annually, over 100,000,000; employees, 51,500; horses, 15,000; vehicles, 6,000, besides numerous special railroad cars. Shipments of money are annually about $4,000,000,000, of which $2,500,000,000 are transported for individuals and $1,500,000,000 for the government.

Expres'sage, *n.* The amount to be paid for any parcel by express.

Expres'sible, *a.* Capable of being squeezed out, or of being uttered, represented, stated, or declared.

Expres'sion, *n.* [Fr., from Lat. *expressio.*] Act of expressing; forcing out by pressure; extorting or eliciting. — Elocution; diction; peculiarity of utterance or mental tone. — (*Fine Arts.*) The representation of the various passions of the mind.

Expres'sionless, *a.* Void of expression.

Expres'sive, *a.* [Fr. *expressif.*] Serving to express, utter, or represent; showing with force; significant; emphatical.

Expres'sively, *adv.* In a manner distinct and clear to the mind.

Expres'siveness, *n.* Power of representation by words or signs.

Express'ly, *adv.* Not by implication; plainly; distinctly.

Expromis'sion, *n.* (*Civil Law.*) A species of novation, as a creditor's acceptance of a new debtor, who takes the place of the old debtor, who is relieved.

Exprom'issor, *n.* (*Civil Law.*) One who assumes the debt of another and becomes alone bound.

Expugn, (*ex-pune'*,) *v. a.* [Lat. *expugnare*, to take by assault, from *ex*, and *pugna*, a battle.] To take by assault; to storm; to capture; to reduce; to subdue.

Expugn'able, *a.* Capable of being forced or conquered.

"A city by no arts of ours *expugnable*."—*Spenser.*

Expugna'tion, *n.* A taking by assault; conquest.

Expul'sion, *n.* [Fr., from Lat. *expulsio*, from *expellere*, to drive out.] Act of driving out; state of being driven away, with, or without, violence.

Expul'sive, *a.* [Fr. *expulsif.*] Having the power of driving out; as, "an *expulsive* bondage."—*Wiseman.*

Expunc'tion, *n.* [Lat. *expunctio.*] Condition of being freed from errors.

Expunge', *v. a.* [Lat. *expungere*, to sting; to prick out.] To blot out; to efface; to erase; to obliterate; to destroy; to render invisible.

Expur'gate, or **Ex'purgate**, *v. a.* [Lat. *expurgare*, to clean out.] To render clean; to purify; to free from what is offensive.

Expurga'tion, *n.* [Fr., from Lat. *expurgatio.*] A cleansing out; a purification; a freeing from what is offensive.

Expur'gator, or **Ex'purgator**, *n.* One who cleanses, frees, or purifies.

Expurgato'rial, *a.* Serving to cleanse, purify, or free from errors.

Expur'gatory, *a.* [Fr. *expurgatoire.*] Cleansing; purifying; freeing from anything noxious, or erroneous.

Ex'quisite, *a.* [Lat. *exquisitus*; Fr. *exquis.*] Sought carefully; choice; select; nice; exact; highly finished. — Maturely considered; delicate; refined; matchless.

—*n.* A person over-carefully dressed; a fop, or dandy.

Ex'quisitely, *adv.* Nicely; accurately; with keen perception.

Ex'quisiteness, *n.* Nicety; accuracy; keenness of perception.

Exsanguin'ity, *n.* (*Med.*) Want of the due amount of blood.

Exsanguin'eous, Exsan'guinous, Exsan'guious, *a.* [Lat. *ex*, and *sanguis*, blood.] Deficient in the proper amount of blood, or seeming bloodless, as a person after a copious hemorrhage.

Exsat'urate, *v. a.* [Lat. *ex*, intensive, and *satur*, full.] To impregnate or fill thoroughly.

—*a.* Completely filled; as, "*Exsaturate* with joy." *Milton.*

Exscind', *v. a.* [Lat. *exscindere*, to cut off.] To cut off; to remove from fellowship.

Exscrip'tural, *a.* Not to be found in the Bible, or contrary thereto.

Exscu'tellate, *a.* (*Zoöl.*) Applied to an insect which has no visible scutellum, it being wholly covered by the prothorax.

Exsec'tion, *n.* [Lat. *exsectio*, from *ex*, and *secare*, to cut.] A cutting out, or off.

Exsert', Exsert'ed, *a.* [Lat. *exsertus*, from *ex*, and *serere*, to sow, or plant.] (*Bot.*) Extending, or projecting beyond some other part, as stamens.

(*Zoöl.*) Applied to the head of an insect, when quite disengaged from the trunk, as in the Gnat (Fig. 979).



Fig. 979. — GNAT, (magnified.)

Exser'tile, *a.* That may be caused to project beyond.

Exsic'cant, *a.* [Lat. *exsiccare*, to dry up.] Having the quality of drying up.

—*n.* (*Med.*) Any remedy used for drying up a sore.

Exsic'cate, *v. a.* To exhaust or dry up moisture. — To exhaust a subject; as, "You must *exsiccate* the matter." *Jewell.*

Exsic'cation, *n.* A drying up, or exhaustion.

Exsic'cative, *a.* Tending to dry out.

Exspui'tion, *n.* [Lat. *exspuitio*, a spitting out.] A discharge of saliva; a spitting of phlegm from the lungs or trachea.

Exstip'ulate, *a.* [Lat. *ex*, and *stipula*, a stem.] (*Bot.*) Wanting stem.

Exsuc'cous, *a.* [Lat. *ex*, and *succus*, juice.] Wanting sap.

Exsuc'tion, *n.* [Lat. *exsuctio*, from *exsugere*, to suck out.] The act of sucking out.

Exsuda'tion, or **Exuda'tion**, *n.* [Lat. *exsudatio.*] A sweating out; an extillation; an emission.

Exsuffla'tion, *n.* [Lat. *exsufflatio*, a breathing, or blowing out.] A ceremony in the rubric of the Catholic Church, for exorcising persons possessed.

Extant', *a.* [Lat. *extans*, from *exstare*, to stand out.] Standing out; protruded; actually in being; now subsisting; as, "All his *extant* works." — *Johnson.*

Ex'tasy, *n.* See ECSTASY.

Extat'ic, Extatical, *a.* See ECSTATIC.

Extempora'neous, *a.* [Lat. *extemporaneus*, from *ex*, and *tempus.*] Springing from the time or occasion: coming from the impulse of the moment; unpremeditated; composed, performed, or uttered without previous study.

Extempora'neously, *adv.* Without previous study.

Extempora'neousness, *n.* The quality or faculty of being unpremeditated.

Extem'porarily, *adv.* Without previous study, or deliberation.

Extem'porary, *a.* [Lat. *ex*, and *temporarius.*] Arising from the circumstances; composed, performed, or uttered without premeditation.

Extem'pore, *adv.* [Lat.] In an extemporary manner; unpremeditatedly; on the spur of the moment.

"The habit of speaking *extempore*."—*Blair.*

—*a.* Unpremeditated; without previous reflection.

Extem'pore Speaking. [Lat. *ex*, and *temporarius*, lasting but for a time, temporary.] (*Rhet.*) The art of clearly and forcibly expressing one's ideas upon any subject without previous preparation, at least as regards the words; for, strictly speaking, every extemporized speech pre-supposes a preliminary operation of thought. Before extemporizing a speech, it is necessary to have the foundation of the discourse fixed on the mind, and the succession of thoughts to be expressed. There should reign between all its parts an order of filiation, or generation, the one idea naturally producing the other; and they should be so disposed that each may be found in the very place marked out for it, the moment it is required. The great requisite in *E. S.* is to have clear and distinct ideas regarding the subject on which one is about to speak. In order to speak forcibly and clearly, one must begin by feeling vividly, and then clear ideas on the subject will naturally follow. It should not, however, obtain such possession of the mind as to prevent it from acting; for the mind of the speaker may become so completely absorbed in the contemplation of his subject, as to be unable to enter upon its development. This forms a stumbling-block to many in attempting to become good speakers; and it frequently occurs with men of genius. He, therefore, who would speak well, must feel what he has to say with sufficient strength to express it with warmth and vivacity; but his feeling must not attain that vehemence which prevents the mind from acting, and paralyzes the expression, from its very fulness. In speaking, the feelings have to be resolved into ideas, thoughts, images; and these into words, phrases, language. The main idea of the subject has to be firmly grasped; and in its exposition it has to be divided into its principal parts or members, and these into subordinate parts; and so on until the subject is exhausted. The imagination is one of the most necessary faculties to the extempore speaker; it ought to be endowed with great quickness in the formation and variation of its pictures, and also with great clearness, in order to produce, at first effort, a well-marked image, the lines and outlines defined with great exactness, and the colors bright, so that language has only to reproduce it unhesitatingly and unconfusedly. In many men, even of talent, the imagination is not sufficiently ready and clear; it works too slowly, owing either to a natural deficiency, or, more frequently, to a want of practice. To many, again, the excitement of appearing in public is so great as to produce a certain incapacity of speaking, not unlike inability to walk from giddiness. The great means of getting over this is to feel perfectly sure of what you are going to say, and to have a clear conception of it. The public speaker requires to be able to think methodically; and for that purpose he ought to study logic, and the works of the best authors; he ought, also, to acquire such a mastery over his own thought, as to be able to decompose it into its parts, to analyze it into its elements, and then, at need, to re-compose, re-gather, and concentrate it again by a synthetical process. Now, this can be well done only by writing; and hence, one ought to begin by learning to write before he ventures to speak. In learning to write, one must write in imitation of the great masters of oratory. Writing gives wonderful clearness and intensity to thought, and enables us to look at a subject in every light. In the consideration of a subject, the best way is first to seize hold of the main idea, and regard it intently for some time, the different faculties of the mind concentrating themselves upon this single point; the subject is thus turned over in every direction, and viewed in all its aspects; its principal parts then come out and gradually separate themselves from each other, becoming more and more developed, until they reach their perfect form. The public speaker should have his mind well stored with information on a great variety of subjects, more particularly such as are regarded as forming part of a liberal education: for we can extemporize only what is already in the mind. It is of importance, too, that all we know be strongly conceived, firmly linked together, and carefully wrought out in such a way that, throughout all the diversity of knowledge, the mind, so far as may be, shall admit nothing save what it thoroughly comprehends, or, at least, has made its own, to a certain extent, by meditation. Further, in public speaking, thought has to be clothed in language; and some attention to this is likewise necessary, in order that the subject may appear in as favorable a dress as possible. For this purpose, one ought to cultivate assiduously that natural desire of communicating to others what he knows, and of making them see things in the same light that he sees them. The mind seizes upon a thing more quickly, and conceives it more clearly, when there is also present to the mind the idea of communicating it to another; and thus, also, a natural desire is fostered for public speaking. In the details of diction, at the moment of public speaking, great decision is necessary, in order to clothe the ideas in proper words as they fly past, and, amidst many unsuitable, to allow none but such as are proper to escape from the lips. The speaker, however, at first, ought not to be too nice in this respect; especially, when once he has begun a sentence or an idea, he ought to go on daringly to the end, even though he may have to take refuge in some incorrectness of language, or some unauthorized turn of expression. Decision, and even rashness, are necessary for him who would make a good public speaker. Finally, the understanding which sees rightly, and conceives clearly, and the heart which feels keenly, soon come to find naturally, and without effort, the words and the arrangements most analogous to what is to be expressed.

Extemporiza'tion, *n.* The art, or act of speaking without previous preparation: providing with unsuitable tools, or materials, that which is immediately necessary. — See EXTEMPORE SPEAKING.

Extem'porize, *v. n.* To speak, write, act, or provide without any suitable preparation; to do anything in a hasty, off-hand manner; to speak in public without written notes.

—*v. a.* To do anything without sufficient time, or proper material for the purpose.

Extem'porizer, *n.* One who speaks without previous study, or written notes; one who arranges anything without due previous notice.

Extend', *v. a.* [Lat. *extendere*, to stretch out.] To draw out; to prolong; to protract. — To extend; enlarge; widen; dilate. — To hold forth; to reach out; to bestow; to offer.

—*v. n.* To reach; to be contained in length or breadth.

"My goodness *extendeth* not to thee."—*Psalms.*

Extend'edly, *adv.* In an extended or enlarged manner.

Extend'er, *n.* One who extends; that which stretches.

Extend'ible, *a.* Capable of being enlarged, or widened; that may be expanded, or stretched.
Extensibil'ity, *n.* [L. Lat. *extensibilitas.*] Capacity of suffering extension.
Exten'sible, *a.* [Fr., from Lat. *extensibilis.*] That may be extended; susceptible of enlargement.
Exten'sibleness, *n.* Extensibility.
Exten'sile, *a.* Capable of extension.
Exten'sion, *n.* [Fr., from Lat. *extensio.*] Act of expanding, stretching, or reaching. — State of being expanded, stretched, or dilated. — That property of a body causing it to occupy place in space.
(*Logic.*) A term used in contrast to *comprehension*, and, as applied to a general notion, denoting the number of objects included under it. By detaching properties from a notion, we extend the list of objects to which it applies; by narrowing the sphere of a notion, the qualities which it comprehends proportionally increase. Thus, the greater the *E.* of common terms, the less the comprehension, and *vice versa*.
(*Com.*) An engagement by which a creditor allows to his debtor further time for payment.
Exten'sional, *a.* Having great extent.
Exten'sionist, *n.* He who favors the doctrine of extension.
Exten'sive, *a.* [L. Lat. *extensivus.*] Having great extent; wide; large; comprehensive; widely diffused. — Capable of extension.
Exten'sively, *adv.* Largely; to a great extent; as, a story *extensively* circulated.
Exten'siveness, *n.* Quality or state of being extended; largeness.
Exten'sor, *n.* [Lat.] (*Anat.*) Any muscle that serves to extend or straighten a member of the human body; — antagonistic to the *Flexor*, which bends the limbs or members.
Extent', *n.* [L. Lat. *extentum*, the thing drawn out, from *extendo.*] Space to which a thing is extended; compass; degree; bulk; size.
(*Eng. Law.*) An execution by which the body of the debtor and his property might be taken immediately to enforce due payment.
—In various States of the American Union the term is sometimes used to denote writs which give the creditor possession of the debtor's lands for a limited time till the debt is paid.
Exten'uate, *v. a.* [Lat. *extenuare*, from *ex*, and *tenuis*, lean.] To render thin, lean, or lengthy; to make long, or slender. — To lessen; to diminish.
—*v. a.* To become thin, subtle, or slender; to be drawn out, or extenuated.
Exten'uatingly, *adv.* By way of palliation, or extenuation.
Extenua'tion, *n.* [Fr., from Lat. *extenuatio*, from *tenuis*, thin.] Process of becoming thin; act of losing flesh; representation of anything as less wrong than is the fact; palliation; mitigation.
Exten'uator, *n.* One who palliates, or alleviates.
Exten'uatory, *a.* Leading to palliate, or lighten.
Exte'rior, *a.* [Fr. *extérieur*, from Lat. *exterior*, comp. of *exterus*, outside.] Outward; outer; foreign.
—Extrinsic; external, with reference to persons; as, "Without *exterior* aid he must now fail." — *Milton.*
E. angle. (*Geom.*) The angle included between any side of a polygon, and the prolongation of the adjacent one; also the angle formed on the outside of two parallel lines by a third line which crosses them. So, in Fig. 95, A F I, I F B, C H G, and C H D, are exterior angles.
—*n.* The outer surface; whatever is external; the visible deportment of a person; appearance.
—*n. pl.* The outward parts of anything; visible acts; external deportment; forms or ceremonies.
"While his *exteriors* were faultless, the heart was corrupt." *Johne.*
Exterior'ity, *n.* Outwardness; superficies; surface.
Exte'riorly, *adv.* Externally; on the outside.
Exter'minate, *v. a.* [Lat., from *ex*, and *terminus*, a limit.] To drive beyond the boundaries; to drive away; to root out; to exterminate; to take away.
Exter'minated, *p. a.* Destroyed; eradicated; taken away.
Extermina'tion, *n.* Total destruction; elimination.
Exter'minative, *a.* That which destroys, expels, or eradicates.
Exter'minator, *n.* One who destroys or expels, takes away or eradicates.
Exter'minatory, *a.* That leads to destroy.
Extern', *n.* [Lat. *externus*, outside.] A pupil belonging to an academy or college, but living beyond its bounds.
Exter'nal, *a.* Outward; exterior; visible; apparent; — Foreign; not connected with the home polity. — Having an outward appearance.
"The *external* act of idolatry." — *Stillingfleet.*
External'ity, *n.* Existence in space; exteriority; separation from the faculties of perception.
Exter'nally, *adv.* In appearance; outwardly; visibly.
Exter'nals, *n. pl.* Things not essential to the intrinsic value; outward show; ceremonies, &c.
Exterra'neous, *a.* [Lat. *ex*, and *terra*, land.] Coming from abroad.
Exterritorial'ity, *n.* The condition of being beyond the limits of a country.
"As his (the Pope's) *exterritoriality* prevents his holding an estate in the country." — *Peel.*
Exter'sion, *n.* [Fr., from Lat. *extersio*, a wiping out.] The act of rubbing or wiping out.
Extinct', *a.* [Lat. p. of *extinguere*, to put out, to extinguish.] Extinguished; quenched; put out. "*Extinct* as tow." (*Isaiah.*) — Terminated; closed; annihilated; abolished; destroyed.
Extinc'tion, *n.* [Fr., from Lat. *extinctio.*] The act of quenching, or suffocating light or fire. — State of being extinguished or quenched. — Destruction; annihilation; suppression; as, "The *extinction* of nations."
Ex'tine, *n.* (*Bot.*) The outer coat of a pollen-grain.
Extin'guish, *v. a.* [Lat. *extinguere*, to suppress or put out.] To suppress; to destroy. — To cloud; to obscure.
"Her virtues that *extinguish* art." — *Shaks.*
Extin'guishable, *a.* That may be quenched or destroyed.
Extin'guisher, *n.* One who puts out or extinguishes. A hollow conical instrument used to put out the light of a candle.
Extin'guishment, *n.* Act of extinguishing or putting out, or quenching; extinction; suppression; destruction; abolition; nullification; a putting an end to, or coming to an end; termination.
Extir'pable, *a.* That may be extirpated or eradicated.
Extir'pate, *v. a.* [Fr. *extirper*; Lat. *extirpo, extirpatus*; *ex*, and *stirps*, the lower part of the trunk of a tree, stock, root; probably allied to Stem, *q. v.*] To pull or pluck up by the roots; to root out; to eradicate; to destroy totally; to exterminate; to cut out; to cut off; to remove completely.
Extir'pated, *p. a.* Plucked up by the roots; rooted out; eradicated; totally destroyed.
Extirpa'tion, *n.* [Fr.; L. Lat. *extirpatio.*] Act of extirpating or rooting out; eradication; excision; total destruction; complete removal.
Extir'pator, *n.* [Lat.; Fr. *extirpateur.*] One who roots out; a destroyer.
Extir'patory, *a.* That roots out or destroys.
Extol', *v. a.* [Lat. *extollo* — *ex*, and *tollo*, to lift or raise up, to raise, from the root *tol*, allied to Gr. *tlaō*. See Tolerate.] To lift out or up; to raise up; to elevate; to raise in words or eulogy; to exalt in commendation; to praise; to laud; to magnify; to comprehend highly; to glorify.
Ex'ton, in *Pennsylvania*, a post-village of Chester co., about 28 m. W. of Philadelphia.
Extor'sive, *a.* Serving to extort; tending to draw from by compulsion.
Extor'sively, *adv.* In an extorsive manner; by violence.
Extort', *v. a.* [Lat. *extortus*, from *extorqueo* — *ex*, and *torqueo*, to turn, to twist. See Torture.] To twist or wrench out; to wrest away; to draw from by force or compulsion; to wrest or wring from; to take or gain by violence or oppression; to exact violently.
Extort'ed, *p. a.* Drawn or wrung from by compulsion.
Extor'tion, *n.* [Fr. *extorsion*, from L. Lat. *extortio.*] Act of extorting; act or practice of wresting anything from a person by force, duress, menaces, authority, or by any undue exercise of power; illegal exaction or compulsion; oppression; rapacity; oppressive exaction.
Extor'tionary, *a.* Pertaining to or implying extortion.
Extor'tioner, *n.* One who practises extortion.
Extor'tionist, *n.* An extortioner.
Ex'tra. [Lat., contracted from *extera* (*parte* being understood), from *exter*, outward, on the outside.] A Latin preposition noting something beyond or more than what is usual or agreed upon, and often used in composition; as, *extra*-judicial.
—*a.* Extraordinary; excessive; additional; as, *extra* work, *extra* pay, &c.
—*n.* Something extraordinary; additional; not included in the ordinary course or charges. (Colloq.)
Extract', *v. a.* [Lat. *extractus*, from *extraho* — *ex*, and *traho*, to draw. See Tract.] To draw out or forth; to draw from by any means or operation; to draw or bring out; to find out; to take out or from; to take out or select, as a part; to draw, write, or copy out.
Ex'tract, *n.* That which is extracted or drawn from something; a passage taken from a book; a quotation; an abstract.
(*Med.*) The name applied to preparations obtained in a variety of ways from vegetable sources. Sometimes they consist of the simple evaporated juices of the fresh plant, and at others of certain principles extracted from the fresh or dried plant by means of a menstruum capable of dissolving them. They are termed watery, alcoholic, acetous, or ethereal, according to the menstruum employed. The object is to preserve the principles from putrefaction, which is likely to occur while they remain associated with or dissolved in other portions of the plant. They are also thus more readily used in making pills, &c. Compound extracts are those which are prepared from several plants, and simple extracts from one only.
Extract'ed, *p. a.* Drawn or taken out.
Extract'ible, *a.* That may be extracted.
Extrac'tion, *n.* [Fr., from Lat. *extractio.*] Act of extracting or drawing out; derivation of persons from a stock or family; descent; lineage; genealogy; origin; birth.
(*Chem.*) The operation of drawing essences, tinctures, &c., from a substance.
(*Math.*) The operation that has for its object the discovery of the number, or root, which, when multiplied by itself a stated number of times, yields a given result.
Extract'ive, *a.* [Fr. *extractif.*] That may be extracted.
—*n.* An extract.
Extract'or, *n.* He or that which extracts or draws out.
Extradi'tion, *n.* [Fr.; Lat. *ex*, and *traditio*, from *trado, traditus*, to give or deliver up. See Tradition.] A giving up or surrender of; the delivery, under a treaty, of a criminal, by one government to another, to which he naturally belongs, with a view to trial and punishment. — The surrender of persons by one federal state to another, on its demand, pursuant to their federal constitution and laws. Treaties exist between the U. States, and England, France, Prussia, Austria, &c., for the mutual surrender of persons charged with murder, forgery, arson, or embezzlement.
Extra'dos, *n.* (*Arch.*) See Arch.
Extra-do'tal, *a.* (*Law.*) Same as Paraphernal, *q. v.*
Extra-folia'ceous, *a.* [Lat. *extra*, without, and *folium*, a leaf.] (*Bot.*) Away from the leaves, or inserted in a different place from them.
Extrage'neous, *a.* [Lat. *extra*, and *genus*, a kind.] (*Zoöl.*) Belonging to another kind.
Extra-judi'cial, *a.* [Lat. *extra*, beyond, and *judicium*, a judicial investigation; Fr. *extrajudiciaire.*] (*Law.*) Not belonging to the judge or to his jurisdiction, notwithstanding which he takes cognizance of it.
Extra-judi'cially, *adv.* In an extra-judicial manner.
Extra-mun'dane, *a.* [Lat. *extra*, and *mundanus*, from *mundus*, the world. See Mundane.] Beyond the limit of the material world.
Extra-mu'ral, *a.* [Lat. *extra*, and *muralis*, from *murus*, a wall.] Without or beyond the walls, as of a fortified city.
Extra'neous, *a.* [Lat. *extraneus*, from *extra*, without, beyond.] Foreign; not belonging to a thing; existing without; not intrinsic; irrelevant.
Extra'neously, *adv.* In an extraneous manner.
Extraor'dinaries, *n. pl.* Things which exceed the usual order, kind, or method.
Extraor'dinarily, *adv.* In an extraordinary manner; uncommonly; remarkably; unusually; particularly; eminently.
Extraor'dinary, *a.* [Fr. *extraordinaire*; Lat. *extraordinarius* — *extra*, and *ordinarius.* See Ordinary.] Beyond that which is ordinary or usual; beyond or out of the common order or method; not in the usual, customary, or regular course; unusual; unwonted; exceeding the common degree or measure; remarkable; uncommon; eminent; rare; wonderful; special; particular.
Extrav'agance, or Extravagancy, *n.* [Fr., from Lat. *extra*, and *vagans*, from *vago*, to wander. See Vagabond.] A wandering beyond bounds or limits; a going beyond the limits of strict truth or probability; excess of affection, passion, or appetite; any excess or wandering from prescribed limits or bounds of moderation; wildness; irregularity; excess; prodigality; profusion; wastefulness; dissipation; lavish expenditure.
Extrav'agant, *a.* [Fr., from Lat. *extra*, outside, and *vagus*, wandering] Exceeding due bounds; unreasonable; immoderate; unrestrained; uncontrolled; wild; excessive. — Profuse in expense; prodigal; wasteful.
Extrav'agant, *n.* One confined to no general rule.
Extrav'agantly, *adv.* In an immoderate, wild, or excessive manner.
Extrav'agantness, *n.* Excess; extravagance; immoderation.
Extravagan'za, *n.* [It.] (*Mus.*) A kind of wild, incoherent music.
(*Lit.*) A play composed regardless of rules, and generally of the burlesque kind.
Extrav'asate, *v. a.* [Lat. *extra*, outside, and *vas*, a vessel.] To cause the blood to flow out of its proper receptacles.
Extravasation, (*eks-trăv-ă-sai'shun,*) *n.* [Fr., from Lat. *extra*, and *vas*, a vessel.] (*Surg.*) Applied to fluids which are out of their proper vessels or receptacles. Thus, an *E.* of blood takes place when an artery or vein is injured, and the blood escapes into the cellular membrane; and an *E.* of urine, when, in consequence of a wound or ulceration, that fluid makes its way into the cellular substance, or among the abdominal viscera. *E.* is distinguished from exudation, in that, in the latter case, the walls of the vessels remain entire, and the fluids escape by secretion. It is nearly synonymous with effusion, but is not so comprehensive. The discoloration that follows contusions is occasioned by the *E.* of blood into the cellular tissue under the skin, from the rupture of small blood-vessels. When the ruptured vessel is large, or situated in a delicate part of the body, as in the brain, *E.* is usually fatal.
Extra-vas'cular, *a.* The blood is said so to be, when, from any cause, it is outside the proper vessels.
Extreme', *a.* [Fr. *extreme*, from Lat. *extremus.*] Outermost; at the utmost point or border; furthest. — Last; conclusive; final. — Extended, or contracted to the last extent.
Extreme', *n.* The part which terminates a body; the outer verge or point of anything.
(*Logic.*) This word is synonymous with *term*, when used in reference to a proposition. The subject and predicate are the two extremes of a proposition, the copula being, as it were, placed between them. In speaking of a syllogism, the extremes are understood to mean the extremes or terms of the conclusion.
(*Mus.*) A word employed in describing those intervals in which the diatonic distances are increased or diminished by a chromatic semitone.
Extreme'less, *a.* Infinite.
Extreme'ly, *adv.* To the utmost degree, or point.
Extreme Unction, *n.* [Lat. *extremus*, last, *unctio*, an anointing.] One of the seven sacraments of the Roman Catholic Church, founded on the passage in the epistle of St. James: "Is any sick among you? Let him call for the elders of the church, and let them pray over him, anointing him with oil in the name of the Lord." (v. 14.) The rite is called "extreme" unction because administered only to persons at the point of death. It is supposed to purify the soul of the dying person from any sin he may have committed, which has not been previously expiated by participation in the other means of grace, and to give him strength and grace for the last struggle. It is administered by the

priest, who, dipping his thumb in the holy oil, anoints the sick person in the form of the cross, upon the eyes, ears, nose, mouth, hands, and feet, each time saying, — "Through this holy unction, and his most tender mercy, may the Lord pardon thee whatever sins thou hast committed, by thy sight, (hearing, &c.) Amen." The holy oil is blessed by the bishop with much ceremony every year on Maundy-Thursday. The Council of Trent passed several canons on this subject, declaring it to be truly and properly a sacrament instituted by Jesus Christ.

Extrem'ist, *n.* One who maintains extreme doctrines or opinions.

Extrem'ity, *n.* [Fr. *extrémité*, from Lat. *extremitas.*] The utmost point or points. — The highest or greatest degree; as, "Uncharitable to the *extremity*." (*Locke.*) — The utmost distress, straits, rigor, difficulty, or violence; the most aggravated state; as, "The last *extremities* of war." — *Dryden.*

—*pl.* (*Paint. and Sculp.*) The head, the hands, and the feet. (*Zoöl.*) The arms and legs, and analogous members in lower animals.

Ex'tricable, *a.* [Lat. *extricabilis.*] That may be freed or extricated.

Ex'tricate, *v. a.* [Lat. *extricare*, from *ex*, and *tricare*, hinderances.] To free from difficulties, impediments, or embarrassments; to disentangle; to relieve; to set free; to send out.

"Giving to nature a chance to *extricate* herself." — *Addison.*

Extrica'tion, *n.* Disentanglement; freeing from perplexities. — Act of sending out, or evolving.

"Made rather by transmutation than *extrication.*" — *Boyle.*

Extrin'sic, or **Extrin'sical,** *a.* [Fr. *extrinsèque*; Lat. *extrinsecus.*] External; outward; extraneous; foreign; not belonging to a body.

Extrinsical'ity, *n.* Externality.

Extrin'sically, *adv.* In a manner not essential to the subject, or foreign thereto.

Extro'itive, *a.* [Lat. *extra*, outside, and *ire*, to go.] Seeking things entirely objective.

Extro'pium, *n.* (*Surg.*) See ECTROPIUM.

Extrorse', or **Extror'sal,** *a.* (*Bot.*) Denoting the direction of bodies, from the axis to which they appertain; thus anthers, whose line of dehiscence is towards the petals, are said to be *extrorse.*

Extrover'sion, *n.* [Lat. *extra*, ontside, and *versio*, a turning.] (*Surg.*) One of those malformations of the body in which a part is, as it were, turned wrong side ontward.

Extrude', *v. a.* [Lat. *extrudere*, to push, or thrust out.] To drive, force, urge, or press out, or away.

"The sea had been *extruded* by the mud." — *Woodward.*

Extru'sion, *n.* Act of throwing, or driving out; expulsion.

Extu'berance, or **Extu'berancy,** *n.* [Lat. *ex*, and *tuber*, a rising, or swelling.] A protnberance of any part of a body.

Extu'berant, *a.* Swollen, jutting, or standing out.

Exu'berance, or **Exu'berancy,** *n.* [Fr., from L. Lat. *exuberantia*, from *ex*, and *uber*, an adder.] Abundance; excess; overflowing quantity; luxuriance; richness; superfluity; plenty.

"In his similes, *exuberance* is avoided." — *Garth.*

Exu'berant, *a.* Over-abundant; superfluous: luxuriant; plenteous: rich; as, "*exuberant* spring."—*Thomson.*

Exu'berantly, *adv.* Abundantly; plenteously; copiously. — To a superfluous degree.

Exuda'tion, *n.* [L. Lat. *exsudatio*, from *ex*, and *sudare*, to send.] The act of sweating; a discharge of humors or moisture by the pores. — The substance discharged by sweating.

Exude', *v. a.* [Fr. *exsuder*; from Lat. *exudo* — *ex*, from, and *sudo*, to sweat.] To discharge by the pores; to throw out; as, a tree *exudes* gum.

Exude', *v. n.* To flow trom the pores, or as the sap flows from certain trees.

Exul'cerate, *v. a.* [Fr. *exulcérer*, from Lat. *exulcero*, *exulceratus* — *ex*, from, and *ulcero*, to ulcerate.] To ulcerate. —To irritate; to fret; to exasperate.

Exulcera'tion, *n.* [Fr., from Lat. *exulceratio.*] The act or process of becoming ulcerous, or of causing ulcers on a body.

Exult', *v. n.* [Lat. *exultare*, from *ex*, and *salio*, to leap.] To leap, jump, frisk, or gambol for joy; to rejoice in success; to be over-glad; to triumph.

Exul'tant, *a.* Transported; triumphant; exceedingly rejoiced.

Exulta'tion, *n.* [Fr., from Lat. *exultatio.*] Triumph; transport; rapture; delight; joy at success or victory.

Exult'ingly, *adv.* In a joyous or triumphant manner.

Exu'ma, (GREAT and LITTLE,) two of the Bahama Islands, the larger of which possesses one of the best harbors in those islands; Lat. 23° 30′ N., Lon. 75° 50′ W.

Exun'gulate, *v. a.* [Lat., from *ex*, and *ungula*, the claw, or hoof.] To pare, or remove the nails of a dog.

Exult'ance, *n.* Transport; exceeding joy; triumph; exultation.

Exult'ancy, *n.* Same as exultance. (R.)

Exus'tion, *n.* [Lat., from *exurere*, to burn up.] The act or operation of burning up.

Exu'tory, *n.* (*Med.*) A small ulcer produced by art, either by the aid of caustics or of cutting instruments, the discharge of which is kept up with a view to fulfil certain therapeutic indications.

Exuviabil'ity, *n.* Capability of casting the skin at regular intervals.

Exu'viable, *a.* [Fr., from Lat. See INFRA.] Capable of being cast off, as *exuviæ*, q. v.

Exuviæ, (*eks-u've-e,*) *n. pl.* [Lat., that which is cast off.] (*Zoöl.*) The cast-off scarf-skin or external layer of the integument of any animal, reptile, or shell-fish, which is "shed." The films of *mucus* thrown off by most molluscs and zoöphytes must also be regarded as *E.* Insects shed the whole integument several times in succession. Shell-fish usually cast away the external shell yearly. Fishes seem to cast off exuvial layers of mucus only; but most reptiles periodically moult the epidermis either entire or in large coherent masses. The rattlesnake is described as actually inverting and drawing off its own skin. The moulted feathers of birds, the hairs of various species of mammalia, and the small scales of scarf-skin which are incessantly cast off by man, may be regarded as exuvial deposits.

Exu'vial, *a.* Containing cast-off skins or coverings of animals.

Exuvia'tion, *n.* The process by which certain of the animal creation cast off their skins, or shells, and form a new one.

Ex viscer'ibus. [Lat.] From the vital part; the very essence of the thing.

Ex vo'to. [Lat.] After one's wishes; according to a vow.

Ey, Ey'et, Ey'ot, *n.* [Probably from A. S. *ig*, an island.] A small island. (o.) See AIT.

Eyafialla-Yokul, (*i-a-fe-al'la-yo'kool,*) a volcano of Iceland, about 15 m. S.E. of Mount Hecla.

E'yas, E'yas-musket, (*i'as,*) *n.* [Fr. *niais*, probably from Lat. *nidicus*, a nestling, from *nidus*, a nest.] A young hawk just from the nest, and not able to prey for itself.

Eye, (*ī,*) *n.* [Sax. *eage*, *ege*; O. Sax. *oga*; Ger. *auge*; O. Ger. and Icel. *auga*; Du. *oog*; Dan. *öie*, the eye. From O. Mid. High-Ger. *ougen*, Goth. *augjan*, to show. Sansk. *akshi*, the eye, *gavaxa*, a hole, window, *xana*, twinkling, from *ix*, to see. Arab. *ayn*; Heb., Syr., and Æthiop. *ain*, the eye; Fr. *œil*; Lat. *oculus.*] The organ of vision; the medium of the sense of sight. See, below, § *Physiol.*

—Sight; ocular knowledge.

"Who hath bewitched you, that you should not obey the truth, before whose *eyes* Jesus Christ hath been evidently set forth." *Gal.* iii. 1.

—Look; countenance.

"I'll say yon grey is not the morning's *eye*,
'Tis but the pale reflex of Cynthia's brow." — *Shaks.*

—Front; face.

"To justify this worthy nobleman,
Her shall you hear disproved to your *eyes*." — *Shaks.*

—Aspect; regard.

"His *eyes* shall not be evil towards his brother." — *Deut.*

—Notice; observation; vigilance; watch.

"But stay, and ever keep me in your *eye*." — *Dryden.*

—Opinion formed by observation.

"Though he in all the people's *eyes* seemed great,
Yet greater he appear'd in his retreat." — *Denham.*

—Anything formed like an eye; as, "the *eye* of the peacock's feather." — *Newton.*

—Any small perforation; as, the *eye* of a needle.

—A small catch into which a hook goes. — Bud of a plant. — A small shade of color.

"Red with an *eye* of blue makes a purple." — *Boyle.*

—Power of perception.

"A gift doth blind the *eyes* of the wise." — *Deut.* xvi. 19.

(*Physiol.*) The organ of vision or sight; in man, quadrupeds, and other vertebrates, it is properly the globe or ball movable in the orbit. — The human eye is an organo-physical apparatus, which has, by means of a system of collective media, the property of casting real images of objects on the retina; the impression of which is conducted by the fibres of the optic nerve to the brain, where consciousness is enforced. As a mere piece of mechanism, the world nowhere furnishes such a beautiful and complex piece of machinery in so small a space. As an optical instrument, it is perfect beyond imitation. It is a spherical body, consisting of three tunics, (the *sclerotica*, with its transparent anterior part the *cornea*, the *choroid* with the *iris* and *ciliary processes*, and the *retina*, — and three refracting media or humors — the aqueous, the lens, and the vitreous.) (Fig. 980.) The organ of vision consists essentially in the

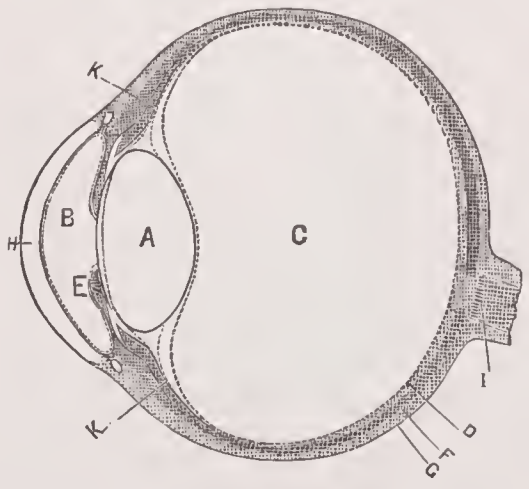


Fig. 980.

A, Lens; B, Aqueous humor; C, Vitreous humor; D, Retina; E, Iris; F, Choroid; G, Sclerotica; H, Cornea; I, Optic nerve; K, Ciliary process and muscle.

membranous expansion of the peripheral extremity of the optic nerve, called the *retina.* It is a delicate membrane, concave, with the concavity directed forward; semi-transparent when fresh, but soon becoming clouded and opaque. It consists partly of nervous elements, partly of modified connective tissue, which envelops and holds together the former. The *choroid*, which is the next tunic of the eye, consists of a thin and highly vascular membrane, of which the internal surface is covered by a layer of black pigment cells. The principal use of the choroid is to absorb, by means of its pigment, those rays of light which pass through the transparent retina, and thus prevent their being again thrown upon the retina and interfere with the distinctness of the images there formed. Certain transparent refracting media are placed in front of the retina for the purpose of collecting together into one point the different divergiug rays emitted by each point of the external body, and of giving them such directions that they shall fall on corresponding points of the retina, and thus produce an exact image of the object from which they proceed. Without this optical apparatus before the retina nothing distinctly could be perceived. These refracting media are the cornea, the aqueous humor, the crystalline lens, and the vitreous humor. The *cornea* is a dense, perfectly transparent substance, convex anteriorly, concave posteriorly, and composed of fibrous tissues arranged in numerous distinct laminæ. Behind the cornea is a space containing a thin watery fluid, the *aqueous humor.* This space is divided into two chambers, the anterior and the posterior, by a membranous partition, the *iris*, whose muscular fibres have a direction for the most part radiating from the circumference towards the central aperture, the *pupil*; but as they approach the pupillary margin they assume a circular direction, and at the very edge form a complete ring. By the contraction of the radiating fibres, the size of the pupil is enlarged, and by the contraction of the circular ones it is diminished. The posterior surface of the iris is coated with a layer of dark pigment, so that no rays of light can pass to the retina, except such as are admitted through the aperture of the pupil. The object effected by the movement of the iris is the regulation of the quantity of light transmitted to the retina. Behind the aqueous humor and the iris is seated a doubly convex body, the *crystalline lens*, which is the most important refracting structure of the eye. It consists of fibres united side by side to each other, and arranged in laminæ. It increases in density, and, consequently, in power of refraction, from without inwards, the central part, usually termed the *nucleus*, being the most dense. The density of the lens increases with age; it is comparatively soft in infancy, but very firm in advanced life. It is more spherical at an early period of life than in old age. Behind the lens is the vitreous humor, which constitutes nearly four-fifths of the whole globe of the eye, and fills up the space between the retina and the lens. It is a soft, jelly-like, transparent substance. It probably exercises some share in refracting the rays of light to the retina; but its principal use appears to be that of giving the proper distention to the globe of the eye, and of keeping the surface of the retina at a proper distance from the lens. All the contents of the ball of the eye are surrounded and kept in position by a dense fibrous external investment, termed the *sclerotica*, which also serves to give attachment to the various muscles by which the movements of the eyeball are effected. The essential constituents of the optical apparatus of the eye are: a nervous structure to receive and transmit to the brain the impressions of light; certain refractory media for the purpose of so disposing of the rays of light passing through them, as to throw a correct image of an external body on the retina; and a contractile diaphragm with a central aperture for regulating the quantity of light admitted into the eye. To consider the manner in which a sharply-defined image of an external body is received upon the retina, we may regard the eye as a camera-obscura, upon the screen (retina) of which is formed a diminished and inverted image of the object. The impression of the object upon the retina is conveyed through the optic nerve to the brain, and projects back again in an inverted direction outwards to the object. The refractive media — the cornea, aqueous humor, crystalline lens, and vitreous humor, which form the dioptric system of the eye — act as a biconvex lens, and cause the refraction in the normal eye of rays which emanate from a distant object so that they are brought to an exact focus upon the retina. (See Fig. 981.) The power of the eye to see clearly at different

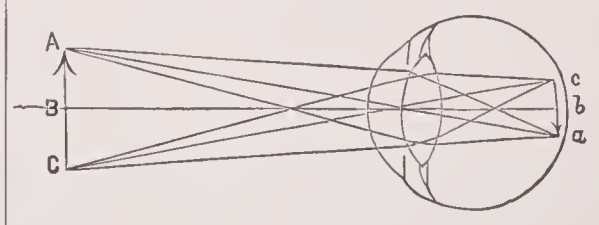


Fig. 981.

distances presupposes the power of voluntarily shortening and lengthening the focal distance of the dioptric apparatus, so as to correspond to the differences in the posterior point of convergences, which are caused by the variation of the distance of the object. This variation in the amount of adjustment of the dioptric apparatus is caused solely by changes of curvature of the lens through the action of the ciliary muscle, and great elasticity of the lens. This power of the eye to so adjust itself for different distances is called the *power of accommodation*, and in the normal eye the whole apparatus of accommodation is so beautifully arranged and balanced that its functions are performed with ease and accuracy unconsciously. The eye, in animals, though presenting chiefly in mammals the same general composi-

tion as in man, differs from it in several points, more or less important, so as to meet the peculiar wants of the animal. So the eyes of the cat, the owl, and of nocturnal animals generally, are somewhat different from those of such animals as seek their prey by daylight; and even these have special peculiarities, as in the eagle, who has a membrane to protect the organ from the sun when he looks upwards. The eye of the fish is again differently constituted, to adapt it to the medium in which it lives, and the density of the water in which it is accustomed to reside. Such fish as keep on the surface of the water have a peculiar adaptation of the organ, or a double eye, one-half being adapted to the medium of the air, and the lower half for the denser one of water. The eye, according to the requirements of the animal, is either placed in front, as in man, or more or less to the side and backwards, as the habits or nature of the animal demand. In the more timid and fugitive, where instant escape from danger demands instant and far-off knowledge, the eye is large, prominent, and so placed that the animal can, without the movement of the head, see behind as well as in front and sideways. The best examples of this peculiar and admirable construction is found in the hare, and the eye of the giraffe (Fig. 982), which, it will be seen from the annexed cut, is so placed in the head and orbit, that, while running, the animal is still able to observe its enemy, without turning the head, to note how near or remote is its pursuer.



Fig. 982. — GIRAFFE'S HEAD.

Eye, *v. a.* To fix the eye on; to look on; to view; to observe; particularly, to observe or watch narrowly.

Eye, a town and parish of Suffolk, England, 20 m. from Ipswich; *pop.* 8,775.

Eye'ball, *n.* The ball, globe, or apple of the eye.

Eye'bolt, *n.* (*Shipbuilding.*) A pointed iron bar with a hole at the thick end. It is intended to be driven into one of the timbers, and then to have a rope passed through the hole.

Eye'bright, *n.* (*Bot.*) A beautiful little species of plant, genus *Euphrasia*, formerly much used as a remedy for diseases of the eye.

Eye'brow, *n.* The brow or hairy arch above the eye.

Eyed', *a.* Having eyes.

Eye'-glass, *n.* A glass to assist the sight; spectacles.

Eye'lash, *n.* The line of hair that edges the eyelid.

Eye'less, *a.* Wanting eyes; destitute of sight.

Eye'let, or EYELET-HOLE, *n.* [Fr. *œillet.*] A small eye, hole, or perforation, to receive a lace, small rope, or cord.

Eye'lid, *n.* The cover of the eye; that portion of movable skin with which an animal covers or uncovers the eyeball at pleasure.

Eye'-piece, *n.* (*Optics.*) An eye-piece, or *power*, as it is sometimes called, is the lens or combination of lenses used in microscopes or telescopes to examine the aërial image formed at the focus of the object-glass. The ordinary eye-piece is a combination, and may be either *positive* or *negative*. The former consists of two plano-convex lenses, with their convex sides towards each other; and is used for micrometers. The negative, or Huygenian, consists of the same lenses with the convex sides turned away from the eye. Besides these there are in use, for observations of the sun, a *diagonal eye-piece*, in which a very small percentage of the sun's light and heat is reflected from the first surface of a prism, the rest being transmitted; and *Dawes' solar eye-piece*, in which the light is reduced by observing only an extremely minute portion of the solar surface. Steinheil and Kellner have also contrived eye-pieces; they, however, are not in such general use. The eye-piece of opera-glasses consists of a combination of bi-concave lenses — an arrangement which is almost out of date as applied to telescopes, although occasionally it may be used with advantage. — All these eye-pieces, except the last-mentioned, invert. The *terrestrial* or *erecting eye-piece* is a combination of four lenses, used for terrestrial telescopes.

Eye'-salve, (*-sǎv,*) *n.* Ointment for the eye.

Eye'-serviee, *n.* Service performed only under the inspection or the eye of an employer.

Eyer's Grove, in *Pennsylvania*, a P.O. of Columbia co.

Eye'sight, *n.* The sight of the eye; view; observation; the sense of seeing.

Eye'sore, *n.* Something offensive to the eye or sight.

Eye'-tooth, *n.* A tooth under the eye; a pointed tooth in the upper jaw next to the grinders, called also a *canine tooth;* a fang.

Eye'-water, *n.* A medicated water for the eyes.

Eye'-witness, *n.* One who sees a thing done; one who has ocular view of anything.

Eylau, (*ī'low,*) a town of Prussia, on the Pasmar, 20 m. from Königsberg. Here, Feb. 8, 1807, Napoleon I. defeated the Russian and Prussian armies. The action was commenced by Augereau, whose division was defeated with immense slaughter; but Napoleon coming to the rescue, the fortunes of the day were retrieved, and the allies compelled to retire to Königsberg. The loss of life was unusually great, though, from the discrepancy in the reports, it is difficult to arrive at a positive computation.

Eyre, *n.* [O. Fr., from Lat. *ire*, to go.] (*O. Eng. Law.*) A journey or circuit; a court of itinerant justices.

Eyry, or EYRIE, (*ī're,*) *n.* [Teut. *ey*, an egg. See AERIE.] An eggery; a nest for eggs; the place where birds of prey construct their nests and hatch; an aerie.

Ezekiel, (*e-zē'ke-el.*) [Heb., God strengthens.] (*Script.*) One of the canonical books of the Old Testament. It is named after its author, *E.*, who was carried captive to Babylon by Nebuchadnezzar, B. C. 598, and placed by the river Chebar. He prophesied for 20 years, B. C. 595 to 575, till the 14th year after the final captivity of Jerusalem. The Book of *E.* abounds with sublime visions of the divine glory, and awful denunciations against Israel for their rebellious spirit against God, and their abominable idolatry. It naturally divides itself into two equal parts: the first containing oracles before the fall of Jerusalem; the second, oracles after that event, — the catastrophe in question forming the centre and culminating point of the book. In the first part we have an account of Ezekiel's call to the prophetic office; a circumstantial announcement of the destruction coming upon Judah and Jerusalem, on account of the wickedness of the people; visions and prophetic discourses relating to the rejection of the covenant people, with a description of the guilt of the people, their rulers, priests, and false prophets, and several discourses reproving the idolatry of the people, and proclaiming the destruction of Jerusalem and its people. In the second part we have prophecies against the Ammonites, Moabites, Edomites, and Philistines; against Tyre, Sidon, and Egypt; respecting the restoration of the theocracy, the future salvation of Israel, in its conditions and basis, and in its development, from the reanimation of the people to their victory over all the enemies of the divine kingdom; and, finally, the renewal and glorification of the theocracy in the Messianic period. There are so few grounds for doubting the genuineness of this book, that its authenticity has been very little called in question.

Ez'ra, son of Seraiah, a priest of the Jews, and a descendant of Aaron. He was carried captive to Babylon by Nebuchadnezzar. Artaxerxes Longimanus, however, sent him to his own country with a colony of the Jews, and all the sacred vessels and ornaments of the temple, which he had in charge to rebuild. On his arrival at Jerusalem, 458 B. C., he set about the reformation of abuses, particularly one of strange marriages. He restored the whole canon of the Old Testament. There is in the Bible a book under his name, and in the Apocrypha two others. Josephus says that he died at Jerusalem; but others assert that he returned and ended his days in Persia.

Ezra, (Book of.) (*Script.*) One of the canonical books of the Old Testament. It is generally attributed, both by Jews and Christians, to the priest whose name it bears; chiefly since, in ch. 8 and 9, the actions of *E.* are related in the first person. It is a continuation of Jewish history, from the close of the Book of Chronicles; giving an account of the return of the Jews from the time of Cyrus; with an account of his own subsequent proceedings. The events narrated in the book occupy a period of about 79 years (B. C. 536–457). It contains the edict of Cyrus, permitting the Jews to return into Judea and rebuild the temple, with an account of the people who first returned under the leadership of Zerubbabel, and of their offerings toward rebuilding the temple; the commencement of the building; the hinderances from the Samaritans; the finishing and dedication of the temple in the sixth year of Darius Hystaspes; the departure of Ezra from Babylon, with a commission from Artaxerxes Longimanus, with an account of his companions, and arrival at Jerusalem; and, finally, a narrative of the reformation effected by him. There are two apocryphal books of that name (see ESDRAS), and the Book of Nehemiah is sometimes called the *Second Book of E.*, the two having been at one time connected together.



E.—SECTION II.

EARL — EAST

Each'where, *adv.* Everywhere (R.).

Eads (*eedz*), JAMES BUCHANAN, LL.D., civil engineer, was born at Lawrencebnrg, Ind., May 23, 1820; was a natnral mechanic from boyhood. While a mere child he constructed a toy steamboat, and shortly thereafter devised and patented a diving apparatus which proved very successful and profitable. He was an important factor in constructing the ironclad river boats used on the Mississippi river (1861–62); was designer and engineer in charge of the construction of the great St. Louis bridge across the Mississippi (finished 1874); constructed the jetties at the mouth of that river (1875–79); and afterward made plans for the building of a ship railway across the isthmns of Tehuantepec. He was the first American to whom the Albert Medal was awarded (1884). Died at Nassau, Bahamas, March 8, 1887.

Ea'gle, JAMES P., politician, born in Maury co., Tenn., Aug. 10, 1837, bnt lived in Arkansas after 1839; entered the Confederate army (1861) as a private, and rose to the rank of lientenant-colonel; was ordained a Baptist clergyman (1870), and at four different periods was a member of the Arkansas Legislature, also chosen as Speaker of the House, and was twice (1888–1890) elected Governor of Arkansas.

Eagle, in *Colorado*, a N. W. cen. co.; *area*, 1,600 sq. m. Drained by Grand river and smaller streams. *Surface*, monntainous. *Minerals*, gold, silver, lead, iron and copper. *Capital*, Redcliff. *Pop.* (1890) 3,725.

Eagle River, in *Wisconsin*, a post-village, cap. of Vilas co., on Chic. & N. West. R. R., 20 m. N. E. of Rhinelander. *Pop.* (1895) 1,454.

Ea'kins, THOMAS, genré and portrait painter, born in Philadelphia, 1844; stndent in the Pennsylvania Academy, where he was afterward professor of painting; also studied with Gêrôme and Bonnat, Paris. Much of his attention has been given to photography and the study of anatomy.

Eames, EMMA, opera-singer, born in China in 1868. Her parents were natives of Boston, where she afterward lived. Went to Paris (1883) for the purpose of stndy, and made her débnt there at the Opera (1889); made a brilliant success in New York as one of Abbey's company, especially as *Marguerite*, in *Faust;* was married (1891) to Julian Story, an artist and son of the sculptor, W. W. Story.

Ear of Dionys'ius. A large funnel, or shell, with flexible tube, for concentrating sonnd; a kind of ear-trumpet: so called from a device of the Syracusan tyrant, Dionysius, to enable him to hear in his palace the prisoners in his dnngeons.

Ear'-cockle. (*Agric.*) The name of a cnrious disease in wheat, in which the grain becomes blackened and contracted and mealy within from the presence of myriads of worms belonging to the genus *Vibrio*. The little animals are extremely tenacions of life; and though apparently rednced to dust, when steeped in warm water for a short time, and afterward dried for many months, they recover their former activity. The disease not only impairs the valne of the wheat, but the little worms are very annoying to the miller from filling up the pores of his bolting-cloths. The affection, also called *Purples*, is local, and qnite nnknown in many parts of the U. S.

Ear'-drop, Lady's, *n.* (*Bot.*) A common name of the fuchsia.

Ear'-forceps, *n.* A pronged instrument for removing objects from the ear.

Earle, PLINY, physician and alienist, was born at Leicester, Mass., Dec. 31, 1809; graduated from the medical department of the University of Pennsylvania (1837); was resident physician at the Frankford Insane Asylnm (Friends'), Philadelphia (1840–42), and at Bloomingdale, New York, (1844–49); superintendent of the Massachnsetts State Hospital for the Insane (1864–85). At intervals between 1837 and 1871, he travelled extensively in Enrope, studying the methods of treating the insane, and his published works on this subject are many and valuable. Died at Northampton, Mass., May 18, 1892.

Earl'ington, in *Kentucky*, a post-town of Hopkins co., on L. & N. R. R., 4 miles S. of Madisonville; has railroad repair shops and manuf. of coke and wine. There are coal mines near by. *Pop.* (1897) about 2,000.

Ear'ly, JUBAL ANDERSON, lawyer and soldier, born in Franklin co., Va., Nov. 3, 1816; gradnated from West Point in 1837, and studied law, bnt served in the Mexican War as a major; joined the Confederate army in 1861; soon rose to the rank of major-general and took part in the battle of Gettysburg (1863), an invasion of Maryland (Jnne, 1864), the engagements at Winchester and Fisher's Hill, Va., (Sept. 19–20, 1864) and Cedar Creek (Oct. 19, 1864), being defeated by Sheridan in the last three fights. After the war, resumed the practice of law at Richmond and Lynchburg; died at the latter place on March 2, 1894.

Ear'-muff, *n.* A protective cap or covering for the ear.

Earn'est, *v. a.* To employ earnestly; to serve as a pledge of.

Ear'-reach, *n.* Distance at which sounds may be heard.

Earth'-auger, *n.* (*Mech.*) An earth-borer; a form of auger revolving in a cylindrical case, with a valve that opens to admit the cnt earth, and closes to retain it when the tool is withdrawn.

Earth'-battery, *n.* (*Elec.*) A voltaic couple of zinc and copper buried a certain distance apart, on which the moisture of the earth acts as the exciting fluid, prodncing a feeble current.

Earth'-crab, *n.* (*Entom.*) The mole cricket.

Earth'-hog, or **Earth-pig,** *n.* (*Zoöl.*) The aard-vark (*q. v.*).

Earth'-oil, *n.* Rock-oil, or petroleum.

Earth'-smoke, *n.* (*Bot.*) The fumitory, *Fumaria officinalis*. (North. Eng.).

Earth'-treatment, *n.* (*Surg.*) The treatment of wounds with finely pulverized earth, or clay, which acts as a deodorizer, checks putrefaction and promotes healing.

Earth-wire, *n.* (*Elec.*) A wire for making electrical connection with the earth; especially for conveying leakage from a telegraph line.

Earth'worms. (*Geol.*) It is our purpose to speak here of the geological importance of these humble animals. This was long ago appreciated by Jenner and Gilbert White, but was very fully realized after the careful observations of Darwin. White, in 1777, wrote: "Worms seem to be the great promoters of vegetation, which wonld proceed but lamely withont them, by

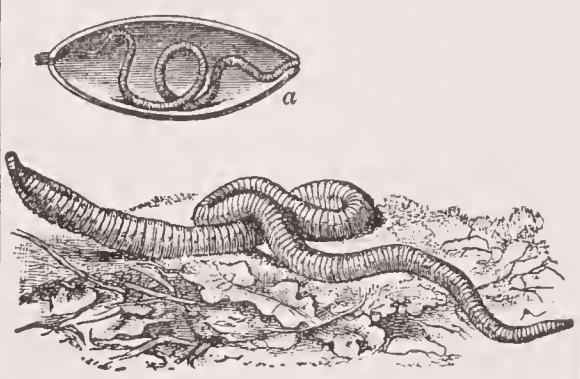


Fig. 2858.—COMMON EARTHWORM.
a.—Young worm emerging from the cocoon.

boring, perforating, and loosening the soil, and rendering it pervions to rains and the fibres of plants, by drawing straws and sticks of all kinds into it; and, most of all, by throwing up such infinite numbers of lumps of earth. . . Worms probably provide new soils for hills and slopes where the rain washes the earth away. The earth without worms would soon become cold, hard-bound, and void of fermentation; and consequently sterile." Darwin says, in the same vein: "It may be doubted whether there are many other animals which have played so important a part in the history of the world as have these lowly-organized creatnres." Darwin's observations, some of which lasted for thirty years, and which were made with the most patient perseverance, fully substantiate the quotations above given. Worms burrow into the soil and open innumerable channels for the raindrops and the roots of plants; they bruise the particles of soil in their gizzards, extract the nutriment, and cast out the mineral elements; their castings continually cover the surface with soil-substance brought up from below; they act the part of plows, turning the earth up and over and over again; the soil of the far past was largely dne to them, and their labors still continue unceasingly. Vegetable soil, no donbt, accnmnlates in some localities without much aid from worms. Richthoven has shown that the constant rain of dust has its value in making new soil, but with all this, in many localities, at least, earthworms play a highly necessary part as soil makers. In considering this, we must take into account the vast nnmbers of these animals. Darwin estimated that an acre of garden soil contains, on an average, 53,000 of them, and that ten tons of soil per acre pass annually through their bodies. They are steadily engaged in bringing up monld from the under soil to the surface, and add to the surface soil at the rate of an inch in thickness in five years: This labor is of the utmost value to agriculture, renewing the valuable mineral constituents of the surface soil as they are exhausted by plant growth and carried down by the rains. Darwin found also that the worms were surface scavengers, leaving their holes at night to explore the surface, and drawing down with them innumerable bits of scattered material to enrich the soil. His observations showed also that the archæologist owes a debt of thankfulness to the worm, which has buried and preserved many an interesting piece of antique material, such as Roman pavements and other relics of the past. See Darwin's work, *The Formation of Vegetable Mould through the Action of Worms*.

Ear'wise, *adv.* By way of the ear.—After the manner of an ear of corn.

Ear'-worm, *n.* (*Entom.*) The ball worm, or corn worm.

East Bangor, in *Pennsylvania*, a post-borongh of Northampton co., on Bangor and Portland R. R., 6 m. S.W. of Portland; has extensive slate mines and manuf. of marble and roofing slate. *Pop.* (1897) about 600.

East Carroll, in *Louisiana*, a N. E. parish; *area*, 400 sq. m. Bounded on the east by the Mississippi river and drained by the Tensas and Bayou Macon. *Surface* extensively covered with forests of ash, cypress, gum, &c. *Soil*, fertile; cotton is the staple product. *Cap.* Lake Providence. *Pop.* (1890) 12,362.

East Chicago, in *Indiana*, a post-town of Lake co., on Penna. R. R., 23 m. E. of Chicago. *Pop.* (1897) abt. 1,850.

East Con'emaugh, in *Pennsylvania*, a borough of Cambria co., near former borough of Conemaugh. It has furnaces for the manufacture of spiegeleisen. *Pop.* (1897) about 2,000.

East Dubuque', in *Illinois*, a city of Jo Daviess co., 16 m. N. W. of Galena, on Chic., Burl. and Quincy and Ill. Cent. R. Rs.; has a planing mill, a box factory, a grain elevator and manufactnres of seed drills and cultivators. *Pop.* (1890) 1,069.

East Grand Fork, in *Minnesota*, a city of Polk co., 23 m. N.W. of Crookston, on Nor. Pac. and Gt. Nor. R.Rs. *Pop.* (1895) 1,443.

East Green'ville, in *Pennsylvania*, a post-borongh of Montgomery co., 23 m. N.W. of Norristown, on Perkiomen R.R.; has manufactures of cigars and cigar-boxes. *Pop.* (1897) about 600.

East Jor'dan, in *Michigan*, a post-village of Charlevoix co., 12 miles W.N.W. of Boyne Falls; has foundry and saw mills. *Pop.* (1894) 896.

East Las Vegas, in *New Mexico*, a post-village of San Miguel co. *Pop.* (1897) about 3,200.

East Sioux Falls, in *South Dakota*, a post-village of Minnehaha co. *Pop.* (1897) about 750.

East Strouds'burg, in *Pennsylvania*, a post-borongh of Monroe co., 1 m. from Stroudsburg and 2½ m. from Delaware Water Gap, on D., L. & W. and N. Y., S. & W. R.Rs.; has glass-works, boiler-works, tannery, knitting and silk-mills. Is the seat of one of the State Normal Schools. *Pop.* (1897) about 2,200.

East Syr'acuse, in *New York*, a post-village of Onondaga co., 4 m. E. of Syracuse, on N. Y. C. & H. R. and W. Shore R.Rs. *Pop.* (1897) about 3,000.

East'er Dues (*Eng. Ch.*) Money paid to the clergy at Easter in lien of tithes for personal service; formerly exacted, but now voluntary and called Easter offerings.

East'er Egg, *n.* A colored or decorated egg, or something in the shape of an egg, as candy, used as a gift at Easter. The custom probably antedates Christianity, and may have been connected with the New Year when that was reckoned from the vernal equinox. As all animal life originates in the egg, it was natural to associate such an object with the beginning of a new period of time; and the egg may have been first offered as a

present to the deities at the New Year celebration. The beauty of the egg of a bird—T. W. Higginson reckons it "the most perfect thing in the universe"—and the abundance of eggs at the season mentioned would favor their selection as articles to bestow as gifts. It is said that the Persians keep the festival of the solar new year, in March, and make mutual presents of colored eggs; and that the Jews used eggs in the feast of the Passover, which was celebrated within a day or two, before or after, of the vernal equinox. When the Fathers of the Church substituted the Christian festival for the Passover or for the heathen festival of the goddess Ostera, or Easter, the custom of egg-giving was perpetuated in the new anniversary; and as the Easter celebrated the resurrection of Christ, the egg very naturally became the symbol of the resurrection of the body and the emblem of a future life. The coloring of the egg probably has no special significance, but was adopted as making the gift more pleasing to children, who were largely the recipients of such tokens on this joyous occasion.

East'er-flower, *n.* (*Bot.*) A shrub of the *Euphorbiaceæ*, or spurge family, having brilliant red bracts surrounding the small true flower; the Mexican fire-plant.

East'er-maekerel, *n.* (*Ichth.*) The club-mackerel (*Scomber colias*) found in warm seas.

East'ern Ques'tion. The problem of what is to be done with the southeast of Europe, the area now or recently occupied by the Turks. Jealousy between the powers has given the empire of the Sultan a continuance which it would not otherwise have been suffered to retain. This was particularly the dread of the too great extension of Russia, which country, but for European opposition, would long since have put an end to the dominion of the Turk. The Eastern question had its origin in the 18th century, during the wars of Russia and Austria with Turkey, when the western powers sympathized with the latter country and threw what obstacles they could in the way of success by their opponents. In Napoleon's campaign against Turkey, in its Egyptian and Syrian provinces, in 1798, England proved an efficient friend of the Turk, and saved him from the fate which would have befallen him if the ambitious Corsican had had Turkey alone to deal with. Later contests arose from Russia's claim to be the protector of the Christian population in Turkish territory, such as the Roumanians, Montenegrins, Servians, Greeks and Bulgarians, and to be the chief heir of the "sick man of Europe," as the Turk was named by some witty diplomat. It was much less sympathy with Turkey than fear of Russia gaining preponderant strength that led to the opposition of Western Europe to these claims, bringing on in 1857 the Crimean War, in which England and France succeeded for the time being in checking the course of Russian aggression. Turkey, however, in her barbarous treatment of her Christian population, gave constant new warrant for invasion, and the Russo-Turkish War of 1877–78 was provoked by such inhumanities in Bulgaria that England and the other powers were left utterly without warrant to interfere. They took part, however, in the settlement of affairs, and in Berlin Congress of 1878, while largely disintegrating Turkey in Europe, prevented Russia from gaining any extension of territory. Several new kingdoms were formed out of what had been Turkish soil, but Austria alone gained any accessions of territory, in being given control of Bosnia and Herzegovina. In 1895–96 this question was again brought prominently forward, in consequence of the massacres of the Armenian Christians by their Turkish masters. In this instance the mutual jealousies of the powers prevented any interference, and the Turks continued their work of barbarity in defiance of the weak-voiced protest of Europe. In 1867 the *E. Q.* was extended to the islands, in a desperate effort of the Christians of Crete to gain independence from Turkish rule, which effort, however, proved totally unavailing. Another revolt occurred in 1897, and in this case, despite the efforts of the powers to prevent, Greece came to the aid of the Cretans, and war was declared between Greece and Turkey, the conflict ending in the quick discomfiture of Greece. The powers still desisted from taking any warlike part in this affair, and confined themselves to a pacific settlement of the dispute, leaving the *E. Q.* where it had been before. Of late years the area covered by this question has extended into Asia, as far as India, and covers all territories threatened by Russian aggression, particularly those in which England is concerned. See GREECE; TURKEY.

East'ern Shore, in *Maryland*, one of the two districts into which the State is divided by the Susquehanna river and Chesapeake Bay. It contains about ⅓ of the area of the State; is a level and sandy but mainly fertile region, nowhere of great elevation, though there are rounded hills in the north; in the south are swampy tracts and patches of woodland. The streams are deep and navigable.

East'lake, in *Michigan*, a post-village of Manistee co., has manufactures of lumber, shingles, and salt. *Pop.* (1897) about 1,000.

East'man, in *Georgia*, a post-town, cap. of Dodge co., on Southern R. R., 56 miles S.S.E. of Macon; has extensive shipments of lumber, naval stores, cotton, and wool. *Pop.* (1890) 1,082.

Eas'ton, MORTON WILLIAM, Ph.D., philologist, born in Hartford, Conn., August 18, 1841; studied at Columbia, Yale and the University of Vienna; filled the chair of Comparative Philology in the University of Tennessee, and now (1897) holds a similar position in the University of Pennsylvania.

East'wick, EDWARD BACKHOUSE, orientalist and diplomatist, was born at Warfield, Berkshire, Eng., March 13, 1814; educated at the Charter House and Oxford; went to India as a cadet of the East India Company; was professor of Hindustani at Haileybury College (1845–1859) and was appointed assistant political secretary in the India office; was afterward secretary of legation in Persia. His works include translations from the Persian; Saadi's *Gulistân; Arrival of the Parsees in India; Life of Zoroaster; Journal of a Diplomat in Persia.* Died at Ventnor, Isle of Wight, July 16, 1883.

Easy-go'ing, *a.* Taking life comfortably; free from care; ease-loving.

Ea'ton, DANIEL CADY, botanist, born at Fort Gratiot, Mich., Sept. 12, 1834. Graduated at Yale, and the Lawrence Scientific School of Harvard University, and was made professor of botany at Yale in 1864. He was the author of an excellent work on the *Ferns of North America*, and contributed to Chapman's *Flora of the Southern States* and *Gray's Manual*. Died June 29, 1895.

Eaton, DORMAN BRIDGMAN, LL.D., lawyer, born in Vermont on June 27, 1823; graduated from the University of Vermont (1848), and later from Harvard Law School. Began the practice of law in New York (1850) with Chancellor Kent; became a member of the civil service commission in 1873, and was its chairman until 1875, when it was dissolved; author of the civil service act, approved Jan 16, 1883. In March of same year was made member of new civil service commission, which position he resigned two years later. Was editor of *Kent's Commentaries*, 7th edition, and has contributed largely to the literature of law and political jurisprudence.

Eau (*ō*), *n.* [Fr.] Water; a word used in composition to designate various perfumes, &c.

E'bers, GEORG MORITZ, Egyptologist, born in Berlin, March 1, 1837; studied law in Göttingen but afterward turned his attention to classical and oriental studies, visiting for this purpose the principal museums in Europe. He began teaching in Jena (1865), where he was made professor extraordinary (1868); made an extensive tour to the East (1869), and on his return was called to Leipzig as professor of Egyptology; returned to Egypt (1872), when he discovered the Papyrus which bears his name. Among his works are: *Through Goshen to Sinai; Egypt, Descriptive, Historical and Picturesque*, etc. He has also acquired distinction by his romances of ancient Egyptian life which include *Uarda; Homo Sum; The Sisters*, &c.

Eb'ervale, in *Pennsylvania*, a post-village of Luzerne co., 20 m. S. of Wilkesbarre on branch of L. Val. R. R. Extensive coal mines near by. *Pop.* (1890) 567.

Ebul'lioscope, *n.* (*Chem.*) An instrument for determining the alcoholic strength of a liquid by its boiling-point.

Ecar'dines, *n. pl.* [L. *e*, without; *cardo*, hinge.] (*Zoöl.*) The Lypomata, an order of the Brachiopoda.

Eccen'tric The'ory. (*Astron.*) The theory that adopts an eccentric instead of an epicycle in accounting for the motion of the sun.

Eccen'tric Throw. (*Mech.*) The distance between the center of an eccentric disk and the center of the shaft on which it is.

Ecchymot'ic, *a.* Pertaining to ecchymosis.

Eccle'sian, *n.* [Gr. *ekklesia*, church.] One who maintains the supremacy of church over state.

Ecclesias'tical Court. A court especially devoted to consideration of matters relating to the clergy and religion. In England these courts are instituted by the sovereign for maintaining the discipline of the established church.

Ecclesias'tical His'tory. The history of the church (Jewish and Christian) from the earliest times to the present.

Ecclesias'tical Law. The law administered in the ecclesiastical courts, derived from the civil and canon law.

Ecclesias'tical Modes. (*Mus.*) See GREGORIAN.

Ecclesiog'raphy, *n.* Descriptive history of the church or of churches.

Ec'celeston, SAMUEL, Roman Catholic ecclesiastic, born in Kent co., Md., June 27, 1801; student at St. Mary's College, Baltimore, and the Sulpician Seminary at Issy, near Paris; subsequently became president of the former institution (1829). He received the pallium from Rome (1834), conferring upon him all the powers and honors of the Metropolitan See of Baltimore. During his administration St. Charles Ecclesiastical Seminary was established; six large churches were built in Baltimore, and new churches in various parts of Maryland. Died in April, 1851.

Echegary, JOSÉ, dramatist and statesman, born in Madrid, Spain, in 1835. He has occupied several important official positions, and that of professor of Mathematics and Physics in the engineering school in Madrid. As a dramatist he has generally written tragedies. They include *El Gran Galeotto; Conflicto entre dos deberes*, &c.

Ech'oism, *n.* (*Philol.*) The formation of words by the imitation of natural sounds. See ONOMATOPŒA.

Ech'oist, *n.* One who practices echoism.

Ech'oize, *v. n.* To form words by imitating natural sounds.

Ech'oscope, *n.* (*Path.*) An instrument for intensifying the sound made by percussion of the thorax in auscultation.

Eck'ert, THOMAS THOMPSON, telegraphist, born at St. Clairsville, O., April 23, 1824; became a telegraph superintendent (1852); subsequently was placed in charge of the military telegraph connected with the army of the Potomac, a system that was ultimately extended over the whole country. Was assistant secretary of war (1866), and successively president of the Atlantic & Pacific, American Union, and Western Union telegraph companies, being elected to the latter position in 1893.

Eck'hart Mines, in *Maryland*, a mining post-village of Allegany co., 9½ m. W. of Cumberland, at terminus of Eckhart Branch R. R. *Pop.* (1897) about 900.

Eclaire (*ā-clār*), *n.* [Fr.] A kind of frosted cake with custard filling.

Eclo'sion, *n.* [Fr.] An uncovering; especially the unfolding of an insect in its metamorphosis.

Ecraseur (*a-krä-zuhr*), *n.* [Fr.] (*Surg.*) An instrument for removing tumors, &c., without effusion of blood. The word signifies *crusher*, and a loop of fine wire or chain is used which segregates and eventually, by continued compression, cuts off the part to be extirpated.

Ecru (*ā-kru'*), *a.* [Fr.] Having the color of raw or unbleached stuff, as hemp, linen, &c.—*n.* A light-yellow brown color, as of unbleached material.

Ec'stasis, *n.* (*Path.*) A trance; ecstasy.

Ecta'sia, *n.* (*Path.*) An enlargement of an organ, as in the case of a varicose vein.

Ec'tor, in *Texas*, a W. co.; *area*, 900 sq. m. Unorganized. *Pop.* (1890) 224.

Ectro'sis, *n.* (*Path.*) A preventive method of treatment, or arrestiug the development of a disease.

Ed'does, *n. pl.* (*Bot.*) Tubers of the *Colocasia antiquorum*, used for food in tropical countries.

Ed'dy, CLARENCE, organist, born at Greenfield, Mass., June 23, 1851; was a precocious student, studying in New York under Dudley Buck, and in Germany (1871) under Haupt; has resided in Chicago since 1876 and has attained an international reputation as an organist and teacher.

Eddy, HENRY TURNER, C.E., Ph.D., LL.D., educator, born in Stoughton, Mass., June 9, 1844; graduated from Yale with the degree of A.B. He has held professorships in Cornell and the University of Cincinnati; was vice-president of the mathematical and astronomical section of the American Association for the Advancement of Science; and, since 1891, has been president of Rose Polytechnic Institute, Terre Haute, Ind. He has published *Thermodynamics; Researches in Graphic Statics*, &c.

Eddy, in *New Mexico*, a S. E. co.; *area*, 6,800 sq. m. The Rio Pecos and the Rio Penasco intersect it. *Surface*, rolling. Stock raising is a principal industry. *Cap.* Eddy. *Pop.* (1897) about 1,600.

Ed'dy, in *North Dakota*, a C. co.; *area*, 648 sq. m. *Soil*, very rich and well watered. *Rivers*, Dakota and Cheyenne. *Cap.* New Rockford. *Pop.* (1890) 1,377.

Ed'dystone, in *Pennsylvania*, a post-borough of Delaware co., 2 miles N.E. of Chester. *Pop.*, with suburbs, (1897) about 5,200.

Edelweiss (*ād'el-wīs* or *ā'dĕl-vīs*), *n.* [Ger., noble white.] (*Bot.*) A perennial plant, *Leontopodium alpinum*, native of high mountain ranges in Europe. It grows to the height of 6 or 8 inches, and produces dense clusters of small yellowish flowers, surrounded by beautiful whorled oblong leaves, which are almost covered with a thick down of pure white. It is gathered for sale by the Swiss peasants and plucked by tourists to such an extent that fears have been entertained of its extermination in the Alpine region. It is sometimes cultivated in gardens.

E'denburg, in *Pennsylvania*, a borough of Clarion co., 20 miles S. of Oil City; on P. & W. R. R.; has a number of oil wells, machine shops, and a planing mill. The post-office is KNOX. *Pop.* (1897) about 800.

Ed'gar, JAMES DAVID, member Canadian Parliament, born in Eastern Townships, P. Q., Aug. 10, 1841; educated at Quebec; was called to the bar in 1864, and returned to Parliament at four different periods (1872, 84, 87, 91). He is the author of the *Insolvent Act* and *The White Stone Canoe*, and has been a frequent contributor to periodicals.

Ed'gar, in *Nebraska*, a city of Clay co., 90 miles W. of Lincoln, on C. B. & Q., and St. J. & Gr. I. R. R.'s.; has railroad repair shops, large canning factory, pickle and vinegar works, creamery, and broom factory. *Pop.* (1897) about 1,750.

Edge'-molder, *n.* A cutting-machine for making a molding on the edge of a board.

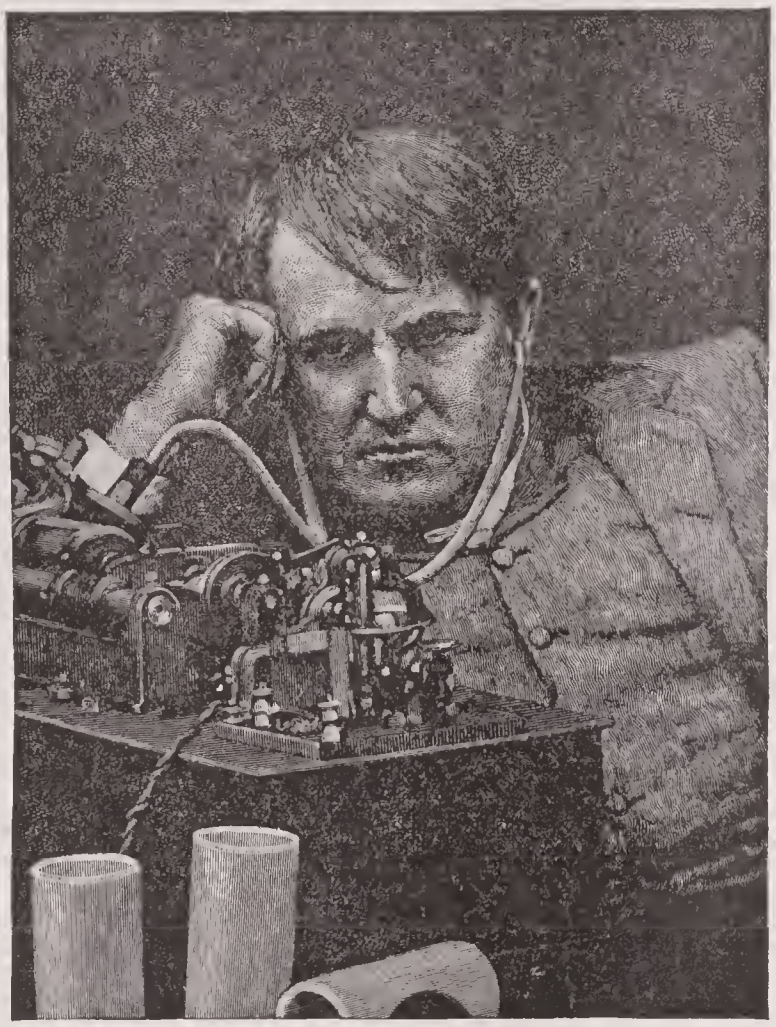
Edge'-roll, *n.* A bookbinder's tool for ornamenting the edges of book-covers; also the ornamentation thus produced.

—*v. a.* To ornament by means of an edge-roll.—To form a rim on a coin.—To coil in a spiral.

Edge'wood Park, in *Pennsylvania*, a post-borough of Allegheny co., 7 miles E. of Pittsburg. *Pop.* (1890) 616.

Ed'green, ANNA CHARLOTTA, authoress, born in Sweden, Oct. 1, 1849. Her novels, of which she has written a number, were very popular. They include: *Pictures of Life; True Women*, &c. She has also published a drama, entitled *How to do Good.*

Ed'hem Pasha', Turkish statesman and soldier, born at Scio, 1823; sold in his boyhood as a slave, and educated by his owner in the École des Mines, Paris; returned to Turkey, and began his career on the general staff, and was promoted, after holding several other positions, to that of captain-general of the imperial guard; was minister of foreign affairs and ambassador at several European courts. After holding various other offices in the service of his country, was appointed grand vizier in Feb., 1877, succeeding Midhat Pasha. In the war with Greece in 1897 he was commander-in-chief of the Turkish army, displayed marked ability as a leader, and quickly brought the war to an end by the defeat of the Greek army.



Thomas Alva Edison

1847–

Edi'na Mills, in *Minnesota*, a village of Hennepin co. *Pop.* (1897) abont 714.

Ed'inburg, in *Illinois*, a post-village of Christian co., 18 m. S.E. of Springfield on Balt. & Obio S. West R.R. *Pop.* (1890) 806.

Ed'inburgh, Alfred Ernest Albert, Duke of; second son of Queen Victoria, born at Windsor Castle, Ang. 6, 1844. His edncation was principally derived from private tutors; entered the British navy, and while in command of the frigate *Galatea* (1867) visited Australia, Japan, China and India, &c.; was appointed (1886) admiral in command of the Mediterranean squadron. This prince was offered the crown of Greece, but declined it. He married the Grand Duchess Marie, only daughter of Alexander II., of Russia.

Ed'ison, Thomas Alva, inventor, born in Milan, Ohio, Feb. 11, 1857. His early years were spent at Port Huron, Mich., where at the age of 12, he became a newsboy on the Grand Trunk Line, running to Detroit. Here he experimented in chemistry, and printed and issued the *Grand Trunk Herald*, probably the only newspaper issued from a railroad train. A station master, the life of whose child he had saved, taught him telegraphy, in which he soon gained remarkable proficiency; and he demonstrated his talent for invention by the production of an automatic repeater, which enabled messages to be transferred from one line to another without the intervention of an operator. He subsequently produced a system of duplex telegraphy, and in 1871 became superintendent of the New York Gold and Stock Company. His next invention was a printing telegraph for gold and stock quotations, to manufacture which he established a workshop at Newark, N. J. His faculty for invention was now fully developed, and finding that the details of business left him very little time for experimenting, he abandoned the factory in 1876, and established a shop for experiment at Menlo Park, a railroad station about 24 miles from New York. Here he added rapidly to the number of his inventions in telegraphy and practical electricity, taking out over 50 patents in connection with improvements in telegraphy, including the duplex, quadruplex and sextuplex systems; the carbon telephone transmitter; the aerophone, for amplifying, and the megaphone, for magnifying, sound, &c. Among his inventions was the wonderful phonograph, improved forms of telephone, and various improvements in the electric light, a multitude of experiments being made by him in the effort to discover the best filament for the incandescent lamp. In Dec. 1879, he exhibited a very complete system of electric lighting at Menlo Park, in which the electric light was successfully subdivided for the first time. Subsequently his experimental laboratory was removed to West Orange, N. J., where his active labors in investigation still continue. Of the hundreds of inventions produced by him, only a few are of commercial value, but some of these have added remarkably to the useful possessions of mankind. In 1888, he produced a greatly improved phonograph, and among his later inventions may be mentioned his process of obtaining iron, when present in small quantities, by the aid of magnetic attraction. The Edison Electric Light Company was established in New York, in 1878, and has grown there and elsewhere into a very profitable business. He has been given the degree of Ph.D., by Union College, and in 1878 was made by the French government chevalier of the Legion of Honor, and commander of the Legion, in 1889. He has also been made a grand officer of the order of the Crown of Italy. The great number and variety of subjects to which he has given his attention is scarcely less surprising than the marked success with which his labors have been crowned. Electricity alone, although receiving the most attention, has furnished but a single field for the display of his versatile powers. His path has been through extended portions of physical chemistry, and is clearly marked by characteristic inventions in these vast domains. Many of his inventions, it is true, are but improvements upon the methods of previous investigators, but many others have been produced while pursuing a line quite outside of that followed by these earlier pioneers. His intellectual powers are unquestionably of no ordinary kind, but his great success is the result, not so much of the gift of genius alone, as of his ceaseless activity and indomitable perseverance under all circumstances; these being the most remarkable characteristics of his nature and the real elements of his success.

Ed'mond, in *Oklahoma*, a post-village of Oklahoma co., on A., T. & S. F. R. R., 20 m. N. of Oklahoma City. *Pop.* (1897) abont 2,000.

Ed'more, in *Michigan*, a post-village of Montcalm co., 64 m. W. of Saginaw, on Detr., Lans. & Nor. R.R.; has foundry, machine shop and flouring mills. *Pop.* (1894) 895.

Ed'munds, George Franklin, lawyer and statesman, born at Richmond, Vt., Feb. 1, 1828; studied law and was called to the bar (1849); served in the State legislature and Senate; in 1866 was appointed to fill a vacancy in the U. S. Senate, to which position he was four times reëlected, being for a time (1883) president *pro tem.* of that body. During Pres. Johnson's administration he was active in the enactment of the Tenure of Office act; he opposed the admission of Colorado under a constitution confining the franchise to the whites, and was the author of the acts for the suppression of polygamy in Utah. He resigned from the Senate in 1891 and retired to private life, residing in Philadelphia.

Ed'munds, in *South Dakota*, a N. central co.; *area*, 1,154 sq. m. *Rivers.* The North Fork and other branches of the Snake river. Agriculture is the principal industry. *Cap.* Ipswich. *Pop.* (1895) 2,740.

Ed'na, in *Texas*, a post-town, cap. of Jackson co., 155 m. S. E. of Austin, on Southern Pac. R. R. *Pop.* (1890) 537.

E'don, in *Ohio*, a post-village of Williams co., 14 m. N. W. of Bryan on Wabash R. R. *Pop.* (1890) 601.

Ed'wards, Amelia Blandford, author and Egyptologist, born in England, in 1831, has written a number of novels, and several books of travel, of which the best-known is *A Thousand Miles up the Nile;* besides contributing papers on Egyptology to European and American journals. Several of the colleges in the U. S. conferred degrees upon her, and she was one of the honorary secretaries of the Egyptian Exploration fund. Died April 16, 1892.

Edwards, Matilda Barbara Betham, novelist, born in Westerfield, Suffolk, England, in 1836; is the author of *Dr. Jacob; A Winter with the Swallows of Algeria; A Year in Western France*, &c., besides contributing to *Punch* and other leading periodicals.

Edwards, Oliver, soldier: born in Springfield, Mass., 1835; served in the Civil War, attaining the rank of brigadier-general, almost every step of his advance being gained by acts of personal gallantry. At Spottsylvania he held the "bloody angle" for eleven hours with his own brigade; and afterward, at the head of twenty regiments, faced the Confederates for thirteen hours. Returned to mercantile pursuits after the war.

Ed'wards, in *Kansas*, a S. W. cen. co.; *area*, 612 sq. m.; is intersected by the Arkansas river and by the A., T. & S. F. Railroad. *Surface*, undulating, nearly all prairie. *Cap.* Kinsley. *Pop.* (1895) 3,222.

Ed'wardsville, in *Pennsylvania*, a borough of Luzerne co. *Pop.* (1890) 3,284.

Ef'fingham, in *South Carolina*, a post-town of Florence co. *Pop.* (1890) 1,219.

Eftsoons', *adv.* [A. S.] Soon, quickly. (R.)

"*Eftsoons* his chin dropped he."—*Coleridge.*

Egg'-carrier, *n.* A box with card-board or other compartments for transportation of eggs without breakage.

Egg'-dance, *n.* A dance in which eggs are to be juggled with or avoided, so as not to be broken; hence, any difficult undertaking.

Egg'-eater, *n.* A small South African serpent (*Dasyfeltis scaber*) that feeds on eggs.

Egg'-glass, *n.* A small sand-glass used to time eggs in boiling.—An egg-cup of glass.

Eg'gleston, Edward, author, born at Vevay, Ind., Dec. 10, 1837; when nineteen years of age entered the Methodist ministry. He became literary editor of the *Independent* in New York (1870); editor of *Hearth and Home* (1871); afterward pastor of a Congregationalist church in Brooklyn, but since 1879 has devoted himself entirely to literary work. His fiction includes *The Hoosier Schoolmaster; The End of the World; The Circuit Rider; The Hoosier Schoolboy; Roxy; The Fair Doctor*, &c. More recently he has written *A School History of the United States;* and the first volume of a still later work entitled *The Beginners of a Nation: A History of Life in the United States*, was issued in 1897.

E'gleston, Thomas, LL.D., mineralogist, born in New York city, Dec. 9, 1832; was a student at Yale and at the School of Mines, Paris, graduating in 1860; was later given charge of the mineralogical and metallurgical collections of the Smithsonian Institution, Washington. Besides his geological survey of the first 100 miles of the Union Pacific R. R., he accepted the commission to examine the fortifications of the U. S. Was one of the founders of the American Metrological Society; also of the American Institute of Mining Engineers, of which he was three times elected vice-president, and president in 1886. He has planned other works, and held offices in the ministry of the public, and taken out numerous patents. He is the author of *Metallurgical Tables on Fuels, Iron, and Steel; Lectures on Mineralogy; Metallurgy of Gold and Silver*, &c.

Ego (*ē'gō* or *ĕg'ō*), *n.* [Lat. *ego*, I.] (*Psychol.*) The conscious subject, or self; that which thinks, feels and acts; the subject, as opposed to the *non-ego*, the not-self, or the object. According to Kant, the ego is either *pure* or *empirical*; the former being the thinking self, distinguished from all objects of thought—denoting the simple fact that everything mental is referred to the self; the latter—the empirical—being self as known in one's own experience, and, hence, to some extent, objective.

Egyp'tian, *a.* Of or pertaining to Egypt.

—*n.* A native or inhabitant of Egypt.—The language of Egypt.—A gypsy.

Egyp'tian Darkness. Darkness like that of one of the "Plagues of Egypt;" total darkness.

Egyp'tian Lan'guage. The present inhabitants of Egypt, of the middle and higher classes, speak an inferior Arabic, varying in Upper and Lower Egypt, being less nearly correct in the region of the Mediterranean. The Arabic is also the language of literature and learning. The ancient Egyptian belonged to the Hamitic group of languages and was monosyllabic, or partly so. Its earliest expression in characters was the hieroglyphic (literally *sacred carving*) or picture-writing. This passed into the hieratic (*sacred* or *priestly*), a running hand, used mostly in papyrus documents. The demotic (*of the people*), or euchorial, was a form of the hieratic, used in the common dialect and for legal documents from about the 7th century before the Christian era. The last stage of the language was the Coptic, dating from the somewhat uncertain period of the introduction of Christianity into Egypt. It was written in Greek characters, with the addition of six letters from the demotic to express sounds not represented in Greek. In the course of centuries many words of Semitic origin had been introduced and the structure of the language was materially changed. Instead of being monosyllabic it became agglutinative; prefixes and suffixes were more freely used; and under Christian and Byzantine influence it adopted many Greek words and expressions. Though gradually dying out, it continued as a spoken dialect until the 17th century. It is still used in the religious services of the Coptic church, and is studied in its biblical and theological literature.

Egyp'tian Porce'lain. A kind of blue or green enameled earthenware found in Egyptian tombs.

Egyptol'ogy, or **Egyp'tian Archæol'ogy.** The study of the writings and monuments of ancient Egypt, to which a vast amount of attention has been paid within the past century, with the result of an immense addition to our knowledge of the civilization of this most ancient of kingdoms. Egypt differs essentially from Babylonia, in that it presents stupendous monuments of architecture, while the latter country presents only mounds of earth. It therefore attracted the attention of archæologists at a much earlier date, and its remains had been somewhat widely studied before the investigation of Babylonia began. Among the earliest efforts were those to solve the mystery of the hieroglyphics, whose first success came in the discovery in 1799 of the Rosetta stone, with its parallel Greek and Egyptian inscriptions. Extended study of this stone led to the decipherment of its inscription, in which the first success was gained by Thomas Young, the celebrated mathematician, in 1814, and complete success by the French Egyptologist Champollion, whose results were given to the world on Sept. 22, 1822—a day which marks the literary true beginning of Egyptology. For ten years afterward Champollion continued his studies, which, since his death, have been followed up by numerous others, until to-day the once mysterious



Fig. 2859.—RAMESES II., HOLDING TABLE OF OFFERING.

hieroglyphics can be read by experts with the utmost ease. Exploration has yielded a large number of Egyptian manuscripts and inscribed texts, the great bulk of which consist in religious books and rituals which were placed in the tomb, usually in the coffins of the mummies. The most common of these is the *Book of the Dead*, or *Funeral Ritual*, of which there are many copies. But the papyri which have been exhumed, and which are preserved in the various European museums, contain numerous examples of secular literature, comprising poems and songs, stories resembling those of the *Arabian Nights' Entertainments*, fables, epistolary correspondence, geographical documents, and historical records; the last including numerous partial lists of kings, which have proved of high value in the study of Egyptian chronology. Many of these exist as inscriptions on the walls of temples, on which also is inscribed the most ambitious of Egyptian poems, that describing the heroic feats of Rameses II. at the battle of Kadesh against the Hittites of Syria.—*Explorations.* In addition to this literary study, a great amount of work has been done in the investigation of the tombs, pyramids, and sites of the ancient cities, with abundant and important results. The story of this exploration is too long to be given here except in outline. It covers the labors of numerous explorers in the 18th and the first half of the 19th century, and the more systematic labors of the last half of the latter century, and includes the opening and exploration of the great pyramids, the excavation of the partly sand-buried temples, and the opening and study of numerous excavated tombs, on whose walls almost the whole story of Egyptian manners and customs was painted or inscribed. The more systematic labors have been those of Auguste Mariette (Mariette Pasha), in the interest of France from 1849 to 1854, and of Egypt from 1858 to 1881; of the French "Permanent Archæological Mission;" and the English "Egypt Exploration Fund." The work of Mariette

opened the way for more recent research. It included the discovery of the Serapeum of Memphis, the clearing from rubbish of the temples of Edfu, Karnak, Denderah, Abydos, &c., and the exploration of the valley of the Nile from Tanis to Napata, whose results are the wonderful museum of Egyptian antiquities collected at Boulak and transferred in 1889 to Ghizeh. From Mariette this important work passed to Maspero (1881–1886), to Grebaut (1886–1892), and in 1892 to De Morgan. Since 1883 the Egypt Exploration Fund has sent out Neville, Petrie, and other explorers, whose work has been of the highest value to archæological science. Of the discoveries made by Mariette, one of the most interesting was the small temple, built of red granite and alabaster, dug by him from the sands that enveloped the base of the Great Sphynx, between whose paws it lay, and which contained 9 portrait statues of Kafra, a Pharaoh of the 4th Dynasty and builder of the 2d pyramid of Ghizeh, of which one, a superb statue in green diorite, nearly perfect, was given the place of honor in the Boulak Museum. This structure, known as the "Temple of the Sphynx," was discovered in 1881 to have no relation to the Sphynx, a paved causeway being unearthed which leads directly from it to the pyramid of Kafra, whose mausoleum it probably was. One important feature of late research has been the exploration of pyramids, of which no less than 14 were opened in the years 1881–83. Of these pyramids, the most important was that of Meydoom, which stands in the midst of a very ancient necropolis, containing tombs belonging to the reign of Senerferoo, last king of the 3d Dynasty. This pyramid differs from all others in being built in stages or tiers, like enormous steps, and towers to a height of 240 feet above the plain, the débris of the upper stages forming an immense mound, 120 feet high, above the base of the structure. This has been cut through, and reveals the open masonry, which looks perfectly new, and is superior in character to any other masonry in Egypt. It had been opened and rifled in ancient times, as indeed all of the fourteen had been.—*Royal Mummies.* The most interesting and extraordinary archæological "find" ever made in a single locality was made on July 2, 1881, in the discovery of a sepulchral treasure of the highest value. The existence of such a locality and the knowledge of it by Egyptian fellahs had long been suspected, objects of great historical and archæological interest, belonging mostly to the 21st Dynasty, being annually sold to European travellers at Luxor by certain persons. Among these were vases, statuettes, and several superb papyri written for royal personages of the family of the Pharaoh Her-Hor. Maspero traced this traffic to four Arab brethren, one of whom was finally induced to reveal the secret, and led the museum officials to a lonely spot in the limestone hills of Luxor, where they were shown the mouth of a small pit and told that this led to the treasure house. It was so well concealed that even an anxious explorer might have passed it frequently without detecting the opening. The vertical shaft led to a narrow



Fig. 2860.—EGYPTIAN COLUMN SHOWING NAMES OF RAMESES II. AND MERNEPHTHAH I.

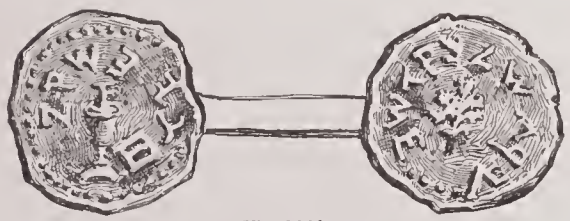


Fig. 2861.
FRONT AND REVERSE OF THE HALF-SHEKEL.

horizontal passage along which they had to crawl on hands and knees, and which was in all 81 meters long. It opened into a sepulchral chamber, which was strewn with fragments of mummy cases and linen wrappings, and contained several enormous and elaborately painted sarcophagi, and a group of mummy cases, mostly standing upright, on which were painted in hieroglyphics the names and titles of the deceased. To the astonishment of the observers, they read the names of nearly all the most famous monarchs of the 18th and 19th dynasties, among Thothmes III., perhaps the greatest of the Pharaohs, Seti I., a warrior of high renown, and Rameses II., the Sesostris of the Greeks, usually entitled "The Great." There were others of the 17th and 21st dynasties, the total number of kings, queens, princes and princesses found being twenty-five. Entering the mortuary chamber at the end, they beheld an extraordinary sight. It formed a vault packed from floor to ceiling with great sarcophagi, gorgeously painted and varnished. These proved to be the coffins of the family of Her-Hor, high-priest of Amen at Thebes under the last king of the 20th dynasty, and the founder and first king of the 21st. His body was not found, but that of his mother, his two queens, and several of his children and grandchildren were there, with other personages belonging to this royal line. This crowding of so many royal mummies, of various ages, into a single sepulchral chamber, some of them with costly and numerous funeral belongings, others destitute of these objects, was a mystery, at first explained by the theory of a foreign invasion and the hasty removal of these royal corpses to a hidden tomb. But subsequent investigation revealed inscriptions on the doorway of the vault which showed that the tomb was continuously in use, and was the family sepulchre of the priest-kings—Her-Hor and his descendants. The storage there of the bodies of earlier kings is supposed to have been done as an act of preservation, we having documentary evidence to prove that robberies of royal tombs were frequent during the feeble reigns and demoralized state of society of the 20th dynasty. This accounts for the broken and battered condition of the mummy cases, and the loss of their contents in many instances; while for Rameses the Great a new and handsome coffin of sycamore wood, of 21st dynasty workmanship, had been provided. The inscriptions on the coffin and the bandages of the mummy showed that this royal corpse had been four times shifted from tomb to tomb before being finally deposited in the sepulchre of the priest-kings. These royal mummies have been again removed, with their treasures, and now repose in the Museum of Egyptian Antiquities.—*Work in the Delta.* The more recent work in Egypt has been largely done in the delta region, where were various mounds, the supposed remains of ancient cities and temples, many of which have been lately explored. The first explorer sent out by the Egypt Exploration Fund—Edward Neville, of Geneva—achieved a signal success in excavating (1883) the mound of Tel-el-Maschuta, which he found reason to identify as the site of Pithom, one of the treasure-cities built for Pharaoh by the Israelites, and which also proved to be the later Roman Hieropolis. Here he also fixed the site of Succoth, the first camp of the Hebrews in the Exodus. This, then, was the land of Goshen, the abiding place of Israel in Egypt. Flinders Petrie, a second able agent of the Exploration Fund, explored (1883–84) the mound of San, apparently the Zoan of the Bible. This mound formed a prominent object in the delta, and from it were taken many objects of much interest. In 1884 he worked on another site, which proved to be that of the Greek city of Naucratis, and whose abundant remains of pottery proved of great importance as showing a distinct historical growth of Egyptian into Greek pottery. Of the five great temples mentioned by the Greeks, the remains of four were discovered by the explorers. At the site of Bubastis the remains of a great temple were unearthed (1887–88) and many objects of interest found.—Recent Egyptian work also includes the excavation of the base of the Great Sphynx, the opening of the pyramids of the Fayum, and the exploration of the tombs of Beni-Hasan and El-Amarna, which have yielded new and unexpected archæological treasures. Of these late discoveries the most important and interesting was one made by Professor Petrie in 1895, in his investigation of the ruins of a newly-discovered city, 30 miles north of Thebes and near the historical town of Nabt, and of its cemetery, in which he excavated nearly 2,000 graves. The result of his studies was to prove that this city had been inhabited by a hitherto unknown race, differing radically from the ordinary Egyptian, yet occupying a site in the heart of Egypt. Not a single object of ordinary Egyptian manufacture was found. The art of embalming was not practiced, none of the bodies being mummified, and none of them extended at full length, all having their knees drawn up to their arms. The race was one of great stature, some of the bodies being over six feet in height. The physiognomy lacked prognathism, and displayed a prominent aquiline nose and long, pointed beard, which resembled the Libyan and Amorite types. The hair was brown and wavy. This people seem to have practiced cannibalism as a religious rite, and in some of their mechanical arts equalled or surpassed the Egyptians. They used copper for chisels, needles and other implements, and produced finely-wrought flint knives. The primitive character of their culture was shown by the absence of writing and the rudeness of their drawing and sculpture. Professor Petrie thinks that they were a race of invaders who overthrew the civilization of Egypt during the 7th dynasty, and produced the dark age which followed. In the same vicinity he found the flint implements of a primitive race, far antedating Egyptian civilization. Excavations have also been made, in the interest of the Exploration Fund, in Alexandria, with the hope that some of the lost literary treasures of the great library at that city might be recovered. This Mr. Hogart, the explorer, pronounces as hopeless, on account of the dampness of the subsoil, in which water has risen above the Roman level; so that, if any papyri were found, there would be no chance of their being legible. In fact, below the water-level everything was found to be in the utmost state of ruin, walls knocked down, pavements torn up, all indicative of frightful sack and pillage. For this, the explorer thought, the Arabs were principally responsible. If any classic literary treasures are to be found, they must be sought, not in the rainy delta, but higher up the Nile, in the Fayum and the dry upper valley, where, possibly, examples of lost Greek and the missing early Christian literature may yet be exhumed. Important and very recent discoveries include that of the cap of the Sphynx (Fig. 2862), hitherto missing, and

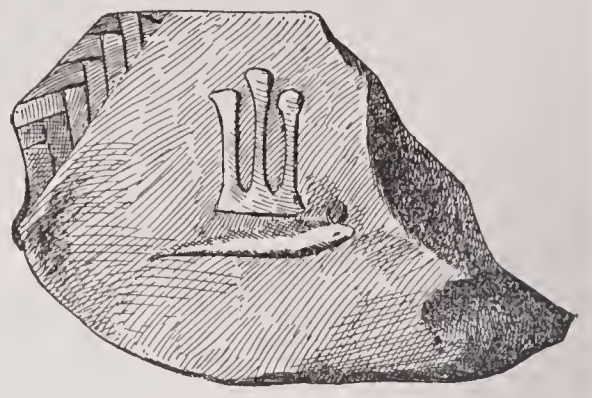


Fig. 2862.—CAP OF THE GREAT SPHYNX.
Engraved from a photograph taken in March, 1897.

now found at a depth of some 15 feet beneath the surface in the temple already mentioned, between the fore paws of the statue. The cap measures 4 feet 3 inches long and 2 feet 9 inches wide, and is marked with the three lotos columns, under which is a figure which appears to be that of a snake. It is painted red, and bears an inscription. By clearing away the rubbish from the great temple of Karnak the walls and pillars in the Hall of Columns have been nearly doubled in height, and an avenue of sphynxs has been found, leading westward to a stone quay, whose walls bear inscriptions of historical value. Of late discoveries, however, the most important is that of a *stela* or tablet of Mernephthah, found by Prof. Petrie, at Thebes, in which the name of Israel occurs, the first instance in which that name has been brought to attention in Egyptian records. It was found in the foundations of a temple, on a block of black syenite, 10 feet 3 inches long, 5 feet 4 inches wide, and 13 inches thick, being the largest known of this material. It had originally stood in the temple of Amenhotep III., of whom it bore an inscription. This had been used by later monarchs, and finally engraved on the back by Mernephthah with an inscription 1,400 words in length, which recites the deliverance of Egypt from the Libyans, the flight of their king, and the security which succeeded in Egypt, ending with an account of the relations which afterward existed between Egypt and various other nations. In this inscription occurs the following line, "The people of Israel is spoiled, it hath no seed; Syria is widowed" (Fig. 2863). Still another mention



Fig. 2863.—"ISRAEL," IN HIEROGLYPHICS.
Engraved from a photograph of the stela found by Petrie.

of Israel by Mernephthah has been found by Dr. William Speigelberg, which had escaped notice on account of only the first part of the name being preserved. It is written I-s-l-r-a-e-l-n, with the determinations of "man" and "woman." Whether these lines refer to the Israelites while still in Egypt, or to some attack on them in Palestine, is an unsettled point.

Eh'renfeld, in *Pennsylvania*, a post-village of Cambria co. *Pop.* (1897) about 580.

Eich'wald, CHARLES EDWARD, naturalist, born at Milan, Russia, July 4, 1795; educated at Berlin and Vienna; filled successively chairs of Zöology, Mineralogy, and Palæontology at Kasan, Wilna and St. Petersburg. His scientific researches were of great service to Russia, his writings including scientific records of his travels, which were extensive, and works of value on the mineral wealth, palæontology and zöology of that country. Died at St. Petersburg, Nov. 10, 1876.

Eidolol'ogy, *n.* [Gr. *eidōlon*, image, and *logos*, discourse.] (*Philos.*) The theory of representative cognition, or knowledge acquired by means of a mental image of the object known.

Eid'olon, *n.* (*pl.* EIDOLA.) [Gr.] Likeness, representation, image.—A specter; an apparition.

Ei'doscope, *n.* [Gr. *eidos*, form, and *scopeō*, to see.] An instrument on the principle of the kaleidoscope, producing an infinite variety of figures or colors by means of independently revolving disks of perforated metal or colored glass. It is used with the magic lantern, causing singular combinations to appear upon the screen.

Eif'fel, GUSTAVE, engineer, born at Dijon, France, in 1832; studied at the Ecole Centrale; was one of the first to introduce caissons worked by compressed air. He is best known by the tower which bears his name in the Champ-de-Mars in Paris. Other triumphs of his engineering skill are the bridge over the Douro at Oporto, the great viaduct of Garabit, in Cantal, and that over the Tardes, near Montlucon.

Eif'fel Tow'er. (*Arch.*) A colossal open-work iron tower erected by Gustave Eiffel on the Champ-de-Mars at Paris, as one of the attractions of the French International Exposition of 1889. This tower is 300 meters (985 feet) in height from the ground to the platform at



EGYPTIAN ANTIQUITIES. 1–10. Insignia of royalty: 1–3, Head-dresses; 4, head-dress of royal youth; 5, cap of Lower Egypt; 6, diadem, ornamented with the "uræus;" 7, whip; 8, shepherd's crook; 9, 10, sceptres. 11, 12. Insignia of courtiers. 13–22. Articles used in public religious worship: 13, Processional-boat of the gods; 14, 15, 17, 18, various utensils; 16, censer; 19, offering; 20–22, standards. 23. Mummy-bier. 24. Harp. 25. Lute. 26. Castanets. 27. Lyre. 28, 29. Flutes. 30. Drum. 31. Collar. 32. Necklace. 33. Necklace with pendants. 34–39. Articles of jewelry. 40–44. Amulets. 45. Sistrum. 46, 47. Seals. 48, 49. Sandals. 50. Head-rest. 51–66. Tools. 67. Scales. 68, 69. Scale-weights. 70. Palette. 71–81, 83. Various forms of vessels. 82. Large vase. 84–90. Cooking utensils, &c. 91. Hanging lamp. 92–97. Toilet accessories. 98. Couch. 99. Table. 100. Seat. 101. Ornamented chair. 102. Footstool. 103. Chariot. 104. Whip. 105. Harness. 106. Sedan chair. 107. Plan of an ancient Egyptian house.

the summit, and contains three stories, reached by a series of elevators. It is of light structure and graceful form, containing in all nearly 7,000 tons of iron. The cost was about $1,000,000, of which about two-thirds was supplied by M. Eiffel himself, who expected to be reimbursed from the admission fees during the 20 years for which he was granted a concession. This tower is still one of the principal sights of Paris, and at its summit important meteorological observations are carried on.

Ei'senlohr, AUGUST, Egyptologist, born at Mannheim, Ger., Oct. 6, 1832; studied theology at Heidelberg and Göttingen; afterwards devoted himself to natural sciences, especially chemistry; began the study of Chinese and Egyptian hieroglyphics in 1865. For his analytical explanation of the demotic part of the Rosetta stone, he was appointed instructor in Egyptology in the University of Heidelberg, and was later made professor extraordinary. He purchased the Harris papyrus, a document of Rameses II (1320 B. C.), which he translated, and also translated and explained another papyrus of the Alexandria Museum.

Élan', *n.* [Fr.] Ardor or impetuosity; brilliant dash, as of troops.

El'bert, in *Colorado*, an E. co., *area*, 1,880 sq. miles. *Rivers.* Big Sandy; Bijon and Kiowa creeks. Farming, dairying, and stock-raising are the principal industries. *Cap.* Kiowa. *Pop.* (1897) about 2,400.

El'burn, in *Illinois*, a post-village of Kane co., 9 miles W. of Geneva, on Chic. & N. W. R. R. Has flour-mills and tile-works. *Pop.* (1890) 584.

El'don, in *Iowa*, a post-town of Wapello co., on Des Moines river, 12 miles S.E. of Ottumwa, on Chic., R. I. & Pac. R. R. *Pop.* (1890) 1,725.

El Dora'do Springs, in *Missouri*, a city of Cedar co., on Des Moines river, 10 m. S.E. of Harwood, the nearest R R. station, on Mo., Kans. & Tex. R.R. *Pop.* (1890) 1,543.

El'dred, in *Pennsylvania*, a post-borough of McKean co., 20 m. E. of Bradford, on West. N. Y. & Pa. R.R.; has extensive shipments of lumber, leather and bark. *Pop.* (1890) 1,050.

Elec'toral Commis'sion. (*Amer. Pol.*) A commission appointed under an act of Congress, approved Jan. 29, 1877, "to provide for and regulate the counting of votes for President and Vice-President, and the decision of questions arising thereon, for the term commencing March 4, 1877." It was composed of five members chosen by the Senate and a like number by the House of Representatives; these, together with five Associate Judges of the Supreme Court of the U. S., formed fifteen in all. The act passed the Senate thus: Yeas — Republicans, 21; Democrats, 26; total, 47. Nays—Republicans, 16; Democrats, 1; total, 17. Not voting—Republicans, 9; Democrats, 1; total, 10. The House voted: Yeas—Republicans, 32; Democrats, 159; total, 191. Nays—Republicans, 68; Democrats, 18; total, 86. Not voting—Republicans, 7; Democrats, 7; total, 14. The Commission was composed of Nathan Clifford, Associate Justice Supreme Court, First Circuit; William Strong, Third Circuit; Samuel F. Miller, Eighth Circuit; Stephen J. Field, Ninth Circuit; Joseph P. Bradley, Fifth Circuit. Senators George F. Edmunds, Oliver P. Morton, Frederick T. Frelinghuysen, Allen G. Thurman, Thomas F. Bayard; Representatives Henry B. Payne, Eppa Hunton, Josiah G. Abbott, James A. Garfield, George F. Hoar. The vote in the Commission upon the Florida, Louisiana, and South Carolina counts was: For the Hayes electors—Messrs. Bradley, Edmunds, Frelinghuysen, Garfield, Hoar, Miller, Morton, Strong, 8; for the Tilden electors—Messrs. Abbott. Bayard, Clifford, Field, Hunton, Payne, Thurman, 7, which practically gave the decision to Mr. Hayes. This result was reached March 2. The vote in the Electoral College was: Hayes and Wheeler, 185; Tilden and Hendricks, 184; and thus was settled a question which at one time threatened to result in civil war and anarchy.

Electrolier', *n.* [Analogous to *chandelier.*] A branching frame for holding electric lamps.

Elec'trum, *n.* [Lat.; Gr. *elektron*, amber;—was also applied by the ancients to a metallic substance consisting of 4 parts of gold and 1 part of silver.] (*Min.*) A natural alloy of gold and silver in the proportion of two of gold and one of silver. It is found in tubular crystals and imperfect cubes of a silver-white color.

Eleemos'ynary, *a.* [From Gr. *eleēmosynē*, from *eleēmōn*, pitifully, mercifully, from *eleeō*, to pity, from *eleos*, pity, mercy, compassion.] Given in charity; given or appropriated to support the poor; done or performed without reward; relating to charitable donations; founded by charitable donations, for the purpose of dispensing some gratuity or benefit.

(*Law.*) *E.* corporations are corporate bodies constituted for the perpetual distribution of the free alms or bounty of the founder of them, to such persons as he has directed. Of this kind are all hospitals for the maintenance of the poor, sick, and infirm.

—*n.* One who lives on alms.

El'egance, or **El'egancy,** *n.* [Fr. *élégance;* Lat. *elegantia*, from *elegans*, for *eligens*, from *eligo—e, ex*, and *lego*, to pick, to choose.] A choosing or selecting, with nicety, care, taste or judgment; exquisiteness; fastidiousness; that which pleases by its propriety, grace, purity, symmetry, or beauty; gracefulness; politeness; refinement; high polish; purity; neatness.

El'egant, *a.* [Fr. *élégant*, from Lat. *elegans.*] Choosing with nicety, care, taste, or judgment; fastidious; nice; luxurious; effeminate; pleasing to good taste; pleasing by beauty, grace, purity, symmetry, or propriety; graceful; neat; pure: refined; polished; polite; genteel; beautiful; handsome; symmetrical; choice; sensible to beauty; discriminating beauty from deformity or imperfection, as taste; rich; costly and ornamental.

Elegi'ac, *a.* [L. Lat. *elegiacus;* Gr. *elegeios.*] Belonging to elegy; plaintive; expressing sorrow or lamentation; used in elegiac.

—*n.* Elegiac verse.

Elegi'acal, *a.* Belonging to an elegy, or to elegiac verse; elegiac.

El'egist, Ele'giast, Elegiog'rapher, *n.* A writer of elegies.

El'ements, Chemical. (*Chem.*) The simplest known constituents of chemical substances. Chemists regard as elements only those substances which have not been proved to be compounds; though there is reason to believe that some, perhaps many, of these are actually compounds, and may be proved to be so in the future, as supposed elements have been in the past. The elements are somewhat arbitrarily divided up into metals and non-metals, of which the former are far the larger class. But no well marked line of demarcation separates these classes, which seem to shade into each other on their border line. The non-metallic elements, as commonly classed, are thirteen in number, viz,: Hydrogen, chlorine, bromine, iodine, fluorine, oxygen sulphur, selenium, boron, nitrogen, phosphorus, carbon and silicon. Of these, however, hydrogen displays certain characteristics assimilating it with the metals. Many chemists at present entertain the view that all the elements are compounds of one fundamental elementary substance, while many others look for a reduction in the present list, which may come through the decomposing action of the electric furnace. The Greeks recognized four elements only: earth, air, fire, and water; the ancient Chinese five: earth, water, fire, wood, metal; the ancient Hindus five: earth, air, fire, water and ether. At present sixty-four are recognized, to which perhaps argon and helium will doubtless be added, with several others whose claims are not yet substantiated. For a list of the elements and their combining weights, see ATOM.

El'evators, or Lifts. (*Arch.*) Devices for lifting freight or passengers from the ground to higher elevations, or for lowering them from higher to lower points. They consist of a closed car or open platform, raised by ropes or chains, or pushed up by a ram from below, steam or other power being employed for this purpose. The car moves between vertical rails of wood or metal, which hold it in place. Elevators, in some form or other, have been used from a remote period, being propelled by human, animal, or water power, but their extensive application to buildings dates only from about the year 1850. Their common employment has enabled buildings of great height to become common, and has greatly extended the area of habitation within city limits. Elevators are variously classed, in accordance

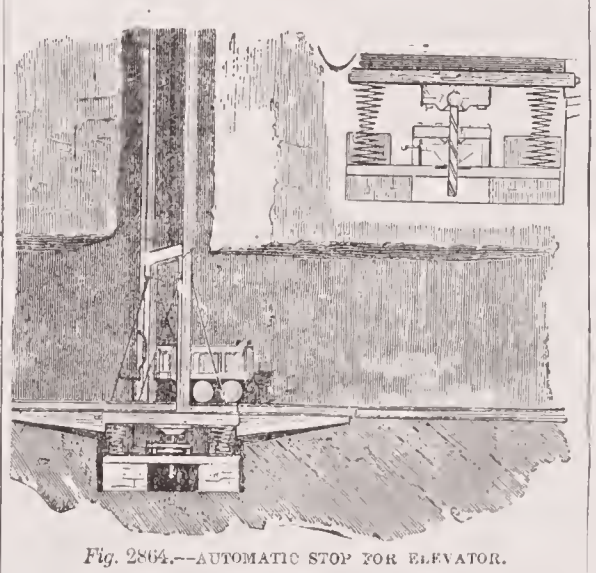


Fig. 2864.—AUTOMATIC STOP FOR ELEVATOR.

with the kind of power used in working them, as hand, belt, steam, hydraulic, and electric. The character of these is indicated by their titles.—*Hand-elevators* are worked by hand power, and are serviceable only for light weights. Those driven by belts are employed in factories where power is distributed by shafting, the ropes supporting the car being wound upon drums revolved by belt-driven pulleys and gearing. In *steam elevators* the drums are caused to revolve by the power of steam engines applied directly, the engine forming part of the apparatus. These are used in mines, blast furnaces, and warehouses, where considerable weights are lifted and no other application of power is needed. —*Hydraulic elevators* are of two kinds, the suspended and the ram, the latter much used in Europe. The ram elevator consists of a cylinder containing a ram or lifter, whose top supports the car. When water is admitted to the cylinder the ram is lifted by hydraulic pressure, carrying the car with it. When the pressure is relieved, the car and ram descend by their own weight. In the suspended form, lifting chains or cables are employed, passing over sheaves at the top of the building, and at the bottom around alternately fixed and movable sheaves. The movable sheaves are attached by rods to a piston moving in a cylinder, as in the instance of the ram. When water pressure is admitted to the cylinder, the piston is lifted, the sheaves forced apart, and the cable taken up, the car being thus lifted. On removal of the pressure, the car descends by its own weight, drawing the sheaves together. In towers which possess high pressure water service the cylinders may be connected directly with the mains; and in other cases artesian wells supply the necessary water. When the pressure is insufficient, water is pumped into storage tanks at the top of the building, a head being thus obtained, and in some instances additional force is obtained by the use of closed tanks partly filled with compressed air. Where tanks are employed the same water may be used over and over again, the only loss being from evaporation.—*Electric elevators* are quite similar in principle to steam elevators, the only difference being in the kind of power and motor employed. The ascent and descent of the elevator are controlled by means of a rope which is connected with the moving apparatus, and which, in belt or power elevators, operates a belt-shifter—that is, a valve which cuts off the steam or water, or reverses the direction. A switch serves this purpose in electric elevators, making or breaking circuit, or reversing the current at will. The operating rope may be worked directly by hand, or indirectly through the use of a lever or hand wheel. Another important requisite of elevators is a safety device, to control their speed, prevent their running beyond their limits, and to check a dangerous fall in case the cables break. To prevent overrunning, stop balls are employed on the operating rope, which act automatically in the case of neglect by the operator. In elevators run by drums or hydraulic pistons, the valve is closed automatically when the car has reached its maximum height or descent. To prevent a fall, grips are employed, which are brought into action by springs or levers actuated

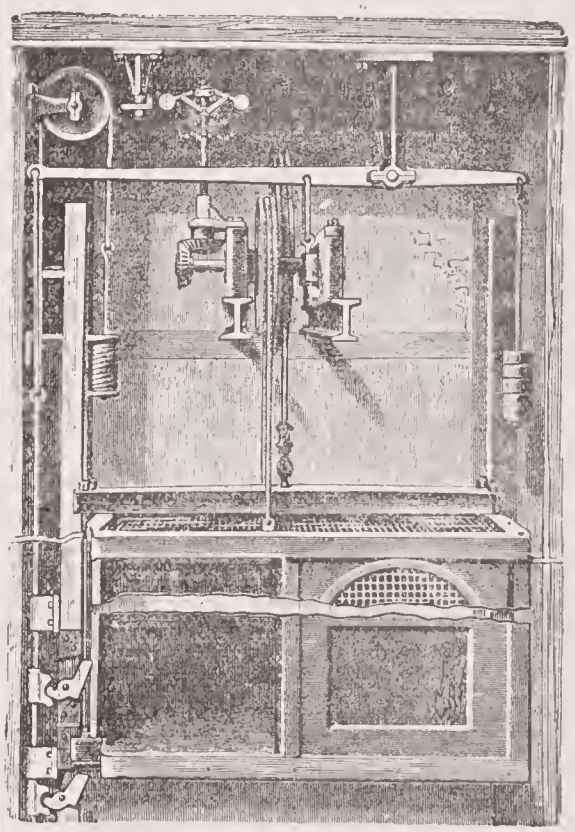


Fig. 2865.—SAFETY ATTACHMENT FOR ELEVATORS.

by the breaking of the cable, and which act upon the strips or rails guiding the car. If the car descend at dangerous speed, ball governors on the top of the car operate the safety grips, these balls opening sufficiently to do so when a certain speed is attained. Safety grips are of varied forms, the most common being wedges which squeeze the guide strips, or toothed dogs which cut into the strips, which, in this case, are made of wood. Of notable elevators may be named the steam elevators in the Washington Monument, 500 feet in length of travel; the hydraulic elevators of the Eiffel Tower, with 420 feet of travel and a speed of 400 feet a minute; and the hydraulic elevators in the station of the North Hudson County Railway Co., at Weehawken, N. J., which can lift 140 persons at a speed of 300 feet per minute. The elevator has become an indispensable adjunct to modern architectural methods, rendering possible the habit of living in flats, now common in many crowded cities, and the use of office buildings reaching many stories into the air.—*Grain Elevators.* The term elevator is also applied in this country to a structure of a different kind, the great buildings for the storage and easy handling of grain, in which it is often kept for months. Some of these elevators are capable of storing from 1,000,000 to 1,500,000 bushels of grain within their capacious walls. The largest of these exist at Chicago and Buffalo, cities through which passes a large percentage of the grain of the U. S. The grain on being received at the elevator is examined and graded, the farmer or merchant being credited with so much grain of such quality, and grain of that quality being delivered from the elevator on his order. Elevators are usually built so as to permit easy access of vessels, and have railways entering them from the street. The

grain is carried into the elevator and delivered from it by the aid of a chain bucket, which receives its motion from an endless band passing over shafts in the upper part of the building, the engine and boiler being placed in an adjoining edifice. By this means vast quantities of grain can be handled at small expense, being taken in a continuous stream from the wagons and cars, and delivered in like manner directly to the hold of the vessel to be loaded. In New York floating elevators are frequently employed to transfer grain from barges directly to sea-going vessels.—Within a recent period, experiments have been made in the employment of pneumatic tubes for handling cereals in bulk, by the use of which grain has been successfully transferred from car to elevator and thence to vessel; the power being that of compressed air, by means of which the grain is "pumped" from one point to another. In connection with this method of transport, low storage buildings, made of iron, take the place of the usual lofty elevators. This system has not been largely adopted.

El'gin, James Bruce, eighth Earl of; statesman, born in London, Eng., July 20, 1811; studied at Oxford; was made Governor of Jamaica, and did much to improve the position of the negroes, who had received their freedom during the previous administration; was afterward Governor-General of Canada (1846), and was created a peer of the United Kingdom (1849). In 1859 was made Postmaster-General, and later Governor-General of India. His mission to China met with much success, and he was also chosen to negotiate with Japan the treaty of Yeddo. Died at Dhurmsala, India, Nov. 20, 1863.

El'iot, Charles William, LL.D., educator, born at Boston, Mass., Mar. 20, 1834; graduated at Harvard (A.B.) in 1853; tutor and professor in that institution until 1863; professor of chemistry in Massachusetts Institute of Technology (1865–69), and since president of Harvard University.

Eliot, George. See Cross, Mary Ann.

Eliz'abeth, in *West Virginia*, a post-village, cap. of Wirt co., 20 m. S. of Parkersburg; has 4 saw-mills and a grist-mill. *Pop.* (1890) 710.

Elk, in *Kansas*, a S. E. county; *area*, 651 sq. m. It is traversed by Elk river. The surface is undulating, much of it prairie. Soil is fertile. *Min.*, blue and white limestone, sandstone, marble and coal. *Pop.* (1895) 10,820. *Cap.* Howard.

Elk City, in *Kansas*, a post-village of Montgomery co., 13 m. W. N.W. of Independence, on Atch., Top. & S. Fe and Mo. Pac. R. Rs. *Pop.* (1895) 770.

Elk Garden, in *West Virginia*, a post-town of Mineral co., 5 m. N. E. of Harrison. *Pop.* (1890) 723.

El'kins, in *West Virginia*, a post-village of Randolph co., 7 m. from Beverly, on W. Va. Cent. & Pitts. R. R.; has railroad machine shops and several mills. *Pop.* (1890) 737.

El'ko, in *Nevada*, an extreme N. E. county; *area*, 17,652 sq. m. It is drained by the Humboldt river and its north and south forks. It is partly mountainous and contains silver mines. It has also large arid plains in which timber and water are scarce. *Pop.* (1890) 4,794. *Cap.* Elko.

El'lendale, in *North Dakota*, a city, cap. of Dickey co., 50 m. W. of Rutland, on Chic., Milw. & St. P. and Gt. Nor. R.Rs. *Pop.* (1890) 761.

El'lensburg, in *Washington*, a city, cap. of Kittitas co., 136 m. E. of Tacoma, on Nor. Pac. R.R.; has large foundry, sash and door factory, flour and planing mills. Trade center of large mining region. *Pop.* (1890) 2,768.

El'let, Charles, engineer, born at Penn's Manor, Bucks co., Pa., Jan. 1, 1810; studied mathematics and engineering, completing this course at the Ecole Polytechnique, Paris. He practised his profession successfully, and during the early days of the Civil War came into prominence through his hasty construction of a fleet of improvised iron-clads and rams, made from the ordinary river boats and used by the Federals on the Mississippi river, *E.* being given command of the squadron. He was severely wounded, June 6, 1862, during an engagement, and died at Cairo, Ill., on June 21. *E.* built the first wire suspension bridge in the U. S.—that over the Schuylkill, at Philadelphia—and was largely instrumental in the construction of the first suspension bridge at Niagara.

El'linwood, in *Kansas*, a post-village of Barton co., on Arkansas river, 10 m. E. of Great Bend, on Atch., Top. & S. Fe. R.R. *Pop.* (1895) 692.

El'liot, in *Kentucky*, a N. E. co.; *area*, 270 sq. m. It is intersected by forks of Little Sandy river. The surface is broken and hilly, most of it covered with forests. Coal and iron ore are abundant. *Pop.* (1890) 9,214. *Cap.* Sandy Hook.

El'liott, Stephen, naturalist, born at Beaufort, S. C., Nov. 11, 1771; graduated from Yale; was one of the founders of the Literary and Philosophical Society of South Carolina; was professor of Natural History and Botany, in the State Medical College (S. C.), which he also aided in founding. He published *The Botany of South Carolina and Georgia*, and also edited, for a time, the *Southern Review*. Died at Charleston, S. C., March 28, 1830.

Elliott, Stephen, P. E. bishop, born at Beaufort, S. C., Aug. 31, 1806; son of Stephen *E.*, the naturalist; was a graduate of Harvard College, and was called to the bar of S. C. He held the chair of Sacred Literature in South Carolina College, and was ordained priest in 1836; was consecrated bishop of Georgia (1840), and provisional bishop of Florida (1844). Died at Savannah, Ga., Dec. 21, 1866.

Elliott, Stephen, Jr., soldier, born at Beaufort, S. C., 1832, son of the preceding; entered the Confederate service during the Civil War and was promoted for gallant service. During the Federal bombardment of Sumter he had command of that fort. A wound received from a mine explosion obliged him to retire from active service. In 1865 he took the oath of allegiance to the U. S. Died at Aiken, S. C., March 21, 1866.

El'lis, Alexander John, philologist, born near London, June 14, 1814; graduated from Cambridge (1837); was at successive periods elected a fellow of the Royal Society and the Society of Antiquaries, president of the Philological Society, and a member of the Mathematical Society of London. His works are valuable, and include: *Essentials of Phonetics; Universal Writing and Printing, Practical Hints on the Quantitative Pronunciation of Latin*, &c.

Ellis, George Edward, D.D., Unitarian clergyman, born in Boston, Aug. 8, 1814; graduated from Harvard in 1833; studied at Cambridge divinity school, and was ordained pastor of a church in Charlestown, Mass., in 1840. Was for some years editor of the *Christian Register*, and one of the editors of the *Christian Examiner*. He is president of the Massachusetts Historical Society, and author of *The Half Century of the Unitarian Controversy; The Red Man and the White; History of the Battle of Bunker Hill*, &c.

Ellis, in *Kansas*, a W. central co.; *area*, 625 sq. m. It is intersected by the Smoky Hill fork of Kansas river, by Big creek and by Saline river. The surface is nearly level prairie, with scarcely any timber; the soil is fertile. *Pop.* (1895) 7,478. *Cap.* Hays.

Ellis, in *Kansas*, a city of Ellis co., 14 m. W. of Hays city on Union Pacific R. R.; has railroad repair shops. *Pop.* (1895) 1,017.

El'liston, Robert William, actor, born in London, 1774; educated at Cambridge; made his first appearance on the stage at Bath. He was one of the best comedians and tragedians of his day; a member of the Drury Lane company, and afterwards lessee and manager of that theater, from which he retired a bankrupt in 1826. Died July 8, 1831.

Ells'worth, in *Iowa*, a post-town of Hamilton co., 18 m. S. E. of Webster City, on C. & N. W. R. R. *Pop.* (1897) about 1,250.

Elm Grove, in *W. Virginia*, a post-village of Ohio co., 5 m. S. E. of Wheeling. *Pop.* (1890) 594.

Elm'hurst, in *Illinois*, a post village of Du Page co., 15 m. W. of Chicago, on C. & N. W. R. R.; has manufacturers of brick and tile. *Pop.* (1890) 1,050.

El'more, in *Alabama*, an E. central co.; *area*, 652 sq. m. It is bounded on the E. and S. by the Tallapoosa river and is intersected by the Coosa river. The surface is hilly and mostly covered with forest. *Pop.* (1890) 21,732. *Cap.* Wetumpka.

Elmore, in *Idaho*, a S. W. cen. co.; *area*, 3,000 sq. m. The eastern part is mountainous; the western part comprises a portion of Snake River valley. *Soil*, fertile. *Minerals.* Gold, silver, lead, antimony, copper and iron. *Cap.* Mountain Home. *Pop.* (1890) 1,870.

Elocu'tionist, *n.* One who teaches elocution or gives elocutionary readings or recitations.

El Re'no, in *Oklahoma*, a city, capital of Canadian co., on C., R. I. & P. and C., O. & G. R.Rs., 36 m. W. by N. of Oklahoma city. *Pop.* (1897) about 6,500.

El'son, Louis Charles, journalist, born in Boston, Mass., April 17, 1848; edited the *Vox Humana*, and was on the staff of the Boston *Advertiser* as musical critic, and one of the editorial staff of the Boston *Musical Herald*. He has written a number of songs, and a *History of Music in Popular Form; Curiosities of Music*, &c.

El'wood, in *Indiana*, a post-town of Madison co., 44 miles S.E. of Logansport, on Lake Erie & Western, and Pitts., Cin., Chic. & St. L. R. Rs.; has saw- and stave-mills, glass, tin, and flax factories, and many others; also does an extensive shipping business in grain and live stock. *Pop.* (1897) about 12,000.

E'ly, Richard Theodore, Ph.D., LL.D., educator and political economist, born at Ripley, N. Y., April 13, 1854; student of the State Normal School, Fredonia, N. Y., and of Dartmouth and Columbia Colleges. The University of Heidelberg awarded him the degree of Ph.D.; has held the chairs of Political Economy in Johns Hopkins University and the University of Wisconsin, besides other important positions. He has published the following works, which have been widely read: *French and German Socialism; Taxation in American States and Cities; Problems of To-day; Labor Movement in America; Political Economy*, &c.

E'ly, in *Minnesota*, a post-office of St. Louis co., 23 miles E. of Tower; is the terminus of Duluth & Iron Range R. R.; has a number of mines, and ships, considerable quantities of iron-ore. *Pop.* (1895) 2,260.

El'zevir, *a.* Pertaining to the Elzevirs or to their editions of the classics, &c.

Elzevir, *n.* One of the books printed by the Elzevirs. (*Print.*) A variety of type.

Embalm'ing, Recent Methods of. The art of preserving the body after death. For this art, as practiced in ancient times, see Embalming, Section I. It is proposed here to speak of the art as at present practiced for temporary or permanent purposes. The art of *E.* was probably never wholly lost in Europe; great success was attained by De Bils, Swammerdown, Clauderus, Gooch, Bell, and others; and Penicher describes a mode of embalming by incisions all over the body. Ruysch and William Hunter injected essential oils into the body, opening the arteries and forcing the solution into them, while the blood flowed out from an opened vein, the injection being continued until the *E.* liquid escaped from the vein. Boudet embalmed the body with camphor, balsam of Peru, Jew's pitch, tan and salt. Chaussier discovered the preservative power of corrosive sublimate, which makes animal matter rigid in consistency and grayish in color, though the dessication prevents the features from retaining their natural appearance. In 1834, Gannal discovered the preservative power of a mixture of equal parts of acetate and chloride of alumina or of sulphate of alumina; Tranchini that of arsenic; Babington and Rees, in 1839, that of pyroxitic spirits; while chloride of zinc was later introduced as a preservative antiseptic. In modern *E.* the purpose is not to render the effect permanent, but to preserve the natural color and shape until the time for funeral, or for transportation of the body home if at a distance. The permanence of the result depends upon the thoroughness with which the work is done and the character of the antiseptics used. A body well embalmed in this manner will retain its natural appearance for months if sealed in an air-tight coffin, the eyes alone shrinking—unless specially preserved. Such a body, if slowly dried, would far surpass an Egyptian mummy in naturalness. The substances generally employed are arsenic and the chlorides of mercury and zinc. Salt, carbolic, salicylic and benzoic acids, and some of the essential oils are also frequently used. The solution is made in water, with glycerin and alcohol, 8 or 10 per cent. of the antiseptics being dissolved. This solution is injected into the blood vessels in the manner described, and then into the thorax and the abdominal cavity, from 2 to 4 quarts of the solution being necessary for an adult. This injection soon destroys all putrefactive odor, the antiseptics destroying the ferments and putting an end to the process of putrefaction. *E.* has become a very common process in the U. S., being practiced by numerous undertakers, while there are large establishments for providing the necessary implements and materials. Undertakers usually employ proprietary *E.* liquids of whose composition they know very little; though those of these liquids which have been analyzed were found to contain the antiseptics named above, viz.: arsenic and mercuric and zinc chloride.—The preservation of animal specimens, as practiced so largely in museums, may be classed as a method of *E.*, and is most usually performed by placing them in a vessel filled with alcohol, in which, if properly cared for, their permanence seems assured. Many specimens are also preserved by being saturated with alcohol or some of the other antiseptics mentioned, and then dried and varnished. Such dry specimens are very permanent, surpassing the Egyptian mummies in moist climates, like that of England. Another method, largely pursued, is to displace the water of the specimen by alcohol, carbolic acid, or other antiseptic liquid; then by the use of turpentine, oil of cloves, etc.; and finally filling and enclosing it with Canada balsam, dammar, shellac, or other transparent gum, within which it lies like a fly in amber. Such a process, if applied to a human body, would be far superior, the body being indestructible if properly protected from injury. Of late years important progress has been made in the art of preparing and preserving museum specimens, and the most delicate ocean animals, hitherto incapable of preservation, and represented in museums only by glass models, are now kept in their natural appearance. Methods of instantaneous killing, while the animal presents its life-like condition, are employed. It is then placed in alcohol or other preserving liquid, so that now we are able for the first time to see in museums the delicate corals, hydrozoa and other creatures of fragile consistency in their natural form and state.

Emboss'ing, (*Manuf.*) The producing of a raised pattern, by blows or pressure, on sheet metal, leather, paper, or other yielding material. An example of *E.* by hand is seen in the operation of beating up, bossing, or *repoussé*, in which a vase, dish, or other article of sheet metal is decorated in relief by beating up the figures from an inner or under side. A similar result may be produced by the use of a die and counter-die, worked in a screw press, or by a fulling weight; but this is usually known as stamping. Writing and card papers are embossed by a steel die, the counter-die being of leather or millboard faced with gutta-percha. In this case the paper is moistened and a press used. In the *E.* of leather for book covers, or other purposes, brass dies and millboard counter-dies are used, pressure being obtained from a lever or screw press. If the ornament is to be in high relief, molds, or reverses of wood or metal are required, or separate ornaments of wood or papier-mache, fixed to a board, may be used. The leather is thoroughly moistened, and in its soft state is pressed into the molds by suitable tools, or spread over the fixed ornaments and worked into all their cavities with the aid of the fingers and a pointed tool. Paper pulp and similar substances are used to fill the hollows of the more deeply relieved portions. The imitations of embossed leather, now used for wall decoration, are made of canvass, paper, leather, &c., and occasionally even so fine a substance as satin. Embossed linen canvass is made by passing the dampened canvass over a metal roller heated with steam and having the pattern engraved or cut on it in intaglio. Pads or brushes press the canvass into the indentations as the rollers revolve. By means of additional rollers, paper is pasted on the back of the web, which in consequence becomes stiff and retains its shape when dry. Japanese wall papers are embossed in a somewhat similar manner, though flat instead of circular molds are employed. Very strong paper is used, which is stiffened with coatings of oil and lacquer. These embossed substances for wall decoration are usually colored and gilt. For the *E.* of calico and other textile fabrics, deeply engraved metal cylinders, fitted into calender frames, are employed. The counter roller has a covering of felt, which yields as the fabric passes over the die cylinder, pressing it

into the hollows of the pattern. Sometimes two cylinders, engraved as die and counter-die, are used. Wood may be embossed when thoroughly saturated with water and pressed with a red-hot iron mold, it being usually necessary to re-wet it and re-heat the mold several times. In a method of embossing wood invented about 1830, the design is first drawn on the surface, and all the parts to be in relief are depressed with a blunt tool. The wood is now planed down to the level of those depressed portions. It is then steeped in water, when the portions swell and rise, leaving an embossed pattern which may be finished by the carver. In the *E.* of wood veneers, an American process, metal dies are used. The word "embossing" is also applied to ornamental patterns etched on plate glass, for the panels of lobby doors, etc. It is likewise applied to embroidery on which the pattern is raised above the surface of the material.

Em'bryograph, *n.* An instrument for drawing outlines of embryos, &c.

Embryol'ogy, *n.* (*Biol.*) That department of biology which is concerned with the development of the individual organism, as contrasted with philogeny, which is concerned with the development of the race. It is a series of studies in the anatomy and physiology of the organism, from its first appearance as a germinal cell to that point at which it takes on the characters of the adult.

E. in the past was largely devoted to observations on the development of the chick, which was noted more than 2,000 years ago in Greece, and continued to be closely watched in modern times until the recent expansion of the science led to the study of the embryos of every form of animal and plant. A fanciful doctrine of the origin of the living form long prevailed, continuing even into the 19th century, although discovered facts had long before proved its inaccuracy; this was that the germ of a living being, whether egg or seed, was an exact copy, in miniature, of the adult; that the complete being, with all its organs and tissues, lay in the germ, and needed only growth or unfoldment to yield the adult. "There is no becoming," said Haller; "no part of the body is made from another; all are created at once." But this was not all. An extension of the theory held that the germ was more than a minature copy of the adult being; that it also included the germs of all future generations, one within another, in ever smaller form, like a juggler's nest of boxes carried to infinity. A controversy arose as to which element of generation, the male or the female, contained this intricate germ. One side claimed that the ovum was the more important and needed only to be energized by the spermatozoön. The other side claimed that the male element carried the germ, to which the ovum only supplied nutriment. As the theory was one which could not be disproved without study of the facts, it long held its own, though Harvey, as early as 1651, advanced a different proposition. He declared (1) that every form arises from an ovum, and (2) that the organs arise by new formation and not by mere expansion from microscopic dimensions. Wolff, in 1759, reasserted this, and declared that the material of the germ is almost structureless, and that the formation of the organs took place gradually from this. Wolff went too far, through lack of microscopic power. The material of the germ is not structureless, though it needed the development of the microscope of a century later to show the character of its structure. Pander took up Wolff's work in 1817, and was quickly followed by Van Baer, whose thorough investigations laid the foundation of modern *E.*

In 1838–39 the cell-theory was established, and it was shown that the organism begins in a fusion of two cells of opposite sexes, followed by division and re-division of the fertilized ovum, and the building up of the organs out of the separate parts thus produced. The true idea having been thus reached, as a sound foundation for later research, progress went on rapidly in the hands of a large number of able scientists, their observations covering the whole organic kingdom, and being devoted not only to the development of the ovum after fertilization, but to the formation of the cell (which was found to be far more complex in organization than had been imagined), and to the interesting behavior of the two germ cells in the act of fusion and the early stages of the subsequent development.

The Ovum. It has been established that the egg-cell or ovum is, in all organisms, the starting point of the development of the embryo; but that this does not



Fig. 2866.—ORGANISMS.

a, ovum showing egg membrane, granules and germinal vesicle; *b*, spermatozoon; *c*, hermaphrodite gland of snail, with ova and sperms; *d*, amœboid ovum; *e*, union of sperm-cell and egg-cell.

begin in any of the higher organisms until the female element has combined with the male element, or spermatozoön. These sex-cells are cellular units of the parent organisms, specialized to fit the purpose for which they are intended, and set free that they may serve as the beginnings of new organisms. The body cells take on special forms to serve their purposes in nerve, muscle and other tissues; but the germ cells are believed to retain the generalized characters of the original parent cell, and to be thus fitted to reproduce a similar organism. The Protozoa, or single-celled animals, each behaves like an ovum, and is capable of reproduction without fertilization. This is also the case with the germ cells of many of the lower many-celled organisms. But there is reason to believe that reproduction from the ovum alone can in no case go on indefinitely, but that eventually there must be a union of opposite sex-cells to reinvigorate the race. The ovum does not differ in character from other animal cells. It is made up of protoplasm, the highest organic chemical compound; and recent microscopic research

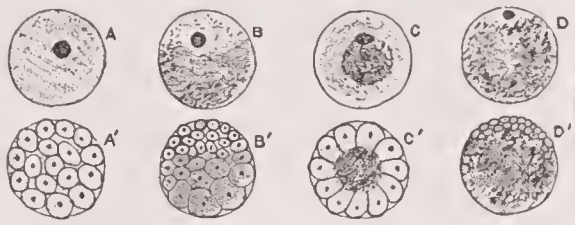


Fig. 2867.—RELATION OF YOLK TO DIVISION OF OVUM. (*Diagrammatic.*)

A, little and diffuse yolk.
B, more yolk at lower pole.
C, central yolk.
D, much yolk.
A′, total equal division.
B′, total unequal division.
C′, peripheral division.
D′, partial division.

proves that it is not uniform in structure, but that its substance is arranged as a net-work of fine fibrils, in whose interstices lies a fluid or semi-fluid material. Within the ovum is found a smaller cellular mass, called the nucleus, made up, like it, of netted fibrils and interstitial material. Research has shown that the nucleus plays a highly important part in the development of the embryo, in which it seems to be the active agent, and the seat of the hereditary characters; the outer cell being made up of less important or vitalized constituents, and serving mainly as a reservoir of nutriment for the new germ in its earliest stage of development. The ovum may be found in various parts of the structure of the lower animals, being simply a well-fed cell of the general organism; but in all higher

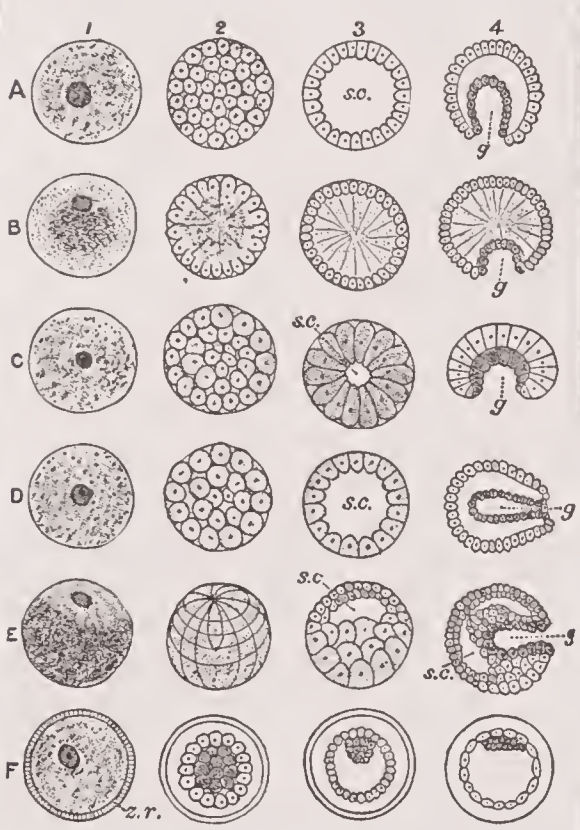


Fig. 2868.—FIRST STAGES IN DEVELOPMENT.

1, fertilized ovum; 2, ball of cells; 3, same, still more divided, or in section; 4, gastrula (except in F); A, sponge, coral, earthworm, or starfish; B, crawfish, or other orthopod; C, river snail, or other mollusc; D, lancelet, tunicate, &c.; E, frog, or other amphibian; F, rabbit, or other mammal; *s. c.*, segmentation cavity; *g*, gastrula invagination; *z. r.*, *zona radiata*, or porous envelope. Dark-shaded cells are endoderm, lighter are ectoderm; dots are yolk granules.

forms it is restricted to a distinct region or a definite organ (the ovary) where special facilities for its nutrition and growth reside. Its first stage of existence is merely one of nutrition and growth. This often takes place at the expense of neighboring cells, a single ovum being the successful survivor of a group. In other cases the ova are fed from the vascular fluid of the animal, or from special glands of the ovary. The nutriment thus obtained and laid up for future use is known as the yolk. This varies considerably in position and quantity, being very small and diffused through the cell in mammalian ova; larger in quantity, and sinking to the bottom, as in frog ova; or very large in amount, as in birds' eggs. In insects and crustaceans there is a central accumulation. Some form of membrane usually surrounds the ovum, often provided with a special aperture, the micropyle, for the entrance of the spermatozoön. Hard shells, like those of birds' eggs, must be formed after fertilization has taken place.

The Spermatozoön.—In the Protozoa there is rarely any apparent difference between male and female cells, though sometimes a small active organism unites with a larger and more sluggish one. As we ascend higher in the animal kingdom the distinction becomes strongly marked, the spermatozoön being one of the smallest and most active of cells, while the ovum is one of the smallest and most passive. The former is greatly lacking in the nutritive material with which the latter is so largely provided. In most animals the spermatozoön presents three parts, the "head," which is almost made up of the nucleus; the "tail," which resembles the cilia of monads; and a middle portion connecting head and tail. This tail portion is capable of active, whip-like motion, and carries the head to the locality of the ovum, there to enter union. Germ and sperm cell are alike in origin, but differ in development to adapt them to the unlike parts they have to play in the organic process.—*Maturation of the Ovum.*—When the egg cell has attained its full growth, it is found to bud off tiny portions, minute cells, which are known as polar globules. This takes place in advance of fertilization; the buds come to nothing, and the meaning of the process is a mystery. It is found that a spindle-like network, as in all cell division, is formed within the cell, and that each polar globule is a pole of one such spindle, and therefore a true cell, though very minute as compared with the remaining cell. Various theories have been advanced to explain this peculiar process. Some writers hold that the ovum has both male and female conditions, and that in this way it gets rid of its male element and becomes predominantly female. Others maintain that it is the survival of an ancient habit of the cell, which the male cell still retains in its division into spermatozoa, the polar globules being rudimentary or abortive cells. Weismann maintains that in this way the cell gets rid of half of its germ substance, to be replaced by an equal quantity from the spermatozoön. Evidently some useless or injurious matter is got rid of, though just what is not likely soon to be known.

Fertilization. By extended investigation, much has been learned in regard to the union of spermatozoön with the ovum. The former seeks the latter, moving actively toward it by the aid of its lash-like tail, and as if through some attractive influence, and penetrating through its wall to the interior. The following facts have been learned through recent investigation: Normally, only one male element unites with the ovum, though a considerable number may assail it. A sudden

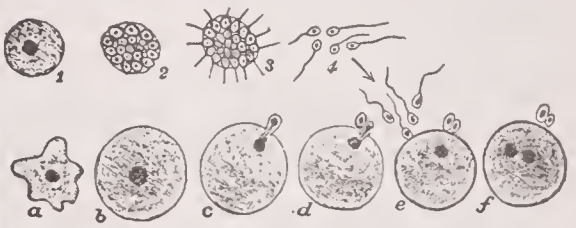


Fig. 2869.—MATURATION AND FERTILIZATION.

1–4, division of a mother-sperm-cell or primitive-male-cell into a divisible ball of spermatozoa; *a*, amœboid young ovum; *b*, later stage; *c*, budding of first polar cell; *d*, of a second; *e*, spermatozoa around ovum; *f*, male and female nuclei about to fuse on completion of fertilization.

change takes place in the membrane after the entrance of one sperm, which renders it impervious to others. Occasionally more than one gains entrance, but such an occurrence is abnormal and gives rise to an abnormal development. The union between the two cells is a very intricate one. The male nucleus, which constitutes nearly the whole head of the spermatozoön, seeks the nucleus of the ovum, they being drawn together as if by attraction. On meeting they unite so that the two form a single new nucleus. Yet close as is the union, neither of the elements loses its powers; and in the result the hereditary characteristics of both parents can be traced. These are the facts that have been observed; what they all mean is an unsolved problem. Some think that the sperm acts as a kind of ferment, stimulating action in the ovum. Weismann maintains that the sperm simply replaces the germ substance lost in the extrusion of the second polar globule, and that there is no essential characteristic peculiar to each sex. What we actually know is that the new nucleus is made up by half of male and half of female elements, and that in these halves the hereditary characteristics persist; and we have further good reason to believe that the activity, chemical or molecular, of the sperm cell overcomes the passiveness of the egg cell and stimulates it to subsequent division. Fertilization seems a necessity throughout the whole series of living forms, even in those low creatures in which the ovum has for a time the power of self-development; the mingling of opposite sex elements, different in constitution and perhaps in chemical organization, being seemingly essential to the continuance of the race, perhaps through prevention of too great uniformity in condition and the loss of vital strength in consequence.

Segmentation. The next process is the segmentation or division of the egg. Soon after fertilization the new-formed nucleus opens into a nuclear spindle and goes through the process of cell division (for the

details of which see article CELL). In this way the cell divides into two connected halves, and these into quarters, the division going on until a group of new small cells is produced. The method of division differs in accordance with difference in character of egg formation. Where there is little nutriment provided, the whole ovum divides, now vertically and again horizontally, segmentation continuing until a small sphere of cells of closely equal size is formed. This is the case with mammalian ova, and those of the sponge and starfish. In the ovum of the frog, segmentation is still total, but it is unequal, the cells of the upper half dividing more rapidly and becoming smaller than those of the lower half, where most of the yolk is gathered. In birds, reptiles, and many fishes there is a large quantity of yolk, and the division is partial, being confined to a small spot of material on the surface of the yolk. In the case of insects, crustaceans and allied forms, in which the yolk accumulates in the center of the ovum and is surrounded by a more active formative protoplasm, the latter divides and forms a sphere of cells around the yolk, in which little division takes place.—*Morula and Gastrula.* Segmentation, by which ever method it takes place, yields a more or less spherical mass of cells; which in some instances leaves a cavity in its interior, forming a hollow sphere, called the blastosphere, and in other instances presents a largely solid mass or ball of cells, of a mulberry-like appearance, whence it has been named the *Morula*. In the case of partial division, like that of the bird's egg, the segmented material becomes a disk of cells lying on a portion of the surface of the yolk. This gradually spreads at its edges, and in time envelopes the whole yolk. Such a disk-like area is known as the blastoderm. From the morula is formed a sac-like body named the *gastrula*. In the simple case of a hollow ball of cells this is produced by invagination, as when one-half of a rubber ball is pressed into the other to form a cap, or a glove finger is doubled back into itself. One hemisphere sinks into and becomes surrounded by the other, forming the interior and the latter the exterior of a sack composed of two layers of cells—the original sphere having but a single layer. In other cases the morula is so composed that this simple form of invagination is impossible, but by some process or other a gastrula, or two-layered arrangement of the cells, is produced. In the case of most Hydrozoa this result is produced by an internal differentiation of the cells, known as *delamination.—The Germinal Layers.* The cells which are thus produced do not remain alike for a long time. Differences appear even in the morula, and become marked in the gastrula, the cells of the interior being particularly different from those of the exterior. They are under different conditions and have different duties to perform, and vary in shape and size accordingly. These two layers have received the names of *ectoderm* and *endoderm*, for the outer and inner respectively. The formation of a two-layered form appears to be universal in animals. In sponges and Cœlenterates the process stops at this stage; and some of the simpler sponges are little or nothing more than an invaginated gastrula, they reaching their limit of development at this stage, that of the primitive stomach. But in all the higher forms a third intermediate layer of cells appears, which is known as the mesoderm. It arises in different ways, its origin not being very easy to determine. One common mode is said to be by the formation of two sacks in the material of the inner layer, which grow outward, one on each side, insinuating themselves between the originally body layers and forming a middle layer of two divisions, the body thus gaining four germinal layers. The cavities of the sacks form the future body-cavities of the animal. The outer portion of the mesoderm lines the external body wall, and in it the muscles and various other organs are formed. The inner clings to the internal layer and forms the visceral portion.

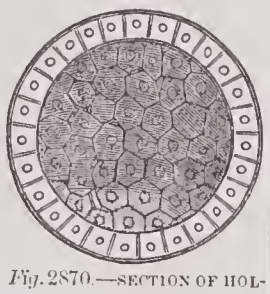


Fig. 2870.—SECTION OF HOLLOW BALL OF CELLS, OR BLASTOPHERE.



Fig. 2871. GASTRULA.

GROWTH OF ORGANS. The development of the embryo up to this point has been simple. In the later development of the body each germinal layer plays an active part. The ectoderm gives rise to the outer skin and its appendages, the external skeleton where present, the superficial glands, the nervous system, &c. From the endoderm comes the visceral membranes, and their outgrowths, such as the lungs and various internal glands. In vertebrate animals it also gives rise to an important embryo structure, the *notochord*, which always precedes the development of the backbone. All the other organs of the body arise from the mesoderm, including the internal skin, the muscles, the internal skeleton, the connective tissue, the lining of the body cavities, and the blood and its containing walls. The reproductive organs also usually arise in connection with the mesoderm. Some of the organs, however, have a compound origin. Thus the eye is an outgrowth from the brain, and therefore ectoderm in origin; but some of its structural parts arise from the mesoderm.—*Mammalian development.* The phenomena attending the embryo development of the lower forms differ in many particulars, as the gastrula gradually takes on the special characters of the order and species, the general characteristics first appearing, and gradually the more special ones, ending with those of the race or species, and the individual. In the development of a mammal certain general steps are passed through in all cases; then less general ones appear; and what might have become any mammal, now takes on characteristics special to a more restricted class, the process gradually narrowing toward the special creature destined to appear. The germinal layers, once differentiated, begin quickly to display inequality of growth and specialization, yielding stage after stage of progress towards the final form. The *embryonic area* of what is to become a mammal, when looked upon from the surface, presents a somewhat clear central field, surrounded by an opaque peripheral section. From the caudal pole of the area there extends forward through the clear space, or *area pellucida*, a central opaque line, called the *primitive streak*. It is a temporary appearance, which forms no part of the embryo proper, though indicating where it is to form. The formation of the primitive streak is soon followed by that of two diverging folds, embracing the anterior part of the primitive streak. These ridges form the *medullary folds*, and the depression between them the *medullary groove*. At the bottom of the latter a rod-like layer of cells, the beginning of the *notochord*, soon forms. This marks out the line of the vertebral column, and the axis of the embryonic structure. Over the groove the folds in time unite, a canal or tube being formed, from which arises the nervous tract of the spine and brain. On either side segmental cleavages appear in the tissue, called the *somites;* temporary conditions, marking the places of future vertebræ. While these changes are taking place without, others are occuring within, including the formation of the primitive body cavity, by the separation of the mesodermic layers, and the formation of folds from which the body walls and the visceral tubes are afterward produced. These are the general features of the early development of mammalian embryos. There are others relating to the development of special parts, such as the appearance of the gills—which precede the lungs of the higher forms—the outgrowth of the tail, the formation from the cerebral part of the neural tube of the rudimentary brain, and the outgrowth of the various temporary appendages of viviparous animals requisite to nutrition within the womb,—the *amnion*, the *chorion*, and their accompanying structures. What energies and internal influences are at work in all these stages of development is not easy to trace. Evidently special

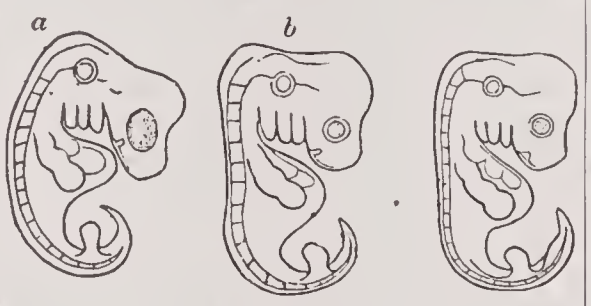


Fig. 2872.—EMBRYOS.
Comparing: *a*, fowl; *b*, dog; *c*, man.

conditions of structure and energy exist in the germinal cell of every species of animal and plant which govern and control its development, for which only nutrition and suitable protection are necessary, every step of the progress being governed from within, not only those general ones which mark out the broad features of organisms in general, but those which give rise to special organs, to family features, and to individual traits. These conditions must be very complex, minute as is the germ, and capable, by the aid of their inherent energies, and by directing the flow of each particle of nutriment, and its deposition in the requisite place, to carry out the plan of structure; while the brain organism must develop in such a manner as to provide conditions for the subsequent traits of mental disposition, of which the foundations are hereditarily laid. Consideration of this leads to questions which it is at present impossible to solve, and with this brief statement of their character we may close.

Em'bryoscope, *n.* An instrument used for observing the development of embryos.

Em'eril, *n* A glazier's diamond.

Emerson'ian, *a.* Pertaining to Ralph Waldo Emerson or his writings; hence, transcendental, oracular, terse or forcible in style.

Em'ery, in *Utah*, an E. co.; *area*, 5,723 sq. m. *Surface*, mountainous; *soil*, fertile. Minerals of various kinds are mined. *Pop.* (1895) 4,390. *Cap.* Castle Dale.

Emic'tory, *a.* (*Path.*) Diuretic.
—*n.* A medicine that increases the flow of urine.

Em'in Pasha' (EDWARD SCHNITZLER), born at Oppeln, Silesia, March 28, 1840; graduated at Berlin University (1854), and soon after entered the service of Turkey and on the staff of Hakki Pasha traveled through Asiatic Turkey. In 1876 he entered the service of the Khedive of Egypt, adopting the name of Emin, accompanied Gen. Gordon to the Soudan, and was appointed by him governor of the equatorial province, receiving (1879) the title of Bey, and (1887) that of Pasha. The successful rebellion under the Mahdi left him isolated from Egypt until 1889, when he was rescued by Stanley, who had travelled for this purpose from the Congo to the Albert Nyanza. Journeying to Zanzibar, Emin in 1890 entered the German service, and set out on an exploring expedition in the region between Lakes Victoria Nyanza and Tanganyika. In 1892 he started with a band of Memyenas for the Congo, and on Oct. 20, when near his destination, he was murdered by the leader of the band. Emin was one of the largest contributors to zoological and anthropological knowledge of Central Africa, his collections in natural history being large and valuable.

Em'mons, in *North Dakota*, a S. co.; *area*, 1,584 sq. m. *Surface*, undulating; *soil*, fertile and well watered by Beaver creek and smaller streams. *Cap.* Williamsport. *Pop.* (1897) about 3,000.

Em'ory, WILLIAM HEMSLEY, soldier, born in Maryland, September 19, 1811; graduated from West Point (1831) as lieutenant of artillery; served at various points on the Atlantic coast, and later under Kearney in California and Mexico, reaching the rank of lieutenant-colonel in 1857; resigned in 1861, but was made brigadier-general of volunteers in 1862; served under Banks, in Louisiana, the following year, and in 1864 commanded a corps, as brevet major-general, doing very effective work in the Shenandoah Valley; was commander of the department of West Virginia (1865–66), of Washington (1869–71) and of the Gulf (1871–75); retired in 1876, with the rank of brigadier-general, U.S.A., and died at Washington, Dec. 1, 1887.

Emo'tional, *a.* Pertaining to or characterized by emotion; liable to emotion; excitable.

Emo'tionalism, *n.* The quality or state of being emotional, or liable to emotion.

Emo'tive, *a.* Tending to excite emotion; emotional.

Empathe'ma, *n.* [Gr. *empathes.*] (*Pathol.*) Uncontrollable passion induced by disease.



Fig. 2873.—EMPEROR MOTH.
Showing caterpillar, pupa, cocoon and imago.

Em'peror, *n.* (*Entom.*) The purple emperor, a butterfly (*Apatura iris*).—One of various silkworm moths. (*Zoöl.*) A boa of Central America.

Emperor-goose, *n.* (*Ornith.*) A large goose of Alaska (*Philacte canagica*). The body is bluish gray, with black and white bars; the head mostly white.

Em'pery, *n.* Empire, sovereignty, dominion, power. —An empire, the country under the dominion of a prince.

Emphrax'is, *n.* [Gr.] (*Pathol.*) Unnatural obstruction in some passage or cavity of the body.

Em'pire City, in *Kansas*, a city of Cherokee co., 10 m. from Columbus. *Pop.* (1895) 838.

Emplec'ton, *n.* [Gr. *emplectos*, interwoven.] A kind of masonry having a squared stone face; in the Greek it is solid throughout, and in the Roman has a filling of rubble.

Employee', *n.* [Fr. *employé.*] One who is employed or engaged in the service of another.

Empo'ria, in *Virginia*, a post-town, cap. of Greenville co., 22 m. from Lawrenceville, on Atl. & Danv. and Atl. Coast Line R. Rs.; has planing mill and veneering factory. *Pop.* (1897) 1,580.

Em'press-cloth, *n.* (*Fabrics.*) A dress material of wool, or of woolen weft and cotton warp, which resembles merino, but is not twilled.

Emul'sion, *n.* (*Pharm.*) The milky extract of bitter almonds, or a substance contained in it, which acts as a ferment to decompose certain glucosides.

Enam'elled Iron. (*Manuf.*) A method of successfully applying a vitreous surface to iron has been sought for since early in the 19th century, and various processes for this purpose have been patented. The chief difficulty in doing so arises from the tendency of the iron to oxidize before a sufficient temperature is reached to fuse the enamel, and also to become brittle from a combination of its oxide with the silica of the enamel. This action is superficial, and is more injurious to thin than to thick iron; so that heavy cast-iron vessels can be enamelled more easily than those made of sheet iron. The enamels used in coating iron consist of a mixture of silica and borax with such basic substances as soda, oxide of tin, oxide of lead, alumina,

&c. Lead, however, is not safe to use in vessels intended for culinary purposes. A great variety of articles are now cheaply produced in enamelled iron, such as grate-fronts, clock-dials, name-plates, sign-boards, panels, &c., many of them beautifully decorated in colors. Corrugated roofing is also enamelled. The effect of heat is to cause a greater expansion of the iron than of the enamel, so that the latter cracks and peels off. Acids also find their way through the best enamel, and spreading between it and the iron, break the connection between them. If, for instance, an enamelled vessel is filled with a solution of sulphate of copper, the acid makes its way through minute pores to the iron, depositing at all such spots little beads of metallic copper, which grow till large enough to be plainly seen. This is the severest test to which enamelled iron can be subjected.

Enas'cent, *a.* Coming into being; nascent.

Enate, *a.* [Lat. *enatus.*] Growing out.—Related on the mother's side.

Encho'rial, *a.* Used in, or peculiar to, a particular country; native, common, demotic; used especially of the writing of the ancient Egyptian language that followed the hieroglyphic.

En'chyma, *n.* [Gr.] (*Biol.*) The formative juice from which the tissues, especially the cellular tissues, are formed.

En'cinal, in *Texas*, a post-town of La Salle co. *Pop.* (1890) 562.

En'cratite, *n.* [Gr. *Enkrates.*] (*Ch. His.*) One of a sect in the early Church that abstained from marriage, wine and animal food, otherwise called CONTINENT.

Encyc'lical, *n.* An encyclical letter, especially one from the Pope to all the bishops.

Endeav'orer, *n.* In a specific sense, a member of the Society of Christian Endeavor (*q. v.*).

End'-man, *n.* One of the two men at the ends of a company of minstrels on the stage, who keep up the comic dialogue.

Endocar'diac, *a.* Pertaining to the endocardium.

Endocardi'tis, *n.* (*Pathol.*) Inflammation of the endocardium.

Endorm', *v. a.* [Fr. *endormir.*] To hypnotize.

En'ergy. (*Physics.*) The power of doing work possessed by any material system. *E.* inheres in matter. It has no manifestation separate from matter, which is therefore often defined as the vehicle of *E.* As a common illustration of *E.* may be given that of a bullet projected upward into the air. It starts with a large supply of *E.*, or power of doing work in overcoming gravity and friction. As it ascends its power of overcoming resistance lessens, and finally vanishes, the bullet coming momentarily to rest at its highest attainable elevation. But it has not really lost the power of doing work. It manifests this power in its descent, gaining speed as it falls, and finally reaching the earth with its initial speed and power of doing work, except to the extent that it is checked in its descent by the resistance of the air. Thus, when at its highest point and at rest, the bullet must have possessed its full sum of *E.* This fact has led to the theory that there are two forms or types of *E*, *energy of motion* and *energy of position*, or, as usually entitled, *kinetic energy* and *potential energy.* Nature presents us with numerous examples of both types. A current of water possesses kinetic *E.;* a stone resting on the brow of a cliff, and capable of falling is moved, possesses potential *E.* An oscillation pendulum possesses kinetic *E.* when in the center of its swing, potential *E.* in its resting positions at the extremities of its swing. A bent spring possesses potential *E.* When released and permitted to act, it manifests kinetic *E.*—*Heat energy.* Heat is another form of *E.* It is now known that heat-effects result from motion of the particles or molecules of the heated body, and that the greater the manifestation of heat the greater the rapidity of this motion. This motion is invisible, from the extreme minuteness of the particles moved; but it can readily be caused to change its form from molecular to mass motion and thus become evident to the senses. Thus, in a steam engine the invisible motions of the particles of the burning fuel and of the expanding steam are converted into the visible motion of a piston rod and of its connected machinery. When heat is in what is known as the latent state, or one in which it is not manifested exteriorly, it is occupied in overcoming the forces of the molecules, altering and controlling their relative distances and enabling them to resist atomic attraction; and it thus acts as *E.* of position.—*Radiant energy.* Another very common form of *E.* is that known as radiation, the transfer of *E.* through the ether by means of waves of undulation. This *E.* takes the three evident forms of heat, light, and actinism, and may possess other less recognizable forms, indicated by undulations of greater slowness or swiftness than those of light and heat. *Current electricity* is believed to be one of these forms, while the attraction and repulsion of charged conductors, and similarly of magnets, are conditions of potential *E.*, which is converted into kinetic *E.* if visible motion arises from these inherent forces. What is known as the Roentgen ray is perhaps another form. Another form of *E.* is that of *chemical separation.* Carbon and oxygen, for instance, exercise an attraction for each other, which may be designated as potential *E.* while they are separated, but kinetic *E.* when they rush together and combine in response to this attractive force. In this case, as in many others, the *E.* exercised is set free as heat, which in the case of chemical work can be readily transformed into visible motion, as in the motion of machinery caused by chemical process of the burning of coal, or the explosive effect due to the burning of gunpowder.—*Energy the effect of motion.* In nearly all the instances adduced the *E.* is evidently the force exerted by matter in motion, whether this motion be the visible one of masses, the invisible one of molecules or atoms, or the exceedingly delicate and swift motions of the ether. Such is the case in all instances of kinetic *E.*, the motion here being either visible in itself, or easily convertible from its invisible into a visible form. This is not evidently the case in potential *E.*, where the force engaged seems to sink back into the body concerned and to take on some other form which can readily be re-converted into motion. This is the existing theory, but it seems an illogical one, and the writer of the present article long since ventured to dissent from it, basing his heretical views on the seeming impossibility of converting mo ion into any form of non-motion. It is generally acknowledged that *E.* in the great sum of its ordinary manifestations is the effect of motion of matter, or momentum, and that in all its known conversions it is simply changed from one type of motion into another, as from heat into electricity and the reverse, constantly inhering in ether or ordinary matter. Indeed, we cannot imagine the existence of motion apart from something moved, and it seems equally impossible to conceive of motion as becoming something that is not motion. It is equally difficult to conceive of the transfer of *E.* from motion to any other vehicle of force, particularly in view of the fact that no such vehicle has ever been manifested to human apprehension, and none such is known to exist. How, then, are we to explain *E.* of position, if we maintain that all *E.* is a phenomenon of motion? This is not difficult to do in what is the most usual illustration of potential *E.*—that of a bullet shot upward, or some other body forcibly projected in a more or less vertical direction. As it ascends higher and higher its apparent motion decreases and finally vanishes when it reaches its highest point of ascent. Its *E.* vanishes in the same ratio; and if we affirm that the *E.* is transformed into some other form, we must affirm the same of the motion, since it also disappeared. Yet science tells us that motion cannot be destroyed, and that in every case of apparent disappearance it is simply transformed to some other mode of motion. In the instance in question, it is not difficult to decide what this new mode of motion is. As the body is driven upward, some of its motion is converted into heat through friction with the air and escapes outward. But the great disappearance of motion is due to the attraction of gravitation; and the mass motion lost through this cause cannot escape, but must remain within the moving body. In all probability it is simply converted into motion of molecules, or heat, the total motion being converted into heat when the upward movement ceases. The upward motion of such a body is, in fact, a motion of molecules. Science teaches us that each molecule of a solid is an individual, which remains separate from all others, and possesses its own field of motion. When flung upward, the body of molecules simply move upward in company. When this upward motion is checked, they simply begin to vibrate, revolve, or move in their special individual manner more rapidly. When the movement ends, all upward motion is converted into local motion or molecular vibration. During the descent of the body this molecular motion again becomes, in part, motion of transfer through space. When the ground is reached much of it reappears as heat, caused by the check to mass motion. If this be really the transformation undergone by the motion, the same may safely be affirmed of the *E.* It continues an effect of motion in matter, but becomes one of heat motion in the case of potential *E.*, and is retransformed to one of mass motion in the case of kinetic *E.* This line of argument could readily be transferred to the other instances of variation from kinetic to potential energy, but the subject cannot be further considered here, and must be left to the reader.—*Transformation of Energy.* The transformation of *E.* from one form to another, of which some instances have been given, can be affirmed of all forms of *E.*, as that of heat, light, electricity, magnetism—all, indeed, except gravitation, which has as yet shown no correlation with the other forms, and which appears a fixed and unvarying attribute of matter—that is, the attractive force, not the *E.* of motion resulting from its exercise. To what extent it may be due to motion no one is yet able to say. That it is an attribute of matter in itself, and not one confined to matter in motion, cannot be affirmed from any knowledge yet possessed by scientists. As regards the transformations of *E.*, we may instance the familiar ones of the change of electricity into heat, light, and magnetism, of the motion of impact into heat, of mass motion into molecular motions, and various other well known to scientists. As no motion disappears, so no *E.* disappears, every seeming disappearance being simply a transformation.—*Conservation of Energy.* What has just been said is an asseveration of another characteristic of *E.*, its fixity in quantity, and the impossibility of any loss or gain in the general sum. The total amount of *E.* in any material system cannot be varied, provided this system neither parts with *E.* to nor receives *E.* from any external body. It may change in form, may vary from heat into light, electricity, &c., but its sum will remain the same; and if a degree of heat in such a system, after passing through other forms of *E.*, could all be transformed back into heat and allowed to manifest itself outwardly, the final would be the same as the initial temperature.—*Dissipation of Energy.* There is one tendency, however, which must be alluded to—that known as dissipation, but preferably called degradation of *E.*—that tendency which all forms of *E.* show to become finally transformed into heat, and that of heat to radiate outward and disappear in the depths of space. Through this *E.*, the *E.* of the spheres of the universe is steadily being lost. The sun is pouring out heat at a prodigious rate, with no indication, or at least very little indication, that this lost heat is being restored to it from the depths of space. The planets are similarly losing heat—their own and that received from the sun. The heat *E.* of the solar system is thus steadily flowing away, refrigeration is slowing approaching, and if the process continues, a series of chilled and dead worlds promise to succeed the living ones we now recognize. Many scientists hold that this process is necessarily continual and the result inevitable. Others hope that at some time and in some way a reverse process may set in and the lost vitality of the universe be restored—though no one can suggest just how this is to be done. The problem is one beyond the present powers of man, and may be beyond all future powers.

Eng and **Chang,** the SIAMESE TWINS, born at Bangesan, Siam, April 15, 1811. Lived in the U. S. for many years, and after a number of exhibitions retired to private life at Mt. Airy, N. C., as Eng and Chang Bunker. They each married, and left a number of children. The twins were connected, near the navel, by a band a few inches long, and 8 inches in circumference; their livers were connected with each other by small blood vessels, and were close to the connecting band. They lived until August, 1870, *C.* dying unexpectedly from a paralytic stroke, his brother surviving him but a few hours.

Engineering.—*Continued from* SECTION 1, *page 976.* Engineering is further to be considered under *Dynamic E.*, which concerns the generation and transmission of power, the invention and construction of machinery, &c.; *Electrical E.*, which has to do with the transmission of power by electricity and the application of electricity to lighting, heating, transportation, &c.; *Heating E.*, the placing in buildings of apparatus for heating them by hot water, air or steam; *Hydraulic E.*, which is the designing and constructing of water works, the development of water power, the building of dams, breakwaters, &c.; *Sanitary E.*, the planning, arranging and inspecting of systems of drainage, sewerage, plumbing, &c., with the specific object of promoting the general health and comfort; *Topographical E.*, the surveying and describing of places, districts or countries, with reference to their physical features—contour and elevation of the land, waterways, &c. Besides these could be mentioned *Agricultural, Gas, Steam, Mining, Marine* and *Mechanical E.*, the terms themselves sufficiently denoting the various operations.

En'gle, in *Colorado*, a post-village of Las Animas co. *Pop.* (1890) 701.

En'glish, EARL, rear-admiral U. S. Navy, born in Burlington co., N. J., Feb. 18, 1834; entered the navy, and in 1862 had command of several vessels of the Gulf blockading squadron, and later of the steamer *Wyalusing* of the North Atlantic blockading squadron. He was engaged in the capture of Plymouth, N. C. (1864). Retired Feb. 18, 1886, and died at Washington, D. C., July 16, 1893.

En'glish, THOMAS DUNN, poet and journalist, born in Philadelphia, June 29, 1819; studied medicine at the University of Pennsylvania, receiving the degree of M.D. (1839); afterward became a student of law, and began practice in 1842. He was the author of several novels and dramas, and contributed numerous poems and prose sketches to periodicals. In 1842 he published the song of *Ben Bolt*, which won popular favor at once. Later productions included a series of ballads on events in American history.

En'glish, WILLIAM HAYDEN, lawyer, banker and politician, was born at Lexington, Ind., August 27, 1822; was educated at South Hanover, and practiced law in his native town. Entering politics, he filled several important posts, becoming a member of the Indiana legislature (1851), and member of Congress (1852–60); engaged in banking at Indianapolis, retiring on account of ill-health in 1877; in 1880 was Democratic nominee for Vice-President on the Hancock ticket. In his later years was president of the Indiana Historical Society, and wrote a treatise on the constitution of that State. Died Feb. 7, 1896.

En'glish, *n.* (*Print.*) A size of type about 14 points.—A variety of type-face, often called *old English.*

(*Games.*) A twist, or spinning motion, given to a billiard ball by striking it on one side.

—*v. a.* (*Games.*) To strike a billiard ball so as to give it a rotary movement as well as a forward motion.

Engrav'ing, Pho'to-. Within a recent period methods of producing book illustrations have been devised which threaten in great measure to put an end to wood-engraving, from their much greater cheapness, rapidity of production, and the public satisfaction with their photographic accuracy of detail. The object aimed at, in what are called "process" methods, is to reproduce drawings in line or wash, in fac-simile, on a relief block capable of being printed upon an ordinary book or newspaper press. That is, the lines or parts which impress the paper are left in relief, while the white parts are cut out so as to leave the paper unprinted. Process relief blocks may be divided into two kinds—those reproduced from black and white, or line drawings by pen and ink, and those in half-tone, from photographs or wash drawings. The simplest method of reproducing line drawings is to transfer the drawing made on transfer paper, in the ordinary lithographic manner (see LITHOGRAPHY), to the polished surface of a zinc plate—zinc being used from its cheapness and its ready solubility in etching-acid, though copper is employed for very fine work. The transfer being made, the plate is

moistened and the lines repeatedly inked until they are thickly covered. Then powdered asphalt or similar substance is dusted over the plate, which is heated until the asphalt is incorporated with the ink. The back and edges of the plate are varnished to protect them from the acid, and the plate is put in an acid bath, where the uncovered parts are eaten or etched away, leaving the protected lines in relief. This process needs great skill, the etching and gentle heating being several times repeated, the latter to protect the lines from the acid by causing the protecting material to run down their sides, but not sufficient to fill their cavities. The larger white spaces are afterward generally cut deeper with machine drills, a process which is technically termed "routing." When the subject to be reproduced is one that cannot be transferred, as an engraving, pen and ink drawing, &c., photography is brought into play, a process which has the advantage that the reproduction may be made of any size desired, while a drawing on transfer paper must remain of the original size. The photograph is treated as for as a photo-lithograph, transferred to stone, and a re-transfer taken to put on zinc, when the work is completed in the manner described. These several transfers, however, injure the sharpness of the drawing, and a more direct method of putting the drawing on the zinc is preferable. The method employed is based on an interesting fact discovered in 1826, by Nicéphore Niepce, a French chemist. He discovered that bitumen, under certain conditions, becomes sensitive to light, the parts acted upon by light growing insoluble, while the unaffected parts remain soluble. This discovery led to important results in the domain of illustration. Niepce exposed a sheet of metal, coated with bitumen which had been dissolved in oil of lavender, to the sun, under a drawing on glass. The parts unprotected by the lines of the drawing, and in consequence acted upon by the sun, became insoluble, while the protected portions remained soluble. Oil of lavender was now used to wash away these soluble parts, and the metal below was etched by an acid, leaving a reproduction of the drawing in relief. Many modern processes are based on this principle, other substances having been found to replace bitumen which are quicker in action than the latter, and on the whole much more economical and generally satisfactory.—*Zinc Etching.* The method of reproducing line-work at present in vogue may be briefly described, as follows: A sheet of polished zinc is coated with a thin solution of albumen and bichromate of ammonium, being thus sensitized. When dry it is placed in a printing frame, in absolute contact with the negative (prepared in the usual way) of the subject to be reproduced. An exposure of from 30 seconds to 3 minutes in sunlight (or from 4 to 8 minutes in electric light) depending upon the clearness of the negative, is sufficient to make the print upon the sensitized zinc plate; the effect of exposure being to harden the albumen coating on lines corresponding to the clear lines in the negative, leaving the remainder of the coating soluble. The next process is to cover the entire face of the plate with an even coating of transfer ink, using a lithographer's roller for this purpose. The plate is then put into a bath of water and its face gently rubbed with a soft rag or wad of cotton. The effect is to develop the picture, the ink washing away where the albumen has continued soluble, and remaining upon the lines that have been acted upon by the light in the process of printing and are thus rendered insoluble in water. The plate is now dried by heat in an oven or over a gas jet, and dusted with a red, resinous powder, called dragon's blood. This powder adheres to the inked lines, and is dusted off the other portions of the plate, which is again heated, melting the powder, which then hardens and protects the lines of the picture from the action of the etching fluid. The plate next goes into the etching tub, remaining for a few minutes, under the eye of a skilled operator, until the first "bite" is finished. It is then removed, dried and again powdered with dragon's blood, the powder being brushed the four ways of the plate (and each time re-heated), so as to protect all sides of every line and prevent the acid from eating under. The etching process is then repeated, some classes of work requiring a third and fourth "bite" to reach perfection. When etched to the required depth, the plate is routed and tacked upon a block type-high. It is then ready for the press. This is the most rapid process yet devised, it being quite possible to make excellent reproductions within less than an hour's time—a feat frequently accomplished for newspaper illustration, by means of the electric arc, in the wee hours of night.—*Gelatine Processes.* There are several gelatine processes, the most usual of which may be described. In what is known as the *swelled gelatine* process, a plate of glass, coated thinly with bichromatized gelatine, is exposed under a negative taken from a line drawing. This is afterward soaked in cold water, when the parts not acted on by the light swell up sufficiently to allow of a cast in relief being taken. The cast is made in wax, and from it a plaster of paris mould is taken and a stereotype made. This process yields a very shallow plate, requiring much hand finishing, and has been very little used in recent years. The relief gelatine process—commonly termed the "wash-out process"—is another method once popular but now practically supplanted by later and better modes. In this a coating of bichromatized gelatine, about $\frac{1}{16}$ of an inch thick is spread upon a glass plate having its surface prepared so as to prevent sticking. Portions of the gelatine film thus produced are cut out and removed at pleasure, and upon them are printed the negatives. The film is "washed out" with hot water and a brush, the hardened lines of the picture remaining in relief; it is then mounted, with shellac, on a thin zinc plate and electrotyped, ready for use. The foregoing are only a few out of very many methods employed for "direct" reproduction, each with some slight point of difference, but all founded on the single principle of employing a substance rendered insoluble by light.

Half-tone Process.—The methods above described relate to line drawings or engravings. Where the picture to be reproduced is a photograph from nature, or a drawing made by washes of black and white, the problem becomes far more difficult and delicate. Intaglio plates made from such originals have for many years been successfully produced (see Photogravure, below); but the production of relief blocks baffled all efforts until the problem was at length solved by Meisenbach. In a relief block every part which touches the paper prints black and every part which does not touch it remains white, a result which rendered it next to impossible to reproduce the gradations of tone from light to shade of such a photograph or drawing. What was sought for was some method of breaking up the gradations of shade into some sort of grain, stipple or line, which should be grouped closely in the darkest parts and open out as the shadows lessened in density, gradually merging into the open lights. Numbers of methods were devised and patented looking toward this result, but nothing satisfactory appeared until 1882, when Meisenbach, of Munich, patented a method on which all the most successful subsequent methods are based. This system, as now developed, may be briefly explained: Two glass plates are ruled in very fine parallel lines—ranging from 80 to 200 lines to the inch, but usually about 133; these are joined to make a double plate, the lines on one running at right angles to those on the other, thus forming a glass "screen" of fine mesh. In photographing the object to be reproduced, this screen is placed between the lens and a sensitized plate in the camera, at a very short distance from the latter. Much skill and judgment is required in the placing of the screen, a variation of the hundredth of an inch in distance or angle sometimes producing a noticeable difference in the result. During exposure the operator frequently varies his diaphragms both in size and shape, and some very curious effects may be produced thereby. For example, a diaphragm having a long and narrow slot may convert the dots of the mesh into lines; an L-shaped aperture may produce a step-like line in place of the usual dotted effect, &c. Most of these special results, however, are devoid of practical usefulness and are produced chiefly to gratify the curiosity of experimenters. The negative is printed upon a plate of polished copper upon which a thin, sensitive coating of bichromated glue has been dried. In the printing, which is done in a manner similar to that described under zinc etching, the light passing through the clear portions of the negative hardens and renders insoluble in water the corresponding portions of the glue coating; while the parts protected by the dark lines of the negative remain soluble. The plate is developed in water and then heated, after which it is etched in a perchloride of iron bath. During this process the plate, in fine work, is frequently taken from the bath and portions of it stopped out with asphalt, the parts so treated being protected from further effects of the acid. This process preserves the lights and shades. In most cases the whole face of the print from a half-tone plate displays the fine-lined mesh of the screen, and may thus be distinguished from all other kinds of engravings and reproductions; but by the use of diaphragms of peculiar shapes, as before stated, and by hand-finishing with a graver, this appearance may be considerably modified. The half-tone process produces a shallow plate, which can be successfully printed only on paper having a high and uniform finish. The process described is that now most generally employed. A somewhat different one is that patented by Mr. Ives, of Philadelphia, in 1884, in which a swelled gelatine relief is taken and a plaster cast of this impressed with a stipple by means of an elastic stamp, which gives the operator great control over the effect. The cast is then inked and an impression transferred to India-rubber and from that to zinc. This process has been much used in the U. S. —In addition to these photo-chemical methods, relief blocks are also produced by several mechanical processes, one (extensively used in the making of maps, plans, diagrams, &c.) consisting in the coating of a plate of polished brass with a thin film of wax, through which the line are drawn with etching needles and letters and words stamped with type. Melted wax is then added, which is skillfully prevented from running into the lines and letters, and from the plate thus thickened, an electrotype is taken. Maps of the greatest beauty are made by this method in the U. S.—The processes here described have their limitations, but within these limits are progressing with marked rapidity, and as a means of cheaply and effectively illustrating books have added enormously to the scope of pictorial embellishment. They have been particularly employed and developed in the U. S., and to a large extent in France and Germany, but have had a much slower acceptance in Great Britain. As regards the Meisenbach, or half-tone process, its application is much more limited than that of the reproduction of line drawings, from the necessarily shallow nature of the etching and the care with which the blocks require to be printed. Photographs reproduced on a small scale are apt to lose much in detail if the stipple be coarse, and to blur in printing if it be too fine. Subsequent manipulation of the plate is necessary to produce fully satisfactory effects.

Three-color Process.—Much success has been attained, quite recently, in the fac-simile reproduction of paintings and other color work in the original tints and gradations of tone. This process, commonly termed "three-color work," is still in the experimental stage, the results not yet being as uniform as would be required to insure its general employment. It is done by the half-tone method, and is based upon the theory that there are but three primary colors—red, yellow, and blue—all other shades being combinations of these colors. It would follow, therefore, that the most gorgeous painting, no matter how many or how varied its shades and tints, may be resolved into three ground colors and blendings of the same. This it is sought to accomplish by photographing the painting or other colored subject through a series of screens which resist the passage of the red, the blue, and the yellow light-rays respectively. On one negative, for example, will be produced all the blue lines and surfaces; on another, the red; and on the third, the yellow. By the use of isochromatic plates, all the tone-values are preserved in the negatives. The latter are then printed on copper by the method described under Half-tone; and the plates produced are printed successively, one impression over another, the yellow first, then the red and blue. After the third impression, if the work has been successfully done, the printed sheet presents a fac-simile of the original design, every tint and color being reproduced by the blending of the three inks. This process has been used since about 1891, both in Europe and the U. S., and some very handsome results have been attained; but as above stated, the art has not yet reached perfection either in making the plates or printing therefrom, both of which operations require considerable and painstaking skill. It is believed, however, that complete success will eventually reward the labors of the many investigators now at work on this problem.

Photogravure.—The intaglio process above mentioned produces results of the greatest fineness and beauty, but is so expensive as to be limited in use to high-class book work. Effects can be produced rivalling those of the finest steel engravings in delicacy and beauty. The process, though applicable to the reproduction of photographs, is more largely employed in obtaining engraving-like copies of celebrated pictures. It is so complete in its results as to indicate every touch of the painter's brush, and the upstanding ridges of paint in the bolder touches are rigidly reproduced in the copy. In one method of producing a photogravure a gelatine relief is first obtained by exposing bichromated gelatine, under a photographic negative of the picture, to the action of light. With the gelatine is mingled a certain quantity of granular graphite. The resulting relief has, in consequence, a granular surface, and is also a conductor of electricity. If the relief plate be now placed in an electrolytic bath, a deposit of copper can be made upon it, and from this copies on paper can be produced by the usual copperplate printing process. In another method a bichromated gelatine print—negative in character—is developed on the prepared surface of a copper plate, which is then acted upon by a solution of perchloride of iron. This penetrates the gelatine with a rapidity dependent upon its varying thickness and attacks the copper below, which is eaten away to depths dependent on the shadows and lights of the gelatine print. The plate is then "steel-faced" and printed in the usual manner. Other methods are in use, but a description of these two must suffice.

E'nid, in *Oklahoma*, the capital of Garfield co., on C., R. I. & P. R.R., 72 m. N. by E. of El Reno. *Pop.* (1897) about 3,200.

En'nis, in *Texas*, a city of Ellis co., 34 m. S. of Dallas, 181 m. N.E. of Austin, is situated on the Hous. & Tex. Cent. and Tex. Midl'd R. Rs.; has cotton-seed depositories, a cotton compress, a fruit cannery, lumber mills and railroad repair shops. *Pop.* (1890) 2,171.

En'silage. (*Agric.*) The term applied to preserved succulent herbage stored, without drying, in pits or silos; also to the method of such preservation. This method was introduced into the U. S. from France about 1875, and has now become more common in the dairy districts of this country than in Europe. Tho *E.* system is not of modern origin, methods of preserving grain and other perishable materials in earth-pits having been practiced by the Egyptians, Mexicans and American Indians. The method practiced in ancient times was to dig a pit in sandy soil, fill, and cover compactly with sand, so as to make a nearly air-tight covering. Silos as formerly constructed in modern times were simply dug in the ground in a dry place, the green crops thrown in, and the top covered with boards on which earth was thrown. In this way the contents could be kept for months with little change. There is, however, always some, and often a considerable, loss of the ensilaged material, which also at times becomes acid or slightly mouldy. Improved silos are now made to exclude the air, they being filled quickly, the material weighted with stones or other weights of about 250 lbs. per square foot of surface, and the top made air-tight. Thus protected, the contents will keep indefinitely. Silos may be variously constructed and of various shapes, the circular being the best. A cheap method is to dig a circular pit of some 12 to 20 feet in width and as much in depth, and protect the sides by a cemented brick wall, packed behind with clay. The pit at the top should be contracted to about half its bottom diameter, covered closely enough to exclude the air, and have earth heaped upon the cover to prevent frost reaching the contents. Many methods are employed, however, and access to the material is obtained in various ways; sometimes by doors at the side, sometimes from the top. The substance is also ensilaged in various conditions, some using it when very immature, others

when nearly ripe. Some fill rapidly, others slowly; some weight the material, others cover simply with a foot or two of grass or straw. Of the plants ensilaged, Indian corn is now most largely used in the U. S. In Great Britain, where the practice of *E.* has spread rapidly since 1883, it has been found that *E.* may be made in stacks as well as in silos. The percentage of loss is greater in the stack, but this is more than counterbalanced by the greater cheapness of the process. Ensilage consists of two kinds, "sweet" and "sour," the latter being produced when pressure is at once applied and the silos immediately closed. By filling without packing, and deferring pressure for several days, the temperature rises to from 120° to 160°, and the bacteria which produce acid fermentation seem to be killed, since the silage remains sweet. Nearly all farm crops, except roots, may be preserved by *E.*, and farm animals generally eat both sweet and sour silage with relish, while there is reason to believe that the process adds slightly to the feeding value of the fodder employed. The word *silage*, a shortened form, is very commonly used for *ensilage*.

En'terprise, in *Kansas*, a post-village of Dickinson co., 6 m. E. of Abilene, on A., T. & S. F., U. P., and C., R. I. & P. R. Rs.; has foundry, machine shop, flour mill, brick yard, creamery and stone-quarries. *Pop.* (1895) 935.

En'terprise, in *Ohio*, a village of Van Wert co. *Pop.* (1890) 666.

En'theism, *n.* (*Philos.*) The belief that God is everywhere in nature; differing from *Pantheism*, or *Cosmotheism*, which holds that there is no God but the forces and laws manifested in the universe.

Enthuse'. (This word, formerly regarded as slang or at least only colloquial, seems to have become fairly established as a correct and expressive term.)—*v. a.* To render enthusiastic.

—*v. n.* To become enthusiastic.

En'trant, *a.* Entering; admitting.

—*n.* One who enters; a beginner; a new member of a class, or society.

En'tropy, *n.* [Gr. *entropia*, turning toward.] (*Physics.*) In thermodynamics, the constant transformation of motion into heat; sometimes called the thermodynamic function.

En'velopes, Manufacture of. In the manufacture of envelopes, now used in such enormous multitudes, though of comparatively recent introduction, the web of paper is cut by machine-power, usually into lozenge- or diamond-shaped sheets of large dimensions. These sheets being placed in convenient piles, on each is placed a series of dies, which are pressed down by steam-power through the pile, cutting out a number of small sheets, called blanks, of the exact shape of the envelope when opened out flat. Folding and gumming follow. These were formerly done by hand, the girls employed acquiring wonderful dexterity; but machines are now employed. In these the blanks are placed in a pile on the front of the machine, which is self-feeding. One motion of the automatic feeder serves to lift the blank, gum the bottom and the upper or open flap, and deposit the blank in an open frame. A plunger now descends and forces the blank through the frame to a door where folders press down the flaps, but fasten only the lower one. The door is now lowered, and the envelope let fall upon an endless chain, where it is held in position by pins. It passes through a drying process while travelling on the chain, and is delivered at the other end of the machine ready to be packed. Such a machine has a capacity of 90 envelopes per minute, or over 50,000 in a day of ten hours. This rapidity of production is necessary, in view of the many millions of them that are annually consumed.

Eolith'ic, *a.* [Gr. *eos*, dawn, and *lithos*, stone.] (*Geol.*) Pertaining to the earliest part of the stone age.

Eolo'dion, or **Eolo'dicon,** *n.* [Lat. *Æolus;* analogus to *melodion.*] A musical instrument having steel springs which are struck by hammers operated from a keyboard.

E'ophone, *n.* (*Acous.*) An instrument for determining by sound the distance and direction of one vessel or other sound-producing object from another at night or in a fog. It consists of a brass box, flat at top and bottom, and concave on the sides. In the center of each concavity is a projecting piece of brass, shaped like a protruding human ear. The bottom of each ear opens into a small metal pipe, to which is attached a length of rubber tubing. These tubes are attached to a head-piece, in such a way that when the operator puts the latter on his head the end of each of the tubes comes opposite one of his ears. The *E.* needs to be so placed as to command an unbroken space ahead and on each side, so as to point to each quarter from which danger is likely to arise. The utility of the instrument depends on the comparative loudness of the sound which it conveys to each ear. If, for instance, a whistle should be heard in a fog, the ordinary lookout would have difficulty in deciding from what quarter it came. But when the sound struck the *E.*, the operator would perhaps hear it plainly with one ear and faintly or not at all with the other. He would know from this from which side it came, and would swing the *E.* around until an equal volume of sound reached the other ear. When this was attained he would know that the front end of the instrument was pointing directly toward the whistle. A few seconds, by any one of good hearing, would determine this, while the test of distance would have to depend on the degree of loudness of the sound. The advantage of the head-piece is that it cuts off noises aboard the vessel, which might confuse the operator, and enables him to give his whole attention to the distant sound, whose strength is augmented by the artificial ears. In various instances an operator has reported a distant sound with the *E.* long before it was heard by persons on deck. Experiments have been made with this instrument in the interest of the government, and with such success that the Secretary of the Treasury proposes to put it on the revenue cutters. These experiments proved the instrument to be strikingly sensitive. The ripple of oars was detected where the rowers were doing their best to row silently. A bell-buoy was picked up in a thick fog after being located by the *E.* at a mile's distance. On one occasion, the operator being blindfolded, a tug was chased by the sound of its whistle, while twisting in every possible way in its course, and was run down by the *E.* In practical operation the *E.* is placed on top of the pilot house and the tubes brought down for use by the pilot within.

Eozo'on, *n.* (*Geol.*) The name given in 1864 by Sir William Dawson, of Canada, to a peculiar formation in the Archæan geological series of that country, which he assumed to be the remains of an animal form, a large example of the Foraminifera, which he believed to have grown in multitudes on the sea bottom of that age. The rocks in which it is found lie below the known fossil-bearing beds, and he therefore looked upon it as the oldest known organism, and named it *Eozoön* ("dawn animal") *Canadense.* Several prominent naturalists agreed with Dawson that this formation was of organic origin, among them the late Dr. Carpenter; but of late years geologists generally hold the opposite view, and the belief that it is inorganic is growing. King and Rowney were the first in Great Britain to express this opinion, with which many American geologists agreed, and this view is now widely held by mineralogists and petrologists. The structure of *E.* was very carefully examined by Prof. Möbius in 1878, with the resulting conclusion that it is inorganic. He shows that the so-called "proper wall" or "nummuline layer" of the supposed fossil consists simply of fibrous calcite. Under the microscope there appear in this fibrous band none of the assumed "delicate pores" or fine "vertical tubes" assumed to exist, the fibres consisting of minute four-sided needle-like prisms, lying close side by side. The seeming organism consists of concentric layers of dark-green serpentine, its interstices filled with the fibrous calcite above named; and, though in structure it bears some resemblance to a foraminiferous organism, belief in its organic nature is rapidly disappearing, particularly in view of the fact that it occurs in the Laurentian rocks, at a level far below any other known fossil form—a fact which adds greatly to the improbability of its organic origin and requires indubitable evidence for the establishment of such a theory.

Eph'or, *n.* [Gr. *ephoros.*] One of five supervising magistrates in Sparta and other Doric towns. They were chosen by the people and had control even over the king.

Ep'ic Po'etry, or **The Epos.** (*Lit.*) That form of extended poem which relates a series of events or adventures, usually of a heroic or supernatural character, in language of a dignity suited to the subject. In the epic poem we have the primitive form of extended narrative, the precedent of the modern romance, couched in that poetic language which was the vehicle of all important early literature, and dealing with those subjects which were most attractive to the imagination of man at an early epoch. With the rise of the drama and of prose fiction the epos has gradually died out in all countries, the few later attempts to revive it having proved conspicuous failures. *E. P.* has passed through two stages, that of the primitive, naturally-developed epos, and that of the epos of a literary age, artificial in origin and character, though in various instances of high merit. Almost the first in time, and quite the first in grade, of the great epics is the immortal *Iliad* of Homer. Its successor, the *Odyssey*, probably by the same hand, stands next it in merit. These great works research has proved to have been growths—not new productions. They undoubtedly had their origin in earlier heroic poems or lays, each telling a single story, a series of which, relating to a single event, were afterward combined by a master-hand into the splendid epics which stand as the beginning of extant Greek literature. How many of these odes existed in early Greece it is impossible to say. None of them have been preserved in their original forms. But we have the best of reasons for believing that they were devoted very largely to the Trojan War and the wanderings of Ulysses, and that the poet who is known to us by the name of Homer selected from them the best and most nearly related in incident, and wove these together into the two great epics which survive under his name. Some of the odes employed may have been written by himself. At any rate it is evident that they were rewritten by him, and given that noble poetic form which has made them the admiration of all succeeding ages.—*Other primitive epics.* We have said that the *Iliad* is not the earliest epic. This statement is made in view of the fact that late research in Babylonia has discovered, among the remote monuments of Babylonian literature, portions of a very antique poem of epic character, probably written several thousand years before the *Iliad.* (See Babylonian Literature). Various other peoples, in the first literary periods, produced poems of an epic scope, and very probably in the same manner, through a welding together of antecedent heroic lays, the whole going to indicate that this represents a natural stage in the outgrowth of the human mind. Egypt had its epic, detailing, in exaggerated language, the warlike deeds of Rameses the Great. The imaginative Hindus produced two voluminous epics, the *Ramayana* and *Mahabharata*, within whose capacious scope nearly all the heroic and supernatural legends of early India are gathered. Germany produced its great national epic in the *Nibelungen Lied*, the song of the Nibelungs, which bears strong indications of having developed out of earlier days. Some such lays still exist, in the ode of *Gudrun* and other ancient products of the Germanic muse. The great Persian epic poem, the *Shah-Namah*, is sufficiently late in date to permit much of its material to be traced in antecedent lore, the author, Firdousi, making no secret of the sources of his inspiration. Europe proved somewhat prolific of epic song in ancient days of civilization. We have already named the epics of the Greeks and Germans. The epic production of the Scandinavian peoples exists in the somewhat disconnected legends of the *Elder Edda*, the great reservoir of the mythology of the north. France yields us its epic in the noble *Chanson de Roland*, the type of the later prolific *Chansons de Geste*, and Spain its epic lay in the fine poem of the *Cid.* Among the Anglo-Saxons arose the poem of *Beowulf*, a striking example of semi-barbaric narrative art; and we may fairly class among the epic outgrowths of mediæval Europe the humorous satire of *Reynard the Fox*, differing as it does from the heroic strain of the epics in general. It represents the epic development of the fable, and undoubtedly grew out of a series of precedent lays, which represented the thoughts and sentiments of the common people, as the heroic lays did those of the bards of court and castle. From the legends of the Celtic people of Wales gradually evolved the heroic narrative of *Arthur and the Knights of the Round Table.* The Celts of Ireland were equally prolific in lays, of which they had two extended series, an ancient one clustering around the deeds of the Celtic hero, *Cuchulaind*, and the later series in which *Finn* is the heroic figure. Those were never condensed into epic form, though a modern poet, Macpherson, in his *Ossian*, has produced what may fairly be entitled the epic of the Irish race. One other epic of primitive origin remains to name—the *Kalevala* of Finland, produced also by a modern poet from a related cycle of ancient Finnish mythological and heroic lays. From a study of all these products of the epic muse scholars have come to one general conclusion, namely, that in the days of the early literary development of most or all civilized peoples, the poets of castle and court devoted their attention to the heroic and mythological themes of their earlier history and legend, singing these in elevated strains, developing and adding fullness and dramatic interest to their events, and probably, where some single national hero towered above others, ascribing to him floating incidents until a continued and more or less connected series of events clustered around a single name. The next stage in the literary evolution of nearly all nations was for some single writer of ability to take these various lays, relating to the great national hero, and weave them together into a single epic narrative, taking such liberties with his originals as he found desirable and as the temper of his audience would permit. Too much liberty could not be taken, for the people knew and revered their old lays, and were not likely to approve of any radical departure from the ancient form of the legends of their land. These were their religion as well as their literature, and heretical views were none too safe for open indulgence by their advocates.—*Literary Epics.* The natural epics were followed in many lands by a series of what may be called literary epics, artifical productions, whose stories, while based still upon the ancient legends, were worked over and modified by their authors, new imaginary incidents being added, while the heroic lay bore no part in their origin. The great success of Homer's poems gave rise to a number of these in early Greece, in whose productions others of the lays may have been taken part; and to the mythologic *Theogomy* of Hesiod, which often rises to epic dignity. During the decline of Greek literature artificial epics were somewhat numerously produced, of which we may name the *Argonautica* of Apollonius and the *Thebais* of Antimachus, poems which the world is quite willing to let die. Rome was destitute of an archaic epic. The native growth of its literature was checked by the intrusion of the literature of Greece; and the only approach to a native Roman epic has come to us is the history of Livy, in which the heroic legends are preserved in a racy prose that is at times almost poetry. But Rome well repaid for this lack of a natural epic by the production of a literary one of the first merit, the *Æneid* of Virgil, one of the world's greatest poems. This was strictly literary in origin. While using older materials freely, Virgil changed them to please himself, formed his own plan, invented his own incidents, and produced a work as much his own in origin and form as a modern romance may be claimed as the production of its author. Several subsequent Roman epics appeared. Prose fiction had as yet made little progress, and the narrative poem continued a favorite form of literature. Principal among these were the *Pharsalia* of Lucan, the *Punica* of Silvius Italicus, and the *Thebais* and *Achilleis* of Statius, of which the *Pharsalia* is much the ablest and best known. In this world epic poetry takes a new step in its development. The legendary heroes disappear and the recent wars of Cæsar and Pompey form the poet's theme. Some little supernatural machinery is introduced, but only to conform in some measure to the epic ideal, the work being in its main elements a poetic transcript of recent history. Descending to a later era in the literary history of Italy, we meet with an epic poem of extraordinary merit, the *Divina Commedia* of Dante, which, while

framed and wrought by the individual genius of the poet, may almost be classed with the primitive epics, as in it are embodied the leading elements of what may be called the mediæval Christian mythology. Italy continued prolific in epic song, yielding at a later date the heroic *Jerusalem Liberated* of Tasso, the romantic *Orlando Furioso* of Ariosto, and the humorous and satirical outgrowth of the epic, the *Morgante Maggiore* of Pulci and the *Orlando Innamorato* of Bosàrdo. In France the heroic song of Roland was followed by an extended series of narrative poems, the *Chansons de Geste*, not rising to epic dignity, and gradually sinking into the prose romance. Spain for a while was prolific in epics, of which only the *Araucana* of Ercilla survives as literature, though hardly as poetry. Portugal, on the contrary, had the merit of producing an epic of enduring fame, the *Lusiad* of Camoens. Coming to England we meet with another epic of world-wide repute, the *Paradise Lost* of Milton, in which themes of historical origin are departed from, the most elevated subject in Christian sacred lore accepted, and a poem produced as remote in its incidents from every day life as is the *Divine Comedy* of the Italian epic bard. With this great production the history of the epic fairly ends. Later attempts to produce epic poems have been made, some of them within our own day, yet none of them of living worth, and none of them wanted by the world, which has grown beyond the epic age, and now prefers its imaginative narrative literature in the form of the romance and the novel, and to some extent in that of the drama. The epic belongs to an unlettered age. It was intended to be recited, not read; and, though it survived into a cultivated period, it has died out before the growth of prose fiction and the wide-spread knowledge of the art of reading.

Epidem'ics. (*Med.*) Diseases which appear at intervals, rage severely for a time in a nation or over a continent, and then disappear, usually to return at irregular periods. The epidemic differ from *endemic* diseases in that the latter never quite disappear, though they vary greatly in intensity at different times. Some of the diseases which are epidemic in most countries, are endemic in others. This is the case with cholera, which is endemic in the Ganges delta, where conditions favoring its appearance seem always present. Yellow fever also never quite disappears from parts of South America. Typhoid fever, which is endemic in the U. S., at times becomes epidemic; while an epidemic of malaria may appear in some locality where extensive alluvial excavations have been made, to disappear when these end and the locality is properly drained. Epidemic diseases may also usually be classed as infections, arising from some common general condition, and now supposed to be due to the ravages of certain micro-organisms. Some of these—including such as scarlet fever, diphtheria and small-pox—are also classed as contagious, or transmissible from one person to another by contact. Others—as typhoid fever, malaria and cholera—appear to be non-contagious, their origin being apparently in micro-organisms received from water or food, or respired from the air. Tuberculosis or consumption, an endemic disease once thought non-infectious, is now believed to be dangerously infectious, demanding the strictest measures of sanitation. As for the most recent epidemic, the "grip," which shows indications of becoming endemic in the U. S., its mode of communication is unknown, everything relating to its origin and cause being as yet an unsolved mystery. Knowledge of the true causes and modes of dissemination of most *E.* has only very recently been attained, the former ideas concerning them having proved unfounded guesses. How best to treat them was equally unknown, small-pox alone being treated by the vaccination method, now proved so important in diseases of microbic origin. The study of *E.* is therefore closely related to that of the bacteria, from which has resulted not only a knowledge of the cause of a number of the most fatal diseases, but how to deal with them by preventive methods; a fact which was signally illustrated during the last outbreak of cholera in Europe, which, fiercely as it raged in certain localities, was prevented from spreading beyond those localities. Antiseptic treatment, cleanliness, care in regard to the purity of drinking water, &c., have almost extirpated diseases often severely epidemic in the past, such as scurvy and small-pox. In certain instances diseases have been associated and prevailed simultaneously as *E.* As an instance may be named the simultaneous occurrence of typhus and spotted fevers on several occasions. In other instances one disease has followed another as an epidemic, and plagues have succeeded each other rapidly, almost exterminating whole populations. Instances of this kind occurred in several of the highly destructive *E.* of past centuries. These desolating invasions of disease, which more than once swept over Europe and claimed their myriads of victims, owed their virulence largely to the utter absence of knowledge of the causes and the proper treatment of such affections, and the almost complete absence of sanitary precautions. As a rule *E.* are most destructive on their first appearance, perhaps from their sweeping away the more susceptible individuals. In some instances, however, they grow worse in their later periods. There are differences also in the severity of action of the same disease in its successive appearances, natural conditions perhaps affecting the special microbe involved and increasing or decreasing its virulence. Again, certain diseases appear at somewhat regular intervals. It may be that this is partly due to the possible fact that after each visit the survivors become immune to that particular disease; though this explanation is little more than a guess, the actual influences at work being very imperfectly known.

The spread of *E.* takes place in various ways. The microbic poison may be carried by persons and directly communicated to others; may be transmitted in clothing, food or other articles; and once having entered a country, may be transmitted through the medium of drinking water or the inhalation of air. In the cases of cholera and typhoid fever, water appears to be the vehicle of infection; in those of malaria and influenza or grip, infection seems to be transmitted through the medium of the air. As regards the prevalence of *E.*, it may be said that within the 19th century their virulence and the width of their distribution have been diminished; and that some of them, formerly among the most destructive, seem now fairly under control. Such is the case with typhus, cholera and small-pox in cultivated communities, and such promises to be the case with various others. Yellow fever, for instance, so destructive in Philadelphia and New York a century ago, seems to have been absolutely banished from those and other cities of the North. The earlier cause of this growing immunity was improved sanitation. The later cause of it has been the progress of bacteriology, knowledge of preventive methods, and the extension of the principle of vaccination to produce immunity in the case of various diseases. Inoculation by the specially treated microbes of a number of diseases has proved highly valuable as a preventive; and it may be that in the coming years these *E.*, once so terrible and destructive to mankind, may come almost completely under control. Another influence, of a preventive kind, may also in the future be brought into play, that of the discovery of the causes which render these diseases endemic in certain localities, and the removal of the causes by sanitary or other methods. To do this would certainly be of immense benefit, as drying up the reservoirs from which, in the past ages, those virulent plagues have so often been poured out on mankind. It may be said, in conclusion, that the term epidemic is not confined to bodily disorders. Curious *E* of a mental or nervous origin have from time to time broken out and made their influence felt by hosts of susceptible persons. There have been *E.* of religious excitement, such as the dancing mania and the wild manifestations of the early camp meeting in this country; of witchcraft, suicide, panic, the war spirit, and numerous other influences which have rapidly affected almost an entire community, and then died away, leaving those attacked unable to account for their severe and seemingly insane temporary possession. See BACTERIOLOGY; BUBONIC PLAGUE.

Ep'onym. *n.* The name of a mythical or historical person from which the name of a country or place is derived; as *Italus*, for Italy, &c.

Ep'silon. *n.* The fifth letter of the Greek alphabet, equivalent of the short *e* in English.

Ep'worth League. (*Relig. Soc.*) The Young Peoples' Society of the Methodist Episcopal Church. There had been associations of young people attached to particular churches long before the founding of the League, but they were unrelated and independent. Impressed with the importance of co-operation, some of the most vigorous and far-sighted young men of the church sought to form general organizations, the more successful of which were the Young Peoples' Methodist Alliance (organized in 1883, and which numbered, at the time it was merged into the *E. L.*, 410 local societies and 17,000 members), and the Oxford League, which had received the formal indorsement of the Ecumenical Conference of 1884, and had, at the time the *E. L.* was organized, about 500 chapters.

The *E. L.* was founded by representatives of five such societies who met in Cleveland, O., in May, 1889. A union was effected on the 15th of that month. The name was the result of a slip in speech by which the names "Oxford League" and "Epworth Hymnal" were confused. The constitution was a modification of that of that of the Oxford League. The colors of the Young Peoples' Methodist Alliance—a white ribbon with a scarlet thread running through it—were adopted as the colors of the *E. L.* The maltese cross, which had been the badge of both the Oxford League and the Young Peoples' Christian League, was adopted as the badge, with the motto and initials of the *E. L.* The motto of the Young Peoples' Christian League, "Look up—Lift up," was made the motto of the new organization. John Wesley's words: "I desire to form a league, offensive and defensive, with every soldier of Jesus Christ," which had been the motto of the Oxford League, and the words of Bishop Simpson: "We live to make our Church a power in the world, while we live to love every other church that exalts our Christ," were adopted as sentiments of the *E. L.* Active members of the League were expected to take the following pledge: "I will earnestly seek for myself, and do what I can to help others to attain, the highest New Testament standard of experience and life. I will abstain from all forms of worldly amusement forbidden by the discipline of the Methodist Episcopal Church, and I will attend, as far as possible, the religious meetings of the Chapter and the Church, and take some active part in them." The Board of Bishops promptly and heartily expressed their approval of the new organization; and the ensuing general conference, which met in Omaha, Neb., in 1892, gave its formal sanction to the *E. L.*, and adopted it as a part of the regular economy of the Church. It formed a constitution for the League, with this preamble: "For the purpose of promoting intelligent and vital piety among the young people of our churches and congregations, and in training them in works of mercy and help, there shall be an organization under the authority of the General Conference of the Methodist Episcopal Church," &c. The growth of the League has exceeded the expectations of its most sanguine promoters. The latest statistics (1897) show:

	CHAPTERS.	MEMBERS.
EPWORTH LEAGUE	16,955	1,200,000
JUNIOR LEAGUE	5,086	300,000
TOTAL	22,041	1,500,000

All persons over sixteen can be admitted to membership in the *E. L.* Youths under sixteen may be enrolled in the Junior League, which is under the direction of a superintendent appointed by the pastor of the local church. Members of the Junior League take the following pledge: "I do hereby promise with the help of God, to try always to do right; to pray every day; to read every day in the Word of God; to abstain from profane language, from the use of tobacco, and from all intoxicating liquor; to attend the morning church service, and the regular meetings of the Junior *E. L.*"

The chief governing body of the *E. L.* is the Board of Control, which meets twice during the interval between the quadrennial sessions of the General Conference. It is composed of fifteen members chosen by the Board of



Fig. 2874.—REV. W. X. NINDE, D.D.
Bishop of the M. E. Church and President (1897) of the Epworth League.

Bishops, one of whom must be a bishop, who is President of the Board of Control and also of the *E. L.*, and of one member from each of the 14 General Conference Districts, to be chosen at the General Conference by the delegates of the Annual and Electoral Conferences comprised in the several General Conference Districts respectively. The officers of the League are the President, four Vice-Presidents (two of whom must be laymen) a General Secretary (whose office is in Chicago, and who is the executive officer of the League), and a Treasurer. With the exception of the President, they are elected by the Board of Control; and the Vice-Presidents must be chosen from its own members. There is also a German assistant-secretary and an assistant-secretary to labor among the colored membership in the South. These officers, except the last named, with the editor of the *Epworth Herald* constitute the General Cabinet, which is entrusted with the powers of the Board of Control during the intervals between its sessions.

The work of the General League and also of the local chapters is grouped into four departments, with a vice-president at the head of each, namely: (1) Of Spiritual Work. (2) Of Mercy and Help. (3) Literary. (4) Social. An annual series of topics for the League's devotional meetings is prepared by the central office, and also a prescribed reading course. The *Epworth Herald* is the official organ of the League. The constitution provides that the chapters shall be organized into Presiding Elders' District Leagues, and may also be formed into General Conference District Leagues. Other groupings may be arranged for the advantage of the work, such as Annual Conference Leagues, State Leagues, City Leagues, &c. The chapter is under the control of the Quarterly Conference and the pastor. The League has spread into foreign lands where the Methodist Episcopal Church has missions. Leagues have been organized in Mexico, South America, China, India, Japan, Italy, Norway, Sweden, Denmark, Finland and the Sandwich Islands. An estimate according to the most reliable data at hand gave, for 1896, in these countries, 429 chapters with over 17,000 members. Epworth Leagues have also been organized by the Methodist Episcopal Church, South, and the Methodist Church of Canada. An International Conference or Mass Convention of the Leagues is held biennially at some point in the United States or Canada. These great gatherings have been occasions of immense enthusiasm, drawing the young people into closer sympathy and giving a fresh impulse to Christian work. Especially has an increased zeal been manifested in the cause of world-wide missions, still further stimulated by specially-prepared literature, by giving prominence to the subject at conventions and other League gatherings,

and by a recent movement which favors the addition of a new department, under a fifth vice-president, to be called the Department of Christian Missions.

While the *E. L.* is a distinctively denominational young people's society, it is broadly catholic in its sympathies, and seeks a federation with similar organizations in promoting Christian work in general, in which each society shall preserve its identity and do its special work in its own way.

Equerry (*ĕ-kwĕr'i*), *n.* [L. Lat. *æquarius*, one who has charge of horses; *equaria*, a stud of horses, from Lat. *equus*, a horse. See EQUESTRIAN.] One who has the charge of horses; specifically a term applied to an officer attached to the household of a sovereign prince, or great noble, who attends on horseback during visits, progresses, &c. In England the royal equerries hold second rank, after the master of the horses.

E'rie, in *Colorado*, a post-village of Weld co., 25 m. N. of Denver, on U. P. and B. & M. R. Rs. Rich coal mines near. *Pop.* (1890) 662.

E'rie, in *Kansas*, a city, cap. of Neosho co., 40 m. S. W. of Fort Scott, on the M., K. & T., and A., T. & S. F. R. Rs.; has saw and flour mills, a manufactory of furniture and makes large shipments of grain and live stock. *Pop.* (1895) 1,225.

E'rin, in *Tennessee*, a post-town, cap. of Houston co., 28 m. W. S. W. of Clarksville, on L. & N. R. R.; has flour mill, lumber and shingle mills, wagon, stove and stave factories, and machine shop. *Pop.* (1890) 789.

Eryth'roscope, *n.* [Gr. *erythros*, red, and *scopeō*, to see.] (*Optics.*) An optical instrument consisting of two glass plates, one blue and one yellow, which so absorb some rays and transmit others that green leaves appear as red, the effects of light and shade remaining.

Es'calante, in *Utah*, a post-village of Garfield co. *Pop.* (1890) 506.

Escam'bia, in *Alabama*, a S. county; *area*, 972 sq. m. Is intersected by the Conecuh and Escambia rivers, the Cedar and other creeks. *Surface*, nearly level; there are extensive pine forests. *Pop.* (1897) about 10,000. *Cap.* Brewton.

Escana'ba, in *Michigan*, a city, capital of Delta co., on Green Bay, 73 m. S. S. E. of Marquette, on the C. & N.W. R. R. Has several large saw mills, a furniture factory and railroad machine shops. It claims to be the largest iron ore shipping point in the world, having five extensive docks, erected at a cost of $1,500,000, which handle annually over 4,000,000 tons of ore. *Pop.* (1894) 8,124.

Escondi'do, in *California*, a post-village of San Diego co., 35 m. N. of San Diego, on the So. Cal. R. R. *Pop.* (1890) 541.

Esk'ridge, in *Kansas*, a post-village of Wabaunsee co., 30 m. W. S. W. of Topeka, on A., T. & S. F. R. R. *Pop.* (1895) 554.

Esoter'ic, *n.* A believer in esoteric doctrines.

Esprit de corps (*s-prē'deh kōr'*.) [Fr.] A spirit of devotion, enthusiasm, sympathy and support animating the members of a society or body of people.

Es'quimaux or **Es'kimo Dog.** A half-tamed variety which is widely distributed in the Arctic regions, and indispensable for drawing the sledges of the natives and those of the explorers of those regions. The *E. D.* is hardy and powerful, much like the well-known shepherd's dog in form, with long hair, black and white,



Fig. 2875.—ESQUIMAUX DOG.

brown, or dingy white. These animals retain much of the original wildness of their wolf ancestors, especially when overworked and ill fed, which is a too common condition. They are subject to an epidemic that occasionally kills them in great numbers, to the serious inconvenience and impoverishment of their owners.

Es'sex, in *Iowa*, a post-town of Page co., 21 m. from Clarinda, on C., B. & Q. R. R. *Pop.* (1890) 564.

Es'sexville, in *Michigan*, a post-village of Bay co., 2 m. from Bay city; has lumber mills and a manufactory of salt. *Pop.* (1897) about 2,000.

E'ta. The seventh letter of the Greek alphabet, corresponding to the long *ē* of English.

E'ther, The Luminiferous. (Also spelled *Æther.*) (*Physics.*) A medium which is believed to pervade all space and the interstices of all material bodies, to possess extreme tenuity and elasticity, and to be that through which light and radiant heat are transmitted, and probably electricity also, these forces existing as vibrations or undulations of the ether. The ether is believed to be a far rarer and more subtle substance than ordinary matter, to occupy all those parts of space which are apparently empty, and to be continuous throughout the universe; matter, on the contrary, being largely confined to the spheres, and to the widely separated comets and meteorites, the whole of which occupy but a minute fraction of the vast extent of space. At various times in the history of science the hypothesis of an ether has been advanced, to satisfy certain seeming requirements, or in response to the metaphysical argument that nature abhors a vacuum. Ethers within ethers have been invented, sometimes filling space three or four times over, and usually with little warrant for their existence, until science became distrustful of all hypotheses of this nature, and many came to maintain that no such agent existed in nature, and that all the phenomena of radiation could be explained under the hypothesis of an extension of matter throughout all space. The study of the phenomena of light, however, gave rise to a new hypothesis of an ether, that distinctively known as the *L. E.*, whose highly probable existence is now almost universally conceded by physicists. When light travels through air there is every reason to believe that it is not transmitted by the particles of air, since the vibrations of light are transverse, and no gaseous substance is capable of transmitting transverse vibrations. Moreover, the vibrations of light are millions of times more rapid than the normal vibrations which air transmits—those of sound. Solid transparent bodies, such as glass, can transmit transverse vibrations, but none having such immense velocity as those of light. If air has this limitation, rarefied air extended through space would have a similar limitation, with others arising from its great rarefaction. There are, therefore, indubitable arguments against the acceptance of matter as the medium through which light travels. It demands a far rarer and more homogeneous medium, with properties differing from those of a gas; and this demand has been met by the supposition of an ether, pervading all space and permeating all bodies, and possessed of the properties necessary for the transmission of radiant force. But, as it is found that the velocity of light differs in dense as compared with rare air, and in different transparent solids, as indicated by the phenomenon of refraction, it would appear that these media take some part in the propagation of light. It seems probable, therefore, that some degree of connection, attractive or otherwise, exists between the particles of matter and the contiguous ether; and that through this connection the vibrations of the ether are modified and the speed of light reduced. That electricity is also a phenomenon of the ether is a theory which is now generally accepted by electricians. It was originally advanced by Clerk Maxwell, and has been proved by the interesting experiments of Hertz.—*Physical Constitution of the Ether.* The next question which arises is the vital one: What is the constitution of the ether? in what respects does it differ from matter? We know that it transmits transverse vibrations to vast distances with no apparent loss of energy. This, it is affirmed, could not be performed by a gas, the continual change of place of whose molecules would soon dissipate the energy. It is therefore claimed that the ether must be in a condition resembling that of solid matter, yet with such slight connection between its particles that it offers no obstruction to the movement of the spheres of space. Some maintain that it is molecular in constitution, others that it is a continuous medium, completely occupying space and leaving no pores or cavities. Other theories have been advanced, none of which are satisfactorily proved; but whatever be the constitution of ether, its existence seems necessary for the performance of work which lies beyond the powers of matter. In the words of one of its leading advocates: "There can be no doubt that the interplanetary and interstellar spaces are not empty, but are occupied by a material substance or body, which is certainly the largest, and probably the most uniform, body of which we have any knowledge."—*Relations of Ether and Matter.* A very interesting question arises in this connection: What are the relations between ether and matter? Are they distinct and separate forms of substance, or does some intimate relation exist between them? The opinion is undoubtedly growing that their relation is very intimate, that matter is an outgrowth of ether, and that there is but one substance in the universe, though this substance is capable of aggregation into numerous forms. The molecules of bodies, the solid masses of the spheres, represent increasing degrees of this aggregation, the first stage of which is the atom of matter. This theory was first advanced in a definite form by Sir William Thomson, in his hypothesis of the vortex atom. He maintained that the atom of matter is a minute aggregation of ether, formed into a vortex like that of the familiar smoke-ring, and incapable either of dissipation or of new formation. This theory has many difficulties to explain. Friction would quickly destroy the vortices, and therefore ether must be destitute of friction; and gravitation cannot be due to attraction, but must have some other originating cause. The attempt to adduce a sufficient cause has so far been an absolute failure, and it seems unlikely that the vortex atom theory can be sustained. But if either be credited with attractive properties, however slight, it is quite possible that this attraction may give rise to condensed and coherent aggregates, of exceeding minuteness and large powers of self-maintenance. Such aggregates, perhaps owing their form and self-sustaining power to some internal conditions of motion, would constitute the atoms of matter, differing from the vortex atom in being capable of dissipation and reformation, and also in needing no invention of hypothetical conditions for their maintenance; this requiring only the known principle of attraction, which can readily be supposed to make its force felt between the most minute particles of substance in the universe.

Ethnog'raphy and **Ethnol'ogy.** These two branches of science are sections of the general science of *anthropology*, or the natural history of mankind, of which *archæology* (*q. v.*) constitutes a third section. Ethnography deals with races and their divisions into hordes, tribes, clans, &c., their particular institutions and customs, especially in their savage state. Ethnology deals with customs, institutions, superstitions and the like, which, though widely scattered, have some common basis or significance. Under ethnography may be classed the division of man into races and the distribution and characteristics of each race. It is not proposed to name here the various systems of race distinction that have been made, they being too various and contradictory to be of any special advantage to our subject. We shall therefore confine ourselves to a few words upon the general result of race study. It will suffice to say that two broad divisions of mankind early presented themselves, those of the whites and the blacks, the latter distinguished from the former by other peculiarities in addition to that of color. The whites again have several marked divisions, the most obvious being into the Mongoloid and Caucasian races, distinguished from each other by marked differences of form and feature. The American aborigines have Mongoloid characteristics, and differences of opinion exist regarding their race relations. As regards the Caucasian race, it has been variously subdivided: on the basis of philology, into the Aryans and Semites; and on the basis of complexion and some other distinctions, into the dark and blond races, the peoples respectively of the south and the north of Europe. Recent research in Africa has distinguished a marked subdivision of the black race, in widely extended tribes of dwarfish people, who may fairly be set aside as a distinct race. Some look upon the Australian natives also as a separate race, while others regard them as the result of a mixture of races. This race mingling has gone on somewhat actively in all parts of the earth, and has blurred the lines of distinction of the several original races, rendering it frequently difficult to trace the affiliations of a tribe or people. The study of the ethnology of mankind leads us into a broad series of considerations, including such diverse topics as food; weapons, tools, and implements; shelter and clothing; domestic and public fires; barter and trade; and various other subjects belonging to the individual and social life of man.—*Food.* In the domain of food-getting, man has passed through four great phases, or steps of progress—those of hunting and fishing; sheep and cattle tending; agriculture, and general industry, which is, in its basis, simply a means of obtaining food. The whole series has converged toward one general result, the getting of more and better food for every man. As an example of the result, it has been calculated that the hunting tribes of American Indians required 1·75 square miles for the support of each person. At that rate all Europe could feed but two millions.—*Weapons and Tools.* Ethnological research has been largely devoted to this subject, and vast collections of the tools and weapons used by primitive man have been made, while new research is constantly adding to their number. The use of implements, like the production of food, has had its regular stages of development. At first, doubtless, wood, bones and stones in their natural state were used, this stage having left no recognizable traces. Then roughly chipped stones came into use, followed in succession by polished stones, by copper, bronze, iron, and steel. The multitude and diversity of the objects thus produced are enormous, and testify strongly to the ingenuity of man.—*Shelter and Clothing.* Both these sections of human art have had their long development. Shelter, beginning with the overhanging rock and the cave, and extending to earth excavations, wind-breaks, huts of a vast variety of forms, log and board houses, brick and stone habitations, has ended in huge fire-proof erections of iron and stone. In this course it has left a host of edifices of striking character, superb temples and palaces, pyramids and rock-hewn tombs as places of shelter for the dead, and cyclopean edifices in which early man sought to astonish future ages by his power of lifting heavy weights. The development of clothing, beginning with the undressed hides of animals, the inner bark of trees, &c., advanced to dressed hides and to textile fabrics, the preparation of which has become one of the leading industries of mankind; more workmen and factories, perhaps, being engaged in the manufacture of materials for human clothing than in any other branch of industry that can be named. The manufacture of furniture for houses and of ornaments for mankind has had a like long and interesting development, passing through the rudest primitive stages to the highly developed conditions of the present day.—*Fire.* One of the most important topics connected with the ethnological development of mankind is that of fire. When this almost indispensable agent of human progress first came into use it is impossible to say. Evidences of its use may be found at a remote epoch, and probably the first emigration of mankind from the tropics into the colder zones was rendered possible by the discovery of this useful agent. Some architects maintain that the first artificial erections of men were not intended for dwellings, but as hearth-places protected by reeds, bushes, or other shelters against wind and rain. These were the public fires of the clan, used by all its members. Only in later times each family obtained a fire-place of its own, and the separate habitation and domestic fire came into use

That man early worshipped fire may be well conceived, in view of the seemingly magical character and high utility of this natural agent of mankind; and the theory seems acceptable that the public hearth became looked upon as the abode of the fire-god, and that from it as a model the dwellings of the priests, and later of the kings and chiefs developed—fire perhaps being looked upon as a holy possession, and only slowly growing common. The domestic hearth was long the altar of the fire-god, while the worship of fire developed into the national religion of the Persians, and a sacred and undying fire was maintained in the temples of many peoples.—*Barter and Industry.* The exchange of goods is among the earliest of human customs, the personal possessions of individuals being the first objects exchanged, and then objects being made for the express purpose of barter. This was followed by exchange between tribes, and the carriage of manufactured articles to long distances for exchange. We find evidences of this in the discovery of Florida sea-shells in the mounds of the Ohio valley, of the tin of Britain in Western Asia, and of many other substances far from their place of origin. Thus barter developed into commerce, and the latter gave rise to productive industry, which grew steadily more active and varied as the wants of man increased, ending in the greatly varied and energetic industries of the present day. From commerce again arose emigration, the merchants being the first travelers, and mercantile caravans being alone acceptable visitants of foreign tribes. Through this agency and that of war the dissemination of mankind and the mingling of races have largely taken place.—*Family development.* Another important section of the subject of ethnology is that of the development of the family, which is one to which ethnologists have given wide study. It is still clouded in mystery, although many interesting facts have been gathered. As regards the sexual relations of primitive man, a diversity of opinions exist, some maintaining that it was one of promiscuity, the females and children being the common property of the males of the tribes. Others deny this, and it must be said that there are no facts in the institutions of existing savages to sustain it. The political institution of female descent, or the tracing of descent through mothers only, is an undoubted result of a state of society in which the paternal ancestry was difficult to determine, and the mother was the only parent who could be surely known. The tracing of descent through the male is of far later origin, and probably only began after the institution of monogamous marriage was fully developed and it became easy to determine the paternity of a child. From the family arose the gens, a group of related families dwelling together in village life. From this again arose the horde, the tribe, the nation, successively wider groups of families. The patriarchal group apparently had its origin in the habits of the herding tribes of Asia, and led to the establishment of polygamy, a widespread Asiatic marriage institution.—Numerous other subjects relating to the development of mankind might be dwelt upon, if space would permit; such as those of the growth of chiefhood and kingship, the recognition of property rights, and the accumulation of wealth, and much in relation to the development of language, literature, and the arts, all of which form parts of the science of ethnology. The development of religions also forms an important section of this wide-spread science, and might be traced from its early rude forms to the exalted religions ideals now entertained. But as all these subjects are considered elsewhere in this work, they may be passed over with simple mention here, as examples of the numerous topics which ethnological science embraces.

E'thos, *n.* [Gr.] The spirit or disposition characterizing a people or community, as seen in their habits, tastes, &c.—The inherent quality of a work of art, period of literature, &c., as opposed to what is incidental or transient.

Eto'nian, *a.* Pertaining to Eton, or Eton College, in England.

—*n.* A student or graduate of Eton College.

Etow'ah, in *Alabama*, a N. E. co.; *area*, 510 sq. m. It is intersected by the Coosa river, and also drained by Wills and other creeks. Mountainous and heavily wooded; *soil*, fertile. *Cap.* Gadsden. *Pop.* (1897) about 30,000.

Et'tricks, in *Virginia*, a post-village of Chesterfield co., 14 miles S.E. of Chesterfield. *Pop.* (1890) 991.

Eu'chites, *n. pl.* [Gr. *euchomai*, to pray.] A sect of Christians arising near the end of the 4th century, whose characteristic belief was that there dwelt in man a demon which could only be expelled by prayer and singing.

Euhe'merism, *n.* The rationalistic system of Euhemerus, a Greek philosopher of the time of Alexander the Great and his immediate successors, who denied the existence of divine beings, and represented the classic gods as nothing more than deified heroes

Euphros'yne, *n.* [Gr.] (*Myth.*) One of the three Graces, who presided over the influences that make life cheerful.

Eure'ka, in *Nevada*, a N. cen. co.; *area*, 4,150 sq. miles. The surface is partly mountainous, and there are rich mines of silver and lead. The soil requires irrigation to render it fertile. *Cap.* Eureka. *Pop.* (1890) 3,275.

—A city of Eureka co., 85 miles E. of Austin, on Eureka & Palisade R. R.; has rich mines of silver and lead, and smelting and refining works. *Pop.* (1890) 1,609.

Eureka, in *South Dakota*, a post-village of McPherson co., 26 miles N. W. of Roscoe, on C., M. & St. P. R. R.; is shipping point of a grain-raising region. *Pop.* (1895) 1,006.

Eureka, in *Utah*, a post-town of Juab co., 85 miles S. of Salt Lake City, on U. P. and R. G. West. R. Rs. Has reduction works and quartz mills. Mines of gold, silver, lead, and copper abound in the vicinity. *Pop.* (1895) 1,908.

Eureka Springs, in *Arkansas*, a city, cap. of Carroll co., 85 miles S.W. of Springfield, Mo., on Eureka Springs R. R.; has about 50 mineral springs of excellent curative powers; ships livestock, and mineral waters. *Pop.* (1890) 3,706.

Euse'bius, OF EMESA, born at Edessa near the beginning of the 4th century. One of his brothers was Eusebius of Cæsarea, with whom he studied theology, and he took philosophy and science at Alexandria. His learning and eloquence led to his being chosen to succeed Athanasius as bishop of Alexandria; but he declined the appointment, and accepted the bishopric of Emesa. His reputation as an astrologer led the people to oppose his settlement, and he soon resigned, retiring to Antioch, where he died in 360.

Euse'bius, OF NICOMEDIA, contemparary with Eusebius Pamphili, and apparently by some confounded with him. He was related on his mother's side to the Emperor Julian and became his tutor. He was first bishop of Berytus (now Beyrout) in Phœnicia, and then of Nicomedia. He espoused the Arian cause and incurred the displeasure of the Emperor Constantine, by whom he was banished temporarily from his see, but was restored to favor through the influence of the emperor's sister, Constantia; was selected to administer baptism to him in his last illness, and was made patriarch of Constantinople. At the Council of Nice he opposed the insertion of the Homoousian Clause, but signed the creed. He, however, defended Arians to the last, and is considered a leader of the Arians, so that the term Eusebian denotes a follower of that party. He died in the year 342.

Eusta'thian, *a.* Pertaining to Eustathius.

—*n.* A follower of any one of the early bishops named Eustathius.

Eusta'thius, bishop of Sebaste in Pontus, a semi-Arian and extreme advocate of asceticism, who went the length of prohibiting marriage, and introduced monasticism into Pontus. He was deposed by the Council of Melitena, A. D. 357, and that of Neo-Cæsarea in 358, and his followers were condemned by that of Nicopolis in 372.

Eusta'thius, native of Constantinople, who flourished in the latter half of the 12th century and was accounted the most learned man of his day. He was successively monk, teacher, bishop, and finally archbishop of Thessalonica. He is the author of various religious works and of a commentary on Dionysius, the geographer. But his most important work is his *Commentary on the Iliad and Odyssey of Homer.* His death occurred sometime about 1194, and funeral orations in his honor are still in manuscript in the Bodleian library.

Eusta'thius, St., bishop of Berea; for his zeal against the Arians, promoted by the Council of Nice, in 325, to be patriarch of Antioch. A convention of Arians in 330 had him deposed on a charge of Sabellianism and of unfaithfulness to his vows of celibacy. He was banished to Thrace and died there in 360.

Eutrop'ic, *a.* [Gr. *eutropos.*] (*Bot.*) Turning to the right, or dextrorse; said of a twining plant, as the morning-glory.

Evangel'ical, *a.* (*Eccles.*) In a special sense, earnest for gospel truth; spiritually minded, and not merely orthodox.—Pertaining to an evangelist, or revivalist, as *evangelical* work or preaching; but in this sense *evangelistic* is more common.

—*n.* One who holds to evangelical doctrines; an adherent of an evangelical church.

Evan'gelist, *n.* A traveling preacher or revivalist.

Evangelis'tic, *a.* Pertaining to an evangelist or revival work.

Ev'ans, in *Iowa*, a post-town of Mahaska co. *Pop.* (1890) 609.

Evap'orating Coue, *n.* An evaporator for syrup, consisting of an inverted cone with double walls between which steam is admitted. The saccharin solution running in a thin film over the inner surface is heated by the steam beneath.

Evap'orating Fur'nace, *n.* The furnace of a boiler for cane-juice, syrup, brine, &c.

Evapora'tion Gauge, *n.* A graduated glass measure with wire-gauze to prevent access of insects, for determining the ratio of evaporation in a given exposure.

Evap'orator, *n.* An apparatus for drying fruits, or for condensing vegetable juices or other liquids. An *E.* which drives off only a part of the aqueous fluid is called a *condenser*; one that boils in (partial) vacuo is called a *vacuum-pan.*

Ev'art, in *Michigan*, a post-village of Osceola co., 76 miles W.N.W. of East Saginaw, on F. & P. M. R. R.; has foundries, machine shops, and shingle mills. *Pop.* (1894) 1,317.

Evening-primrose, *n.* (*Bot.*) An erect biennial herb (*Œnothera biennis*), commonly cultivated for its flowers, of a pale, yellow color, that open about sunset.

Evening Star, *n.* Any one of the planets that may be seen at certain seasons just above the horizon in the early evening; especially Venus, on account of its brightness and beauty. Mars, Jupiter, and Saturn are, at various times, the other evening stars.

Ev'erett, in *Pennsylvania*, a post-borough of Bedford co., 8 m. E. of Bedford, on H. & B. T. R. R.; has furnace, foundry, glass-factory, tanneries and planing mills. *Pop.* (1897) about 2,000.

Ev'ersou, in *Pennsylvania*, a post-village of Fayette co., 25 m. N.E. of Uniontown. *Pop.* (1890) 905.

Evolu'tion, *n.* An unrolling or unfolding; the name given to the recent theory that all existing conditions of life and matter have evolved from earlier, more simplified conditions, and that throughout the whole history of the universe this unfolding has gone on, until from an original simple and uniform state of matter the existing complex and multiform state has arisen. The theory of *E.* holds that all this change has been a result of the continuous operation of natural law, acting upon the substances and through the forces of nature, and without intelligent interference at any point. As regards the possibility of intelligent supervision, held by many who accept the general doctrine of *E.*, the leading upholders of the theory do not concern themselves, confining their attention to the physical aspects of the theory and avoiding any statement concerning its metaphysical aspects. *E.* has been considered from two points of view. In the minds of the majority of its advocates only its biological conditions are taken into account, the theory promulgated by Darwin and maintained by his large following of scientists that the whole process of life has been one of unfoldment, each species of animal and plant arising through development from some preceding species, and the whole broad sum of organic life as now existing being the result of a direct growth from the minute forms and simplified conditions of the earliest life. The other scientific view is from a broader standpoint, and takes in all nature, organic and inorganic, material and mental, applying the doctrine of *E.* to the total development of the universe. This doctrine has been advanced, with greater or less clearness, by philosophers from the days of early Greece to the present day, and is the basis of the great work of Herbert Spencer, whose system of philosophy is essentially one of *E.*, he ascribing the whole outgrowth of the universe to the action on matter of laws and forces, and finding the whole intricate problem very largely explicable on this general principle.—*Creation and Emanation.* There are two other theories of the universe, far older and more widely accepted than that of *E.*—the creation and emanation theories. While belief in *E.* in the past was confined to the small band of philosophers, the other views were accepted by the priesthood and people in general; and though *E.* is now the doctrine held by a wide circle of scientists and others who dwell within the atmosphere of scientific thought, the older views are still maintained by the great majority of mankind. The doctrine of *E.* is directly opposed to that of creation. The belief in special creations in the appearance of each species of animal and plant as the result of the direct action of a superior intelligent power, is held by evolutionists to require an arbitrary and frequent interference with the operations of nature which has no proved facts to sustain it, and which is negatived by a host of observed facts. The doctrine of emanation, on the contrary, is not in direct opposition to that of *E.*, with which it comes into hostile contact only in regard to the question of origins. It regards the world as a product of the divine nature, a direct emanation from Deity, and in this respect is a doctrine of creation. But as regards subsequent development, it advances an evolutionary hypothesis. Yet it looks on the laws of nature as an emanation from the ideas of the Divine Being, and on matter as an emanation from spirit; thus differing from *E.* in maintaining that the process began at its highest level and descended to its lowest, to gradually ascend again to its highest. *E.* is concerned only with the latter half of this doctrine, beginning with nature at its lowest level, and tracing its steps of ascent towards the highest.—*Spencer's Philosophy.* We cannot here undertake to review the long course of philosophical thought, dealing as it does with varied views of the emanation and *E.* doctrines, and shall speak only of the teachings of Herbert Spencer, the latest of the great philosophers, and the first to base his philosophy absolutely on the results of scientific observation and discovery. Spencer's views are wholly evolutionary, and his theory is extended to embrace the whole universe, from its simplest supposed condition of widely-disseminated and uniform matter to its most developed organic products and the highest outgrowths of social, intellectual, and moral forces. The process of *E.* is with him a universal one, affecting nature as a whole and permitting interference at none of its stages. All change and progress arise from the interworking of the laws of matter, force, and motion, and from the principles of the persistence and transformation of motion and the conservation of energy. All things existed as possibilities in the beginning of things, and have successively made their appearance as matters became gradually organized under the influence of energy, and the complex evolved, step by step, from the simple, sensitive and conscious mentality being but stages in this grand process of *E.* Spencer claims *E.* to be a change from the homogeneous to the heterogeneous, from the indefinite to the definite, from the incoherent to the coherent; that matter in its distribution, and force in its operation, were originally homogeneous, indefinite, and incoherent; and that from this original condition gradually arose heterogeneous conditions of matter, definite and complex in organization, and coherent and individual in form. From a broad general level of uniform matter, destitute of parts, of separate forms, of definite aggregations, has arisen under the workings of natural law the universe we now behold, with its cosmical spheres and the highly varied and complex individual aggregations of matter on the surface of these spheres; while from some general and indefinite basis of mentality, in unorganized nature, has arisen the human mind with its high development and multitudinous separate instances.—*Inductive philosophy.*

E., as we have so far considered it, must be looked upon as mainly theoretical. Each of the philosophers went to nature for the basis of his system; but most of them built so imposing an edifice of reasoning on so slender a foundation of fact that their systems only exist to-day as literary fossils, kept in libraries as in museums, but having no living influence upon modern thought. Spencer, who was in thorough touch with modern science, based his philosophy on a broader fabric of discoveredtfacts than any of his predecessors; but, like all philosophers, he began with a series of deductions, which he sought to illustrate and prove by evidences drawn from scientific observation. The scientists have pursued a different course, depending mainly on inductive reasoning, the study of the facts of nature and the correlation of these so far as discovered. The phenomena of life have particularly attracted this class of thinkers, a number of whom hold advanced ideas of the evolutionary origin of living things. Lamarck was one of the first to advance a special theory of organic *E.* His theory did not meet with acceptance, nor did the views of any other evolutionary writer win many adherents until Darwin appeared upon the field. From continued observation and experiment, and an endeavor to comprehend the significance of the facts observed, this scientist gradually wrought out a new conception of nature's workings, illustrating every step of his progress by examples and experiments, and advancing a definite theory of organic *E.* which appealed to scientists as one of high probability and has been widely accepted; while the work of Darwin has been taken up and greatly advanced by subsequent investigators in the same field.—*Evolution in Biology.* The word *E.* came into use in the first half the 18th century, to denote the views which physiologists were then beginning to entertain concerning the origin of living things. The theory which the word indicated was as old as Aristotle, and had, in the preceding century, been strongly advanced by Harvey; while most of the philosophers or scientists of the 18th century held it in some degree or other, though their views were widely based on ideas which have long since been exploded. Erasmus Darwin, grandfather of the great biologist, was an ardent evolutionist, though his arguments in its favor had little influence on his contemporaries. Goethe, whose thoughts led him far beyond the limits of poetry, advanced some evolutionary views which still hold good. Many of the scientists kept pace with these literary theorists, notably Lamarck, who advanced the first evolutionary hypothesis of organic development that attracted any wide attention. His system is based on the principle of organic modification by the conscious action of animals. As the habitual use of a muscle tends to develop that muscle, and of a limb to increase the powers of that limb, so the effort of an animal to exert any organ in a given direction tends to the development of the organ in that direction. The effort of a giraffe, for instance, to browse on limbs of trees just below its reach, tended to increase its reaching power; this, continued through successive generations, added to the length of its limbs and neck. The effort to swim led to the slow development of organs better adapted to swimming than the usual limbs. This theory was far from sufficient to explain all the modifications in animal form, and a broader and more general cause for these modifications was needed before the theory of evolution could gain any wide circle of adherents. This cause appeared in the theory of natural selection; suggested by Wells in 1813, and somewhat elaborated by Mathew in 1831, but which remained almost unknown until promulgated by Wallace and Darwin in 1858—by the former in a brief statement, by the latter with a wealth of illustration and a completeness of argument that took captive the scientific world, and gained instant and wide acceptance for the theory by many of the first thinkers of the age. (For the details of this theory, see DARWINISM.) Darwin's theory has met with many advocates, and many opponents. While it seems insufficient to explain all the steps of change in organic beings, it has won a host of adherents, and raised *E.* to the position of one of the great theories of the age. As regards the phenomena which natural selection seems incapable of explaining, few look upon their existence as in any sense fatal to the theory of organic *E.*, but as simply demanding an extension of this theory to cover these problematical points. In the effort to do so, various supplementary hypothesis have been advanced, and many American scientists have reverted to the older views of Lamarck, which are held to be of value as indicating secondary causes of organic change. A Neo-Lamarkian school has arisen, in which use and effort are regarded as active and important aids to organic change, and the influence of the mind, as exercised through the muscles, is considered to be a potent aid in the production and preservation of variations, especially as influencing those variations to take place in particular and useful directions.—*General results.* The development of evolutionary ideas has by no means been confined to organic nature, considered from its physical aspect. The prominence which the theory has attained since the appearance of Darwin's *Origin of Species* has led to its application to other fields of nature. Astronomy, geology, physical science in general, are being worked over from the evolutionary standpoint. The same is the case with mental science. The development of social institutions, of political relations, of language, race, art, industry, etc., are being dealt with from this point of view. Herbert Spencer has given special attention to these subjects and that of ethical development from this standpoint, every phase of mentality and morality being considered in his monumental work, and their evolutionary significance pointed out. At the present day the number of writers on the subject of *E.* in some one of the numerous phases is far too great for enumeration here; and we need only add that the whole universe of force and matter is to-day being worked over in the fertile field of evolutionary thought.

Ew'ing, in *South Dakota*, a N.W. co.; *area*, 1,008 sq. m. *Rivers*, North Fork of Grand river and Box Elder creek. Cattle raising is the leading industry. Unorganized.

Ex'cavators. (*Engineering.*) Machines for excavating solid soil, as dredges excavate the water-soaked soil of streams and harbors. These machines are used in making docks, railroad cuttings, canals, etc. Two kinds of *E.* are in use, each adapted to a particular kind of work, though they are often employed together with effective results. One of these, intended to make a long, narrow cutting, or "gullet," looks and works like the ordinary steam crane, such as is used for loading railroad trucks, except that it is mounted on wheels to move on rails, while the hook at the end of the chain of the crane is replaced by a strong bucket or scoop of plate-iron, with a very heavy handle or lever to which is fastened a second chain. The lever is heavy enough to balance the scoop when filled with clay. In operating the machine, the scoop is lowered and the two chains push it forcibly into the bank until it is full of earth. Then it is lifted by the suspension chain until over a wagon or other conveyance, when the chain on the handle tilts it up and empties it. The machine is now swung round on its centre to renew the operation. These excavators rapidly make their way through ordinary soil, one of the largest size being able to excavate two cubic yards per minute. The cutting is made wider than the machine, the arm shifting from side to side, and making a passage wide enough for men to work in and wagons to pass. When the cutting has sufficiently progressed, the excavator described is followed by one of the second class (see Fig. 2876), its purpose being to widen the cutting. The machine bears a

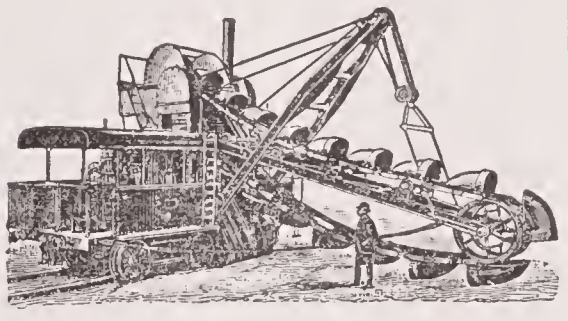


Fig. 2876.—STEAM EXCAVATOR.

certain resemblance to the dredging machine (*q. v.*), on whose model it was originally formed. The machine moves on rails on the top of the bank, whose sides slope downward into the cutting; the jib is lowered until the row of buckets it carries can cut into the clay; as the chain revolves, the sharp edges of these dig into the earth and scrape up the sides of the sloping bank, reaching the top filled with earth. Passing over the machine, they are emptied into carts or conveyances which lie close to its water side. The *E.* move forward slowly, but bring up in some cases as many as four cubic yards per minute. Of these two machines, the first is adapted to make long and deep cuttings, for the second to widen. The first is capable of performing a greater variety of operations, but the second much surpasses it in the quantity of earth it is capable of moving in a given time. In their operation two men to manage the engine are alone required, the excavator doing its work without further aid. Machines of this kind are indispensable to modern excavating operations, in which the old spade and pick method would be exasperatingly slow, and far too costly. By their aid excavations in clay, or other easily moved soil, can be made with a rapidity unknown in the older processes.

Ex'eter, in *Nebraska*, a post-village of Fillmore co., 47 m. W. S. W. of Lincoln, on C., B. & Q., and F., E. & M. R. Rs.; has grain elevators, flour mills, canning factory, creamery and large shipping trade in grain and live stock. *Pop.* (1890) 754.

Ex'itus, *n.* [*Lat.*] (*Law.*) Issue, or offspring.—Yearly rents or profits of land.

Exog'amy, *n.* [Gr. *exo* and *gamos.*] The custom of a tribe prohibiting marriage within the tribe; marriage outside of one's tribe or family; opposed to *endogamy.*

Exper'iment Station. An institution equipped with the means for practical scientific studies in economic farming.

Exploit', *v. a.* To utilize, make available, or employ in schemes for one's own advantage; to search after; to explain in detail.

Exploita'tion, *n.* The act of exploiting or utilizing; employing selfish ends.

Explo'sives. Chemical compounds which, through the effect of heat or shock, combine with explosive energy, being converted into forcibly expanding gases with such rapidity as to exert an immense rending energy. Of these, gunpowder has long been known and employed; the others, some of which are much more vigorous in this action, being of recent discovery. The latter include nitro-compounds, such as gun-cotton and nitro-glycerine, with dynamite and their other derivatives; picrate and chlorate mixtures; and the fulminates, whose violent action and great sensitiveness restrict their use to minute quantities, known as detonators.—*Gunpowder.* This, the oldest and most widely employed of explosives, has been used in war for six or more centuries. For its composition and history, see GUNPOWDER. Various improvements in its manufacture have been made of late years, such as the replacement, in 1874, of part of the carbon by uncarbonized peat, and a German invention of 1882, in which the carbon consisted of slightly carbonized straw. In both these cases the rate of burning was slower, giving a long-sustained pressure. A form of the latter, known as cocoa powder, is manufactured in the U. S., the carbon consisting of two parts of baked wood and one part of some carbo-hydrate, such as sugar. Other improvements have been made, in adapting the form of the grains to special purposes. Attempts have been made to replace saltpeter, or potassium nitrate, with cheaper nitrates, such as those of lead, soda, and barium, but not with satisfactory results. Other combinations have been made, producing compounds known as *bellite*, *robnrite*, and *securite*, which are claimed to be flameless, and therefore suitable for use in mines.—*Gun-cotton.* This explosive, discovered in 1832 by dissolving starch in nitric acid, adding water, and obtaining a precipitate, took its present form in 1846, through the dissolving of cotton in a mixture of strong nitric and sulphuric acids. It was hoped that it would make a useful substitute for gunpowder, but its tendency to spontaneous explosion, its very violent action, and the corrosive residue left by it, threw it into disfavor. These recent improvements in manufacture, however, have restored it in a measure to favor, and what is known as Abel gun-cotton has been adopted by several governments, as an explosive well suited to submarine warfare. Much attention has been given to it in the efforts to produce a smokeless powder, and Munro's smokeless powder, now in use to some extent in the U. S. Navy, contains tri-nitrocellulose as one of its ingredients. What is known as *Schultze powder* is a similar compound to gun-cotton, the cotton being replaced by wood fibre.—*Nitro-glycerine*, the combination of glycerine with nitric and sulphuric acids, has been described under DYNAMITE (*q. v.*). Numerous other explosives have been introduced, which we can but briefly mention. *Glyoxaline*, invented by Mr. Abel, in the British service, consists of gun-cotton pulp and potassium nitrate, mixed and saturated with nitro-glycerine. It never came largely into use.—*Lithofracteur*, produced by Prof. Engels, of Cologne, is an explosive of useful qualities whose exact composition has been kept a secret, other than that it contains nitro-glycerine, silica, and other mineral ingredients. It has properties resembling those of dynamite, and like the latter is secure against corrosion. A form of this explosive, known as *Judson powder*, is very largely used in the U. S.—*Dualine*, an explosive used in Germany and the U. S., is composed of a mixture of various nitro-compounds, and has properties in several respects resembling those of dynamite.—*Nitro-gelatine*, invented by Nobel in 1876, is a nitro-glycerine compound, consisting of the latter solidified to a stiff jelly by a mixture with nitro-cellulose, usually of the soluble form. It has high explosive powers. With a largely increased proportion of nitro-cellulose, and 10 per cent. of camphor, it yields a horn-like substance known as *ballistite*, which, suitably prepared, is claimed to be one of the best of smokeless powders. *Cordite* and *Leonard powder* are explosives of similar class.—*Forcite*, an American product, is a compound of nitro-glycerine and prepared cellulose. The last that need be named of these nitro-glycerine compounds, *terrorite* or *perunite*, is a semi-fluid paste, of remarkable explosive power, though objectional from its partial fluidity and its volatile ingredients.—In addition to these nitrates, there are several compounds of which potassium chlorate forms the basis. These have great explosive intensity, but are dangerous to handle, though *rackarock*, a compound of this character, was largely used in the destruction of Flood Rock, N. Y.—Picric acid is the basis of another series of explosives, of considerable power, which have come into use to some extent.—The *fulminates* are salts of fulminic acid, a chemical substance not known in the free state, but which is produced in combination with various bases. The most important explosive of this class is fulminate of mercury. It is too dangerous to use except as an aid to explosion, it being employed as an agent to produce detonation in high explosives. Fulminate of silver is used in minute quantities in toy fireworks, while fulminate of copper is remarkably sensitive to the discharge of static electricity, being fired by the minutest sparks.

Exposi'tion Mills, in *Georgia*, a village of Fulton co. *Pop.* (1890) 601.

Express'man, *n.* An agent or messenger of an express company, a receiver or deliverer of express matter, or driver of an express wagon.

Eye'-glass, *n. sing.* The eye-piece of a microscope or telescope.

—*pl.* A pair of lenses or spectacles without bows, adjusted to the nose and held in place by a spring.

Eye'-opener, *n.* Something that opens the eyes or engages attention, or explains a mystery.—(*Slang.*) A drink of liquor in the early part of the day.

Eye'-reach, Eye'-shot, *n.* Range of vision; distance to which one can see.

Eye'-stone, *n.* A small, smooth object for removing foreign substances from the eye; especially a calcareous stone, an operculum of a univalve shell in one of the family *Turbinidæ*. This, being placed under the lid at the inner corner of the eye, works it way out at the other corner, bringing with it the irritating particle.

Ey'ry, *n.* Same as AERIE.

F.

F The sixth letter and the fourth consonant of the English and Latin alphabets. It corresponds with *Digamma* of the Æolian language, to which it is closely related both in form and power, and with the *Vau* of the Hebrew. It indicates a labio-dental sound, produced by the passage of the expired air between the lower lip and the upper incisive teeth; and bears the same relation to the other labio-dental aspirate *v* that the unaspired labials *p* and *b* bear to each other. *F* and *v* are frequently interchanged, and in German *v* has the sound of *f*, — as *von*, sounded *fon;* hence, in English words taken from the German, *f* takes the place of *v*, — as *vater*, father; *vier*, four. In Latin, *f* seems to have had a sound somewhat corresponding to a strongly aspirated *h*; for we find the latter frequently substituted for the former in the Sabine dialect of that language; and in Spanish, the Latin *f* is frequently changed into *h*, — as Latin *formosus*, beautiful; Spanish, *hermoso*. The *phi* in Greek was often in Latin represented by *f* instead of *ph*, — as *pheme*, *fama;* and this is frequently done in Italian and Spanish, — as *filosofia*, philosophy. *F* in Latin also corresponded to *th* in Greek, — as Gr. *ther*, Lat. *fera*, a wild beast. *F* in Latin and Greek often becomes *b* in English, — as *frater*, brother; and *p* in Latin and Greek, *f* in English. — as *pater*, father. In English, it has one uniform sound, as *father*, *after*. — The figure of the Latin *F* arose from the doubling of the Greek Γ. As a numeral, according to Baronius, *F* is equivalent to 40, and F to 40,000. As an abbreviation, *F* stands for *filius*, *fecit*, Flavius, Fahrenheit, fellow, &c.; for *forte* in music, and *ff* for *fortissimo*. In Chemistry, it represents *fluorine*. In Heraldry, it denotes the navel point in an escutcheon; in Chronology, one of the seven dominical letters; also Friday. In prescriptions, *F* stands for *fiat*, let it be made, or F. S. A., *fiat secundum artem*, let it be done (made) according to art or rule. In criminal law this letter was branded on criminals or felons when admitted to the benefit of clergy. *F* is marked on the French coins of Angers, on the Prussian of Magdeburg, and on the Austrian of Hall in the Tyrol.

(*Mus.*) F is the fourth note of the natural diatonic scale of C, and stands in proportion to C as 4 to 3, and is a perfect fourth above C as a fundamental note. F major, as a key, has one flat at its signature — viz., B flat. F minor has four flats the same as A flat major, of which it is the relative minor.

Fa. (*fä.*) (*Mus.*) One of the syllables invented by Guido Aretino to mark the fourth sound of the modern scale of music; rising thus: *ut*, *re*, *mi*, *fa*. It is now used by the French and Italians to designate our note F.

Faaborg. (*fa'borg,*) a sea-port of Denmark, in the island of Fünen, 17 m. from Odensee; *pop.* 3,000.

Fa'ba, *n.* [Lat., a bean.] (*Bot.*) See Vicia.

Fabian, St., a pope, succeeded Anterus, 236, and suffered in the persecution under Decius, 250.

Fa'bius, in *Iowa*, a township of Davis co.

Fa'bius, in *Michigan*, a post-township of St. Joseph co.

Fa'bius, in *Missouri*, a township of Knox co.

—A township of Marion co.

Fa'bius, in *New York*, a post-village and township of Onondaga co., about 20 m. S. S. E. of Syracuse.

Fa'bius, in *West Virginia*, a post-office of Hardy co.

Fa'bius River, in *Missouri*, formed by the union of its north, middle and south branches, and entering the Mississippi from Marion co.

Fa'ble, *n.* See Section II; also Beast Fable.

Fabled, *a.* Told or celebrated in fable.

Fa'bler, *n.* A writer of fables or fictions; a fabulist.

Fa'bling, *p. a.* Feigning; devising, as stories; writing or uttering false stories.

Fablian (*fab'lē-ō*), *n.; pl.* Fabliaux. (*Lit.*) The name given in the old French literature to a class of short metrical narratives, composed for the most part in the 12th and 13th centuries, by the *Trouvères* or early poets of the *Langue d'Oil*, or dialect of the North of France.

Fabriano (*fä'bri-ä'no*), a town of Italy, prov. Macerata, 23 m. W. of Macerata city.

Fab'ric, *n.* [Fr. *fabrique;* Lat. *fabrica*, from *faber*, a worker in hard materials, from *fac*, root of *facio*, to make.] Any work made of wood, stone or metal; the frame or structure of anything; workmanship; texture; frame or structure of a building; construction; the building itself; an edifice; a house; a temple; a church; a bridge, &c.—Any product composed of connected parts; as, manufactured cloth, &c.

Fab'ricate, *v. a.* [Fr. *fabriquer;* Lat. *fabrico*, *fabricatus*, from *fabrica*.] To make; to frame; to forge; to fashion; to make out of wood, stone or metal; to build; to construct; to manufacture; to devise; to invent; to form a whole by connecting its parts; to form by art and labor.

—To form or devise falsely, as a story or lie.

Fabrica'tion, *n.* [Fr., from Lat. *fabricatio.*] Act of fabricating, framing or constructing; construction; the act of manufacturing.—The act of devising falsely; forgery.—That which is fabricated; a falsehood; a fiction.

"*Fabrication*" *and* "*Fiction.*—These two terms, frequently used interchangeably, are, in many cases, not strictly synonymous. Fiction, in the literary sense, refers to a falsehood, or series of falsehoods, not intended to deceive; while a fabrication is always something invented for the purpose of deception.

Fab'ricator, *n.* [Lat.; Fr. *fabricateur.*] One who constructs or makes.

Fab'ricatress, *n.* A female fabricator

Fabri'cius, Caius, surnamed Luscius, a Roman general, who was twice consul, and gained several victories over the Samnites and Lucanians. He was famed for his integrity and contempt of riches. This was remarkably shown on occasion of his embassy to Pyrrhus in 280 B. C., when he firmly withstood all the attempts of Pyrrhus to allure him into his service. When consul, he discovered to Pyrrhus a plot formed to poison him by his physician; and in gratitude for so noble an act, Pyrrhus released the Roman prisoners without ransom. *F.* was afterwards censor, and endeavored to check the growing passion for luxury. He lived a simple life, and died poor.

Fabri'cius, Johann Christian, a distinguished entomologist, and the friend and pupil of Linnæus, was B. at Tundern, in Schleswig, in 1742, and D. at Copenhagen in 1807. He was counsellor to the king of Denmark, and professor of rural and political economy, on both of which subjects he wrote; but his life was mainly devoted to the pursuit of his favorite science, and for the purpose of improving it he visited most of the museums in Europe. His *Systema Entomologiæ*, and other works on entomology, are in high repute.

Fab'ulist, *n.* [Fr. *fabuliste.*] An author or writer of fables; a fabler.

Fab'ulize, *v. a.* To invent, compose, or relate fables.

Fabulos'ity, *n.* State of being fabulous. — A fabulous invention; a fable.

Fab'ulous, *a.* [Lat. *fabulosus;* Fr. *fabuleux.*] Containing or abounding in fable or fiction; feigned, as a story; devised; fictitious; related in fable; described or celebrated in fables; invented; not real.

Fab'ulously, *adv.* In a fabulous manner.

Fab'ulousness, *n.* The state of being fabulous; fabulosity.

Façade, (*fa-sad',*) *n.* [Fr., from Lat. *facies*, the face. See Facial.] (*Arch.*) The face or front of any building of importance. It may be applied to any side of a large quadrangular building embellished with sufficiently striking architectural features, but it is usually confined to the principal front, in which the chief entrance is most frequently, if not always, situated.

Face, *n.* [Fr.; Lat. *facies.* The Lat. *facio*, to make, whence *facies* is derived, is probably from Sans. *bhâvayânâ*, to cause to be, the causative of *bhâ*, to be, akin to Heb. *paghal*, Ar. *faghal*, to make.] That part of a form or body which presents a front surface or appearance; the whole form or manner of a thing or body; as, the *face* of the earth.

"Lake Leman woos me with its crystal *face*."—*Byron.*

—The surface of the part of an animal's head, particularly the human head; the visage; the countenance.

"The children of Israel saw the *face* of Moses, that the skin of Moses' *face* shone."—*Exod.* xxxiv. 35.

—Cast of features; aspect of the countenance: look; air of the visage; as, to put the best *face* on a matter.

"To be grave, exceeds all power of *face*."—*Pope.*

—The surface of anything that presents itself first to view; external aspect; outside appearance or show; visible state of affairs.

"This would produce a new *face* of things in Europe."—*Addison.*

—Confidence; boldness; freedom from modesty or bashfulness; freedom from abashment; effrontery; impudence.

"You 'll find the thing will not be done
With ignorance and *face* alone."—*Hudibras.*

—That part of a body having several sides, which is seen from one point; one of the bounding planes of a solid; as, a cube has six *faces*. — Presence; sight; front; as, to run into the *face* of danger, to contradict a person to his *face*, to flee from the *face* of men, and the like. — Mode of exhibiting regard or countenance: favor or disfavor; good-will or anger; — mostly used scripturally.

"I will set my *face* against them."—*Ezekiel* xv. 7.

Face to face, when both parties are present; confronted one with the other; as, the accused and accuser are brought *face to face*. — *To make a face*, to distort the countenance; to assume a ludicrous or unnatural look.

"Shame itself!
"Why do you *make such faces?*" —*Shaks.*

Face of a cylinder. (*Mach.*) The flat part of the cylinder of a steam-engine on which a slide-valve moves. — *Face of a bastion.* (*Fortif.*) That part which intervenes between the salient and the shoulder angle. — *Face of a gun.* (*Mil.*) The surface of metal at the muzzle.

—*v. a.* To meet in front; to meet with the face or front toward; to confront; to resist, or to meet for the purpose of stopping or opposing; as, to *face* the enemy. — To stand opposite to: to stand with the face toward.

"The temple has four fronts . . . *facing* the different quarters of the world."—*Addison.*

—To cover with an additional superficies; to invest with a covering in front; as, a building *faced* with stone.

—To oppose with impudence, or in a manner to browbeat; — generally preceding *down.*

"We trepann'd the state, and *faced* it *down*." — *Hudibras.*

(*Mach.*) To make smooth or flat the surface of.

—*v. n.* To carry a false appearance; to assume hypocritical airs.

"To *face*, to forge, to scoff, to company." — *Hubberd's Tale.*

—To turn the face; as, to *face* to the right or left.

"*Face* about, man; a soldier, and afraid of the enemy!" *Dryden.*

Face'-ache, *n.* (*Med.*) See Tic Douloureux.

Face'-cloth, *n.* A cloth to cover the face of a dead man.

Face'-guard, *n.* A mask used by workmen to defend the face.

Face'less, *a.* Being without face.

Face'-painter, *n.* A portrait-painter.

Face'-piece, *n.* (*Ship-building.*) A piece wrought on the fore-part of the knee of the head, to assist the conversion of the main-piece, and to shorten the upper bolts of the knee of the head.

Fac'er, *n.* One who faces or opposes with impudence.— A violent blow on the face.

Fac'et, *n.* [Fr. *facette*, dim. of *face.*] A lapidary's term for the small plane surfaces cut on precious stones to reflect the light, and so to increase their lustre.

(*Anat.*) A small, circumscribed portion of the surface of a bone.

Fac'eted, *a.* Cut so as to have numerous faces or facets.

Facetiæ, (*fa-sē'she-ē,*) *n. pl.* [Lat.] Sallies of wit or humor; witticisms; jokes.

Face'tious, *a.* [Fr. *facetieux*, from Lat. *facetus*, from *factus*, from *facio*, to make.] Merry; witty; humorous; jocose; jocular; sprightly; abounding with wit and good-humor; sportive; playful; full of pleasantry; exciting laughter; as, a *facetious* remark.

Face'tiously, *adv.* Merrily; gayly; wittily; with pleasantry.

Face'tiousness, *n.* Quality of being facetious; cheerful wit; sportive humor; pleasantry; jocoseness.

Facette', *n.* [Fr.] A facet.

Facia, (*fā'she-ē,*) *n.* [Lat *facies*, a face.] (*Arch.*) A name often given to flat bands or fillets introduced into architectural embellishments, but more frequently applied to the bands of an architrave, which are so placed that the one above projects beyond the surface of that which is immediately below it. In the architrave of the Composite order of architecture two facias are generally used, while in the Corinthian, and sometimes in the Ionic order, three are introduced. (See Fig. 650.)

Fa'cial, *a.* [From Lat. *facies.*] Pertaining to the face.

F. artery. (*Anat.*) A branch of the external carotid, which rises beneath the digastricus, and is distributed to almost every part of the face.

Fa'cial Angle, *n.* See Angle-facial.

Fa'cially, *adv.* In a facial manner.

Fa'cies, *n.* (*Zoöl.*) The general aspect or external character of an animal, as it appears on a casual or first view.

—[Lat.] (*Anat.*) The face.

Facies Hippocrat'ica, *n.* [Lat., Hippocrates' face.] (*Med.*) A particular expression of the countenance, which, after a long illness, immediately precedes death; being regarded as an infallible symptom or prognostic of approaching dissolution. This particular expression of the countenance has been so called from Hippocrates, the first physician who gave an accurate account of this indication and which he has done with a minuteness that the experience of 23 centuries has not been able to alter or improve. The chief characteristics of the facies Hippocratica are, a sharp nose and contracted nostrils, the sockets hollow, and the eyes deeply sunk; pits in the temples, the ears pinched and cold, the forehead dry and wrinkled, the mouth open, and the countenance pale and livid.

Facile, (*fa'sil.*) *a.* [Fr.; Lat. *facilis*, from *facio*, to make.] That may be made or done; easy to be done, accomplished, or performed; easy; not difficult; performable or attainable with little labor; pliant; flexible; easily persuaded to good or bad; yielding; ductile to a fault; ready in performing; dexterous.

Fa'cilely, *adv.* Easily. (R.)

Fa'cileness, *n.* Quality of being facile, or easily persuaded.

Facil'itate, *v. a.* [Fr. *faciliter*, from Lat. *facilitas*, from *facilis*, from *facio*, to make.] To make easy or less difficult; to free from difficulty or impediment, or to diminish it; to lessen the labor of.

Facilita'tion, *n.* Act of facilitating.

Facil'ity, *n.* [Fr. *facilité;* Lat. *facilitas*, from *facilis*, facile.] Quality of being facile or easy; easiness to be performed: freedom from difficulty; ease; readiness proceeding from skill or use: dexterity; pliancy; ductility; easiness to be persuaded; readiness of compliance.

Fac'ing, *n.* A covering in front for ornament or defence; a thin covering, of better material, placed over anything to improve its appearance or increase its strength.

(*Mil.*) A movement performed by troops, by turning upon the heel to the right, left, about, &c.; — almost invariably used in the plural.

(*Arch.*) A term generally employed to mean the better description of material which serves to mask an inferior one, as when stone facing is used upon brickwork, &c.

Fac'ingly, *adv.* In front; in the way of facing.

Fac-simile, *n.* [Lat., from *facio*, I make, and *similis*, like.] An exact imitation of an original in all its traits and peculiarities; a copy as accurate as possible. It is chiefly used in relation to copies of old manuscripts, or of the handwriting of famous men, or of interesting documents, which are made by engraving or lithography.

—*v. a.* To represent by fac-simile. (R.)

Fact, *n.* [Lat. *factum*, from *facio*, to make.] Anything performed, accomplished, or done, or that comes to pass; a deed; an act; a performance; an event; an incident; an occurrence; a circumstance; an effect produced or achieved; reality; truth; verity.

Fac'tion, *n.* [Fr., from Lat. *factio.*] The name given by the ancient Romans to the different troops or companies of combatants in the games of the circus. In the time of Justinian 40,000 persons were killed in a contest between two of these factions; and they were at last suppressed by universal consent. The term is applied in a bad sense to any party in a state which attempts, without adequate cause, to disturb the public peace, or that offers uncompromising opposition to the measures of the government.

Fac'tionist, *n.* One who promotes faction.

Fac'tious, *a.* [Fr. *factieux;* Lat. *factiosus*, from *factio.* See FACTION.] Given to faction; addicted to form parties and raise dissensions in opposition to government; turbulent; prone to clamor against public measures or men; pertaining to faction; proceeding from faction.

Fac'tiously, *adv.* In a factious manner; by means of faction; in a turbulent or disorderly manner.

Fac'tiousness, *n.* Quality of being factious; inclination to form parties in opposition to the government or to the public interest; disposition to clamor and raise opposition.

Facti'tious, *a.* [Lat. *factitius*, from *facio*, to make.] Made by art, in distinction from what is produced by nature; artificial.

Facti'tiously, *adv.* In a factitious or unnatural manner.

Facti'tiousness, *n.* Quality of being factitious or artificial.

Fac'titive, *a.* [Lat. *faico, factus*, to make.] Tending to make or cause; positive.

Fac'to, *adv.* [Lat.] (*Law.*) In fact.

Fac'tor, *n.* [Lat., from *facere*, to form; Fr. *facteur.*] (*Math.*) The term applied to each of the quantities which we multiply into one another to form a product.—The multiplicand and multiplier.—The term is also used in the same sense as divisor: so that any quantity which will divide another is a *F.* of it. Thus, the entire factors of 16 are 1, 2, 4, and 8. The prime factors of a quantity are those factors which cannot be exactly divided by any other quantity except 1.

(*Com. Law.*) An agent employed to sell goods or merchandise consigned or delivered to him by or for his principal, for a compensation, commonly called *factorage* or *commission.*

Fac'torage, *n.* Agency of a factor; the allowance given to a factor by his employer, as a compensation for his services; more commonly called *commission.*

Fac'toress, *n.* A female factor. (R.)

Facto'rial, *a.* Pertaining to a factory; referring to a factory.

(*Math.*) Relating to a factor or factors.

Fac'torship, *n.* The business of a factor.

Fac'tory, *n.* This word was first applied to an establishment of merchants and factors in foreign countries. These factories were governed by several rules adopted for their own support and in order to protect them from the interference of the governments of the countries in which they resided. In modern times these factories have nearly ceased to exist. The mode in which they were instituted seems to have been, that they first had a liberty to trade, then a district was assigned to them in which they were exempt from the jurisdiction of the native courts. The English, at an early period, formed factories in China, which still exist. Factories have also been established by the Venetians, Genoese, Portuguese, Dutch, and French.—Gradually, the word *F.*, more commonly used in England than in this country, has been limited to any building in which cotton, wool, silk, flax, hair, hemp, jute, or tow, are manufactured by machinery worked by steam, water, or some other power.—See MANUFACTORY.

Fac'tory Creek, or ABRAM'S CREEK, in *New York*, formed by the union of Kinderhook and Claverack creeks, and enters the Hudson River from Columbia co.

Fac'tory Point, in *Vermont*, a village of Manchester township, Bennington co., on a branch of the Battenkill river, about 80 m. S. of Montpelier.

Fac'tory Village, in *Massachusetts*, a village of Hampshire co.

Fac'toryville, in *Michigan*, a post-village of St. Joseph co., on Nottawa creek.

Fac'toryville, in *Nebraska*, a former P. O. of Cass co.

Fac'toryville, in *New York*, a village of Richmond co., on Staten Island, now (1897) part of New York city.—A post-village of Tioga co., on the Gaynta creek, about 265 m. N. W. of New York city. Now WAVERLY.

Fac'toryville, in *Pennsylvania*, a post-borough of Wyoming co.

Facto'tum, *n.* [Lat. *facio*, to make, and *totus*, all, whole.] A person employed to do all kinds of work.

Fact'ual, *a.* [From *fact.*] Relating to or containing facts.

Fac'tum, *n; pl.* FACTA. [Lat.] (*Law.*) A deed; a man's own act and deed; a culpable or criminal act: an act not founded in law.—A deed; a written instrument under seal; called also *charter.*

(*Arith.*) The product of two quantities multiplied by each other.

Fac'ture, *n.* [Fr.] (*Com.*) An invoice or bill of parcels.

Fac'ulæ, *n. pl.* [Lat. dim. of *fax*, a torch.] (*Astron.*) Those portions of the sun's disc which appear brighter than the rest of his surface.—See SUN.

Fac'ulty, *n.* [Fr. *faculté;* Lat. *facultas*, from *facilis*, facile.] The power of doing anything; capability, power, means, or opportunity of doing anything easily.—Facility of performance; the peculiar skill derived from practice aided by nature.—Habitual skill or ability; dexterity; adroitness.—That power of the mind or intellect which enables it to receive, revive, or modify perceptions; ability; talent; gift; endowment; personal quality.—Disposition or habit, good or ill.

"I am traduced by tongues which neither knew my *faculties* nor person."—*Shaks.*

—Privilege; a right or power granted to a person.—The individuals constituting a scientific profession, or a branch of one, taken collectively; distinctively, the professors of medicine; the masters and professors of the several sciences in a college or university; one of the members or departments of a university.

(*Phil.*) A term applied to those active powers of the mind which are original and natural, and which make part of the constitution of the mind. Capacity, on the other hand, is applied to those manifestations of mind in which it is generally regarded as passive, as affected or acted upon by something external to itself. "Powers natural and active," says Sir William Hamilton, "are called *faculties.* Powers natural and passive, *capacities* or *receptivities.* Powers acquired are habits, and habit is used both in an active and passive sense. The power again of acquiring a habit is called a *disposition.*" When philosophers thus classify the different operations of the mind, and assign them to different powers, it is not to be supposed that they regard the mind as made up of so many distinct parts. The mind manifests itself in different ways, and it is only these manifestations that they arrange and classify; when, therefore, they speak of a power or faculty of the mind, they mean only that certain operations of the mind have been observed and classified, according to the conditions and circumstances under which they manifest themselves. "This way of speaking of faculties," says Locke, "has misled many into a confused notion of so many distinct agents in us, which had their several provinces and authorities, and did command, obey, and perform several actions, as so many distinct beings; which has been no small occasion of wrangling, obscurity, and uncertainty, in questions relating to them."

Fac'und, *a.* [Lat. *facundus; for, fari*, to speak.] Eloquent.

Facun'dious, *a.* Eloquent; full of words. (R.)

Facun'dity, *n.* [Lat. *facunditas.*] Quality of being facund; eloquence. (R.)

Fade', *v. a.* [Fr. *fade;* Ger. *fad;* akin to Lat. *vadere*, to go or vanish; Fr. *fader.*] To wear away; to cause to wither; to deprive of freshness.

—*v. n.* To vanish; to grow dim; to waste away; to perish or lose strength gradually; to decline; to languish.

—To lose color; to tend from a brighter to a weaker color.

Fad'ed, *p. a.* Decayed; withered; having become less vivid in color.

Fad'edly, *adv.* Poorly; meanly; decayedly.

Fade'less, *a.* Unfading.

Fadge', *v. n.* [A. S. *fegan;* Ger. *fügen*, to join.] To come close; to fit; to suit; to agree.

—*n.* A bundle of sticks; a piece of a thick cake; a sack.

Fad'ieuskoi, a Russian island of the Arctic Ocean, in the govt. of Yakatsk; Lat. 76° N., Lon. 141° to 145° E. It is 100 m. long, by about 40 broad, and is inhabited.

Fad'ing, *n.* Loss of strength or color; decay.

Fad'ingly, *adv.* In a fading manner.

Fad'ingness, *n.* Liability to fade or lose freshness.

Fad'y, *a.* Losing color or strength.

Fad Loch, a lake of Scotland, in the island of Bute, 6 m. from Rothesay.

Fæ'cal, *a.* See FECAL.

Fæ'ces, *n. pl.* [Lat.] (*Physiol.*) The excrementitious contents of the bowels—the refuse of the food and aliment, from which all the nutritious particles have been extracted by digestion and absorption in their passage along the intestines; and sometimes called alvine discharges, or the *egesta.*

—Sediments; dregs; lees; settlings after distillation and infusion.

Fæ'cula, *n.* See FECULA.

Faenza, (*fa-aint'sa,*) a city of Italy, 20 m. from Ravenna. *Manuf.* Earthenware, paper, silk twist, and fabrics. *F.*, the ancient *Faventia*, was at one period a town of the Boii, was afterwards a *municipium* under the Romans, and was annexed to the States of the Church in the 15th cent., by Pope Alexander VI., in which condition it remained till 1860, when, with the Emilian provinces, it was annexed to the kingdom of Italy. *Pop.* 22,641.

Faë'rie, *a.* and *n.* Same as FAIRY, *q. v.*

Fag, *v. a.* [Sax. *fæge:* Ger. *feig*, fearful, timorous.] To cause any one to labor very severely and constantly; to make one act as a fag or drudge.

—*v. n.* To have a sensation of dread, as one about to die.

—To grow weary; to tire.

—To labor to weariness; to drudge.

—*n.* A menial drudge; a school-boy who discharges menial services for another, of a higher class or form, at the great English schools.

Fag'-end, *n.* The end of a web of cloth; the intertwisted ends of a rope; the worse or meaner part of a thing.

Fag'ging, *n.* [A.S.] A system of servitude at one time general in the higher schools of England, and which has not yet entirely disappeared. It consists in the junior boys, or those of the lower school, as it is called, being compelled to act as servants, or "fags," to the older or more advanced pupils. The fag is under entire subjection to his master, having to attend to his fire, prepare his meals, brush his clothes, and perform other menial duties; and even to smuggle into the house forbidden delicacies for his master's use, and bearing the punishment if detected. The commissioners report, with reference to this custom, that while some menial offices too often assigned to fags, ought, in their opinion, to be allotted to servants, on the whole they think that it is not degrading to the juniors, and has no injurious effect upon the character of the seniors.

Fag'leysville, in *Pennsylvania*, a post-office of Montgomery co.

Fagon, GUY CRESCENT, (*fa-gawng',*) physician to Louis XIV., b. at Paris, 1632. He defended the doctrine of the circulation of blood, and collected numerous plants to enrich the royal gardens, of which he was superintendent. D. 1718.

Fagopy'rum, *n* [From Lat. *fagus*, beech, and *pyrum*, a pear—the fruit resembling in shape a beech-nut.] (*Bot.*) The Buckwheat, *q. v.*, a genus of plants, order *Polygonaceæ.* The *Fagopyrum esculentum*, called in France *blé sarragin*, is cultivated on account of the farinaceous albumen of its seeds, which are used, as grain, for food of man and cattle. It is upright, branched, 1 to 3 feet in height; the leaves are between heart-shaped and arrow-shaped, the flowers pale-red, the seed (nut) black and triangular, the angles even (not toothed). It is a common crop in France and in this country. Bees delight in its flowers, and in some of the States it is sown on that account.

Fag'ot, *n.* [Fr. *fagot;* Armoric and Welsh *fagod.*] A bundle of sticks or small branches of trees bound together.—In times of religious persecution, the *F.* was a badge worn on the sleeve of the upper garment of such persons as had abjured heresy, being put on after the person had publicly carried a *F.* to some appointed place, by way of penance. To leave off the wearing of this badge was sometimes regarded as a sign of apostasy. Among military men in England, fagots were persons hired by officers whose companies were not full, to muster and hide the deficiencies of the company, and thus cheat the government. *Fagot-votes*, in English politics, were votes created by the partitioning of an estate into numerous small tenements, which were let to persons at an almost nominal rent, upon condition of voting at elections, according to the dictates of the lessor.

—*v. a.* To tie together; to collect in a bundle; to bind promiscuously.

"He was too warm on picking work to dwell,
But *fagoted* his notions as they fell."—*Dryden.*

Fag'oting, *n.* A term applied to the *binding* together of the prunings of hedges.

Fagot'to, *n.* [It., a bundle of sticks.] (*Mus.*) A brass wind-instrument, blown with a reed, which can be taken in pieces,—whence its name; a bassoon.

Fa'gus, *n.* [Lat., from Gr. *phago*, I eat.] (*Bot.*) The Beech, a genus of trees, order *Corylaceæ.* The common beech, *F. Americana*, almost identical with the European beech, *F. sylvatica*, forms one of the tallest and most majestic trees of the forest, abounding in the Middle, Western, and Southern States, in deep, moist soil, and in a cool atmosphere. The trunks of the trees are



Fig. 983.—BEECH. FLOWER AND FRUIT, (natural size.)
(*Fagus Americana.*)

frequently 8–11 feet in circumference, and more than 100 feet high. The bark is smooth, ash-colored; the leaves alternate, plicate in vernation; staminate aments on long pendulous peduncles; nut small, 2 together in the 4-lobed burr, oily, sweet, and nutritious; timber fine-grained, with reddish duramen, and white albumen. The roots do not descend deeply into the soil, but extend to a considerable distance close under the surface. The Red-beech is now regarded only as a variety. There are several beautiful varieties in cultivation, with purple foliage, silver foliage, &c.

Fahl'erz, or **Fahl'ite,** *n.* (*Min.*) Same as TETRAHEDRITE, *q. v.*

Fahlun, or FALUN, (*fa'loon,*) a town of Sweden, 55 m. from Gefte, celebrated for its copper-mines. *Manuf.* Cotton and yarn. *Pop.* 6,218.

Fahl'unite, *n.* (*Min.*) A mineral crystallizing in six twelve-sided prisms, of a grayish-green to a dark olive-green color, and of pearly lustre. *Sp. gr.* 2·6–2·8. *Comp.* Silica 44·9, alumina 30·7, peroxide of iron 7·22, potash 1·38, magnesia 6·04, water 8·65, peroxide of manganese 1·90, lime 0·95.

Fahr'enheit, GABRIEL DANIEL, an eminent natural philosopher. He was a native of Dantzic; b. 1686, d. 1736. He is principally known as the inventor of the thermometer-scale which bears his name.—See THERMOMETER.

Faïence, (*fa'yăns.*) [From *Faenza*, a town in Italy, or *Fayence*, a small town in France.] (*Fine Arts.*) Pottery, consisting of a common earthenware ground, covered with a glaze, and enamelled with painted designs. It

is also called *Rafaelle ware*, because Rafaelle was thought in his early days to have been engaged in this department of the art; but the Rafaelle who was employed in painting pottery was a Raffaello Ciarlo of Urbino, who lived in 16th c. See POTTERY.

Fai-Fo, (*fi-fo,*) a town of Cochin-China, 15 m. from Turon; *pop.* 16,000.

Fail, *v. a.* [Fr. *failler*, from Lat. *fallere*, to deceive; allied to the Ger. *fehlen*, and Gr. *sphallein.*] To desert; to disappoint; to forsake; to abandon; to omit; not to perform; to be wanting in.

"As proud lords be when fortune *fails* them."—*Sidney.*

—*v. n.* To miss; to err; to fall down; to be made low; to sink; to give way.—To die; to perish; to become extinct.

"The faithful *fail* from among the children of men."—*Ps.* xii. 1.

—To sink; to be borne down; to come to an end.—To miss; not to succeed; to miscarry.—To be deficient in duty.

—*n.* Omission; nonperformance; failure.

Without fail. Absolutely; certainly; unreservedly.

Fail'ing, *p. a.* Miscarrying; becoming insufficient; decaying; declining.

—*n* Deficiency; weakness: failure; foible; miscarriage.

"And e'en his *failings* leaned to virtue's side."—*Goldsmith.*

—Act of becoming insolvent; bankruptcy.

Fail'ingly, *adv.* By failing.

Fail'lite, *n.* [Fr.] (*Fr. Law.*) Bankruptcy; failure.—The condition of a merchant who ceases to pay his debts.

Fails'worth, a town of England, in Lancashire, 5 m. from Manchester. *Manuf.* Cotton-spinning. *Pop.* 5,000.

Fail'ure, *n.* A failing; deficiency; cessation of supply, or total defect: omission; non-performance; decay, or defect from decay; a breaking or becoming insolvent.

Fain, *a.* [A. S. *fægen, fegen, gefagen*, glad, *fægnian*, to rejoice.] Glad: joyful; pleased: rejoiced.

—*adv.* Gladly; with joy or pleasure.

Fainéants, or **Do-nothing Kings.** (*Fr. Hist.*) The name given to some of the Merovingian sovereigns, who were the puppets of the mayors of the palace.—See MEROVINGIAN, and MAYORS OF THE PALACE.

Faint, *v. n.* [A. S. *fynigean*, to become musty, to decay, to spoil in any manner.] To fade; to wither; to decay; to become feeble; to lose the animal functions; to lose strength and color, and become senseless and motionless; to swoon; to decline or fail in strength and vigor; to be weak; to sink into dejection; to lose courage or spirit; to disappear; to vanish.

—*a.* Enfeebled, so as to be inclined to swoon; enfeebled with exhaustion; weak; languid; low; feeble; not bright or vivid; not strong, as color; not loud, as sound; not striking, as a resemblance; not vigorous; dejected; not active; depressed; dispirited.

Faint'-hearted, *a.* Cowardly; timorous; dejected; easily depressed, or yielding to fear.

Faint'ing, *p. a.* Falling into a swoon; failing; losing strength or courage; becoming feeble or timid.

—*n.* (*Med.*) A sudden and total or partial unconsciousness, resulting from impaired circulation of the blood through the brain, occasioned commonly by diminished action of the heart. The functions of the nervous system, respiration, and the action of the heart, are either suspended or very much diminished in force. The causes of *F.* are various,—as any strong mental emotion, loss of blood, severe pain, or anything that tends to diminish the vital energy of the system. Usually the patient is first conscious of a singing in the ears, then the sight becomes confused and all the senses deadened; the countenance becomes deadly pale, and the limbs are unable to support the weight of the body, which sinks to the earth. *F.*, if occasioned by a diseased state of the brain or heart, or if prolonged, may result in death; but if arising from any trivial cause, the patient generally speedily recovers. He should be laid on his back, with his head low and his dress loosened about the neck; abundance of fresh air should be admitted to him, and cold water may be sprinkled on his face and neck, or ammonia applied to the nostrils.

Faint'ish, *a.* Slightly faint.

Faint'ishness, *n.* A slight degree of faintness.

Faint'ly, *adv.* With faintness; feebly; languidly; without vigor or activity; timorously.

Faint'ness, *n.* State of being faint; loss of strength, color, and respiration; feebleness; languor; inactivity; want of vigor or energy; want of brightness or vividness; feebleness or weakness, as of sound; feebleness of mind; feebleness of respiration; timorousness; dejection; irresolution.

Faints, *n. pl.* The impure and weak spirits constituting the last runnings of the still in the distillation of whiskey.

Fair, *a.* [A. S. *fæger, fægr*, beautiful, from *fægra*, to adorn.] Shining; bright; clear; free from spots; free from a dark hue; white; beautiful; handsome; properly; having a handsome face; pleasing to the eye; handsome or beautiful, in general; pure; not cloudy or overcast; favorable; prosperous; open; direct; open to attack or access; unobstructed.

—Frank; honest; equal; just; reasonable; impartial; peaceful; not violent; not effected by insidious or unlawful methods; not foul; candid; not sophistical or insidious; honorable; mild; civil; pleasing; not harsh; equitable and just; merited; liberal; not narrow; plain; legible; free from stain or blemish; unspotted; untarnished; middling: medium.

—*adv.* Frankly; openly; civilly; complaisantly; candidly: honestly; equitably; happily; successfully; on good terms.

—*n.* Elliptically, a fair woman; a handsome female; the fair, or female sex.

Fair, *n.* [Fr. *foire*, probably from Lat *forum*, a market-place; Sp. *féria;* It. *feria;* from. Lat. *feriæ*, holidays, festivals, connected with the root which appears in Gr. *chairō*, to rejoice.] A stated market in a particular town or city; a stated meeting of buyers and sellers for trade.

Fair, *n.* [Fr. *foire;* Welsh *fair;* Lat. *forum*, a market-place.] A larger species of market, which is held at more distant intervals, and sometimes devoted to one species of merchandise, sometimes to several. In the earlier stages of society, and in inland countries, where the facilities for commerce are comparatively circumscribed, the bringing together of commodities and dealers at certain times and in convenient places is of the utmost importance; and for this purpose various privileges have been annexed to fairs, and numerous facilities afforded for the disposal of property in them. In England and in other countries where the growth of towns, and the facilities afforded for the disposal and purchase of all kinds of produce have rendered them less necessary now than formerly, fairs have lost much of their ancient splendor and importance, and many have almost disappeared. The cattle and horse fairs have declined least of any. The principal fairs in Great Britain are the August Horse *F.* at Horncastle, Lincolnshire, where many thousand horses are annually exhibited for sale; the *F.* for the sale of Scotch cattle at St. Faith's, near Norwich; the Weyhill *F.* in Hampshire for the sale of sheep: and the fairs at Falkirk, Melrose, and Lockerby in Scotland. In Germany, the principal fairs are those of Leipsic, Frankfort-on-the-Maine, and Frankfort-on-the-Oder. In France, the *F.* of Beaucaire was formerly the largest in Europe, and is still frequented by a vast concourse of people. The great *F.* of Nishnij-Novgorod, in Russia, is at present the most important in Europe, being frequented by buyers and sellers from different parts of Europe and Northern and Central Asia. A celebrated Russian *F.* is held at Kiachta, on the Chinese frontier, where the greater part of the commerce between the Chinese and Russian empires is transacted. A large *F.* is held at Mecca during the resort of pilgrims to that place. In the United States, fairs for charitable and religious purposes are frequently held in all parts of the country, at which a great variety of articles, collected by donation or purchase, are exposed for sale. Important fairs for the competitive exhibition of live-stock and various industrial products are held by the U. S. National Agricultural Society, the State agricultural societies, the Mechanic's Institute at Boston, the American Institute at New York, the Franklin Institute at Philadelphia, and by other institutions of similar character. These are, however, merely competitive exhibitions of animal and industrial products, and have no commercial character.

Fair'bank, in *Iowa*, a post-village and township of Buchanan county.

Fair'banks, in *Indiana*, a post-township of Sullivan county.

Fair Bluff, in *N. Carolina*, a post-office of Columbus co.

Fair'burn, in *Georgia*, a post-village, cap. of Campbell co., on the boundary line between Campbell and Fayette cos., about 100 m. N. W. of Milledgeville.

Fair'burn, in *South Dakota*, a post-office of Custer co.

Fair'bury, in *Illinois*, a post-town of Livingston co., about 60 m. E. of Peoria. *Pop.* (1897) about 2,800.

Fair'dale, in *Illinois*, a post-office of De Kalb co.

Fair Dale, in *New York*, a post-office of Oswego co.

Fair'dale, in *Pennsylvania*, a post-village of Susquehanna co.; abt. 7 m. S.W. of Montrose.

Fair Deal'ing, in *Kentucky*, a P. O. of Marshall co.

Fair'fax, THOMAS, LORD, general of the Parliamentary army in the English civil war, B. 1611, was the eldest son of Ferdinand, Lord Fairfax. On the first breaking out of the civil discontents, following the example of his father, and additionally influenced, it is said, *F.* embraced the popular side, and ranged himself as one of the firmest opponents of the royal party in church and state. On the commencement of hostilities, he was commissioned by the Parliament to act as general of the horse under his father, who was made then commander in the north. After the passing of the *self-denying ordinance*, *F.* was appointed general conjointly with Cromwell.—He and Skipton commanded the main body of the Parliamentary army at the battle of Naseby; after which he marched with a powerful division to the W. counties; and, having reduced Exeter and other important towns, proceeded to lay siege to Oxford; on the surrender of which he gave evidence of the amenity of his disposition and the cultivation of his mind, by his care to preserve the Bodleian Library from pillage. And it should not be forgotten that his conduct toward the captured cities in the W. districts, and, indeed, in all conjunctures and on all occasions, was marked by the highest sense of honor and humanity. During the Commonwealth, Cromwell treated him with contempt, and he seems to have held aloof from all party complications; but when it became evident that the restoration of the monarchy was the general wish and revolution of the country, he came forward to co-operate in bringing about that event. It was through his influence mainly that the Irish brigade forsook Lambert, and joined Monk's army. *F.* then seized York on the royal behalf; was made a member of *the healing parliament;* and was nominated head of the committee appointed to wait upon Charles II. at the Hague, and to invite him to seat himself upon the throne of England. On the Restoration he withdrew altogether from active life, retiring to his beloved home in the country, where he D. in 1671. *F.* was not a man of the highest order, or even of a high order, of intellect; but he was a conscientious, well-informed, humane, liberal, stout-hearted, and right-minded gentleman and soldier. Anxious to do his duty by all to the best of his knowledge, he had not ambition and sought neither rank nor wealth for himself;—a rare example in any country or time.



Fig. 984.—LORD FAIRFAX.

Fair'fax, in *Indiana*, a post-office of Monroe co.

Fairfax, in *Iowa*, a post-township of Linn co., about 10 m. S. W. of Cedar Rapids.

Fairfax, in *Michigan*, a P. O. of St. Joseph co.

Fairfax, in *Minnesota*, a post-village of Renville co.

Fairfax, in *Missouri*, a post-village of Atchison co.

Fairfax, in *Ohio*, a post-village of Highland co., about 55 m. E. of Cincinnati.

Fairfax, in *South Carolina*, a post-village of Barnwell co.

Fairfax, in *Vermont*, a post-town and township of Franklin co., on the Lamoille river, about 38 m. N. E. by N. of Montpelier. *Pop.* (1897) about 1,570.

Fairfax, in *Virginia*, a N. E. co., bordering on Maryland and the District of Columbia; *area*, abt. 420 sq. m. *Rivers.* Potomac and Occoquan rivers. *Surface*, hilly; *soil*, not generally fertile. It contains Mount Vernon, the tomb of George Washington, 16 m. below Washington; Arlington Heights and National Cemetery; Fort Myer, &c. *Cap.* Fairfax. *Pop.* (1890) 16,655.

Fairfax, or CULPEPER, in *Virginia*, a post-village, cap. of Culpeper co.

Fairfax, in *Virginia*, a post-town, cap. of Fairfax co., 14 m. W. of Washington, D. C. *Pop.* (1897) about 460.

Fair'field, in *Alabama*, a village of Pickens co., on the Tombigbee river. (STONE post-office.)

Fairfield, in *California*, a post-village, cap. of Solano co., about 50 m. N. N. E. of San Francisco. *Pop.* 550.

Fairfield, in *Connecticut*, a S. W. co., bordering on Long Island Sound and New York State; *area*, abt. 540 sq. m. *Rivers.* Housatonic river, and other smaller streams. *Surface*, diversified; *soil*, fertile. *Caps.* Bridgeport and Danbury. *Pop.* (1890) 150,081.

—A post-town, port of entry, and formerly one of the capitals of Fairfield co., on Long Island Sound, about 22 m. S. W. of New Haven. It has an excellent harbor, and commands considerable trade. The village is well built, and contains some fine structures. To the N. is the village of Greenfield Hill, made famous by Dwight's poem of that name. *F.* was settled in 1659, and in 1779 was burnt by command of Governor Tyron during the revolution. *Pop.* (1897) about 4,000.

Fairfield, in *Illinois*, a township of Bureau co.

—A post-town, cap. of Wayne co., about 150 m. S. S. E. of Springfield. *Pop.* (1897) about 2,175.

Fairfield, in *Indiana*, a township of De Kalb co.

—A post-village and township of Franklin co., on the E. fork of White river, about 48 m. N. W. of the city of Cincinnati.

—A village of Howard co. (OAKFORD post-office.)

—A township of Tippecanoe co.

Fairfield, in *Iowa*, a prosperous city, cap. of Jefferson co., on C., B. & Q. and C., R. I. & P. R. Rs., 50 m. N.N.W. of Burlington. Has important manufs. of wagons and implements, woolen mill, foundry, &c. The trading center of a rich farming and stock-raising district. Here are Fairfield (Lutheran) and Parson's (Presbyterian) colleges. *Pop.* (1897) about 4,000.

Fairfield, in *Kentucky*, a post-village of Nelson co., about 10 m. N. E. of Bardstown.

Fairfield, in *Maine*, a post-town and township of Somerset co., on the Kennebec river, about 25 m. N. by E. of Augusta.

Fairfield, in *Massachusetts*, a post-office of Hampden county.

Fairfield, in *Michigan*, a post-township of Lenawee co.

—A township of Shiawassee co.

Fairfield, in *Missouri*, a post-village of Benton co., on Pomme de Terre river, 100 m. S. W. of Jefferson City.

Fairfield, in *North Carolina*, a P. O. of Hyde co.

Fairfield, in *New Jersey*, a township of Cumberland co.

—A post-village of Essex co., abt. 11 m. N. W. of Newark.

Fairfield, in *New York*, a post-town and township of Herkimer co., about 10 m. E. of Utica.

Fairfield, in *Ohio*, a S. central co.; *area*, 474 sq. m. *Rivers.* Hocking river, and Little Walnut and Rush creeks. *Surface*, diversified; *soil*, fertile. *Minerals*, limestone and freestone. *Capital*, Lancaster. *Population* (1890) 33,939.

—A township of Butler co.

—A township of Columbiana co., about 160 m. N. E. of of Columbus. It contains the village of Columbiana.

—A township of Greene co.

—A post-village in Bath township, Greene co., about 65 m. N. N. E. of Cincinnati.

—A township of Highland co.

—A township of Huron co.
—A township of Madison co.
—A township of Tuscarawas co.
—A township of Washington co.
Fair'field, in *Oregon*, a post-village of Marion co., on the Willamette river, about 12 m. N. of Salem.
Fairfield, in *Pennsylvania*, a post-village of Adams co. about 42 m. S.W. of Harrisburg.
—A township of Crawford co.
—A village of Huntington co, on Shavers creek, about 100 miles W.N.W. of Harrisburg. Now COTTAGE.
—A vill. of Lancaster co., about 22 m. S. by E. of Lancaster.
—A township of Lycoming co.
—A village of Somerset co., about 18 miles S. by E. of Somerset.
—A township of Westmoreland co.
Fairfield, in *South Carolina*, a N. central county; *area* about 775 sq. m. *Rivers.* Wateree, Broad and Little rivers, and Wateree creek. *Surface*, hilly; *soil*, fertile. *Cap.* Winnsborough. *Pop.* (1890) 28,599.
Fairfield, in *Tennessee*, a post-village of Bedford co., about 55 miles S. by E. of Nashville.
Fairfield, in *Texas*, a post-town, capital of Freestone co., 143 miles N.E. of Austin. *Pop.* (1897) about 650.
Fairfield, in *Utah*, a post-office of Utah co.
Fairfield, in *Vermont*, a post-town of Franklin co., about 45 miles N.W. of Montpelier.
Fairfield, in *Virginia*, a post-village of Rockbridge co., about 145 miles W. of Richmond.
Fairfield, in *Wisconsin*, a post-village on the boundary line between Rock and Walworth cos.
—A township of Sauk co.
Fairfield Corners, in *Maine*, a village of Somerset co., on the Kennebec river, abt. 22 m. N.N.E. of Augusta.
Fair Grove, in *Michigan*, a post-township of Tuscola co., about 78 miles N.E. of Lansing.
Fair Haven, in *Connecticut*, a post-village of New Haven co.; now forms the 11th and 12th wards of the city of New Haven.
Fair Haven, in *Illinois*, a post-township of Carroll co., about 8 miles S.S.E. of Mount Carroll.
Fair Haven, in *Massachusetts*, a post-town and township of Bristol co., on Buzzard's bay, about 55 miles S. by E. of Boston. *Pop.* (1895) 3,338.
Fair Haven, in *Michigan*, a post-office of St. Clair co.
Fair Haven, in *Minnesota*, a township of Olmstead co.
—A post-village and township of Stearns co., on Clear Water river, about 22 miles W. of Monticello.
Fair Haven, in *New York*, a post-village of Cayuga co., on Lake Ontario.
Fair Haven, in *Ohio*, a post-village of Preble co., on Four Mile creek, about 40 miles N.N.W. of Cincinnati.
Fair Haven, in *Vermont*, a post-town and township of Rutland co., about 55 miles S.W. of Montpelier. *Pop.* (1897) 2,795.
Fair Haven, in *Washington*, a city of Whatcom co., 4 m. S. of Whatcom, on Gt. Nor. & Nor. Pac. R.Rs.; has several lumber and shingle mills, extensive fisheries and fish canneries. *Pop.* (1890) 4,500.
Fair Head, or BENMORE HEAD, a lofty promontory on the N. coast of Ireland, in Ulster co., of Antrim, about 5 miles E.N.E. of Ballycastle. It is a huge mass of columnar greenstone, about 535 feet high.
Fair Hill, in *Maryland*, a post-village of Cecil co., about 8 miles N. of Elkton.
Fair Hill, in *West Virginia*, a former P. O. of Marshall county.
Fair'ing, *n.* A present given at a fair.
Fair'ish, *a.* Reasonably or moderately fair.
Fair'ishly, *adv.* In a tolerably fair manner.
Fair Isle, lies between the Shetland and Orkney Isles, 22 miles from Sumburgh Head. It is 4 miles long by a breadth of 2½. Here (1588) the duke of Medina, admiral of the Spanish Armada, was shipwrecked.
Fair'land, in *Illinois*, a post-office of Douglas co.
Fairland, in *Indiana*, a post-town of Shelby co., about 19 miles S.E. of Indianapolis.
Fairland, in *Maryland*, a P. O. of Montgomery co.
Fair'lee, in *Maryland*, a post-office of Kent co.
Fair'lee, in *Vermont*, a post-town of Orange co., on the Connecticut river, about 30 miles S.W. of Montpelier.
Fair'ly, *adv.* In a fair manner; commodiously; conveniently; advantageously; frankly; honestly; justly; equitably; without disguise or fraud; openly; ingenuously; plainly; candidly; without perversion or violence; without blots; in plain letters; plainly; legibly; completely; thoroughly; softly; gently.
Fair'mont, or FAIR'MOUNT, in *Minnesota*, a post-village, cap. of Martin co., about 50 m. S.S.W. of Mankato.
Fairmont, in *Missouri*, a post-village of Clarke co., about 44 miles N.W. of Quincy, Ill.
Fairmont, in *Nebraska*, a thriving city of Fillmore co., 53 m. by rail S.W. of Lincoln. *Pop.* (1897) abt. 1,650.
Fairmont, in *West Virginia*, a post-village, capital of Marion co., on the Monongahela river, about 300 miles W. of Baltimore, Md. *Pop.* (1897) about 2,000.
Fair'mount, in *Georgia*, a post-office of Gordon co.
Fairmount, in *Illinois*, a township of Pike co.
—A post-town of Vermillion co.
Fairmount, in *Indiana*, a post-village and township of Grant co., about 10 miles S. of Marion. *Pop.* of township 3,000 in 1897.
Fairmount, in *Kansas*, a post-office of Leavenworth co.
Fairmount, in *Kentucky*, a post-office of Jefferson co.
Fairmount, in *Maryland*, a post-office of Somerset co.
Fairmount, in *New Jersey*, a post-village of Hunterdon co., about 50 miles N. of Trenton.
Fairmount, in *New York*, a P. O. of Onondaga co.
Fairmount, in *North Dakota*, a post-village and township of Richland co.
Fairmount, in *Ohio*, a village of Miami co.
Fairmount, in *Pennsylvania*. See PHILADELPHIA.
—A village of Lancaster co.
—A township of Luzerne co., about 22 miles W. of Wilkesbarre.
Fairmount Springs, in *Pennsylvania*, a post-office of Luzerne co.
Fair'ness, *n.* Quality of being fair; clearness; freedom from spots or blemishes; whiteness; purity; freedom from stain or blemish; beauty; elegance; frankness; candor; honesty; ingenuousness; openness; freedom from disguise, insidiousness, or prevarication; equality of terms; equity; distinctiveness; freedom from blots or obscurity.
Fair Oaks, in *California*, a post-office of Sacramento county.
Fair Oaks, in *Indiana*, a post-office of Jasper co.
Fair Oaks, in *Virginia*, about 7 miles E. of Richmond.
—*Battle of.* See CHICKAHOMINY.
Fair'-one, *n.* A fair woman; a handsome female; a beauty.
Fairplain', in *Michigan*, a township of Montcalm co., about 45 miles N.W. of Lansing.
Fair'-play, *n.* Equitable conduct; just or liberal action; justice.
Fair'play, in *Arkansas*, a post-township of Saline co.
Fairplay, in *California*, a post-village of El Dorado co., about 16 m. S.E. of Placerville.
Fairplay, in *Colorado*, a post-town, capital of Park co., about 80 m. S.W. of Denver. *Pop.* (1897) about 500.
Fairplay, in *Georgia*, a post-village of Morgan co., about 115 m. W. of Augusta.
Fair Play, in *Illinois*, a township of Jefferson co.
Fairplay, in *Indiana*, a village and township of Green co., on the W. fork of White river, about 75 miles S.W. of Indianapolis.
Fair Play, in *Missouri*, a post-village of Polk co.
Fair Play, in *Ohio*, a post-office of Jefferson co.
Fair Play, in *South Carolina*, a post-office of Oconee co.
Fairplay, in *Wisconsin*, a post-village of Grant co., about 12 miles N.N.W. of Galena.
Fair'port, in *Indiana*, a village of Allen co., on the Maumee river, about 15 miles E. by N. of Fort Wayne.
Fairport, in *Iowa*, a post-office in Muscatine co., on the Mississippi river, about 40 miles E.S.E. of Iowa City.
Fairport, in *North Carolina*, a P. O. of Granville co.
Fairport, or HORSE'HEADS, in *New York*, a post-village of Chemung co., about 6 miles N.W. of Elmira. See HORSEHEADS.
Fairport, in *Ohio*, a village of Lake co., on Lake Erie, about 165 miles N. E. of Columbus.
Fair'-spoken, *a.* Using fair speech; bland; civil; courteous; plausible.
Fair'ton, in *New Jersey*, a post-village of Cumberland co., about 4 miles S. of Bridgeton.
Fair'view, in *Alabama*, a post-office of St. Clair co.
Fairview, in *Georgia*, a post-office of Chattooga co.
Fairview, in *Idaho*, a post-office of Oneida co.
Fairview, in *Illinois*, a post-village and township of Fulton co., about 75 m. N.N.W. of Springfield.
Fairview, in *Indiana*, a township of Fayette county.
—A village of Fayette co., generally called GROVES.
—A post-village of Randolph co., on the Mississinewa river, about 75 m. N.E. of Indianapolis.
Fairview, in *Iowa*, a township of Allamakee county.
—A township of Jasper co.
—A post-town and towuship of Jones co., about 4 m. S.W of Anamosa.
—A township of Monona co.
—A township of Shelby co.
Fairview, in *Kansas*, a post-village of Brown co.
Fairview, in *Kentucky*, a post-village of Todd co., about 190 m. S.W. of Frankfort.
Fairview, in *Louisiana*, a P. O. of Concordia parish.
Fairview, in *Maryland*, a P. O. of Washington co.
Fairview, in *Minnesota*, a township of Lyon county.
Fairview, in *Missouri*, a post-office of Lincoln county.
—A village of Randolph co., about 16 m. S. of Macon City.
—A former post-office of St. Louis co.
Fairview, in *Nebraska*, a village of Sarpy co., on the Platte river, about 11 m. W.S.W. of Bellevue.
Fairview, in *North Carolina*, a post-township of Buncombe co., about 240 m. N. of Raleigh.
Fairview, in *New Jersey*. See QUAKERTOWN.
Fairview, in *New York*, a post-village of Cattaraugus co., about 45 m. S.E. of Buffalo.
Fairview, in *Ohio*, a post-village in Guernsey co., about 45 m. E. by N. of Zanesville.
Fairview, in *Pennsylvania*, a village of Allegheny co., on the Allegheny river, about 10 m. N.E. of Pittsburg.
—A village of Beaver co., about 40 m. N.W. of Pittsburg.
—A post-township of Butler county, about 14 m. N.E. of Butler.
—A village of Cumberland co., on the Susquehanna river, nearly opposite Harrisburg.
—A post-borough and township of Erie co., on Lake Erie, about 10 m. S.W. of Erie.
—A township of Mercer co.
—A township of York co.
Fairview, in *South Carolina*, a post-village of Greenville co., about 80 m. N.W. of Columbia.
Fairview, in *South Dakota*, a township of Campbell co.
—A post-township of Lincoln co.
Fair View, in *Utah*, a post-office of San Pete co.
Fairview, in *Wisconsin*, a village of Crawford co.
—A village of Grant co.
Fairview, in *West Virginia*, a post-village, cap. of Hancock co., about 35 m. N. of Wheeling.
Fairview Village, in *Pennsylvania*, a post-office of Montgomery co.
Fair'ville, in *New York*, a post-village of Wayne co., about 30 m. E. of Rochester.
Fair'ville, in *Pennsylvania*, a P.O. of Chester co.
Fair'water, in *Wisconsin*, a post-village of Fond du Lac co., about 22 m. W. of Fond du Lac.
Fair'-way, *n.* The mid passage in a short channel; the navigable part of a river.
Fair'weather, in *Alaska*, a mountain about 35 m. N.E. of Cape Fairweather. It is an important land-mark on the British and American frontier, and is said to be nearly 15,000 feet high.
Fair Weather, in *Illinois*, a post-office of Adams co.
Fairweather Island, in *Connecticut*, at the entrance of Black Rock Harbor. It has a light-house, Lat. 41° 8′ 24″ N., Lon. 73° 13′ 30″ W., 45 ft. above the sea-level.
Fair'y, *n.* [Fr. *fée*; Ger. *fee*; Sp. *fada*; It. *fata*; probably from Lat. *fatum*, a prophetic declaration, from *fa*, root of obsolete *for*, *fatus*, to speak. In O. Fr., *par féerie* signifies fatally. Pers. *pari*, a fairy.] A fay; an imaginary being or spirit, supposed to assume a human form, dance in meadows, steal infants, and play a variety of pranks; an enchantress.

(*Myth.*) In the traditional mythology of the nations of Western Europe, *fairies* (the *elves* of the Anglo-Saxons; see ELF) were generally believed to be a kind of intermediate beings, partaking both of the nature of men and spirits, having material bodies, and yet possessed of the power of making themselves invisible, and of passing through any sort of enclosure. They were remarkably small in stature, with fair complexions, and generally clothed in green. Their haunts were believed to be groves, verdant meadows, and the slopes of hills, and their great diversion dancing hand-in-hand in a circle, as mentioned in *Midsummer Night's Dream*. The traces of their tiny feet are supposed to remain visible in the grass long afterwards, and are called *Fairy Rings* or *Circles*, (q. v.) They were regarded as being sometimes benevolent, and sometimes mischievous. The diseases of cattle were frequently attributed to their mischievous operations; and cattle that died suddenly, without any apparent cause, were commonly said to be *elf-shot*. They were said to be very fond of young children, and were in the habit of carrying away such as they could lay hold of, and leave vixens of their own in their room. In Poole's *Parnassus* are given the names of the fairy court: "*Oberon*, the emperor; *Mab*, the empress; *Perriwiggin*, *Perriwinkle*, *Puck*, *Hobgoblin*, *Tomalin*, *Tom Thumb*, courtiers: *Hop*, *Mop*, *Drop*, *Pip*, *Drip*, *Skip*, *Tub*, *Tib*, *Tick*, *Pink*, *Pin*, *Quick*, *Gill*, *Ion*, *Tit*, *Wap*, *Wim*, *Nit*, the maids of honor: *Nymphidia*, the mother of the maids." Croker, in his *Fairy Legends and Traditions of the South of Ireland*, describes them as beings "a few inches high, airy, and almost transparent in body; so delicate in their form, that a dewdrop, when they chance to dance on it, trembles, indeed, but never breaks. Both sexes are of extraordinary beauty, and mortal beings cannot be compared to them." They live in large societies, and are governed by a queen; and the peasantry never speak of them but with caution and respect, as the *good people* and *friends*, believing them to be present, and to hear what is said. They have their dwellings in clefts of rocks, caves, and ancient tumuli, and every part of them is decorated in the most splendid and gorgeous manner. The popular belief in fairies may be said to have generally died out; but to it we are indebted for a class of literature which, to the young at least, has its ceaseless charms.—The fairy superstition belongs to modern Europe. We find nothing like it among the idolatries of the heathen referred to in Scripture. In classical mythology, there is nothing nearer to it than the nymph of the fountain or grove among the Greeks. The true fairy tales first became popular in the latter part of the 17th century, and the Italians appear to have been the first to take the lead. They afterward became very popular in France; and, at the present, they are more extensive and popular in Germany than in any other country.
Fair'y, *a.* Belonging to fairies; given by fairies.
Fair'y-land, *n.* (*Myth.*) The imaginary land of the fairies.
Fair'y Ring, or CIRCLE, *n.* A ring occasionally observed in pastures, and which was usually attributed by the peasantry of western Europe to the dancing of the fairies. They are seldom of a perfect form, but are usually more or less irregular, sometimes forming a series of arcs of circles. They were ascribed by scientific men to various causes; but they are now known to be occasioned by the growth of certain kinds of fungi, which, proceeding outwards from a centre, render the soil for a time unfitted for the nourishment of grass.
Faisans, (Ile des,) (*fais'a,*) a small island formed by the Bidassoa, near Irun, on the borders of France and Spain. In 1659, the treaty of the Pyrenees was here concluded between Spain and France.
Fai'son's Depot, in *North Carolina*, a post-village of Duplin co., abt. 63 m. N. of Wilmington.
Faith, *n.* [Lat. *fides*, from *fido*, to trust, put confidence in; Fr. *foi*, faith; Gr. *peithō*, to persuade, *peithomai*, to believe or trust in.] That assent or credence which we give to the declaration or promise of another, on the authority of the person who makes it. The greater part of our knowledge is derived from the information of others, and depends upon the credence which we give to their testimony: hence, to *believe* and to *know* are sometimes used indiscriminately. Faith is the means by which we obtain a knowledge of things which do not come under our own observation, — *things not seen*; and in this way faith is distinguished from *sight*. Faith is also distinct from *reason*, in so far as it deals with matters which we cannot comprehend by our reason; but, at the same time, while we exercise faith, we must also exercise reason: for it is impossible to exercise an acceptable faith without reason for so exercising it.

Henry Rogers represents "reason and faith as twin-born; the one, in form and features, the image of manly beauty, the other of feminine grace and gentleness, but to each of whom, alas! is allotted a sad privation. While the bright eyes of Reason are full of piercing and restless intelligence, his ear is closed to sound; and while Faith has an ear of exquisite delicacy, on her sightless orbs, as she lifts them toward heaven, the sunbeam plays in vain. Hand-in-hand the brother and sister, in all mutual love, pursue their way through a world on which, like ours, day breaks and night falls alternate; by day the eyes of Reason are the guide of Faith, and by night the ear of Faith is the guide of Reason." (Essay on *Reason and Faith.*)

(*Theol.*) The assent of the mind to the truth of what has been revealed to us in the Holy Scriptures; more particularly that living reception of truth by the heart by which we see our sinfulness in the sight of God, and are led to flee to Christ for salvation.

(*Myth.*) *Fides* was deified by the Romans, and had a temple dedicated to her as early as the time of Numa Pompilius. No sacrifice in which blood was shed was allowed to be offered to her. Horace (*Carm.* Lib. 1, Od. 24) beautifully describes her as the "sister of Justice." She is at times represented on medals, either with a basket of fruit in one hand and ears of corn in the other, or as holding a turtle-dove; but her usual symbol is two hands clasped together.

Faith'ful, *a.* Full of faith; having faith, trust, or fidelity; firm in adherence to the truth and to the duties of religion; firmly adhering to duty; of true fidelity; loyal; true to allegiance; constant in the performance of duties or services; trusty; observant of compacts, treaties, contracts, vows, &c.; true to one's word; true; exact; true to the marriage-covenant; conformable to truth; constant; worthy of belief.

Faith'fully, *adv.* In a faithful manner; with good faith.

Faith'fulness, *n.* Fidelity; constancy; loyalty; honesty; veracity; adherence to duty.

"For there is no *faithfulness* in your mouth." — *Psalm* lix. 4.

Faith'less, *a.* Without belief in the revealed truths of religion. — Perfidious: disloyal; not true to duty, profession, or promise. — Delusive; unsatisfactory; deceptive.

Faith'lessly, *adv.* In a deceptive, false, or perfidious manner.

Faith'lessness, *n.* Unbelief in revealed religion.
—Perfidy; treachery; disloyalty.
—Violation of promise, or covenant.

Fake, *n.* [A. S. *fægan*, to join.] (*Naut.*) Any one of the circles formed by a cable or rope, as it lies in a coil.

Fakir, (*fa-keer',*) *n.* [Ar. *fakhar*, poor.] A member of an order of mendicants or penitents existing in several parts of the Eastern world, particularly in India, who is synonymous with the Persian and Turkish *dervish.* Some of them live in communities, while others live singly, as hermits, or wander about, making strange displays of self-torture and mortification. Their appearance is filthy and disgusting in the extreme. They go about naked, frequently with their bodies besmeared with the dung of the holy cow, which excrement they also use for making fires, in lieu of wood. They sometimes unite in bands, carrying banners, and making a great noise with drums and horns. Some of them hold their arms up in one position for years (see Fig. 340) till they have lost the power of taking them down again; others bend the body forward, till they are unable to restore it to its natural position again; while others clench their fists till the nails grow through the hand, and others are perpetually lying down on beds of spikes (Fig. 985).

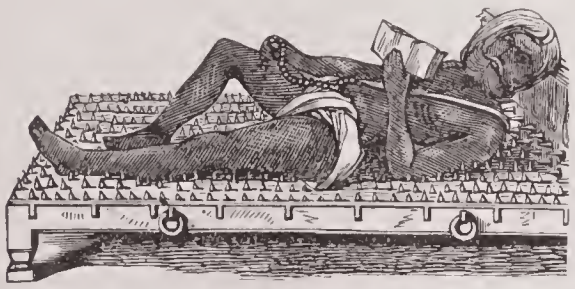


Fig. 985. — FAKIR ON A BED OF SPIKES. (Kerasis sect.)
(From Gould's *Oriental Drawings.*)

They usually take up their abode in shady places, either in the open air or in old and ruinous buildings, without anything to repose on or to cover themselves. One writer affirms that a member of this order should have ten of the qualities proper to the dog: among which are, to be always hungry; to have no fixed residence; to watch during the night: to leave no heritage after his death; not to abandon his master, although ill-treated by him: to content himself with the lowest place, and to yield his seat to any one who wants it. It is estimated that there are not less than three millions of fakirs in India. Many of them are undoubtedly insane; but the greater part of them are impostors and hypocrites, and traverse the country begging and instructing credulous people in religion. It is dangerous both to his life and money for an unarmed person to meet them.

Falcade', *n.* [Fr., from Lat. *falx*, a sickle.] (*Man.*) A horse is said to *make falcades* when he throws himself upon his haunches two or three times in quick curvets.

Fal'cate, or **Fal'cated,** *p. a.* [Lat. *falcatus*, from *falx*, a sickle.] (*Bot. and Zoöl.*) Bent like a scythe; hooked; curved.

Falaise, (*fa-lais',*) a town of France, department of Calvados, 15 m. from Caen. The castle, which stands on a precipice, and in which William the Conqueror was born in 1024, is in ruins, with the exception of a tower. *Manuf.* Lace, linen, &c. *Pop.* 9,723.

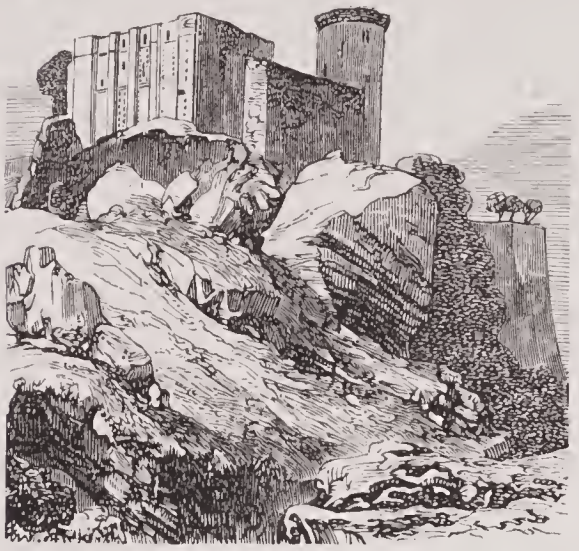


Fig. 986. — CASTLE OF FALAISE.

Falca'tion, *n.* Crookedness; a form like that of a reaper's hook.

Falchion, (*fawl'shon,*) *n.* [Fr. *fauchon;* Lat. *falco* and *falcio*, from *falx*, a sickle.] A scimitar; a short, crooked sword.

"Old *falchions* are new tempered in the fires." — *Dryden.*

Fal'ciform, *a.* [Lat. *falx*, a sickle, and *forma*, shape.] Having the shape of a reaping-hook.

Fal'co, *n.* See FALCON.

Falcon, (*faw'kon,*) *n.* [Fr. *faucon;* Sp. *halcon;* Lat. *falco*, from *falx*, a sickle. Compare Ger. *falke*, A. S. *ualco*, and Gr. *phalkon.*] The common name of the genus *Falco*, or sub-family *Falconinæ*, family *Falconidæ*, including the true Falcons, or those species of diurnal birds of prey, which, in the language of falconry, were styled *noble* birds of prey. They are characterized by a bill curved from the base, the upper mandible hooked at the point, and the cutting edge of the upper mandible furnished with a strong projecting notch, or *tooth.* The claws are also sharp, curved, and strong; and in accordance with all this powerful armature, the whole frame is very robust and muscular. The legs are rather short, and have great power in striking or seizing prey. The keel of the sternum (breast-bone) is very large, and adapted for the attachment of powerful muscles; the furcula and coracoid bones are also very strong, so as to afford a sufficient resisting base for very powerful action of the wings. The wings are long and pointed, the first and third quill-feathers of equal length, the second rather the longest, the first and second quill-feathers emarginated near the tip. The true falcons are bolder in proportion to their size than any other Falconidæ — even eagles. Their acuteness of vision is wonderful; and they have very great powers of flight.



Fig. 987. — THE GERFALCON.

A *F.* is known to have traversed the distance between Fontainebleau and Malta, not less than 1,350 miles, in 24 hours; and as these birds do not usually fly during the night, its flight was probably at the rate of 70 or 80 miles an hour. They soar to a prodigious height in the air, always endeavoring to outsoar any bird of which they may be in pursuit, and to swoop down upon it from above; although it is far more difficult for them to rise vertically in a calm atmosphere than for birds of short and rounded wing. Thus, they either rise obliquely—often also making their onward flight in a series of arcs — or avail themselves of the wind, and by flying against it, are borne aloft as a boy's kite is. The species are pretty numerous; some of them are of very wide geographic distribution, while others are peculiar to certain countries or climates. The American species are the PEREGRINE *F.*, q. v. (*Falco peregrinus*), of which the female is, *par excellence*, the *F.* of falconers (see HAWKING); the Black-headed *F.* (*F. nigriceps*), closely related to the preceding; the PIGEON HAWK, *q. v.* (*F. columbarius*); the Orange-breasted Hawk (*F. aurantius*) of Texas and S. America, somewhat smaller than the preceding; the PRAIRIE *F.*, q. v. (*F. polyagrus*); the GERFALCON, *q. v.* (*F. candicans* and *icelandicus*).

(*Gun.*) A sort of ancient cannon, seven feet long, taking a load of two and a quarter pounds of powder, and throwing a ball of two and a half pounds weight.

Falconer, (*fawk'nur,*) *n.* [Fr. *fauconnier.*] A person who breeds or trains hawks for taking wild-fowl.
—One who follows the sport of fowling with hawks.

Fal'conet, *n.* [Fr., from L. Lat. *falconeta*, a young falcon.] (*Gun.*) A small cannon anciently used, somewhat smaller than the *falcon.* — See FALCON.

Fal'con-gen'til, *n.* [Fr.] (*Hawking.*) A falcon, when full-feathered and completely bred, or trained.

Falcon'idæ, *n. pl.* (*Zoöl.*) The Falcons, a family of birds belonging to the ord. *Accipitres* or *Raptores.* These birds of prey have the head covered with feathers, and the eyebrows prominent, giving the eye the appearance of being deep in the head. The beak is strong and hooked, and the claws or talons very sharp, strong, much incurved, and retractile. The species are numerous, and the family is divided into several sub-families or genera, described in this work under the heads ACCIPITRINÆ, the Sparrow-hawks; AQUILINÆ, the Eagles; FALCON (*falconinæ*), the true Falcons; BUTEO (*buteonidæ*), the Buzzards; ASTUR, the Goshawks; MILVINÆ, the Kites; CIRCUS (*circinæ*), the Harriers; and POLYBORUS (*polyborinæ*), the Caracaras.



Fig. 988.
HEAD AND FOOT OF BRAZILIAN EAGLE.

Falconi'næ, *n. pl.* (*Zoöl.*) A sub-family of birds, corresponding to the genus *falco.* — See FALCON.

Fal'conry, *n.* [Ital. *falconeria;* Fr. *fauconnerie*, from Lat. *falco*, a hawk.] See HAWKING.

Fald'stool, *n.* [A. S. *feald*, fold, and *stool*, a chair or seat.] (*Eccl.*) A portable seat, made to fold up after the manner of a camp-stool, placed within the choir for the bishop, when not officiating in his own cathedral.
—The stool on which the kings of England kneel at their coronation.

Fale'ine, a river of W. Africa, joining the Senegal, after a course of 200 m., in Lat. 14° 40′ N., Lon. 11° 48′.

Falernian Wine, one of the favorite wines of the Romans, was so called from *Falernus Ager*, the district in which it was grown, and which lay at the N. part of Campania, between the Massican Hills and the N. bank of the Vulturnus. It is described by Horace as, in his time, surpassing all other wines then in repute, and seems to have been in great favor with the poet himself. In the time of Pliny, however, as he himself informs us, Falernian wine had already, owing to a want of care in its cultivation, begun to decline in quality; and the wine then esteemed the best was a variety grown in the Falernian neighborhood, and called *Faustianum.*

Faliero, MARINO, (*fal-e-air'o,*) a Venetian noble, succeeded Andrew Dandolo as doge of Venice, in 1354. He had previously commanded the troops of the republic at the siege of Zara, in Dalmatia, where he gained a brilliant victory over the king of Hungary; and was afterwards ambassador to Genoa and Rome. When he succeeded to the office of doge, he was 76 years of age, and had a young and beautiful wife. Jealous of Michael Steno, he quarrelled with and was insulted by him at a masquerade; but Steno being sentenced to no more than a month's imprisonment for his offence. Faliero, burning with revenge, entered into a conspiracy with the plebeians to overturn the government and massacre the patricians. On the night before it was to be carried into effect, the plot was discovered, and Faliero suffered decapitation, April 17, 1355. His character is delineated with historical truth by Lord Byron, in one of his noblest tragedies.

Falis'ci, a people of Etruria, said to have been originally a Macedonian colony. When they were besieged by Camillus, a schoolmaster went out at the gates of the city with his pupils, and offered to betray them into the hands of the Roman enemy, that, by such a possession, he might easily oblige the place to surrender. Camillus heard the proposal with indignation, and ordered the man to be stripped naked, and whipped back to the town by the very pupils whom his perfidy would have betrayed. This instance of magnanimity operated upon the people so powerfully, that they surrendered to the Romans.

Falkenstein, a town of Saxony, 12 m. from Plauen. *Manuf.* Muslin-weaving, &c. *Pop.* 4,000.

Falkirk, a town and parish of Scotland, in Stir-

lingshire, 24 m. from Edinburgh. Three fairs, the greatest in Scotland, are held here, under the name of the *Trysts of Falkirk*. These fairs are exclusively for cattle, sheep, and horses; and not less than 300,000 head of cattle and sheep are annually exposed for sale at them, now superceded by weekly auctions. *Pop.* 1890, 16,500. —Here Wallace was defeated by Edward I.; and the royal army by the adherents of the house of Stuart, 1746.

Falk'land. (*fawk'land,*) Lucius Cary, Viscount, an English politician and man of letters, b. at Burford, Oxfordshire, 1610. He was educated at Trinity Coll., Dublin, and at Cambridge; and on inheriting a large fortune, married, and in happy retirement devoted himself to earnest study, enjoying the society of Seldeu, Chillingworth, and other eminent men. In 1639 he accompanied the expedition to Scotland, and in the following year entered parliament. On the trial of Strafford he interposed in behalf of moderation and delay. His purity and sensitiveness of character made him incapable of being a partisan, and also unfitted him for action in such stormy times. In 1641 the king succeeded, through the agency of Clarendon, in attaching *F.* to the royal cause, and made him secretary of state. But *F.* distrusted the king and despised the court; and the king feared him. Though he thenceforth attended the king, his sympathies were on the side of freedom, and the distractions and calamities of his country broke his heart. He fell early in the day at the first battle of Newbury. Sept. 20, 1643, according to his presentiment, and his body was found on the following day.

Falk'land, in *N. Carolina*, a post-village of Pitt co., on the Tar River, abt. 70 m. E. by S. of Raleigh.

Falkland Isles, two large islauds, with a number or smaller ones surrounding them, situate in the Southern Atlantic Ocean. Lat. between 51° and 52° 30′ S., Lon. between 57° 40′ and 61° 20 W.—These islands were discovered by Davis in 1592, and came into the possession of the British in 1771. Their appropriation has been at times disputed; but since 1833 the British have held uninterrupted occupancy of them. *Capital*, Stanley. *Area*, 4,741 sq. m. *Population* (1891) 1,789, consisting mostly of Buenos-Ayrean colouists.

Falk'ner's or **Faulkner's Island,** in *Conn.*, a light-house of Guilford Harbor; Lat. 41° 12′ 45″ N., Lon. 72° 38′ 54″ W. It has a flashiug light and a fog-bell.

Fall, (*fawl,*) *v. n.* (*imp.* fell; *pp.* fallen.) [A. S. *feallen;* Ger. *fallen;* Lat. *fallo;* Sansk. *phal*, to fly apart. See Fail.] To drop from a higher to a lower place; to descend by the weight or by the power of gravity alone; as, a *fallen* leaf. —To tumble down; to drop prone from an erect to a prostrate condition.

"Saul *fell* all along on the earth." —1 *Sam.* xxviii. 20.

—To flow ont of its channel into a pond, lake, or sea, as a river; to pass at the outlet; to discharge into a basin; to disembogue; as, the Mississippi *falls* into the Mexican Gulf.

—To depart from the ways of innocence; to transgress; to sin; to err; to lapse; to apostatize; to depart from the faith or from rectitude.

"Cromwell . . . fling away ambition;
By that sin *fell* the angels." — *Shaks.*

—To die, particularly by violence; to perish; as, he *fell* in battle.

—To sink into disrepute or disgrace; to decline; to be plunged into misery; to be given up, overthrown, or ruined; to be lowered in the estimation of others; as, "a poor, weak woman *fall'n* from favour." (*Shaks.*) —To decline from violence or intensity to calmness or remission; as, the breeze *falls* away.

"Her fury *fell*, her foaming ceas'd." — *Dryden.*

—To sink; to become lowered; as, the barometer is *falling*.

—To decrease in value; to become less in demand or price; as, gold has *fallen* to 120.

"Rents will *fall*, and incomes every day lessen." — *Locke.*

—To pass into a new state of body or mind; to become; to enter upon a new phase of sensation or thought; as, to *fall* in love, to *fall* sick.

"He died with all the easiness of a man *falling* asleep." *Atterbury.*

—To sink into an air of dejection, discontent, anger, sorrow, or shame.

"I have observed of late thy looks are *fallen*." — *Addison.*

—To happen; to befall; to come to pass; to light on; to come by chance.

"I'm grieved, my friend, the chance should *fall* on you." *Dryden.*

Fall, *v. a.* To drop; to let fall.

"Do you the like, to *fall* it on Gonzalo." — *Shaks.*

—To sink; to lower; to depress; to abase; —in contradistinction to *raise*.

"Upon lessening interest to four per cent., you *fall* the price of your native commodities." — *Locke.*

—To yearn; to bring forth, as lambs.

"They then conceiving, did in yearning-time
Fall parti-coloured lambs." — *Shaks.*

—To pass or be transferred by chance, lot, distribution, inheritance, or otherwise; — with *on, to,* or *upon;* as, the estate *fell to* him.

"If *to* her share some female errors *fall*,
Look on her face, and you'll forget them all." — *Pope.*

—To issue; to terminate; to end; to prove in the result; as, "As the matter *falls*." — *Shaks.*

—To be dropped, or uttered, as words, by chance, carelessness, or imprudence; as, he let *fall* enough to betray himself.

—To ebb; to become shallower; as, the river has *fallen* two feet.

To fall aboard of. (*Naut.*) To run foul of; to come into contact or collision with; —said of one vessel in connection with another. — *To fall astern.* (*Naut.*) To be left behind by another vessel; to be driven back with the stern foremost; as, our consort *fell* gradually *astern*. — *To fall away.* To grow lean; to become thinner or reduced in flesh; as, he has *fallen away* into nothing. —To backslide from allegiance, duty, or religion; to apostatize; to depart from truth, honor, or virtue. "These for a while believe, and in time of temptation *fall away*." (*Luke* viii. 13.) —To perish; to be lost. — *To fall back.* To recede; to retreat; to give way. "We have often *fallen back* from our resolutions." (*Taylor.*) — *To fall calm.* (*Naut.*) To cease blowing. as the wind: as, it has *fallen* a dead *calm*. — *To fall down.* (*Naut.*) To drop down a river or æstuary with the ebbtide. —To prostrate one's self in an attitude of prayer or adoration. "All kings shall *fall down* before him." (*Psalms* lxxii. 11.) — *To fall foul.* To make an onslaught or attack upon. "I *fell foul* of the rogue and battered him heartily." (*D'Urfey.*) —(*Naut.*) To come into contact or collision with; as, to *fall foul* of an enemy's ship, and carry her by boarding. — *To fall from.* To revolt; to depart from adherence. "The emperor *fell* by degrees *from* the king of England." (*Hayward.*) — *To fall home.* (*Naut.*) To form an inward curvature, as the bends and timbers of a ship. — *To fall in.* To concur; to meet. "Objections *fall in* here, and are the most convincing arguments of the truth." (*Woodward.*) — To sink; to subside; as, the foundations of the building *fell in*. —(*Mil.*) To form into ranks, as troops. — *To fall in with.* To coincide; to agree with; as, I readily *fell in with* his views. — To comply with; to acquiesce; to yield to. "Any single paper that *falls in with* the popular taste, brings one in a number of letters." (*Addison.*) — (*Naut.*) To discover; to sight; as, before night the ship *fell in with* the land. — *To fall off.* To separate or break from; as, "friendship *falls off*." (*Shaks.*) — *To fall on,* or *upon.* To attack; to make an onslaught; to assault. "Draw all; and when I give the word, *fall on*." (*Œdipus.*) — *To fall over.* To revolt; to desert, or change sides. "And dost thou now *fall over* to my foes?" (*Shaks.*) —*To fall out.* To quarrel; to become antagonistic; to jar; to grow contentions. "I did upbraid her and *fall out* with her." (*Shaks.*) — To happen; to befall; to come to pass. "Who think you is my Doris *fallen out* to be?" (*Sidney.*) — *To fall short.* To become deficient; to fail in anything; as, the copy *falls short* of the original, I *fell short* of cash, &c. — *To fall to.* To begin; to apply one's self to; to commence; to set about. "My lady *falls to* play." (*Pope.*) — To transfer allegiance to; to submit to. — *To fall under.* To be ranged with; to be reckoned with; as, greenbacks *fall under* the head of money. — To be subject; to become the subject of; as, the matter *fell under* his notice.

Fall, *n.* [Icel. *fall.*] Act of falling or dropping, or descending from a higher to a lower place by gravity; descent; as, the *fall* of a piece of rock. — Act of dropping or tumbling from an erect to a prostrate posture; a tumble; as, a *fall* down-stairs.

—Death; destruction; overthrow; ruin.

"Our fathers . . . had a great *fall* before their enemies." *Judith* viii. 9.

—Downfall; degradation; declension of greatness, power, or dominion; as, the *fall* of the Roman empire.

—Declension or departure from goodness or innocence, from faith or duty: lapse; transgression; apostasy; the act of our first parents in eating the forbidden fruit; also, the apostasy of the rebellious angels.

"This revolt of thine is like another *fall* of man." — *Shaks.*

—A sheer descent of water; a cataract; a cascade; a waterfall; as, the *Falls* of Niagara. — Extent of descent; distance which anything traverses in the act of falling; as, there was a *fall* of two hundred feet of water.

—Act of sinking, or experiencing sensible depression; as, the *fall* of the barometer. — Outlet, disemboguement, or discharge of a river or current of water into the ocean, or into a lake or pond; as, the *fall* of the Potomac into the Atlantic. — Declination of sound; a sinking of toue; cadence; as, the *fall* of the voice. — Diminution; decline; decrease of price or value; depreciation in worth; as, a *fall* in the money-market, a *fall* in public securities.

—Act of felling or cutting down; as, a *fall* of timber.

—A slope, declivity, or abrupt descent; as, there the ground had a sudden *fall*. — Chance; fortune; accident; hap; as, "whatever *fall* may fall." — *Shaks.*

Fall is one of those general words of which it is very difficult to ascertain or detail the full signification. It retains in most of its senses some part of its primitive meaning, and implies, either literally or figuratively, descent, violence, or suddenness In many of its senses it is opposed to *rise;* but in others has no conuterpart or correlative.

—An article of female attire; as, the *fall* of a bonnet.— A snare or trap for game and other animals. — In Scotland, a land-measure of six ells, or the fortieth part of a rood. —(*Naut.*) That part of a rope or tackle to which motive power is applied in hoisting a sail, block, yard, &c.; as, a cat-tackle *fall*.

—Autumn; the season of the fall of the leaf; the time of year when leaves drop from the trees.

"Last *fall* (the doctor) raised the weekly bills." — *Dryden.*

(In this sense the word *fall* is peculiar to the U. States and Canada: the term *Autumn* being almost invariably used in England.)

—A falling; anything that descends in great quantities; as, a heavy *fall* of rain.

Falla'cious, *a.* [Fr. *fallacieux*, from Lat. *fallaciosus* —*fallaci, fallax*, from *fallere*, to deceive. See Fallacy.] Deceitful; deceptive; wearing a false appearance; producing error, or mistake; misleading; sophistical; not well founded; producing disappointment; mocking expectation; delusive; illusive; false.

Falla'ciously, *adv.* In a delusive or false manner; sophistically.

Falla'ciousness, *n.* Tendency to deceive, or mislead; inconclusiveness.

Fal'lacy, *n.* [Lat *fallacia.*] Deceptive or false appearance; deceitfulness; that which misleads the eye or the mind.

(*Logic and Rhet.*) Any argument or apparent argument which professes to be decisive of the matter at issue, while in reality it is not. Fallacies have been divided into those *in dictione*, in the words; and *extra dictionem*, in the matter. The latter of these it is not the province of logic to discover and refute; they being, strictly, instances in which the conclusion follows from the premises, and which therefore depend on the unsoundness of these premises themselves, which can only be detected by a knowledge of the subject-matter of the argument. Logical fallacies, or fallacies *in dictione*, are those in which the conclusion appears to follow, but in reality does not, from the premises; and which, consequently, can be detected by one unlearned in the subject-matter of the argument, but acquainted with the rules of logic. These are subdivided, however, into fallacies purely logical, *i. e.*, vicious syllogisms,— (see Syllogism, and Paralogism,) —and fallacies semilogical, those, namely, which arise from the employment of a middle term in argument (see Syllogism, Proposition, and Middle Term) ambignous in sense.— In Rhetoric, a common set of artifices, by which the mind of the reader or hearer is diverted from the question at issue, and fixed on some collateral topic, are termed *fallacies;* as where the character of the proposer of a measure is discussed as a reason for or against the measure itself, &c., &c.

Fall Branch, in *Tennessee*, a post-village of Washington co.

Fall Brook, in *Pennsylvania*, a post-borough of Tioga co. *Pop.* (1897) about 1,000.

Fall City, or Falls City, in *Wisconsin*, a post-village of Dunn co., about 15 m. N.E. of Dunnville.

Fall City, in *Wisconsin*, a village of Marathon co., on the Wisconsin river.

Fall Creek, in *Illinois*, a flourishiug post-township of Adams co.

Fall Creek, in *Indiana*, a township of Hamilton co.

—A township of Henry co.

—A township of Madison co.

Fall Creek, in *Indiana*, enters the W. Fork of White river from Mariou co.

Fall'en, *p. v.* Dropped; descended; degraded; decreased; ruined.

Fallen Timber, in *Pennsylvania*, a post-office of Cambria co.

Fall'er, *n.* Oue who drops, or falls.

Fallibil'ity, *n.* [Fr. *faillibilité*, from Lat. *fallere*, to deceive.] Possibility of being erroneous; liableness to err in one's judgment; tendeucy to be deceived; uncertainty; frailty.

Fal'lible, *a.* [Fr. *faillible*, from Lat. *fallibilis.*] Liable to error; that may be deceived in judgment; that may deceive; as, "a *fallible* symptom." —*Johnson.*

Fal'libly, *adv.* In a manner liable to error, or mistake.

Fall'ing, *p. a.* Descending; dropping; disemboguing; apostatizing; declining; decreasing; sinking; coming.

—*n.* Indentation, as opposed to *prominence;* often with *in.*

"The various prominences and *fallings in* of the features." *Addison.*

Fall'ing home. (*Naut.*) A term applied to the timbers or upper parts of the sides of a ship when they curve inwards. The old class of ships fall home much more than the modern ones, which approach more nearly to being *wall-sided*.

Fall'ing River, in *Virginia*, enters the Staunton or Roanoke River from Campbell co.

Fall'ing-sick'ness, *n.* (*Med.*) A disease in which the patient is, without warning, deprived at once of his senses and falls dowu; Epilepsy, *q. v.*

"He hath the *falling-sickness*." — *Shaks.*

Falling Stars, *n. pl.* Evanescent meteors which dart across the sky in all directions at night, vanishiug after a flight of short duration, during which they seem to draw a brilliant train of light behind them. To the observer they resemble stars suddenly falling from their positions in the heavens, whence the name *F. S.* They generally appear singly, but sometimes in great numbers, resembling a shower of fire. During ordinary nights the number of *F. S.* observed in an hour's time is from 4 to 8; but at two periods of the year, about the 10th of Aug. and the 12th of Nov., they are much moro nnmerous. The Nov. shower is generally much more brilliant than that in Aug., and at intervals of about 33 years it is of extraordinary interest and splendor. Remarkable showers were observed on the 12th of Nov., 1799 and 1833, and on the 13th of Nov., 1866, — that of 1833, especially, being the most magnificent of any on record. The *F. S.* of the Nov. showers generally radiate in all directions from a point in the constellation Leo, and those of the Aug. showers from a point in the constellation Persens. It has been held by some astronomers that myriads of these bodies are collected in several rings around the sun, around which they circulate like the larger planets, and that when the earth passes through or near one of these rings, her attraction causes them either to revolve around her as permanent satellites, or to be arrested in their motion by her atmosphere, and converted into heat and light, they become visible to us, and perhaps fall to the ground as meteoric stones and aërolites (*q. v.*). Sir John Herschel advanced the theory that showers of *F. S.* are the light caused by the collision of the earth's atmosphere with the tenuous substance of a comet. See Star Showers.

Falling-stone, *n.* A meteorite; an Aerolite (*q. v.*).

Fall'ing Wa'ter, in *Tenn.*, a P. O. of Hamilton co.
Falling Water Creek, in *Tennessee*, enters the Caney fork of Cumberland river from White co.
Fall'ing Wa'ters, in *West Virginia*, a post village of Berkeley co., on the Potomac River, about 188 m. N. by W. of Richmond. Here, July 1, 1861, an indecisive skirmish took place between the National and Confederate troops.
Fall of Bodies. The motion of any body projecting through the air in a horizontal or oblique direction, and the path it describes, are considered under the head of Projectiles, (*q. v.*) In this article we shall examine the rate of motion of a body moving toward or from the earth in a vertical line. The effect of gravity is to uniformly accelerate the motion of a body moving *toward* the centre of the earth, and to uniformly diminish that of a body moving upward, or *from* the centre of the earth. By experiments with ATWOOD'S MACHINE (*q. v.*) it has been shown that the rate per second at which bodies acquire velocity if moving downward, or lose velocity if moving upward, is $32\frac{1}{6}$ feet. This velocity acquired by a falling body, in a second of time, is called the *measure of the accelerating force*. Therefore, if a body be dropped from the top of a high tower, it is moving at the rate of $32\frac{1}{6}$ feet at the end of the first second, $64\frac{1}{3}$ feet at the end of the next second, $96\frac{1}{2}$ feet at the end of the third second, and so on. The velocity of a body at any period of its fall may be found by multiplying the velocity at the end of the first second, or the measure of the accelerating force, by the number of seconds during which it has been falling. The velocity of a body at any period of its fall being known, the distance it has fallen may be found by multiplying the velocity at that period, by the number of seconds it has been falling, and dividing the result by 2. Thus if a body has been falling 5 seconds, its velocity at the end of the 5th second will be $32\frac{1}{6} \times 5 = 160\frac{5}{6}$ feet per second, and the space through which it has fallen will be $160\frac{5}{6} \times 5 \div 2 = 402\frac{1}{12}$ feet. If, instead of falling from a state of rest, a body be impelled downward with a given velocity, its velocity at any period in its course will be found by adding the rate of motion it would have attained by the action of gravity alone, to the initial velocity imparted to it. Thus, in the example above given, if the body had been thrown downward with an initial velocity of 50 feet per second, its rate of motion at the end of the fifth second would be $160\frac{5}{6} + 50 = 210\frac{5}{6}$ feet; and the space through which it would have fallen would be $50 \times 5 + 402\frac{1}{12} = 652\frac{1}{12}$ feet. If a body be thrown upward into the air, its velocity will diminish at the rate of $32\frac{1}{6}$ feet per second until the force with which it was propelled upward is counteracted and destroyed by the action of gravity, which acts upon it as a constantly retarding force. The body will seem to remain stationary for an instant and then descend, increasing in velocity at the same rate as a body allowed to fall from the same height from a state of rest. All bodies, of whatever form, size, or substance, fall with equal rapidity when unimpeded by the air, the different velocities of falling bodies having been found by experiment to be owing entirely to the action of the air upon them.
Fallo'pian Tube, *n.* [From *Fallopius*, its discoverer.] (*Anat.*) A canal or tube, arising at each side of the fundus of the uterus, and terminating in the ovarium.
Fallo'pius, GABRIEL, a celebrated Italian anatomist, professor at Pisa and Modena, b. 1523. He was the first to give exact descriptions of the organ of hearing, of the organization of the fœtus, and of the tubes of the uterus, since called by his name. D. 1562.
Fal'low, *a.* [A. S. *fealo, falu, fealewe;* Ger. *falb;* It. *falbo;* Fr. *fauve*, from Lat. *fulvus*, deep or reddish yellow, tawny.] Pale red or pale yellow; yellowish. — Ploughed, but not sowed; unsowed; left to rest after a year or more of tillage; left unsowed after ploughing; uncultivated.

"Shall the cause of saints lie *fallow?*"—*Hudibras.*

—*n.* (*Agric.*) Lands are said to be under fallow when under cultivation, whether with or without a crop. A *naked fallow* is one in which the soil remains a whole year without any crop whatever; and a *turnip* or *green crop fallow* is one in which the lands, after being without a crop from harvest till the beginning of the following summer, and being properly labored during that period, are sown with turnips or other similar crops in rows, and the ground cultivated in the intervals. Fallowing was practised by the Romans on all soils, and has been continued through the dark ages, in all the cultivated parts of Europe, so as to have become, till lately, a general habit in the treatment of arable lands. The practice of taking two corn crops, and then allowing the land to rest or lie fallow, was till the commencement of the present century prevalent throughout Europe; but it appears to be now broken through in any well-cultivated country. Bare fallows, under the most improved systems of agriculture, are no longer had recourse to in the case of free or easily worked soils, where turnip fallows are made, or drill crops of legumes are substituted; but in very strong clays they are still found necessary, and this will probably continue to be the case till by thorough drainage, and perhaps steam-culture, the strong clays become friable and fit for the drill husbandry, like the sandy loams and other free soils.
Fal'low-chat, *n.* Same as FALLOW-FINCH, *q. v.*
Fal'low-crop, *n.* The crop produced from fallow land.
Fal'low-deer, *n.* [A. S. *falewe*, pale yellow.] (*Zoöl.*) See DEER.
Fallow-finch, *n.* (*Zoöl.*) See MOTACILLA.
Fal'lowfield, in *Pennsylvania*, a post-township of Washington co.
Fal'lowfield, in *Pennsylvania*, a township of Washington co.
Fal'lowist, *n.* (*Agric.*) One who practises the system of fallowing land.
Fall River, in *Iowa*, enters the Makoqueta River from Jackson co.
Fall River, in *Massachusetts*, a city and port of entry of Bristol co., at the mouth of Taunton River, about 53 m. S.S.W. of Boston. The city is well laid out and contains numerous fine and substantial edifices. It has long been noted for its extensive manufactures, particularly of calico, oil-cloths, cotton batting, machinery, &c. Its commerce is also extensive. *Pop.* (1895) 89,293.
Fall River, in *Wisconsin*, a post-village of Columbia co., on Crawfish River, about 25 m. N.E. of Madison.
Falls, in *Iowa*, a township of Cerro Gordo co.
Falls, in *Ohio*, a township of Hocking co.
—A township of Muskingum co.
Falls, in *Pennsylvania*, a flourishing township of Bucks co.
—A post-township of Wyoming co.
Falls, in *Texas*, an E. central co.; *area*, about 950 sq. m. *Rivers.* Brazos River, and Elm and Big Creeks. *Cap.* Marlin.
Falls Bridge, in *Connecticut*, a village of Litchfield co., about 30 m. N.W. by W. of Hartford.
Falls'burgh, or FAL'LASBURGH, in *Michigan*, a village of Kent co., on Flat River, abt. 22 m. E. of Grand Rapids.
Falls'burgh, in *New York*, a post-village and township of Sullivan co., about 95 m. S.S.W. of the city of Albany.
Falls'burgh, in *Ohio*, a post-township of Licking co.
—A post-village of Licking co., abt. 16 m. N.E. of Newark.
Falls Church, in *Virginia*, a post-village of Fairfax co., abt. 10 m. W. of Washington, D. C.
Falls City, in *Nebraska*, a post-town, cap. of Richardson co., abt. 2 m. N. of Nemaha.
Fall'sington, in *Pennsylvania*, a post-borough of Bucks co., abt. 25 m. E.N.E. of Philadelphia.
Falls Mills, in *W. Virginia*, a P. O. of Lincoln co.
Falls of Blains, in *Kentucky*, a P. O. of Lawrence co.
Falls of Rough, in *Kentucky*, a P. O. of Grayson co.
Falls of Salmon River. See ORWELL.
Falls of Schuylkill, (*skool'kill.*) See PHILADELPHIA.
Falls of St. Croix, in *Wisconsin.* See SAINT CROIX FALLS.
Falls'ton, in *Maryland*, a post-office of Harford co.
Falls'ton, in *Pennsylvania*, a borough of Beaver co., abt. 30 m. N.W. of Pittsburg.
Falls'town, in *North Carolina*, a village of Iredell co., abt. 135 m. W. of Raleigh.
Falls Village, in *Connecticut*, a post-village of Litchfield co., abt. 45 m. W.N.W. of Hartford.
Fal'mouth, a seaport-town of England, co. Cornwall, at the mouth of the river Fal, 11 m. from Truro. It has a good harbor, and a fine and spacious roadstead. There are two castles on the coast, one of which, Pendennis, commands the entrance of the harbor; and the other, on the opposite side, is St. Mawes Castle. The town derives its chief importance from being a station of the packet-boats carrying foreign mails. *Pop.* 9,078. Lat. 50° 9′ N., Lon. 5° 4′ W.
Fal'mouth, a seaport-town of Antigua, British W. Indies. It has a fine harbor defended by 2 forts.
Fal'mouth, a seaport-town of Jamaica, British W. Indies; Lat. 18° 30′ N., Lon. 77° 40′ W.
Fal'mouth, a seaport-town of Nova Scotia, on an arm of Mines Bay, abt. 30 m. N.N.W. of Halifax.
Fal'mouth, in *Indiana*, a post-village of Fayette co., abt. 50 m. E. of Indianapolis.
Fal'mouth, in *Kentucky*, a post-village, cap. of Pendleton co., on Licking River, abt. 60 m. N.E. of Frankfort.
Fal'mouth, in *Maine*, a post-village and township of Cumberland co., on Casco Bay, abt. 6 m. W.S.W. of Portland.
Fal'mouth, in *Massachusetts*, a post-vill. and township of Barnstable co., on Vineyard Sound and Buzzard's Bay, abt. 70 m. S.S.E. of Boston.
Fal'mouth, in *Missouri*, a village of Lincoln co., on the Mississippi River, abt. 18 m. N.E. of Troy.
Fal'mouth, in *Pennsylvania*, a post-village of Lancaster co., on the Susquehanna River, abt. 13 m. S.E. of Harrisburg.
Fal'mouth, in *Virginia*, a post-village of Stafford co., on the Rappahannock River, abt. 65 m. N. of Richmond.
False, *a.* [Icel. *falskr;* *falsa*, to deceive; *fals*, pride, deceit; Lat. *falsus*, from *fallo*, to deceive, from Gr. *sphalto.* See FALL, and FAIL.] Uttering falsehood; not morally true; without veracity; expressing that which is not thought or felt, with a tendency to deceive; dishonest; not just; as, a *false* prophet.

"There are *false* witnesses amoug men."—*L'Estrange.*

—Deceptive; pretended; feigned; counterpart; spurious; not real or genuine; as, *false* tears, *false* jewelry, &c.
—Treacherous; perfidious; traitorous; deceitful; unfaithful; inconstant; calculated to delude and disappoint; as, a *false* friend, a *false* statement, *false* play.

"*False* of heart, light of ear, bloody of hand."—*Shaks.*

—Not true; not conformable to fact; not well founded; unfounded; not according to the lawful standard; erroneous; supposititious; not solid or sound; not agreeable to rule or propriety; as, a *false* claim, a *false* account.

"Now, fie upon my *false* French; by mine honour, in true English, I love thee, Kate."—*Shaks.*

(*Mus.*) Not in tune; not according to the rules of harmony; as, a *false* note.—*False cadence*, an imperfect cadence; a cadence wherein the bass rises a tone or semi-tone, instead of rising a fourth or falling a fifth.

False fire. (*Naval.*) A combustible preparation used on board of vessels of war for night-signals.—*False imprisonment.* (*Law.*) Any unlawful restraint of a man's liberty, whether in a place made use of for imprisonment generally, or in one used only on the particular occasion.
False keel. (*Naut.*) The exterior keel, or that which is beneath the main keel which it serves to protect.
False pretences. (*Law.*) False representations and statements, made with a fraudulent design to obtain "money, goods, wares, and merchandise," with intent to cheat. At common law it is a misdemeanor.—*False rail.* (*Naut.*) A thin piece of timber inside of a carved head-rail. (*Ogilvie.*)—*False red.* (*Paint.*) A second red color, which is sometimes put under the first, to make it deeper.
False roof. (*Arch.*) The space between the ceiling and the roof above it, whether the ceiling be of plaster or a stone vault.—*False work.* (*Civ. Eng.*) A scaffolding erected temporarily during the building of the main structure.
False, *adv.* Not truly; not honestly; not exactly; falsely

"Thou wouldst not play *false*,
And yet wouldst wrongly win."—*Shaks.*

False'-faced, *a.* Hypocritical; double-faced.
False'-hearted, *a.* Deceitful; hollow; treacherous; perfidious; as, "*false-hearted* friends and followers." *Bacon.*
False'-heartedness, *n.* Perfidiousness; treachery.
False'hood, *n.* [*False*, and *hood*, state, degree, quality.] Quality of being false; contrariety or inconformity to fact or truth; want of truth or veracity; untruth; an untrue assertion; falsity; fiction; fabrication.

"He practised *falsehood* under saintly show."—*Milton.*

—Want of honesty; treachery; deceitfulness; perfidy; as, betrayed by *falsehood.*
—Counterfeit; impostnre; false show or appearance.
False'ly, *adv.* In a false manner, in a manner contrary to truth and fact; not truly; as, to swear *falsely.*
False'ness, *n.* Quality of being false; want of integrity and veracity, either of principle or in act; duplicity; deceit; double-dealing; unfaithfulness; treachery; perfidy.
Falsette, Falsetto, (*fal-set', fal-set'tō,*) *n.* [It. *falsétto*, false treble; Fr. *fausset*, from Lat. *falsus.*] (*Mus.*) That part of a person's voice which lies above its natural compass, and is produced to various extents in different subjects, male as well as female. It rarely extends more than four or five notes above the natural voice, and is produced by diminishing the aperture of the throat.
Fal'sifiable, *a.* That may be falsified, counterfeited, or corrupted.
Falsifica'tion, *n.* [Fr., from Lat. *falsificatio.*] Act of counterfeiting or making false; the giving to a thing an appearance of something which it is not; wilful misstatement or misrepresentation; as, the *falsification* of words.—Confutation; as, detection of *falsification.*
Fal'sificator, *n.* [Fr. *falsificateur.*] One who falsifies.
Fal'sifier, *n.* One who falsifies, counterfeits, or gives to a thing a deceptive appearance; one who makes false coin; one who invents falsehood; a liar; as, "boasters are naturally *falsifiers.*"
Fal'sify, *v. a.* [Fr. *falsifier;* Lat. *falsus*, and *facio*, to make.] To make false; to counterfeit; to forge; as, to *falsify* a bank-note.

"*Falsifying* the balance by deceit."—*Amos.*

—To disprove; to prove to be false; to confute; as, to *falsify* a prediction.—To violate; to break by falsehood; as, to *falsify* a trust reposed in.
—To elude; to baffle; to escape; as, to *falsify* a blow. (*Law.*) To prove false; as, to *falsify* a judgment.—In Equity, to prove that an item of account is wrongly charged.
—*v. n.* To tell lies; to violate the truth; as, "to lie and *falsify.*"
Fal'sism, *n.* An assertion or statement the fallacy or falsity of which is obvious;—in contradistinction to *truism.*
Fal'sity, *n.* [L. Lat. *falsitas*, from *falsus*—*fallo*, to deceive.] Quality of being false or without veracity; contrariety or inconformity to truth.

"Can you on him such *falsities* obtrude?"—*Sandys.*

—A lie; a falsehood; a false assertion or position; as, "easily confutable *falsities.*"
Fal'ster, one of the Danish islands in the Baltic, separated by narrow straits from Zealand on the N., Moen on the N.E., and Laaland on the W.; Lat. 54° 59′ N., Lon. 12° E.; length, N. to S., 27 m.; breadth, varying from 3 to 14 m. *Area*, 180 sq. m. *Surface*, almost entirely flat. *F.* is the pleasantest of all the Danish islands, is well watered, richly wooded, and so prolific in fruit that it has been called the "orchard of Denmark." *Prod.* Corn, hemp, hops, cattle, honey, wax, &c. *Manuf.* Wholly of the domestic kind; some shipbuilding is also carried on. *Cap.* Nykioping. *Pop.* 28,856.
Fal'ter, *v. n.* [From O. Fr. *faulte*, a need, a want; Sp. *faltar*, to fall short, from Lat. *fallo;* Icel. *valltr*, frail, perishable.] To be at fault, or to hesitate, fail, or break in the utterance of words; to speak with a broken or trembling utterance; to stammer.

"He changes, gods! and *falters* at the question."—*Smith.*

—To fail, tremble, or yield in exertion; not to be firm and steady; to totter; as, "he found his legs *falter.*" *Wiseman.*
—To fail in the regular play of the ideas or exercise of the understanding; as, "the *faltering* thoughts of the faculties."—*Locke.*
Fal'ter, *v. a.* [Prov. Eng.] To sift; to cleanse; to thresh in the chaff; as, "to *falter* barley."
Fal'tering, *n.* Feebleness; deficiency.
Fal'teringly, *adv.* Hesitatingly; doubtingly; in a faltering manner; with feebleness.
Faltero'na, (Mount,) a peak of the Apennines, Italy,

25 m. from Florence. The River Arno has its source on its S. side. Height, 5,557 ft.

Fal'tranck, *n.* [Ger. *fall*, a fall, and *trank*, drink.] (*Med.*) A mixture of several aromatic plants, used as a vulnerary medicine.

Falt'si, or **Falk'sen,** a frontier village of Moldavia, 70 m. from Jassy, where, in 1711, a treaty was concluded between Russia and Turkey.

Fal'un, *n.* [Fr.] (*Geol.*) A series of deposits belonging to the middle tertiary or miocene period, and consisting chiefly of broken shells, quartz, sand, and gravel.

Fa'lun, a town of Sweden. See FAHLUN.

Falun, Fahlun, or STORA-KOPPERBERG, (*fa'loon,*) a prov. of Sweden, Lat. bet. 59° 52′ and 62° 16′ N., Lon. bet. 12° and 17° E.; *area*, 12,232 sq. m. *Surface*, mountainous; *soil*, unproductive of corn, but well timbered. *Ind.* Cattle-rearing; copper-mining is also extensively carried on. *Chief town.* Fahlun. *Pop.* 174,758.

Fama, (*fa'ma.*) (*Myth.*) The Roman goddess of fame, rumor, reports, news, or tidings of any sort, whether good or evil. She is represented with a trumpet, either blowing it or holding it in her hand.

Famagusta, (*fa-ma-goos'ta,*) a seaport-town of the island of Cyprus, 40 m. E. of Nicosia, Lat. 35° 7′ 40″ N., Lon. 33° 59′ E. *F.* is built on the ruins of the ancient *Arsinoë*, and during the Venetian régime it was one of the richest and most populous towns in the Levant. It is now almost in ruins, with its once fine harbor almost choked up with sand, having declined since its conquest by the Turks in 1571. About 5 m. N.E. are the ruins of Constantia, occupying the site of the ancient *Salamis*, now called Eski, or Old Famagusta. Guy de Lusignan was here crowned king of Cyprus in 1191. *Pop.* Unascertained, and mostly Greeks.

Famati'na, a valley of South America, in the Argentine Republic, bounded E. and W. by the mountain ranges of Volasco and Famatina. It is 55 miles long by 30 broad, and contains some silver mines.

Fame, *n.* [Fr.; Lat. *fama*; Gr. *phēmē*, from *phēmi*, to speak, from root *phaō*, to bring to light.] The talk of the multitude; common talk; public report or rumor.

"We have heard the *fame* of him, and all that he did in Egypt." *Josh.* ix. 9.

—Report of good or great actions; report that exalts the character; celebrity; renown; reputation; credit; honor; as, the *fame* of Washington.

—*v. a.* To report: to talk of.

"He is *fam'd* for mildness, peace, and prayer."—*Shaks.*

—To make famous.

"Aristides was *famed* for his learning and wisdom."—*Addison.*

Fame'less, *a.* Without fame or renown.

Fame'lessly, *adv.* In a fameless manner.

Familia, *n.* [Lat.] See FAMILY.

Familiar, (*fa-mil'yar,*) *a.* [Fr. *familier*; Lat. *familiaris*, from *famulus*, a servant. See FAMILY.] Pertaining to servants, or to a family; domestic. — Accustomed by frequent converse; well acquainted with; learned or well understood by frequent use or association; as, a *familiar* friend, *familiar* with the classics.

"*Familiar* now with grief, your tears restrain."—*Pope.*

—Easy; informal; unceremonious; unconstrained; presenting an intimate manner.

"Be thou *familiar*, but by no means vulgar." — *Shaks.*

—Common, frequent, and intimate; as, the habit becomes *familiar*. — Intimate in an unlawful degree.

—*n.* An intimate; a close companion; one long acquainted.

"The King is a noble gentleman, and my *familiar*." — *Shaks.*

—A demon; an evil spirit supposed to attend one at call.

"Love is a *familiar*, there is no other angel but love." — *Shaks.*

(*Eccl. Hist.*) In the Court of Holy Inquisition formerly established by the Roman Catholic Church, a term applied to one of its officers, employed in the apprehension and attending the torture of offenders.

Familiar'ity, *n.* [Fr. *familiarité*; Lat. *familiaritas*, from *familiaris*.] State of being familiar; intimate and frequent converse or association in company; easiness of conversation; affability; freedom from ceremony; intimacy; intimate acquaintance; unrestrained intercourse.

Familiarize, *v. a.* [Fr. *familiariser*.] To make familiar or intimate; to habituate; to accustom; to make easy and well-known by practice or converse; as, to *familiarize* one's self with friends. — To make easy by practice or customary use, or by intercourse; as, to become *familiarized* with work.

Familiarly, *adv.* With familiarity; unceremoniously; with the privileged freedom of long acquaintance; without formality. — Commonly; frequently; with the ease springing from long custom or association.

Familiar Spirit, *n.* (*Myth.*) One of those demons or evil spirits which were supposed to attend and be at the service of a magician, or other favored person. The belief in familiar spirits is very ancient, and by the law of Moses, such as had familiar spirits were to be put to death. Where Socrates speaks of his attendant demon, he is generally understood to refer to the inner feelings and promptings of his nature, and not to any familiar spirit. In Eastern countries, the belief in familiar spirits is very general; and it was widely diffused over Europe in the Middle Ages. A favorite form assumed by a familiar spirit was that of a black dog. Jovius says that Cornelius Agrippa was always accompanied by a devil in the form of a black dog; and Gœthe makes Mephistopheles first appear to Faust in this shape. Paracelsus was believed to carry about with him a familiar spirit in the hilt of his sword.

Fam'ilism, *n.* The doctrines held by the Familists.

Fam'ilist, *n.* [From *family*.] (*Eccl. Hist.*) One of the sect called *Family of love*. — See AGAPÆMONIANS.

Familis'tic, Familis'tical, *a.* Relating or pertaining to the Familists.

Fam'ily, *n.* [Lat. *familia*, domestics, from *famulus*, a slave: in Oscan, a language formerly spoken in the South of Italy, *famel*, a slave; Sp. *familia*; Fr. *famille*. Probable root obs. Heb. *ghāmal*, labor, toil.] A household establishment; a household, including parents, children, and servants; the collective body of persons who reside under one roof, and under one head, or manager. — Those who descend from one common ancestor; a tribe or race; kindred; as, the human *family*. — Lineage; course of descent; genealogy; line of ancestors; honorable descent; noble or respectable stock; as, a man of old *family*. — Among the Romans, *familia* was applied to all persons in the power of a *paterfamilias*, — as his sons, daughters, grand-children and slaves; but it was also used in a wider sense, including all objects of property, even inanimate, and is explained by Gains by the equivalent *patrimonium*. The *F.* is the corner-stone of the social edifice, and is well said to be God's best instrument on earth for the furtherance of the great moral and religious interests of man. Hence, it has been taken as a model for forming other associations, — political, civil, or religious. Among the early Hebrews, and in Eastern countries, the patriarchal form of government is only an extension of the family relationship. The Greeks regarded the family as a type of the state; and among the Romans the natural power of a father was taken as the basis of the whole social and political organization of the people. The family life is based upon the wants and necessities of our nature, and is essentially fitted to develop and foster those habits and affections on which the happiness and welfare of mankind depend. It can, however, exist in a state of purity only where monogamy prevails. In the family relationship we find evidence that the pretended state of nature, which has been represented as the primitive condition of man, is totally opposed to the benevolent designs of the Author of nature.

(*Bot.*) A synonym for ORDER, *q. v.*

(*Zoöl.*) The group above the genus. An order of animals should be divided into families according to the form of species, but, in fact, the greatest confusion reigns in the classification of the animal kingdom.

Family Compact. (*Hist.*) The treaty signed at the Escurial between Philip V. of Spain and Louis XV. of France, Nov. 7, 1733, is called by Spanish historians the First Family Compact; and the secret treaty of perpetual alliance between France and Spain, signed at Fontainebleau, Oct. 25, 1743, is termed by them the Second Family Compact. The celebrated treaty between the Bourbons of France and Spain (Louis XV. and Charles III.), known as the Family Compact, was concluded at Paris, Aug. 15, 1761. It was a defensive and offensive alliance between France and Spain. Ferdinand IV., king of Naples, acceded to the alliance.

Famine, (*fam'in,*) *n.* [Fr., from *faim*, hunger; Lat. *fames*, probably corrupted from *fagmes*, akin to Gr. *phāgein*; Sansk. *bhaksh*, to eat.] Starvation; scarcity of food; dearth; a general want of provisions sufficient for the inhabitants of a country or beleaguered place; want; destitution; as, to be reduced by *famine*.

(*Pol. Econ.*) When a scarcity of the means of subsistence is so considerable that food is not procurable even by the omission of all other expenditures, famine ensues, and the poorest and most weakly part of the population is sacrificed. Famines are epidemic in the East. The art of agriculture is imperfect, and the people, generally speaking, living on the cheapest food, and having no export trade of importance, are almost always close upon the margin of possible subsistence. The occurrence of a famine reduces the numbers, and distributing what remains among fewer persons, leaves them the means of life. It is no doubt due to the physiological fact that epidemic disorders of a novel and destructive kind are generated among people liable to periodical famines, that the small-pox, the black death or Oriental plague, and the cholera have travelled from the East westward at different periods. In the Middle Ages *F.* were frequent in Europe, but, in modern times, the facilities of communication so widen the markets, that for this as for European countries *F.* is no more a danger. It is clear that the kind of food which costs most to procure at home, and which can nevertheless be grown over a wide area abroad, will, by commanding a better price, be supplied in fuller measure. Hence we reasonably predict that, though a rise in the price of barley and oats is intelligible, any scarcity in the yield of wheat on the hypothesis of free trade is highly problematical. In the next place, the wider the area, the more is the variation in seasons obviated. A bad harvest in one locality is met by a good harvest in another, just as a drought in one region is counterpoised by an increased rainfall in another. In short, the imports and exports of nature, to use an economical parallel, balance one another. The energies, too, of mankind, and especially in this country the immensity of the territory — whence a great diversity of climates, make the contingency of even scarcity very improbable for the future. See *F. of the World*, *Walford* (Lond. 1879).

Famine, (Port,) a penal settlement of the republic of Chili, S. America; Lat. 58° 38′ S., Lon. 70° 58′ W.

Famish, *v. a.* [Fr. *affamer*; It. *affamire*.] To kill or destroy with hunger; to starve.

"What, did he marry me to *famish* me?" — *Shaks.*

—To distress with hunger; to reduce the strength or endurance of by means of hunger.

"The pains of *famish'd* Tantalus he 'll feel." —*Dryden.*

—To kill by deprivation of anything necessary to life.

"*Famish* him of breath, if not of bread." — *Milton.*

—To force into subjection, or cause to yield by famine; as, to *famish* a garrison into a surrender.

—*v. n.* To die of hunger; to starve. — To suffer extreme want of food; to be exhausted in strength, or to come near to perish by need of food or drink.

"You are all resolved rather to die than to *famish*." — *Shaks.*

—To be distressed for want of necessaries; to come near to perish by destitution.

Famishment, *n.* Act of famishing; the pain of extreme hunger or thirst; extreme want of sustenance.

Famous, (*fā'mus.*) *a.* [Fr. *fameux*; Lat. *famosus*, from *fama*, fame.] Much talked of and praised; celebrated in fame or public report; distinguished in story; renowned; illustrious; eminent; noted; also, distinguished or noted in a bad or unfavorable sense; as, a *famous* poet, a *famous* general, a *famous* pirate.

"I awoke one morning, and found myself *famous*." — *Byron.*

Fa'mously, *adv.* With great renown or celebration; as, we dined *famously*.

Fa'mousness, *n.* State of being famous; celebrity; high fame.

Famulist, *n.* [From L. *famulus*.] A term used at Oxford University, England, to denote a collegian of inferior degree; — it is somewhat similar in signification to the term *sizar* (q. v.) used at the sister university of Cambridge.

Fan, *n.* [A. S. *fann*; Fr. *van*; Lat. *vannus*, probably allied to *ventus*, the wind.] An instrument for winnowing grain by agitating the air. — An instrument used by ladies to agitate the air, and cool the face, in warm weather; — hence, anything in the form of a woman's fan when spread; as, the *fan* of a peacock's tail, &c.

(*Hist.*) The fan is manufactured of feathers, of paper, thin skin, or ivory, joined together, and is generally carved and painted, in order to insure its embellishment. It is mentioned in the Grecian classics (Euripides); indeed it was known in an æra far prior, as there are paintings in the relics of Thebes to prove that the Egyptians were familiar with its use. The fan was first brought into European notoriety by Catherine de Medicis, who introduced it into France, where it was so constructed that it could be used and folded in a manner similar to the fan in use at the present day. Great sums were spent on the ornamentation of the fans first in vogue, and many were painted on by the cunning fingers of Watteau. During the 16th and 17th centuries, they were used by gentlemen. The Chinese have greatly excelled in the art of fan-making, and in the species of lacquered fans their superiority is fully admitted. The Chinese themselves use a cheaper sort, made of bamboo and paper, polished, which cost about ten cents each. In Europe, France manufactures the greatest number of fans used by the world of fashion. Of late years the value of those manufactured exceeded $550,000 per annum. A species of large fan is used in India for cooling the air of rooms and keeping down the temperature; for further information upon which see PUNKAH.

—A small vane or sail, used to keep the large sails of a wind-mill always in the direction of the wind.

—That which serves to excite or increase a flame; that which heightens or strengthens.

"The contradiction of others is a *fan* to inflame their love." *Hooker.*

—A machine employed to winnow grain. — See FANNER.

—*v. a.* To cool and refresh the face by moving the air with a fan.

"She was *fanned* into a slumber by her slaves." — *Spectator.*

—To ventilate; to blow on by agitating the air; as, to *fan* embers into a flame.

"The sultry air
"Pants on, and *fans* her parting hair." — *Pope.*

—To move, as with a fan.

"The air . . . *fann'd* with unnumbered plumes." — *Milton.*

—To separate, as by winnowing; to winnow; to excite into motion by agitation of the air; as, to *fan* grain.

Fanal', *n.* [Fr., from Gr. *phanōs*, lamp.] A pharos or light-house, or the lantern placed in it.

Fanatic, Fanatical, *a.* [Fr. *fanatique*, from Lat. *fanaticus*, from *fanum*, a temple.] Seized with a divine enthusiasm or fury, as certain priests who officiated in heathen temples; — hence, frantic; furious; mad; rabid, wild, and extravagant of opinion, particularly in a religious sense; excessively enthusiastic; possessed by a kind of mania or frenzy; as, *fanatic* zeal.

Fanatic, *n.* A person affected by excessive zeal and enthusiasm, especially on religious subjects; one laboring under wild and extravagant notions of religion; an enthusiast; a visionary.

—In ancient Rome the term was applied to such as passed their time in temples, and who, pretending to be inspired by the Divinity, would burst into wild and antic gestures, utter pretended prophecies, cut themselves with knives, &c. Hence, the term has, in modern times, come to be applied to such as manifest a religious enthusiasm, uncontrolled by reason or experience, and proceeding from a belief that they are under divine direction, and doing what will be well-pleasing in the sight of God. Fanaticism is sometimes applied in a wider sense to any excessive prepossession of the mind by ideas of any kind. Fanaticism has prevailed under different forms in all ages of the world; and one of its most remarkable and dangerous features is the tendency that it has to spread over large masses of a people. It is not usually confined to one individual; for there are generally to be found others who are ready to take up and act upon the delusion. The very earnestness of the fanatic — and fanatics generally are in earnest — serves to carry conviction to the minds of others. Among persons of this class were Madame Guyon, Johanna Southcott, and numerous others. When confined to an adherence to certain theological dogmas, it is in

a comparatively mild and harmless form: but sometimes it manifests itself in atrocities of the most cruel and heart-rending description,—murders, assassinations, and the like. If ignorance be the mother of devotion, much more is it the mother of fanaticism; and the only fit cure for delusions of this sort is the spread of education, enabling people to judge rightly as to the relative importance of things, and to distinguish between the true and the false.

Fanat'ically, *adv.* In a manner governed by wild and unreasonable enthusiasm; with wild, irrational zeal or fanaticism.

Fanat'icalness, *n.* State of being fanatic; fanaticism.

Fanat'icism, *n.* Quality of a fanatic: wild and extravagant notions of religion; excessive and erratic enthusiasm; religious frenzy.

Fanat'icize, *v. a.* To render fanatic.

Fan-blower, *n.* (*Mach.*) Same as FANNER, *q. v.*

Fancied, (*fan'sid,*) *p. a.* Imagined; imaginary; conceived; liked.

Fan'cier, *n.* One who fancies, or takes a fancy to; as, a dog-*fancier.* — A person controlled by fancy.

"Not reasoners, but *fanciers.*" — *Macaulay.*

Fan'ciful, *a.* Full of fancy; guided by the imagination rather than by judgment, reason, and experience; whimsical; fantastical; as, a *fanciful* man. — Dictated by fancy or the imagination; chimerical; full of wild images; ideal; as, a *fanciful* project.

Fan'cifully, *adv.* In a fanciful manner; chimerically; wildly; whimsically.

Fan'cifulness, *n.* Quality of being fanciful; habit of being controlled by fancy rather than by reason.

Fan'ciless, *a.* Destitute of fancy; prosaic; bare of imagination.

Fan'-cricket, *n.* (*Zoöl.*) The MOLE-CRICKET, *q. v.*

Fan'cy, *n.* [Gr. and Lat. *phantasia*, from Gr. *phainō*, to bring to light, to make to appear. See FAME.] An appearance presented to the mind; image; conception; representation of anything formed in the mind. — The faculty by which the mind forms images or representations of things at pleasure; imagination.

—An opinion or notion bred rather by the imagination than by the reason; caprice; desultory idea: whim.

"A person who was not disturbed by any *fancies* in religion." *Clarendon.*

—Inclination; capricious liking; fondness; as, to take a *fancy* to a person: — hence, by implication, the object of such inclination; as, the younger sister is my *fancy.*

"His *fancy* lay extremely to travelling." — *L'Estrange.*

—Something that pleases or entertains without much real use or value.

"London pride is a pretty *fancy* for borders." — *Mortimer.*

(*Phil.*) This term was used by the ancient philosophers as co-extensive with *conception* — that power or faculty of the mind by which man reproduces the images of objects, apart from any impression on the organs of sense. It is now properly applied to a particular province of the imagination, though sometimes it is loosely used as synonymous with it. "The office of the fancy," according to a modern philosopher, "is to collect materials for the imagination." A man whose habits of association present to him a number of resembling or analogous ideas, for illustrating or embellishing a subject, we call a man of *fancy;* but for an effort of imagination, various other powers are necessary, particularly those of taste and judgment. — It is the power of *F.* which supplies the poet with metaphorical language, and with all the analogies which are the foundation of his allusions; but it is the power of imagination that creates the complex scenes he describes, and the fictitious characters he delineates. To *F.* we apply the epithets of *rich* or *luxuriant;* to imagination, those of *beautiful* or *sublime.* Others, however, regard *F.* as a higher energy of the mental activity than imagination, and that it is the imagination that furnishes the materials out of which it creates its fantasies, either by modifying or exaggerating them, or by forming new combinations.

The Fancy, a term applied in England to those persons, collectively, who exhibit a special taste or fancy for sporting and athletic pursuits; it is, however, more particularly applied to those who encourage and practise *boxing,* or the art of self-defence.

Fan'cy, *v. n.* To imagine; to picture or figure to one's self; to believe or come to a conclusion without proof: as, to *fancy* another is one's enemy.

—*v. a.* To portray in the mind; to form a conception of; to image to one's self; to imagine.

"He whom I *fancy,* but can ne'er express." — *Dryden.*

—To feel a fancy or inclination for; to be pleased with, particularly on account of external gifts or graces; to be prepossessed in favor of; as, to *fancy* a girl.

Fan'cy, *a.* Fine; elegant; ornamental; adapted to please the taste or fancy; as, a *fancy* costume.

Fancy ball, a ball or entertainment of dancing, in which those who attend are attired in fancy dresses: a *bal costumé.* — *Fancy goods* or *articles,* fabrics and ornaments for personal wear, of lively colors, as distinguished from articles of a plainer character and more sombre hue. — *Fancy stocks.* (*Banking, U. S.*) A species of stocks which afford great opportunity for stock-gambling, since they have no intrinsic value, and the fluctuations in their prices are chiefly artificial.

Fancy Store (U. S.), an establishment for the sale of fancy goods, embroideries, &c.

Fan'cy Creek, in *Kansas,* a post-office of Clay co.

Fan'cy Creek, in *Wisconsin,* a village of Richland on a creek of the same name.

Fancy Farm, in *Kentucky,* a post-office of Graves co.

Fan'cy-free, *a.* With the heart or imagination intact; free from the influence of love; as, "in maiden meditation, *fancy-free.*" — *Shaks.*

Fan'cy-monger, *n.* One who deals in tricks of imagination.

Fancy-sick, *a.* Unsound in imagination; distempered in mind.

Fandango, (*făn-dăng'go,*) *n.* [Sp.] (*Dancing.*) An old popular Spanish dance of great antiquity. It proceeds gradually from a slow and uniform, to the most lively, but never violent motion. It is danced by two persons only, and represents the various gradations of the passion of love to an extent bordering on the licentious. The dancer is usually provided with castanets — a practice borrowed from the Moors — which serve to mark the time better than a stringed instrument alone would do. The *F.* is now chiefly confined to the theatres and parties of the lower classes.

Fane, *n.* [Lat. *fanum,* from *fari,* to sing in verse, to celebrate. See FAME.] A place dedicated to some deity by form of consecration: a temple; a place consecrated to religion; a church. (Used chiefly in poetry.)

"A sacred *fane* in Egypt's fruitful lands." — *Tickell.*

Fane, a river of Ireland, flowing into Dundalk Bay.

Fane'ga, *n.* [Sp.] A dry measure used in Spain, Mexico, the Argentine Republic, and Uruguay, equal to 1½ imp. bush.

Fan'euil Hall, a public hall in Boston, presented to the town by Peter Faneuil, in 1740. It contained a market-house on the ground-floor, and a town-hall, with other rooms over it. In 1761 it was destroyed by fire. In 1763 it was rebuilt by the town; and, in 1775, during the British occupation of Boston, it was used for a



Fig. 989. — FANEUIL HALL.

theatre. During the revolutionary period it was so often used for important political meetings (see BOSTON) that it gained the name of *The Cradle of American Liberty,* and is one of the old landmarks of Boston; the hall contains some fine paintings, and the basement is still used as a market.

Fanfare, (*fan'fār,*) *n.* [Prov. *fanfa,* a boast; It. *fánfano;* Fr. *fanfare.* Probably formed from the sound.] A flourish of trumpets, kettle-drums, and similar instruments. Such a composition was usually played before a knight as he entered the lists to do battle. — Hence, an ostentatious boast; a bravado; a fanfaronade.

Fan'faron, *n.* [Fr. See FANFARE.] A bully; a lictor; a swaggerer; an empty boaster; a vain pretender.

Fanfaronade', *n.* [Fr. *fanfaronnade.*] A bluster; a swaggering; a piece of vain boasting. (*Swift.*)—See FANFARE.

Fang, *n.* [A.S. *fang;* L. Ger. *fangen;* Ger. *fang,* a claw or talon; Icel. *fanga.*] The tusk of a boar or other animal, by which the prey is clutched and held; a pointed tooth; as, the *fangs* of a dog. — A claw or talon. — Any shoot or other thing by which hold is taken.

(*Mining.*) A niche cut in the side of an adit or shaft, to serve as an air-course; sometimes a main of woodpipes is called a *fanging.*

Fanged, (*fangd,*) *a.* Furnished with fangs, tusks, or something long and pointed; as, a *fanged* adder.

Fang-ki', a small island lying off the S. coast of China, prov. Kwang-tung; Lat. 21° 18′ N., Lon. 110° 35′ E.

Fang'less, *a.* Without fangs or tusks; destitute of teeth.

Fan'got, *n.* [It. *fangotto.*] A quantity of merchandise, as raw silk, &c., from one hundred to two hundred-weight and three quarters.

Fan'-light, *n.* (*Arch.*) A semicircular window resembling an open fan in appearance.

Fan'ner, *n.* One who uses a fan. — A ventilator.

—*pl.* Vanes or flat discs revolving round a centre, so as to produce a current of air; generally used instead of bellows for forges.

(*Agric.*) A machine employed to winnow grain. In passing through the machine, the grain is rapidly agitated in a sieve, and falling through a strong current of wind, created by a rotatory fan, the chaff is blown out at one end, and the cleansed particles fall out at an orifice beneath. The apparatus is composed chiefly of wood, and though ordinarily moved by the hand, it is sometimes connected with the driving-power of a threshing-mill. The fanners superseded the old and slow process of winnowing, which consisted in throwing up the grain by means of sieves or shovels, while a current of wind, blowing across the threshing-floor, carried away the chaff.

Fan'-nerved, *a.* (*Bot. and Zoöl.*) Having the nervures or nerves disposed in the manner of a fan.

Fan'net Point, a promontory and light-house of Ireland, on the W. side of Lough Swilly, in Ulster, co. of Donegal.

Fan'nett, in *Pennsylvania,* a township of Franklin co.

Fan'nettsburgh, in *Pennsylvania,* a post-village of Metal township, Franklin co., about 17 m. N.W. of Chambersburg.

Fan'nin, in *Georgia,* a N. co. bordering on Tennessee and North Carolina; *area,* about 409 square miles. *Rivers.* Ocoee and Connasauga rivers. *Surface,* mountainous; *soil,* generally fertile. *Cap.* Blue Ridge. *Pop.* (1890) 8,724.

Fan'nin, in *Mississippi,* a post-office of Rankin co.

Fan'nin, in *Texas,* a N.N.E. co., bordering on Indian Territory; *area,* about 1,000 square miles. *Rivers.* Red river and Bois d'Arc creek, besides other smaller streams. *Surface,* level; *soil,* very fertile. *Cap.* Bonham. *Pop.* (1897) about 45,500.

Fan'ning-machine, Fan'ning-mill. See FANNERS.

Fan'non, *n.* [O. Fr., from L. Lat. *fano.*] (*Eccl.*) A kind of vestment resembling a scarf, worn about the left arm of a Roman Catholic priest in the celebration of the mass. (Sometimes called *fannel.*)

Fa'no. [Anc. *Fanum Fortunæ,* from a temple dedicated to the goddess Fortune.] A well-built town and seaport of Central Italy, prov. Urbino, 7 m. S.E. of Pesaro, and 29 N.W. by W. of Ancona. *Manuf.* Silk stuffs, twist, &c. *Pop.* about 12,000.

Fa'no, or **Fan'no,** one of the Ionian Islands, at the entrance of the Adriatic, 14 m. from Corfu.

Fanoe, (*fā'no-ĕh,*) an island of Denmark, off the W. coast of Jütland, 12 m. N.W. of Ribo. It is 8 m. long by 2 broad, and has a pop. of about 3,000.

—A bannerol; a flag; an ensign.

Fan'-palm, *n.* (*Bot.*) See CORYPHA.

Fan'tail, *n.* A kind of gas-burner which emits the flame in the form of a fan.

(*Zoöl.*) The common name of the *Rhipidura,* a genus of birds of the *Fly-catcher* family, found in Australia. The species *Rhipidura Arbiscapa,* or White-shafted Fantail, inhabits N. and S. Australia. It is generally seen in pairs, among trees. While in the air it assumes a number of lively and beautiful positions; at one moment mounting almost perpendicularly, spreading out its tail



Fig. 990.—WHITE-SHAFTED FANTAIL, (*Rhipidura arbiscapa.*)

constantly to the full extent, and frequently tumbling over in the descent. It is a very tame bird, allowing near approach without showing the least timidity, and

will even enter houses in the bush, in pursuit of gnats and other insects. In the breeding-season it is not so familiar. Its nest is very elegant, resembling a wine-glass in shape, and is generally composed of the inner bark of a Encalyptus, neatly lined with the down of the tree-fern, intermingled with flowering stalks of moss, and outwardly matted together with the webs of spiders, which not only serve to envelop the nest, but also strengthen its attachment to the branch on which it is constructed, which is always within a few feet of the ground. Eggs two in number.

Fantasia, (*fan-ta'ze-a,*) *n.* [Ital.] (*Mus.*) A species of composition in which the author confines himself to no particular form or theme, but ranges as his fancy leads amid various airs and movements. Rousseau, in defining this word, confines its meaning to extempore composition, and makes this distinction between *capriccio* and *fantasia:* namely, that the former is a collection of singular and whimsical ideas strung together by an excited imagination, and written down at one's leisure, while the latter is an off-hand display of whatever comes across the mind at the instant of execution.

Fan'tasm, *n.* Same as PHANTASM, *q. v.*

Fantasque, (*fan'task,*) *a.* Fantastic. (Used poetically.)

Fan'tast, *n.* A fantastic person. (R.)

Fantas'tic, Fantas'tical, *a.* [Fr. *fantastique*, from Lat. and Gr. *phantasia.* See FANCY.] Fanciful; produced or existing only in imagination; imaginary; not real; chimerical; irrational. — Having the nature of a phantom; only occasionally assuming a visible form.

—Uncertain; unsteady; irregular; as, the *fantastic* form of a tree. —Whimsical; capricious; odd; indulging the vagaries of imagination; full of fantasy; as, a *fantastic* humor, a *fantastic* character.

—*n.* One given to eccentricity in dress, manners, &c.; a person of odd appearance or habits.

Fantastical'ity, *n.* Fantasticalness.

Fantas'tically, *adv.* In a fantastic manner; capriciously; whimsically.

Fantas'ticalness, Fantas'ticness, *n.* State of being whimsical, fantastic, or capricious.

Fan'tasy, *n.* See FANCY.

Fan'tee, a country of Africa, on the Guinea coast, in abt. Lat. 5° 30′ N., and Lon. 1° W., bounded on the S. by the Atlantic, and on the other sides by the countries of Assin, Aguafoo, and Wassaw. *Soil*, fertile. The Fantees were once the most numerous and powerful people on the Gold Coast, but since 1811 they have diminished in numbers, and now live under the protection of the British garrisons at Cape Coast Castle.

Fantoccini, (*fan-tot-chē'ne,*) *n. pl.* [From It. *fantoccio*, a puppet.] An exhibition of puppets, or a dramatic representation on a small scale, performed by figures or dolls, an amusement of which the Italians are extremely fond, and which is frequently performed in a portable theatre — like that of Punch and Judy.

Fan'tom, *n.* Same as PHANTOM, *q. v.*

Fan'tom-corn, *n.* Corn of a light description.

Fan-tracery Vaulting. (*Arch.*) A beautiful form of vaulting, peculiar to the late Gothic style, in which the ribs or veins spring from one point, the cap of the shaft, and radiate with the same curvature

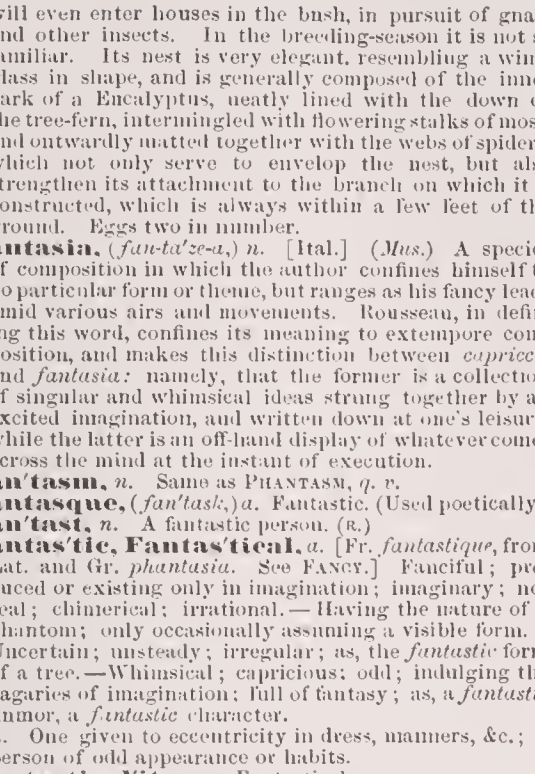


Fig. 991. — ST. GEORGE'S CHAPEL (N. aisle), WINDSOR.

toward the centre, cutting into each other, and very frequently finishing with a large pendant, which forms a kind of keystone. The under surfaces are, therefore, curved in many ways, and are not plane in any section like the ordinary vaulting: they in some degree resemble pendentives, and meet together in the centre like portions of domes. One of the finest specimens is at St. George's Chapel, Windsor (Fig. 991).

Fan'-wheel, *n.* See FANNER.

Faquir', *n.* Same as FAKIR, *q. v.*

Far, *a.* [A. S. *feor, feorran;* D. *ver;* Icel. *firr;* Goth. *fairra*, allied to Sansk. *pâr*, the opposite bank.] Gone away beyond or to a distance; remote; distant; separated by a wide space from the place where one is, or from any given place that is remote; as, countries *far* and near. — Remote from purpose; antagonistic to design or wishes; as, it is *far* from my intention. — Remote from duty, affection, or obedience; in antagonism with; alienated or removed from. — More or most distant of the two.

—Remoter of the two, as, in horsemanship, the right side of the horse, which the rider turns from him when he mounts.

"No true Egyptian ever knew in horses
The *far* side from the near."—*Dryden.*

—*adv.* Remotely; to a great distance in space; as, *far* away in India.

—To a great distance in time; distantly; as, *far* in the past. — In a great part.

"When they went by Jebuz, the day was *far* spent."—*Judges.*

—By many degrees; in a large proportion: very much.

"With oxen *far* unfit to draw the plough."—*Dryden.*

—To a certain point, degree, or distance: as, he is a liberal man as *far* as money goes.

By far, in a great degree; extensively; very much.

"A nobler man he is *by far*,
Than many richer persons are."—*Davies.*

Far from, at a great distance.

"*Far from* his country in the western world."—*Addison.*

Very different; not equal to, or on a par with; as, she is *far from* being his equal.

Far off. At or to a great distance; as, to be *far off* making money. — Alienated; divided by difference of time, distance, or condition; as, a *far off* settlement, to go to a place *far off.*—*From far*, from a remote distance.

"To our own land there came, *from far*,
The gloomy tidings of disastrous war."—*Davies.*

Far, *n.* [A. S. *fearh.*] See FARROW.

Far'aday, MICHAEL, F. R. S., a distinguished English chemist and natural philosopher, b. 1791. He received little or no education, and was apprenticed to the trade of a bookbinder. During his term of apprenticeship, a few scientific works fell into his hands, which he read with avidity, and forthwith devoted himself to the study of, and experiments in, electricity. Having attended the lectures given in 1812 by Sir Humphry Davy, and taken notes thereon, he sent them to that great philosopher, and besought some scientific occupation. The reply was prompt and favorable. In 1813, *F.* was appointed Chemical Assistant, under Sir Humphry, at the Royal Institution. After a Continental tour in company with his patron, *F.*, still pursuing his scientific investigations, discovered, in 1820, the chlorides of carbon, and, in the following year, the mutual rotation of a magnetic pole and an electric current. These were strong encouragements to proceed on the path of discovery, and led to the condensation of gases in 1823. In 1829 he labored hard, and, as he thought at the time, fruitlessly, on the production of optical glass; but though unsuccessful in his immediate object, his experiments produced the heavy glass which afterwards proved of great assistance to him in his magnetical investigations. In 1831 the series of *Experimental Researches in Electricity*, published in the "Philosophical Transactions," began with the development of the induction of electric currents, and the evolution of electricity from magnetism. Three years later *F.* established the principle of definite electrolytic action, and, in 1846, received at the same time the Royal and the Rumford medals for his discoveries of dia-magnetism, and of the influence of magnetism upon light respectively. In 1847 he discovered the magnetic character of oxygen, and, also, the magnetic relations of flame and gases. His papers, including other contributions to the store of modern science, are too numerous to mention in detail. It should be observed that the "Researches," though termed "Experimental," contain many hypothetical ideas, and many inquiries into theories generally adopted up to their time. Among these may be specified the considerations respecting static induction, atmospheric electricity, and those relating to lines of force, both physical and representative, on which having sufficiently stated his views, he was content to leave them for solution to time and future experience. It may be added that his last hypothetical view relates to the Conservation of Force, and that one of his latest papers treats of the division of gold and other metals. In 1833, *F.* was appointed Professor of Chemistry in the Royal Institution, London, which chair he continued to hold until his death. In 1835 he received from govt. a pension of £1,500 per annum in recognition of his eminent scientific merits. In 1836 he was appointed a member of the senate of London University. From 1829–42 he was Chemical Lecturer at the Royal Academy. In 1823 *F.* was elected Corresponding Member of the French Academy, in 1825 he was chosen a Fellow of the Royal Society, and in 1832 made a D.C.L. of Oxford University. He was, besides, a knight of several of the European orders, and a member of the chief learned and scientific societies in Europe and the U. S. In private life his character was irreproachable, and characterized by great humanity and modesty. D. 1867.



Fig. 992. — FARADAY.

Far'afeh, an oasis of the Libyan Desert in Africa, containing several ruins of Greek and Roman origin. The inhabitants fabricate some coarse woollen cloths and earthenware. Lat. 27° N., Lon. 28° 23′ E.

Fa'raud, *n.* Same as FARRAND, *q. v.*

Far'andams, *n.* A sort of textile fabric of mixed silk and wool.

Far'antly, *a.* [See FARRAND.] Neat; orderly; decent.

Farce, *n.* [Fr., from Lat. *farcio*, to stuff, to cram.] Ridiculous parade; empty pageantry or ceremony; mere show; as, the whole business is a *farce.*

(*Dram.*) A short play, of low comic character, usually played as an after-piece. The original term seems, like the *Lanx Satura* of the Romans, which gave its denomination to the satire, to signify a miscellaneous compound or mixture of different things. Its sole end being to excite mirth, it excludes nothing, however wild or extravagant, which may contribute to that object. It differs from comedy in this, that, while the latter is based upon nature and truth, the former does not scruple to have recourse to any extravagance or absurdity that may serve its purpose. The *F.* is restricted to three acts as its limit, but frequently consists of only two or one. Farces usually partake of the character of the people to whom they belong; hence the French, German, Italian, and Spanish farces have different characteristics. Farces are said to have been first introduced by the Society of Clercs de Bazoche, in Paris, about 1400. Molière greatly improved and elevated this class of dramatic literature.

(*Cookery.*) Forcemeat; stuffing: dressing for fowls, game, meats, &c.

—*v. a.* To fill with forcemeat; hence, to mix various ingredients together; as, to *farce* the principles of religion.

Far'cical, *a.* Pertaining to a farce; appropriated to farce; droll; ludicrous; ridiculous; as, a *farcical* character.

Far'cically, *adv.* After the manner of a farce; ludicrously.

Far'icalness, *n.* State or quality of being farcical.

Far'cimen, Far'cin, Far'cy, *n.* [Fr. *farcin.*] (*Farriery.*) A disease in horses, which depends upon the same causes as Glanders (*q. v.*), which it usually precedes and accompanies. The absorbent glands and vessels, usually of one or both hind limbs, are inflamed, tender, swollen, hard, and knotted. The vitiated lymph thus poured out softens, and ulcers, or farcy buds, appear. Unlike the ulcers of glanders, they are curable, but require both time and care. They must be scarified with the hot iron, which, to prevent their spreading, may also be gently run over the adjacent sound skin. Good feeding and comfortable lodgings are essential; and if they do not interfere with the appetite, give tonics, such as a drachm each of sulphate of copper and iodine, repeated twice a day.

Far'cing, *n.* (*Cookery.*) Stuffing composed of forcemeat.

Far'del-bound, *n.* (*Farriery.*) A disease of cattle and sheep; it consists of impaction of the fardel-bag, or third stomach, with food, which is taken in between the leaves of this globular stomach, there to be fully softened and reduced. When the food is unusually tough, dry, or indigestible, consisting, for example, of overripe clover, vetches, or rye-grass, the stomach cannot moisten and reduce it with sufficient rapidity; fresh quantities continue to be taken up, until the overgorged organ becomes paralyzed, its secretions dried up, and its leaves affected with chronic inflammation. The slighter cases so common among stall-fed cattle are "loss of cud," indigestion, and torpidity of the bowels. In severer form, there is also fever, grunting, swelling up of the first stomach, and sometimes stupor or epilepsy. The overgorged stomach can, moreover, be felt by pressing the closed fist upwards and backwards underneath the false ribs on the right side. The symptoms often extend over ten days or a fortnight. Purgatives and stimulants are to be given. For a full-grown beast, give, in three or four bottles of water or thin gruel, ½ lb. each of common and Epsom salt, 15 ground croton beans, a drachm of calomel, and two ounces of ginger. If no effect is produced, repeat this in 12 or 15 hours. Inject soap and water clysters every hour, withhold all solid food, and allow only sloppy mashes, treacle and water, or thin linseed tea. An occasional bottle of ale, with an ounce or two of ginger, often expedites the action of the physic, and wards off nausea and stupor.

Far'ding-bag, *n.* The first stomach of a ruminating animal, whence green food is brought forth for second chewing.

Fare, *v. n.* [A. S. and Goth. *faran*, to go or pass. See FAR.] To go; to pass; to move forward; to travel

"Sadly they *fared* along the sea-beat shore."—*Pope.*

—To be in any state, good or bad; to be involved in any series of events, favorable or unfavorable.

"If you do as I do, you may *fare* as I *fare*."—*L'Estrange.*

—To be fed; to be entertained at table.

"The rich man *fared* sumptuously every day."—*Luke* xvi. 19.

—To proceed in a train of circumstances, good or bad; to happen well or ill: — applied in an *impersonal* sense; as, how *fares* it with you to-day?

Fare, *n.* The price of passage in coming or going by land or water; as, a railroad *fare*, *fare* for ferriage across a

river, &c. — Food; provisions of the table; as, he loves good *fare*. — Experience; state or condition arising from events or circumstances. — The passengers by a vessel or vehicle; as, a full *fare* of immigrants. (R.)

Fare'ham, a seaport-town of England, co. Hants, on a creek at the N.W. extremity of Gosport Harbor, 4 m. N.N.W. of Gosport, and 64 S.E. of London. It is a favorite sea-bathing resort, prosecutes ship-building, and has manuf. of ropes and sacking. *Pop.* 4,412.

Farewell', *interj.* [*Fare* and *well*.] Adieu; good-bye; go well; be well; be happy; a wish of happiness or valediction to those who leave and those who are left; an expression of separation. It is sometimes divided by the pronoun, as, *fare* you *well*, *fare* thee *well*.

"*Fare* thee *well*, and if forever, still forever, *fare* thee *well*." *Byron.*

—*n.* A wish of happiness or welfare at parting; the parting compliment or expression of good-will.

—Act of departure; leave.

"From England's shores I took a last *farewell*." — *Swain.*

—*a.* Valedictory; taking leave; as, a *farewell* visit.

Fare'well, (Cape,) the S. point of W. Greenland; Lat. 59° 37′ N., Lon. 42° 42′ W. — Also a cape on the S.W. coast of Greenland; Lat. 59° 38′ N., Lon. 42° 45′ W.

Far-fetched, (*far'fecht,*) *a.* Brought from afar or from a remote distance; as, "*far-fetched* gold." *Dryden.*

—Elaborately strained; not easily or naturally deduced or introduced; studiously sought; forced; as, a *far-fetched* joke, a *far-fetched* rhyme.

Faribault (*fär-e-bō'*), in *Minnesota*, a S. co., bordering on Iowa; *area*, about 720 sq. m. *Rivers.* Blue Earth, Mankato and Maple rivers. *Surface*, level; *soil*, fertile. *Cap.* Blue Earth city. *Pop.* (1895) 20,139.

—A city, cap. of Rice co., on the Cannon river, 53 m. S. of St. Paul. An educational center and a thriving commercial city. *Pop.* (1895) 7,616.

Farina, (*fa-rī'na,*) *n.* [Lat., from *far*, *farris*, a sort of grain, spelt.] Ground corn; meal; flour.

(*Chem.*) Starch; fecula.

(*Bot.*) The pollen, fine dust, or powder contained in the anthers of plants.

Farinaceous, (*far-i-na'shus,*) *a.* Consisting or made of farina, or meal and flour; as, *farinaceous* food.

—Yielding farina or flour.

—Mealy; like meal; pertaining to meal; as, a *farinaceous* smell.

Farinelli, (whose real name was CARLO BROSCHI,) a singer of great eminence in his day, was b. in Naples in 1705. He studied under Porpora, and went from Rome to Vienna, where the emperor Charles VI. loaded him with rich presents. In 1734 *F.* went to London, and by the magic of his singing so delighted the public, that Handel was obliged to dismiss a rival company over whom he presided, in spite of all his powers and popularity. Many extraordinary stories are related of *F.*'s vocal skill, and his command over the feelings and sympathies of his audience appears to have been unrivalled. D. 1782.

Farinose, *a.* [Lat. *farinosus.*] Yielding or forming farina; as, a *farinose* seed.

(*Bot.* and *Zoöl.*) Applied to parts covered with a white mealy substance.

Farley, in *Iowa*, a post-village of Dubuque co., about 23 m. W. of Dubuque.

Farley, in *Missouri*, a post-village of Platte co., about 7 m. E. by S. of Leavenworth.

Farlinville, in *Kansas*, a post-office of Linn co.

Farlow's Grove, in *Illinois*, a village of Mercer co., about 20 m. E.N.E. of Keithsburg.

Farm, *n.* [A. S. *farma*, *fearm*, or *feorm*, food, a meal; *gefeormian*, to supply with food. The word arose from the original practice of letting lands, on the condition that the tenant should supply his lord's household with so many nights' entertainments.] A portion of land under cultivation, taken on lease or rented; ground let to a tenant for tillage, pasture, &c., on condition of his paying a certain sum, annually or otherwise, for the use of it. — A tract of ground or landed estate devoted by its owner to agricultural purposes. — The state of lands let out for cultivation by tenants; as, to set out a landed property in *farm*. — A district or territory *farmed* out for the collection of certain revenues therefrom.

(*Agric.*) A portion of ground cultivated for the purpose of profit. Farms are of different kinds: where the principal part of the land is ploughed, they are "arable farms;" where the raising and fattening of cattle or other live-stock is more immediately the object, they are known as "grazing farms;" where the chief object is the obtaining of the different animal products, such as milk, butter, and cheese, they are called "dairy farms;" and where the two systems of arable and grass management can be combined, they are "convertible farms." As manure must be had in order to keep up the productiveness of farms of any kind, the last may probably be generally considered as the most advantageous. In the selection of a farm and of the locations for its buildings, care should be taken to avoid the inconvenience arising from climate and the quality or situation of the ground. Both pleasure and profit should be considered in the purchase of a *F.* The Romans laid it down as a rule that no degree of fertility should tempt a man to purchase in an unhealthy country, nor the pleasantest situations in a barren one. "Buy not too hastily," says Cato, "but view again and again the purchase you intend to make; for, if it be a good one, the oftener you see it the better it will please you. Examine how the neighboring inhabitants fare. Let the country it lies in be a good one; the ways to and from it good; and the air temperate. Let your land, if you can choose your situation, be at the foot of a hill, facing the south, in a healthy place where a sufficiency of water may be had. Let it be near a flourishing town, the sea, or a navigable river; or bordering upon a good and well frequented road. Let the buildings upon your ground be strong and substantial. Do not rashly condemn the method of others." After the lapse of 2,000 years these rules are still worthy of the careful attention of any one contemplating the purchase of a farm. The purity of the air, the purity and abundance of running water, and the character of the soil, should be carefully considered. The nature of the soil may be ascertained either by analysis, or by observation of the weeds and trees growing upon it. Attention should also be paid to the degree of its attraction for the insensible moisture of the atmosphere, to the kind of substratum on which it rests, and to its inclination as affording facilities for proper drainage, and yet not so much inclined as to render the soil liable to wash by the rains. — Whether it is more profitable in this country to lay out money in the purchase and improvement of exhausted *F.*, or in the clearing and improvement of new land, is a question which requires more mature consideration than has been generally given to it. Calculations embracing the several expenses required in the two operations would seem to show, that the intelligent farmer, versed in the various processes of producing manure and taking advantage of green fallow crops, will lay out his means most profitably in restoring worn-out lands to fertility; provided he does not commit the common error of endeavoring to improve more land than his resources will enable him to do justice by. — On the other hand, the man of more limited means, who cannot buy an old *F.*, or get one on a sufficiently long lease, may, by going W., purchase land at $1·25 per acre, or 200 acres for $250, which will be already in the highest state of fertility, but seriously encumbered with heavy timber or other natural drawbacks. This he clears and brings under cultivation little by little, working, perhaps, a certain portion of his time for others, in order to obtain subsistence previous to the coming in of his crops. Every acre cleared may cost him some 15 or 20 dollars, which, however, adds the same amount to the value of the *F.*, whilst every bushel of grain and every addition to his stock is so much gained. It may be several years before the pioneer will accumulate much property. Still, however, the prospect of an ultimate independence thus held out to the poor and industrious settler is a good one. — The average number of acres in a *F.* in the older States, that are not devoted to the cultivation of some special staple, is about 100. The farms in the newer States, and the plantations in the cotton and tobacco growing States, embrace from 200 to 600 acres — and often several thousand. The number of farms in the U. States may be tabulated as follows: 4,564,641 farms, including 623,218,619 acres, which gives an average of 136·5 acres for each farm.—See AGRICULTURE.

Farm, *v. a.* To let out, as lands, to tenants at a certain rent.

"We are enforc'd to *farm* her royal realm." — *Shaks.*

—To take on lease at a certain rent or rate of compensation.

—To lease or let, as taxes, imposts, or other duties, at a certain rate or sum per cent.

—To cultivate lands; as, to *farm* a hundred acres.

To farm let, to lease or let, as lands, at a specified rent.

—*v. n.* To operate on lands, as an agriculturist; as, he *farms* his ground on scientific principles.

Farm'able, *a.* That may be farmed; susceptible of agricultural improvement; as, *farmable* soil.

Farm'er, *n.* [A. S. *feormere.*] In England, one who farms; one who cultivates leased lands. — A husbandman; an agriculturist; one who works at tillage, &c. — One who takes taxes, customs, excise, and other sources of revenue, to collect for a certain rate per cent. — (*Mining.*) In Cornwall, Eng., the lord of the manor in which mines are worked.

—In the U. States, a person whose business or employment is the cultivation of land, the breeding, rearing, and feeding of different sorts of live-stock, and the management of the various products which are afforded by them. In this country, the *F.* is generally the owner of the farm he occupies; and depending on its products for his subsistence and fortune, has thus every inducement to thoroughness and intelligent care in its cultivation.

Farmer, in *Ohio*, a post-village and township of Defiance co., about 145 m. N.W. of Columbus; *pop.* of township, about 1,800.

Farm'eress, *n.* A woman who manages a farm. (R.) (In this sense the word *farmer* is generally applied to females equally with males.)

Farmer-general, *n.* [Fr. *fermier-general.*] (*French Hist.*) A title given in France to the members of a privileged association, who, before the revolution of 1789, farmed certain branches of the public revenue, that is, paid the government a certain fixed annual sum for the right of collecting certain of the taxes. Under Francis I., in 1546, the duties on salt were first raised by farming the monopoly of its sale in each town. In 1599, Sully introduced the system of disposing of the right of farming the taxes to the highest bidder, and in this way greatly increased the public revenue. In 1728, under the regency, several of the individual leases were united into a *ferme générale*, which was let to a company, the members of which were termed *fermiers généraux.* In 1789, the number of *F. G.* was 44, who paid into the treasury 180 millions of livres annually. They were possessed of extensive powers and privileges, conferred upon them by special decrees; and, from the manner in which they exercised their powers, they were viewed with great detestation by the people. Hence, during the Revolution, to which this in no small degree contributed, many of these odious tax gatherers perished on the scaffold, and an end was put to the system.

Farmer, in *Illinois*, a thriving township of Fulton co.

Farm'ers, in *Kentucky*, a post-village of Rowan co.

Farmers, in *Penna.*, a P. O. of York co.

Farm'ersburg, in *Indiana*, a post-village of Sullivan co., about 15 m. S. of Terre Haute.

Farmersburgh, in *Iowa*, a post-village and township of Clayton co., about 90 m. N. of Iowa city.

Farm'er's Creek, in *Iowa*, a township of Jackson county.

Farmers's Creek, in *Michigan*, a P. O. of Lapeer co.

Farmer's Exchange, in *Tennessee*, a post-office of Hickman co.

Farmer's Grove, in *Minnesota*, a village of Fillmore co., about 5 m. S. of Chatfield.

Farmer's Grove, in *Wisconsin*, a post-office of Greene county.

Farmer's Hall, in *Illinois*, a village of Knox co., about 50 m. W. N. W. of Peoria.

Farmer's Institute, in *Indiana*, a post-office of Tippecanoe co.

Farmer's Mills, in *New York*, a post-village of Putnam co., about 85 m. S. by E. of Albany.

Farmer's Retreat, in *Indiana*, a post-village of Dearborn co.

Farmer's Station, in *Ohio*, a post-office of Clinton county.

Farmer's Valley, in *Pennsylvania*, a post-office of McKean co.

Farmer's Valley, in *Tenn.*, a P. O. of Perry co.

Farmersville, a post-village of Ontario, in the co. of Leeds, about 15 m. W. of Brockville.

Farmersville, in *Georgia*, a village of Meriwether co., about 100 m. W. of Milledgeville.

Farmersville, in *Indiana*, a post-village of Posey co., about 20 m. W. of Evansville.

Farmersville, in *Iowa*, a village of Mahaska co.

Farmersville, in *Kentucky*, a village of Lincoln co.

Farmersville, in *Louisiana*, a post-village, cap. of Union parish, near the river d'Arbonne, about 290 m. N. N. W. of Baton Rouge.

Farmersville, in *Missouri*, a P. O. of Livingston co.

Farmersville, in *New York*, a post-village and township of Cattaraugus co., about 45 m. S. E. of Buffalo.

Farmersville, in *Ohio*, a village of Holmes co., about 10 m. S. E. of Millersburg.

—A post-village of Montgomery co., about 80 m. W. by S. of Columbus.

—A village of Ross co., about 10 m. S. of Chillicothe.

Farmersville, in *Pennsylvania*, a post-office of Lancaster county.

Farmersville, in *Texas*, a post-office of Collin co.

Farmersville, in *Wis.*, a former P. O. of Dodge co.

Farm'er Village, in *New York*, a post-village of Seneca co., about 6 m. S. E. of Ovid. Now FARMER.

Farmerville, in *Pennsylvania*, a village of Union co. Also called FARMERSVILLE and COWAN.

Farm'ery, *n.* In England, the buildings, out houses, and all appurtenances for farming.

Farm'house, *n.* The dwelling-house attached to a farm.

Farm'ing, *n.* (*Agric.*) The business or management of a farm, comprising the entire circumstances and control of it. Once regarded as a profession easy to be understood, and requiring but little preparation for its successful practice, it has come to be viewed in a different and a wiser manner. It is a business that requires constant care and attention, as well as much activity and judgment, to conduct it in a proper and advantageous manner. It requires an intimate and practical knowledge of all the arts of cultivation and management, as well as of the nature and value of every kind of live-stock; and, still further, a perfect acquaintance with the various modes of buying and selling, and the constant state of the different markets. It has been justly said that no pursuit requires more talent, perseverance, and careful observation, than the cultivation of the earth; that, so far from its being an empirical business, it is, in fact, one that several other sciences illustrate and assist; one, whose professors cannot too often examine the practice of other cultivators; and hence, since it has been found that the labors of the chemist, the botanist, the mechanist, and the geologist, are all available in the service of the farmer, it has followed, as a natural consequence, that the farmers of our age are rapidly becoming a more scientific, more educated, and far more enlightened class than those of any previous generation. In our own country, the cheapness of land and the fertility of the soil have too often induced a hasty and superficial culture, and a reckless expenditure of the resources of the soil. But this state of things is rapidly giving way to a more enlightened and scientific method of *F.*, which looks not only to the greatest immediate results, but also to the perpetual recuperation of the powers of the soil.

Farm'ingdale, in *Maine*, a township of Kennebec co.

Farmingdale, in *New Jersey*, a post-village of Monmouth co.

Farmingdale, in *New York*, a post-village of Queens co., about 31 m. E. of New York.

Farm'ington, in *California*, a P.O. of San Joaquin co.

Farmington, in *Connecticut*, a post-town and township of Hartford co., on the Farmington river, about 10 m. W. by S. of Hartford.

Farmington, in *Delaware*, a post-town of Kent co.

Farmington, in *Georgia*, a village of Clarke co., about 55 m. N. N. W. of Milledgeville.

Farm'ington, in *Illinois*, a post-village and township of Fulton co., about 24 m. W. of Peoria.



David Glasgow Farragut

1801–1870

Farm'ington, in *Indiana*, a village of Grant co., about 8 m. S. E. of Marion.
—A village of Hamilton co., about 26 m. N. by E. of Indianapolis.
Farm'ington, or NEW FARMINGTON, in *Indiana*, a village of Jackson co., about 20 m. S. of Columbus.
Farm'ington, in *Iowa*, a township of Cedar co.
—A post-village and township of Van Buren co., on Des Moines river, about 30 m. N.W. of Keokuk.
Farm'ington, in *Kansas*, a township of Republic co.
Farm'ington, in *Kentucky*, a post-village of Graves co., about 11 m. S. S. E. of Mayfield.
Farm'ington, in *Maine*, a post-village, township and the cap. of Franklin co., on Sandy river, 35 m. N.W. of Angusta. *Pop.* (1897) about 1,350.
Farm'ington, in *Maryland*, a post-village of Cecil co., about 45 m. N. E. of Baltimore.
Farm'ington, in *Michigan*, a post-village and township of Oakland co., about 20 m. N.W. of the city of Detroit.
Farm'ington, in *Minnesota*, a post-vill. of Dakota co.
—A township of Olmstead co.
Farm'ington, in *Mississippi*, a village of Tishemingo co., about 262 m. N. N. E. of Jackson.
Farm'ington, in *Missouri*, a post-village, cap. of St. Francois co., 85 m. S. of St. Louis, on Iron Mt. R.R. In a rich mining region. *Pop.* (1897) about 1,500.
Farm'ington, in *New Hampshire*, a post-town of Strafford co., about 25 m. E.N.E. of Concord. There is a large rock in this township, estimated to weigh from 60 to 80 tons, and so accurately poised by nature that the pressure of a hand will cause it to vibrate.
Farm'ington, in *New York*, a post-town of Ontario co., about 20 m. S. E. of Rochester.
Farm'ington, in *North Carolina*, a post-towuship of Davie co., about 120 m. W. of Raleigh.
Farm'ington, in *Ohio*, a village of Belmont co., about 7 m. W.N.W. of Wheeling, West Virginia.
—A post-township of Trumbull co.
Farm'ington, in *Oregon*, a post-village of Washington co., about 16 m. S.W. of Portland.
Farm'ington, in *Pennsylvania*, a village of Butler co., abt. 29 m. S. of Franklin.
—A township of Clarion co.
—A post-village of Fayette co., abt. 65 m. S.E. of Pittsburg.
—A township of Tioga co.
—A township of Warren co.
Farm'ington, in *Tennessee*, a post-village of Marshall co., abt. 50 m. S. of Nashville.
Farm'ington, in *Texas*, a post-office of Grayson co.
Farm'ington, in *Utah*, a post-village, cap. of Davis co., abt. 16 m. N. of Salt Lake City.
Farm'ington, in *Wisconsin*, a post-village and township of Jefferson co.
—A township of La Crosse co.
—A township of Polk co.
—A township of Washington co.
—A township of Waupacca co.
Farm'ington, in *W. Virginia*, a post-village of Marion co.; abt. 10 m. W. of Fairmont.
Farm'ington Cen'tre, in *Maine*. See FARMINGTON.
Farm'ington Cen'tre, in *Pennsylvania*, a post-office of Tioga co.
Farm'ington Cen'tre, in *Wisconsin*, a former post-office of Polk co.
Farm'ington Falls, in *Maine*, a post-village of Franklin co., on Sandy River, abt. 30 m. N.W. of Augusta.
Farm'ington Hill, in *Maine*, a village of Franklin co.
Farm'ington Hill, in *Pennsylvania*, a post-office of Tioga co.
Farm'ington River, in *Connecticut*, enters the Connecticut River from Hartford co.
Farm'land, in *Indiana*. See FARMVILLE.
—A post-vill. of Randolph co., abt. 17 m. W. of Union City.
Farm'-office, *n.* Any office or out-building used for farming purposes.
Far'most, *a.* Most distant or remote.
Farm Ridge, in *Illinois*, a post-village and township of La Salle county, about 8 miles S.S.W. of Ottawa.
Farm'stead, *n.* A homestead; a farm with all buildings, &c., inclusive.
Farms'ville, in *Illinois*, a former post-office of Woodford co.
Farm'ville, or FARMLAND, in *Indiana*, a post-village of Randolph co., about 8 m. W. of Winchester.
Farm'ville, in *Tennessee*, a post-office of Henderson co.
Farm'ville, in *Virginia*, a post-village, cap. of Prince Edward co., on the Appomattox river, about 68 m. W. S.W. of Richmond.

Farm'-yard, *n.* The inclosure surrounded by the out-buildings, &c., of a farm.
Farne Islands. See FERN ISLANDS.
Farne'se, the patronymic of an illustrious and princely Italian House, which arose about the middle of the 13th cent. Of its principal members were the following:

F., ALESSANDRO, Cardinal, raised to the tiara under the title of Pope Paul III., in 1534, who created his natural son, PIETRO, duke of Parma and Piacenza.

F., ALESSANDRO, great-grandson of the preceding, was B. 1546. He early entered upon the profession of arms, and distinguished himself at the battle of Lepanto (1571) under his uncle, the famous Don John of Austria, (*q. v.*) Philip II. afterwards appointed him governor of the Netherlands, where he waged war against the Prince of Orange. He was subsequently made commander-in-chief of the army sent to the assistance of the French Catholics, and compelled Henry IV. to raise the siege of Paris; but, being ill-supported by the League, he was eventually obliged to succumb to his great adversary, and died soon after at Arras, in 1592.—The line continued until 1731, when it became extinct in the person of ANTONIO *F.*, the last prince of his House. The *Farnese Palace* at Rome will be treated of under the head of ROME.

Far'ness, *n.* Distance; remoteness. (R.)

"*Farness* from timely succour by their friends."—*Carew.*

Farn'ham, a town of England, co. Surrey, 38 m. S.W. of London. Great quantities of hops are produced in the neighborhood. Farnham Castle has been for centuries the residence of the bishops of Winchester. *Pop.* about 7,500.
Farn'ham, in *New York*, a post-office of Erie co.
Farn'ham, in *Virginia*, a post-village of Richmond co., about 55 m. E.N.E. of Richmond.
Farnham Cross Roads, in *Virginia*, a post-office of Richmond co.
Farnham East, a village of Lower Canada, co. of Shefford, about 15 m. E. of St. John's.
Farnham West, a village of Lower Canada, co. of Shefford, 14 m. E. of St. John's.
Far'numsville, in *Massachusetts*, a post-village of Worcester co., about 60 m. W.S.W. of Boston.
Farn'worth, a town of England, co. Lancaster, 3 m. from Bolton. *Manuf.* Cottons, &c. *Pop.* 21,000.
Far'o, a sea-port city of Portugal, on the S. coast of prov. Algarve, on the Valfermosa, 45 m. E.S.E. of Lagos, and 20 m. W.S.W. of Tavira; Lat. 36° 59′ 24″ N., Lon. 12° 31′ 18″ E. *Exp.* Fruits, wine, cork, sumach, and anchovies. *Pop.* 9,000.
Faro, (Cape,) the N.E. point of the island of Sicily, serving to bound the narrowest part of the Strait of Messina; Lat. 38° 15′ 50″ N., Lon. 15° 40′ 40″ E.—*Faro Channel* is a name sometimes applied to the Strait of Messina.
Fa'ro, a village of Brazil, prov. of Para, about 40 m. W. of Obidos.
Fa'ro, (or PHARAOH,) *n.* (*Games.*) A game of chance at cards, said to derive its name from the figure of the Egyptian king Pharaoh, which was formerly upon one of the cards. It may be played by any number of persons, who sit at a table generally covered with a green cloth. The keeper of the table is called the *banker*. The player is called the *punter* (from It. *puntare*), who receives a *livret* or small book from which to choose his cards, upon which he may at his option set any number of stakes, which are limited in amount in accordance with the capital of the banker. The latter turns up the cards from a complete pack, one by one, laying them first to his right for the bank, and then to his left for the punter (or player), till all the cards are dealt out. The banker wins when the card equal in points to that on which the stake is set turns up at his right hand, but loses when it is dealt to the left. The player loses half his stake when his card comes out twice in the same stroke. The last card but one, the chance of which the banker claims, but which is now frequently given up, is called *lodly* (a certainty). The last card neither wins nor loses. Where a punter gains, he may either take his money or *paroli;* that is to say, double his chance by venturing both his stake and gains, which he intimates by bending a corner of his card upward. If he wins again, he may play *sept et le va*, which means that after having gained a paroli he tries to win sevenfold, bending his card a second time. Should he again be successful, he can *paroli* for *quinze et le va*, for *trente et le va*, and finally for *soixante et le va*, which is the highest chance in the game. *F.* was formerly much in vogue in France, England, and Europe generally, and still retains its popularity in various parts of the world.—A variety of this game is also much played by gamblers in the U. States. One hundred faro banks are said to exist in New York alone; there are also banks in almost all other American cities. The method of play in the U. States is as follows: The dealer, with a large array of cheques at his right hand, representing $1, $5, $20, and so on upward, takes his seat at the centre of a table with 13 cards, representing a complete pack, affixed to it at convenient distance to mark distinctly the bet placed on each. Persons who wish to play, exchange at pleasure money for such amount of cheques as they desire to risk, and place the amount they intend to stake on any particular card upon the table. The dealer then produces a pack of cards and shuffles them (the option of shuffling resting also with any of the players who call for it), has them cut, and then places them in a box, from which, one by one, he deliberately slides them. The banker loses when the card equal in points to that on which the stake is set turns up on his right, but wins when it is on the left. But it is in the power of the player, by placing a small copper on the amount he places on the card, to reverse the chance. This, which is called *coppering*, enables the player, in fact, to bet on whichever card he pleases. The dealer stops between each two cards, while new bets are being made, or cheques change from one card to another; and thus the game proceeds to the close of the pack, when a fresh deal is made, and the same process is gone through. The banker wins on "splits," which is supposed to be the only odds in its favor, but it possesses others in its superior amount of capital, and in the inclination of most players to stake heavier in the effort to recover back than to support good luck. In Germany, the cards are not dealt out from a box, but nailed to a fine board and torn off one by one by the dealer. Here, the dealer is generally assisted also by one or two croupiers, who attend to the playing and receiving, guarding against errors, and shuffling the pack.
Fa'ro-bank, *n.* A bank against which players stake their money at the game of faro.
Far'oe, or **Faro,** an island in the Baltic, belonging to Sweden: Lat. 57° 56′ N., Lon. 19° 32′ E. It is in length 10 m., with a mean breadth of 3, and has on its E. side a village of the same name.
Far'oe, FER'OE, FÆR'OE, or FAR'OER, **Islands,** a group of 22 islands belonging to Denmark, lying in the Northern Ocean, between Lat. 61° 15′ and 62° 21′ N., and Lon. 6° and 8° E.; about 185 m. N.W. of the Shetland Isles, and 320 S.E. of Iceland. The principal island, Stromoe, in the centre, is 27 m. long by about 7 broad: the chief of the others are Osteroe, Vaagoe, Bordoe, Sandoe, and Suderoe. *Total area*, 495 sq. m. Only 17 of the islands possess inhabitants. *Desc.* Each of these islands is a lofty mountain rising out of the waves, and divided from the others by deep and rapid currents. The highest point, Skoelling, in Stromoe, has an altitude of 2,240 feet. Some of the group are deeply indented with deep and secure harbors; all are steep, and most of them present, seawards, a succession of sheer precipices. *Soil*, thin, but tolerably fertile; barley is almost the only cereal grown. *Prod.* Hay in large quantities, salted mutton, tallow, feathers, eiderdown, &c. *Manuf.* Coarse woollen stuffs, and stockings. Vast quantities of seafowl haunt the rocks, the taking of which for the sake of their feathers affords a perilous employment to the inhabitants. *Cap.* Thorshavn, at the S.E. end of Stromoe. These islands are under the jurisdiction of a Danish governor, and have belonged to Denmark since the union of that kingdom with Norway, in the 14th cent.
Faro'ëlite, *n.* (*Min.*) A variety of THOMPSONITE, *q. v.*
Far'-off, *a.* That is to a distance.
Far'-piercing, *a.* Penetrating a great way.
Farquhar, (*far'kwar,*) GEORGE, a British dramatist, B. in Londonderry, Ireland, 1678, and educated at Trinity College, Dublin. He is the author of some of the finest of the old comedies, many of which still keep the stage as perennial favorites. Of these we may mention *Sir Harry Wildair*, *The Inconstant*, *The Recruiting Officer*, and *The Beaux Stratagem*. D. 1707.
Farrag'inous, *a.* Formed of various materials; diverse; compounded.
Farra'go, *n.* A medley; matter composed of various materials; a confused mixture.
Far'ragut, DAVID GLASGOW, a distinguished American admiral, was B. in Tennessee, on the 5th of July, 1801, was appointed, without previous training, a midshipman as early as 1810. Under Com. Porter he was engaged in the *Essex* in her cruise against the British in 1812–14, and, after her capture, he served on board the line-of-battle-ship *Independence*. Passing his examination with credit, he was ordered, as lieutenant, to the West India station, and was appointed, in 1847, to the command of the *Saratoga* (20 guns), in which ship he took part in the naval operations during the Mexican war. When the Civil War broke out, *F.* received the



Fig. 993.—ADMIRAL FARRAGUT.

command of the Gulf squadron which was to coöperate with Gen. Butler in the reduction of New Orleans, and engaged and passed the two strong forts of the Mississippi in April, 1862, which brought about the surrender of that city on the 28th of the same month. Natchez was taken in May, and *F.*'s fleet ascended as far as Vicksburg, which place he bombarded until the fall of water compelled him to return to New Orleans. In 1862 he was the first officer to receive the rank of admiral in the U. S. navy: and in March, 1863, he passed the batteries of Port Hudson, and was in a few days again before Vicksburg, coöperating with Gen. Grant in the reduction of that important stronghold. Having been ordered to attempt the capture of Mobile, he took the forts commanding the mouth of that harbor in Aug., 1864, with the loss, however, of one of his iron-clads, the *Tecumseh*, and its crew, by the explosion of a torpedo, and met with a repulse in an attack upon Wilmington, Dec. 24–25. The place was, however, taken, Jan. 15, 1865, and Mobile surrendered on the 12th of April following. The naval successes gained by the Nationals were in a great measure due to the energy and daring of this gallant officer. *F.* served in U. S. navy 60 years, about 12 of which only had he been unemployed on sea. In 1865, *F.*, in command of a U. S. squadron, visited many European ports, returning in 1868, after receiving the highest courtesies abroad. D. Aug. 14, 1870. Statues to his memory have been erected in various parts of the U. S. See *Life of*, by his Son, N. Y., 1879.

Far'raud, *n.* Manner; custom: fashion. (Local Eng.)

Far'rier, *n.* [Lat. *ferrarius*, a blacksmith.] One who shoes horses; one who professes to cure the diseases of horses and cattle; a veterinary surgeon.

Far'riery, *n.* The art of shoeing horses; but the term is also applied to the art of preventing, curing, or alleviating the disorders to which horses and cattle are subject. The latter portion of the farrier's art is now generally termed VETERINARY ART, *q. v.*

Far'row, *n.* [A. S. *fearh.*] A little pig; also used for a litter of pigs: as, a *farrow* of ten.

—*v. a.* and *n.* To bring forth young; — used exclusively of swine.

Far'row, *a.* [A. S. *fearr*; Ger. *farre*, a steer.] Barren of young within a stated period; not producing calves at an expected time; as, the cow has gone *farrow*.

Far'row's Mill, in *Kentucky*, a P. O. of Mason co.

Far'rowsville, in *Virginia*, a village of Fauquier co., abt. 130 m. W. by N. of Richmond.

Fars, or **Farsistan'.** (Anc. *Persis.*) A province of Persia, lying between Lat. 28° and 32° N., and Lon. between 50° and 55° E. It is bounded N. by Irak, E. by the prov. of Kerman, W. by Khuzistan, and S. by the Persian Gulf and Laristan; length N. to S. nearly 300 m.; breadth, 200 m.; *area*, perhaps abt. 55,000 sq. m. *Desc.* The southern portions of this prov. are hot and sandy; the northern full of mountains, on which are found a great number of wild hogs and wild cats. The centre is fertile, and generally well cultivated, producing rice, fruit, corn, dates, cotton, opium, tobacco, attar of roses, wine, and silk. Large herds of cattle are reared, and the horses, asses, and camels are of excellent breeds. *Min.* Iron, lead, marbles, emeralds, naphtha, salt, and borax. The inhabitants are, for the most part, among the most civilized and industrious in Persia; they manufacture fine woollen, silk, and cotton stuffs, camel skins, &c., for exportation, chiefly to India. *Chief towns.* Shiraz (the cap.), Bushire, Kazeroun. In this prov. are the ancient ruins of Persepolis. *F.* was the ancient patrimony and kingdom of Cyrus the Great, previous to his foundation of the Persian empire. *Pop.* abt. 2,000,000.

Far'-sighted, *a.* Capable of seeing or of observing objects at a great distance.

Far'-sightedness, *n.* The quality or capacity of seeing objects at a distance.

Far'-stretched, *p. a.* Extended beyond the ordinary limits.

Fart, *n.* [Sax. *feart.*] Emission of wind from the bowels through the anus.

—*v. a.* To break wind; to emit wind from behind.

Far'ther, *a.* [A. S. *feorth*; C. *feorther*, from *fur*, of which it is the proper comparative.] More remote; tending to a greater distance; longer.

—*v. a.* To promote, facilitate, or advance.

—*adv.* Beyond; moreover; by way of progression.

Far'thest, *a.* [Ger. *fürdest*, superlative of *für*.] Most distant; most remote.

—*adv.* At the greatest distance; most remote.

Far'thing, *n.* [A. S. *feorthung.*] (*Antiq.* and *Numis.*) The fourth part of a penny, or integer, anciently called *fourthing*. *F.* of gold was a coin used in ancient times, containing in value the fourth part of a *noble*, or twenty pence in silver, and in weight the sixth part of an ounce in gold. *F.* were coined in silver by Henry VIII., 1522; in copper by Charles II. *F.* among the Romans was a small piece of brass money. In the English version of the New Testament both *assarion* and *quadrans* are rendered *F.*, but they were not similar; for the former was the tenth part of a Roman *denarius*, or about *three farthings* (1½ cents), and the latter was equal to two *mites*, about a fifth of the farthing. "*Date obolum Belisario*" — "Give a farthing to Belisarius," is a phrase sometimes applied to fallen greatness, from the popular tradition that Belisarius had been reduced to beg in his old age.

Far'thingale, Far'dingale, *n.* [Fr. *vertugadin*; Port. *verdugada.*] (*Costume.*) A name given to the hoop of whalebone used formerly by the ladies of this and of European countries to spread out the petticoat to a wide circumference, (see Fig. 723.) It was introduced into England in the reign of Queen Elizabeth, and continued to be used on state occasions down to the commencement of the present century. The hoop or *crinoline*, *q. v.*, is a modernized form of the farthingale.

Far West, in *Missouri*, a post-village of Caldwell co., abt. 150 m. N.W. of Jefferson city.

F. A. S. [Lat. *paternitatis antiquariorum socius.*] A Fellow of the Society of Antiquaries.

Fas'cet, *n.* (*Glass-making.*) A rod thrust into the mouth of a bottle in the operation of glass-blowing, to convey the article to the annealing furnace. (Also called *punty rod*, or *puntie.*)

Fas'cia, *n.* [Lat. *fascia*; Sp. *faja.*] A band, sash, fillet, or stripe.

(*Anat.*) The fibrous expansion, sometimes called *aponeurosis*, which invests, as in a delicate sheath, the muscles.

(*Arch.*) See FACIA.

(*Astron.*) The belt of a planet. (o.)

Fas'cial, *a.* Belonging to the *fasces*, q. v.

Fas'ciate, *a.* (*Bot.*) Banded or compacted together; flattened, or rendered compressed.

Fas'ciated, *a.* Bound with fillets.

(*Bot.*) Fasciate.

Fas'ciation, *n.* The act of binding with a sash, fillet, or bandage; the manner of binding up.

Fas'cicle, *n.* [Lat. *fasciculus.*] A small collection; a small bundle.

(*Bot.*) A tuft or cyme where the flowers or the roots are very much tufted or crowded upon each other, as in the larch-tree or dahlia.

Fasces, (*face'es.*) *n. pl.* [Lat.] (*Rom. Antiq.*) The emblematical weapons used by the Romans, and borne by the *Lictors* before consuls, prætors, emperors, and magistrates both civil and military. The word in the singular signified a bundle of sticks, a fagot, or large bavin; the *F.* were a certain number of peeled rods, about three feet long, and all the same length, bound firmly, and in a peculiar manner, together round the long shaft of a battle-axe, so that the blade of the weapon protruded some short distance above the top of the fagot, while the lower end, with its ferule of spike, coming through the other end, afforded a handle for the *lictor* to grasp it by as he carried the cylindrical part on his shoulder. The *F.* were illustrative of the very ancient fable of the old man and the bundle of sticks, and being always borne before the magistracy of the city and empire, were typical of the unity and strength of the Roman constitution, and of the integrity and construction of the commonwealth, which, though made up of many parts, weak in themselves, was resistless while bound by unity and concord; the axe above was at the same time significant of the power both to defend and punish. The *F.* were not, however, by any means mere emblematical trophies, or, like the modern English mace and sword, only *insignia* of office, but were actual instruments of punishment: a switch drawn from the bundle was used by the lictor in administering flagellation on the back, thighs, and feet, according to the amount of punishment ordered by the tribune or magistrate before whom the offender was heard and adjudged; while in graver cases, treason or capital offences, the lictor became the headsman, and the axe of the fasces the instrument of decapitation. — See LICTOR.



Fig. 994. LICTOR WITH FASCES.

Fas'cicled, *a.* (*Bot.*) Tufted together; crowded on each other.

Fascic'ular, *a.* [L. Lat. *fascicularis.*] United in a bundle.

Fascic'ularly, *adv.* In the form of bundles.

Fascic'ulate, Fascic'ulated, *a.* (*Bot.*) Growing in a bundle from a common point, as the leaves of the larch (Fig. 995), the tubes of the dahlia, &c.



Fig. 995. AMERICAN LARCH.

Fascic'ulus, *n.*; *pl.* FASCICULI. [Lat., a little bundle.] A small bundle; a fascicle. — Any separate part of an unfinished book. — A nosegay; a bunch of flowers.

(*Bot.*) A fascicle.

Fas'cinate, *v. a.* [Fr. *fasciner*, from Lat. *fascinare*, allied to Gr. *baskainein.*] To bewitch; to enchant; to influence in some secret or wicked manner; to enrapture; to captivate; to charm.

"Love and envy *fascinate* and bewitch." *Bacon.*

Fas'cinated, *p. a.* Bewitched; enchanted; charmed; captivated.

Fas'cinating, *p. a.* Charming; enchanting; bewitching.

Fascina'tion, *n.* [Fr., from Lat. *fascinatio.*] The act of fascinating, or the state of being charmed, operated upon, or influenced by the look of certain individuals; generally taken in an evil sense. *Fascination* is the power supposed to be possessed by certain persons of working mischief to others by means of a glance of the eye. Among the Romans the god Fascinus was invoked as a protector against this influence. It was, and is perhaps to this day, a common belief among the vulgar in almost all countries; but probably it is nowhere more generally retained than in Turkey and Italy. In the former country, the Mussulmans deem it necessary to have recourse to a variety of amulets and charms, in order to preserve themselves from the evil eye of an enemy, or of an infidel. In Naples, the evil eye and its fascination (known to them by the name of *gettatura*) are subjects of dread and superstitious precaution among all classes of the people.

Fascine, (*fas-seen'.*) *n.* [Fr., from Lat. *fasces*, q. v.] (*Mil.*) A species of long fagot or bundle of brushwood, used for various purposes; such as forming the revetments of parapets in field-works, and making the roof of a blindage or magazine, which may be rendered bomb-proof by covering the *F.* with a sufficient depth of earth. They are also used for making roads over wet, boggy ground. The fascine is made of twigs, and sticks laid together longitudinally, and tightly bound with twisted willow- or hazel-rods, at intervals of 15 or 18 inches. They are usually made 18 or 20 feet in length, and about 9 inches in diameter. When they are used for the revetment of a parapet wall, they are secured by driving long stakes through them into the bank of earth against which they are placed. *F.* are also used in civil engineering for making dams, protecting the sides of dikes, and in forming foundations for any superstructure, as well as earthing for banks, and a bottom for newly made roads. They are shorter and much thicker than the military fascine, seldom exceeding 10 feet in length, but often being as much as 4 feet in diameter. They are placed side by side over the spot it is desired to cover, and pinned to the soil beneath with long stakes, the tops of which are connected by means of rods interlaced between them. When this has been done, earth and stones are thrown on the top of the *F.* Sometimes areas of considerable extent are covered in this manner; and when the surface on which they are to rest is under water, the *F.* are connected and floated over the spot, and then sunk into the desired position by stones and gravel placed on them; after which the necessary works may be constructed.

Fasciola'ria, *n.* [Lat. *fasciola*, a small bandage.] (*Zoöl.*) A genus of Molluscs, family *Muricidæ*, found in the Indian and American seas, some of which are very beautiful. Shell fusiform, and not very thick; spire of moderate length, conical, consisting of a few rounded or angulated whorls; aperture wide, terminating in a long, straight, open canal; columellar lip with several oblique folds; operculum horny, pyriform.

Fash, r. *a.* [Fr. *fâcher*, from Lat. *fastidiare.*] To vex, tease, or trouble.

—*n.* Vexation; trouble; care.

Fashion, (*fash'un.*) *n.* [Fr. *façon*, from Lat. *facia*, to make. See FACE.] The make, mould, style, or form of anything; the state of anything with regard to its external appearance; shape; model to be imitated; pattern: as, the *fashion* of a head-dress, the *fashion* of a house, &c.

"I do not like the *fashion* of your garments." — *Shaks.*

— Prevailing mode of dress or ornament; conventional observance of customs, manners, or etiquette; prescribed form of social usages; genteel life; good breeding; reigning mode or practice of style, dress, or manners: as, a man of *fashion*, crinoline is in *fashion*, a strange *fashion*, &c. (See DRESS.) — Sort, way, mode, or method of action, conduct, manner, custom, deportment, &c.; general practice of performing anything; as, he did it after his own *fashion.*

—r. *a.* [Fr. *façonner*, from Lat. *facio.*] To give form, shape, or figure to; to mould.

"Here the loud hammer *fashions* female toys." — *Gay.*

— To fit; to adapt; to contrive; to adjust; to accommodate; — preceded by *to.*

"This cardinal was *fashioned* to much honour from his cradle." *Shaks.*

— To make after the style, rule, or mode prescribed by custom; as, to *fashion* a coat.

Fash'ionable, *a.* Made according to prevalent form or mode; established by custom; modish. — Genteel; well-bred; out-ranking the vulgar.

—*n.* A person frequenting good society, and conversant with the usages thereof.

Fash'ionably, *adv.* According to custom or prevailing practice; modishly; genteelly.

Fash'ioner, *n.* He who gives shape or form to anything.

Fash'ionist, *n.* One who follows obsequiously the fashions or prevailing modes.

Fash'ion-mon'ger, *n.* One who follows the fashions; a dandy; a swell; a fop.

Fash'ion-piece, *n.* (*Naut.*) The plate which covers in the stern of a vessel, and forms its entire shape.

Fas'saite, *n.* (*Min.*) A grass-green variety of PYROXENE, *q. v.*

Fast, *a.* [A. S. *fæst*; Ger. *fest*, firm.] Firm; solid; unbroken; set or pressed close; tight; immovable; firmly fixed; deep; sound; adhering closely; profound.

—*adv.* Firmly; solidly; fixedly. — Swiftly; rapidly; quickly. — In a dissipated manner; extravagantly; prodigally; as, to live *fast.*

—*r. n.* [A. S. *fæstan*, to keep, to guard, to fast.] To abstain from eating and drinking; not to take the usual or requisite amount of food; to go hungry. — To mortify the body by abstinence, as a religious duty.

Fast, *n.* A total or partial abstinence from food. (See HUNGER.) — The time of fasting, or during which we fast. — The rope by which a vessel is fastened to a wharf.

(*Eccl.*) The word fast is more usually applied to a religious observance, — the abstinence from food for a time, in order to "afflict the soul," and to increase a devotional feeling in the mind. Religious fasting may be said to have been practised in all ages and countries where any devotional feeling prevailed, — among the ancient Egyptians and Assyrians, as well as among the Hindoos and Mohammedans of the present day. In the law of Moses we do not find much reference to fasting; and some are disposed to think that it was among those things which Moses allowed rather than originated, bore with rather than approved, as being an old and well-established practice. Of this, however, there does not seem to be sufficient evidence; and even though there were, we should not regard it as an argument against fasting, but that it arose from a fear that what ought to elevate and refine the inward feelings might degenerate into an empty outward ceremony. There is but one *F.* enjoined by Moses. On the 10th day of the 7th month, the great day of annual atonement, they were to "afflict their souls," a phrase which doubtless points to abstinence from food, as indeed is shown by the later practices among the Jews. Other general fasts were in course of time introduced, as commemorative of great national calamities. The prophet Zechariah enumerates four of these as being observed in his day, — the fast of the 4th month, of the 5th, of the 7th, and of the 10th. (*Zech.* viii. 19.) On particular and signal occasions, also, particular fasts were appointed, and private fasts were also common, especially among the later Jews. The abstinence usually lasted for 24 or 28 hours, beginning before sunset, and not ending till some time after sunset the following day. On these occasions they put on sackcloth, and sprinkled ashes upon their heads, in token of their grief and repentance. Partial fasts were also occasionally observed on particular occasions by certain

of them: as when Daniel tells us that he mourned for full three weeks, and "ate no pleasant bread, neither came flesh nor wine in my mouth, neither did I anoint myself at all till three whole weeks were fulfilled." (*Dan.* x. 3.) Though fasting is not positively enjoined by Christ or his apostles, we have evidence in the New Testament that it was practised by the latter: and St. Paul, in enumerating what he had done and endured in the cause of Christ, says, "in watchings often, in hunger and thirst, in *fastings* often." (2 *Cor.* xi. 27.) In the earliest times we do not find mention of any public and solemn fasts being observed, except upon the anniversary of Christ's crucifixion. But in process of time fasts were gradually introduced, first by custom, and afterwards by positive appointment. Towards the close of the 3d century fasting came to be held in much greater esteem, from a notion that it served as a security against the machinations of evil spirits, who were believed to direct their efforts principally against the luxurious. Fasting came also to be regarded as the most effectual means of appeasing the anger of an offended Deity: and hence it came to be looked upon as an indispensable duty, and express laws were enacted regarding it by the rulers of the Church. As it became more general, the severity of it was relaxed, and a mere abstinence from flesh and wine was judged sufficient. (See LENT.) The strict canonical fast allows only one meal in 24 hours. The distinction between the Protestant and the Roman Catholic view of fasting is, that the Catholic regards fasting as a means of grace, the Protestant only as a useful preparation for the means of grace. On the general subject of fasting, all must acknowledge that this restraint, even upon the innocent appetites of the body, is eminently beneficial in assisting the operations of the mind. It brings the animal part of our nature into greater subservience to the spiritual. It tends to prevent that heaviness and indolence of the faculties, as well as that perturbation of the passions, which often proceed from indulgence and repletion of the body. It is thus highly useful in promoting that calmness of mind and clearness of thought which are so very favorable to meditation and devotion. In the practice of fasting, then, the intelligent Christian will not rest in the outward act, but regard it only as a means to a good end.

Fast'-day, *n.* A day for fasting.

Fasten, *fas sn, v. a.* [A. S. *fæstan*; Ger. *festigen*, from *fest*, firm, stable.] To make fast: to fix firmly, closely, or immovably; to bind; to lock; to bolt; to bar; to cement or unite together; to stick; to link.

"To draw and *fasten* sundered parts in one." — *Donne.*

Fast'en, *v. n.* To seize and hold on: to fix: to take firm hold: to attach or fix one's self.

"He *fastened* on my neck, and bellowed out, as he'd burst heaven." — *Shaks.*

Fast'ener, *n.* One who sticks, fastens, or stamps.

Fast'ening, *n.* Any thing or person that binds or makes fast: as a lock, catch, bolt, or bar.

Fast'er, *n.* One who abstains from food.

Fas'ti, *n. pl.* [Lat., from *fastus*, fixed, *i. e.* fixed day.] (*Roman Antiq.*) Numa Pompilius (B. C. 715—B. C. 673) instituted the custom of marking monthly records of the feasts, games, &c., observed at Rome, on tables of stone. These, preserved by the priests, became the calendar by which the course of public business and of justice was regulated. C. Flavius copied these Fasti, B. C. 306, and exhibited them in the Forum: and they subsequently became a kind of abridged annals, recording the names of public magistrates and the most important political events. A series of marble tables of Fasti, relating chiefly to the holders of the consular dignity, was discovered buried in the Forum in 1547. Additional portions were dug up in 1817 and 1818.

Fastid'ious, *a.* [Fr. *fastidieux*; Lat. *fastidiosus* — *fastus*, arrogance.] Delicate to a fault; squeamish in fancy; difficult to please; dainty of choice; over-nice; suited with difficulty; as, a *fastidious* taste.

Fastid'iously, *adv.* Disdainfully; contemptuously; squeamishly.

Fastid'iousness, *n.* Squeamishness of mind, taste, or appetite; contemptuousness; disdainfulness.

Fastig'iate, or **Fastig'iated,** *a.* [Lat. *fastigiatus*, from *fastigium*, the top, summit.] Narrowing toward the top; roofed.

(*Bot.*) Upright and close; parallel; pointed, as the branches of the Lombardy poplar.

Fastig'ium, *n.* (*Arch.*) The apex, summit, roof, or ridge of a house or other edifice: the pediment or support.

Fast'ing, *n.* Act of abstaining from food.

Fast'ing-day, *n.* A day of religious mortification and humiliation.

Fast'ly, *adv.* Surely; firmly.

Fast'ness, *n.* [A. S. *fæstenes*, a walled town.] Firm adherence; strength; security; faithfulness.

—A fortified place; a fortress, fort, or castle.

Fast'nous, *a.* [Fr. *fastueux*; Lat. *fastuosus*, from *fastus*, pride.] Haughty; proud; disdainful.

Fat, *a.* [A. S. *fat*, *fæt*; Ger. *fett*.] Fleshy; plump; corpulent; coarse; gross; dull; heavy; stupid. — Producing a large income; fertile; productive; fruitful; nourishing; abounding in spiritual grace or comfort.

"The liberal soul shall be made *fat*." — Prov. xi. 25.

(*Typog.*) Easy to print; affording light work to the typesetter; as a page having many blank spaces is said to be *fat*.

Fat, *n.* The unctuous, concrete part of animal flesh; solid animal oil: the best and richest part of anything.

(*Typog.*) Work containing much blank space.

(*Chem.*) Fats are very important compounds, and so nearly connected with the fixed oils, that the properties of both will be considered under one head. Together, they form a well-defined natural group of organic compounds, occurring abundantly in both the animal and vegetable kingdoms. They vary in consistence from thin oil, as olive-oil, to hard fat, as suet. When pure, they are neutral, and leave a greasy spot on paper, which does not disappear when moderately heated. Although, in common language, we speak of coal oils and essential oils, neither of these must be confounded, chemically, with the true fixed oils. The vegetable fats and oils are found in various parts of the plants, but most abundantly in the seeds. The seeds of the Cruciferæ especially yield a large quantity of oil: rape-seed, for instance, containing from 30 to 40 per cent. In warm-blooded animals, fat is found distributed through most parts of the body, while in fish and cold-blooded animals generally, its place is taken by oils. Fats and oils are extracted from animal and vegetable matter by simple pressure or by boiling. They are all lighter than water, their specific gravity varying from 0·91 to 0·94. They are all soluble in ether, benzole, and turpentine, and may be mixed with each other in any proportion. They are insoluble in water, and only to a certain extent in alcohol. They may be heated to 500° without undergoing any change; but on distilling them, they evolve acrid products, and are resolved, at a red heat, into inflammable gases and vapors of high illuminating power. Hence the term *fixed oils*. They consist of a mixture of at least three proximate principles in different proportions, two of which, *stearin* and *palmatin*, are solid at ordinary temperatures, and the third, *olein*, which is liquid. The proportions in which olein is present constitute the real difference between a fat and an oil. Some of these oils are little affected by exposure to the air, but generally become rancid: others absorb oxygen, and form a resinous varnish, and are known as *drying oils*. When their surface is much extended, as in greasy rags and cotton waste, this change is sometimes attended by spontaneous combustion, (see OILS.) When hydrated alkalies are added to fats or oils, a process takes place, termed *saponification*, or the formation of soaps, (*q. v.*) The principal oils used in daily life are *olive-oil*, the uses of which are well known: *almond oil*, from the kernel of the common almond; *colza oil*, used for illuminating purposes, obtained from the *Brassica oleifera*; *linseed oil*, *sperm*, *whale*, and *cod-liver oil*. The solid fats are *cocoa-nut oil*, which is nearly solid at ordinary temperatures, *palm-oil*, *butter*, *lard*, *tallow*, and *suet*.

(*Physiol.*) This formation, so necessary to the healthy organism of the body, is generated in the system by the conversion of fibrin and albumen into adipose tissue. Though fluid in the living, it becomes solid in the dead body. The use of fat is of the utmost importance to the health, as being one of the chief agents in the generation of heat. It is on account of this important use that all hibernating animals become fat during their season of activity, and so emaciated when rousing from their period of repose, or hibernation; the adipose tissue having become absorbed during their sleep to keep up the combustion by which animal heat is generated. Besides supplying fuel to this vital chemistry of the blood, fat performs many other services in the animal economy; it is deposited between the crevices of the muscles, and is equally diffused over the surface of the body, between the flesh and the cuticle, giving that exquisite roundness to the frame which imparts such symmetry and beauty to the looks of all young persons, and to the absorption of which in advanced life we owe those hollows, cavities, and wrinkles, so antagonistic to beauty. The accumulation of fat in certain parts of the body, in considerable quantities, is another provision of nature to form resistant cushions to such parts, which, if unprotected by this contrivance, would be exposed to injury, or great inconvenience. Without the depth of adipose tissue deposited over the posterior muscles of the thighs and hips, and over the soles of the feet, we should neither be able to sit for more than a few minutes without pain, if not danger, nor could we walk for any distance without suffering, — these fatty pads acting as shields to the muscles and network of nerves and arteries, supplying them with life and sensation. Fat also lubricates the joints and tendons of the body, and, in the same manner as the grease applied to the axles of locomotives and vehicles, allows the bones to play in their sockets, and the muscles to glide over each other without waste, danger, or friction. And, lastly, fat adds to the specific lightness of the body, gives an elasticity to the frame, and assists in keeping the body from sinking when immersed in the water. Thus it becomes evident that a certain amount of fat is actually necessary to the well-being of the body, and where such articles of diet as in the laboratory of the system are converted into fat, as starch, sugar, or gum, are not taken in sufficient quantities, the want should be compensated for by the person consuming a due proportion of oleaginous matter with his animal food. In some constitutions, the power of eliminating fat from any kind of aliment amounts to what may be called a *diseased action*, for the adipose tissue is generated in such abundance, that the body often becomes, even in youth, overlaid with fat, producing that state of corpulence called *obesity*, rendering the body sluggish and unwieldy, and materially interfering with the healthy function of the oppressed organs. Sometimes this deposition of fatty matter is internal only, and goes on without displaying any outward sign of excess, slowly accumulating round some organ; and when that is the case, it is generally at the sacrifice of its structure, the organ, as a consequence, becoming seriously endangered. The amount of fat necessary to health varies with the climate, — the lower the temperature in which a man lives, the larger the amount of oleaginous food required, from the simple fact that the colder the air the more fuel will be required for the combustion in the lungs: thus, at the N. Pole, the quantity of unctuous matter consumed can hardly be too great, while at the tropics it sinks to a minimum proportion. It is upon the principle that oleaginous substances insure a full and perfect oxidation of the blood, and a free respiration, that milk, and suet, and cod-liver oil are recommended as highly beneficial in consumption and affections of the air-passages. For the diseases generated by excess of fat, see OBESITY.

Fat, *v. a.* To make plump or fleshy with abundant food.

"We *fat* all creatures also to *fat* us." — *Shaks.*

—*v. n.* To become fleshy or plump: to grow fat.

Fa'tal, *a.* [Fr., from Lat. *fatalis*, from *fari*, to speak, to tell.] Necessary: inevitable: appointed by fate or destiny.

—Deadly: mortal: destructive: calamitous: said of a weapon, act, time, event, or purpose.

Fa'talism, *n.* The belief in an overruling fate or destiny which annihilates free-will and controls all human actions. For the philosophical doctrine of *F.*, see NECESSITY; for those religious opinions which have assumed a similar character, see PREDESTINATION.

Fa'talist, *n.* One who maintains the doctrine of fatalism.

Fatalis'tic, *a.* Pertaining to fatalism.

Fatal'ity, *n.* [Fr. *fatalité*; Lat. *fatum.*] Proceeding from fate or destiny: by inevitable necessity; independent of free and rational control.

—Tending to destruction, danger, or death: mortality.

Fa'tally, *adv.* By decree of fate or destiny: by invincible necessity or determination.

Fa'talness, *n.* Invincible necessity.

—Mortally: destructively; ending in death or ruin.

Fa'ta Morga'na, *n.* [It.: called also *Castles of the Fairy Morgana*, the spectacle being supposed to be under the influence of the queen of the fairies, *La Fée Morgan* of popular legends.] A remarkable phenomenon of *mirage* or atmospheric reflection mentioned by different authors and travellers as seen in the straits of Messina, especially in the vicinity of Reggio. It exhibits in the air, over the surface of the sea, multiplied images of the objects on the surrounding coasts.

Fatchio', an island belonging to the empire of Japan, lying in the Strait of Corea, N. Pacific Ocean, in Lat. 34° 20′ N., Lon. 129° 30′ E. This island receives deported Japanese state criminals.

Fate, *n.* [It. and Span. *fato*; Lat. *fatum*, from *fari*, to foretell or declare.] An oracle or prediction: destiny; inevitable necessity; dependence upon a superior and uncontrolled cause: event predetermined.—See DESTINY, FREE-WILL, NECESSITY, PREDESTINATION.

—Destruction: doom: death: final lot.

"Yet still he chose the longest way to *fate*,
Wasting at once his life and his estate."—*Dryden.*

Fat'ed, *a.* Decreed; doomed; destined; modelled or regulated by fate.

Fate'ful, *a.* Bearing deadly power: producing fatal or destructive results.

Fate'fulness, *n.* State of being fatefnl; fatality.

Fates, *n. pl.* (*Myth.*) The Destinies; the PARCÆ, *q. v.*

Fa'ther, *n.* [A. S. *fader*; Ger. *vater*; Lat. *pater*; Gr. *pater*; Pers. *padar.*] He by whom a child is begotten; the next or nearest male ancestor; male parent. — The progenitor of a race or family; the first ancestor; as, "David slept with his *fathers*." (1 *Kings* ii. 10.) — A term of respect applied to aged, reverend, or venerable men, especially to ecclesiastics of the Roman Catholic Church.

—(*pl.*) An appellation applied to the ecclesiastical writers of the 1st century. — The Supreme Being; the first person of the Trinity. — He who gives origin, produces, or contrives; the first of a series; a distinguished writer, example, or teacher.

"Tubal Cain was the *father* of all those who work in iron."
Genesis iv. 10.

Fa'ther, *v. a.* To adopt: to take the child of another as one's own; to adopt anything as one's own: to profess to be the author: to charge to one as his offspring or production; as, to *father* a child on a man.

"Men of wit
Often *fathered* what he writ."—*Swift.*

Fa'therhood, *n.* The state of paternity: the character or authority of a father.

Fa'ther-in-law, *n.* The father of one's husband or wife.

Father-John, *n.* (*Zoöl.*) See ABOU-HANNES.

Father-lasher, *n.* (*Zoöl.*) See COTTUS.

Fa'therland, *n.* The native country of one's ancestors. In the United States it is popularly, if not exclusively, applied to Germany. — England being called the *mother-country*.

Fa'therless, *a.* Destitute of a living father: not having a known author; as, a widow and her *fatherless* children, a *fatherless* work.

Fa'therlessness, *n.* The condition of being without a father.

Fa'therliness, *n.* Parental kindness, care, or tenderness.

Fa'ther-long'legs, *n.* (*Entom.*) The crane-fly. See TIPULA.

Fa'therly, *a.* Paternal: tender: protecting; careful; similar to a father in care and protection.

Fa'therly, *adv.* After the manner of a parent.

"To whom thus Adam, *fatherly* displeased."—*Milton.*

Fa'thership, *n.* State of paternity.

Fathers, (The.) (*Eccl. Hist.*) A name applied to the early writers of the Christian Church — those writers who have given us accounts of the traditions, practices, &c., that prevailed in the early Church. The term is mostly confined to those who lived during the first six

centuries of the Christian æra, and no writer is dignified with the title of *father* who wrote later than the 12th century. They are frequently divided into the *Greek* and *Latin F.*; and those who flourished before the Council of Nice, in 325, are called the *ante-Nicene F.* The chief *F.* of the first six centuries were as follows: In the 1st century flourished Clement, bishop of Rome, and Ignatius, bishop of Antioch; in the 2d century we have Polycarp, bishop of Smyrna, Justin Martyr, Hermias, Dionysius of Corinth, Hegesippus, Tatian, Athenagoras, Theophilus, bishop of Antioch, Irenæus, bishop of Lyons, Clement of Alexandria, and Tertullian; in the 3d century, Minucius Felix, Hippolytus, Origen, Cyprian, Dionysius, bishop of Alexandria, Gregory (Thaumaturgus); in the 4th century, Arnobius, Lactantius, Eusebius, Julius Firmicus, Maternus, Hilary, bishop of Poitiers, Athanasius, Basil, Ephraim the Syriau, Cyril of Jerusalem, Gregory of Nazianzen, Gregory of Nyssa, Ambrose, archbishop of Milan, Epiphanus, bishop of Salamis, Chrysostom, bishop of Constantinople, Ruffin, presbyter of Aquileia; in the 5th century, Jerome, Theodorus, bishop of Mopsuestia, Augustine, Cyril of Alexandria, Vincent of Lerins, Isidore of Pelusium, Theodoret, bishop of Cyrus in Syria, Leo I., surnamed the Great, Virgilius, bishop of Thapsus; in the 6th century, Procopius of Gaza, Aretas, Gregory, bishop of Tours, and Gregory I., surnamed the Great, bishop of Rome. The last of the *F.* is Bernard of Clairvaux, who died about the middle of the 12th century. Learned men and theologians differ very much in opinion as to the value that is to be attached to the writings of the *F.* By some they are looked upon as nearly of equal authority with the Sacred Scriptures themselves, and as the most excellent guides in the paths of piety and virtue. Others regard them as unworthy of the least attention, considering them the very worst of all instructors, and treating their precepts and decisions as perfectly insipid, and in many respects pernicious. The right we believe lies between these two extremes; and while the Roman Catholics exalt too highly the opinions of the *F.*, yet by Protestants generally they are too much disregarded. Their writings contain many sublime sentiments, judicious thoughts, and things naturally adapted to form a religious temper, and to excite pious and virtuous affections: at the same time, it must be confessed that, on the other hand, they abound still more with precepts of an excessive and unreasonable austerity, with Stoical and Academical dictates, with vague and indeterminate notions, and what is still worse, with decisions absolutely false and in manifest opposition to the character and commands of Christ. Of the character and doctrines of the primitive Church they are competent witnesses, and, living within a comparatively short period of the apostles, there are many things which they relate regarding apostolic times, which had come down to them by tradition, and which are therefore not to be altogether rejected. In many cases, therefore, they are to be deemed as competent witnesses of facts; but we must not confide in their decisions as judges. They had to contend with numerous adversaries, and in the heat of controversy they not only fell into various mistakes, but made use of very unsatisfactory methods of reasoning, betraying imbecility of judgment, or inattention to the principles and rules of logic. Their works, instead of being distinguished by correctness and strength of argument, furnish innumerable examples of feeble reasoning, of interpretations of Scripture irreconcilable with good sense, and of a careless admission of spurious writings as genuine authority.

Fath'om, *n.* [A.S. *fædhem;* Icel. *fadner.* Compare Ger. *faden*, a thread, and *fahen*, to measure.] A measure of length equal to 2 yards or 6 feet, and founded on the distance between the finger-points when the arms and hands are extended horizontally. It is the unit of length in all matters of nautical surveying.

Fath'om, *v. a.* To reach; to master; to comprehend; to penetrate; to get to the bottom, or extent of; to measure by a sounding-line.

Fath'omable, *a.* That may be measured or fathomed.

Fath'omer, *n.* One who measures or fathoms.

Fath'omless, *a.* Bottomless; incomprehensible; incapable of being sounded. — Not to be grasped with the arms; as, "a waist most *fathomless.*" (*Shaks.*)

Fatid'ical, *a.* [Fr. *fatidique;* Lat. *fatidicus*, from *fatum*, fate, and *dicere*, to tell.] Prophetic; able to announce future events.

Fatid'ically, *adv.* In a prophetic manner.

Fatif'erous, *a.* [Lat. *fatum*, fate, and *ferre*, to bring.] Deadly; destructive; mortal.

Fatigue, (*fa-teeg'*) *n.* [Lat. *fatigatio*, from *fatigare*, which is compounded of the obs. *fatim*, quasi, *satis*, enough, and *agere*, to drive.] Weariness with bodily labor or mental exertion; lassitude. — The cause of weariness; labor; toil.

(*Mil.*) Extra duty; the labor of soldiers distinct from the use of arms; as, a *fatigue*-party or dress.

—*v. a.* To employ to weariness; to weary; to tire; to jade; to exhaust the strength by severe or long-continued mental or bodily exertion; to harass; to importune.

Fatigued', *p. a.* Weary; tired; jaded; harassed.

Fatigue'some, *a.* Wearisome.

Fatil'oquist, *n.* [Lat. *fatum*, fate, and *loqui*, to speak.] One who tells fortunes.

Fat'imite, *n.* A descendant of Fatima, daughter of Mohammed.

Fat'imites, *n. pl.* (*Hist.*) The name of an Arabian dynasty which was founded by Mohadi-Obaidallah, who flourished from 910 to 936 A. D., and asserted that he descended from Fatima, the daughter of the Prophet, and Ismael, a grandson of Ali. They reigned over Egypt and the N. of Africa till 1171.

Fat'iscence, *n.* [Lat. *faticere*, to gape.] The state of being chinky; having apertures; a gaping or opening.

Fat'ling, *n.* A young animal, as a lamb, kid, &c., fattened for slaughter; a fat animal.

Fat'lute, *n.* Linseed-oil and pipe-clay mixed together for the purpose of filling crevices, joints, or apertures.

Fat'ly, *adv.* Greasily; grossly.

Fat'ner, *n.* He who, or that which, gives fatness or fertility.

Fat'ness, *n.* The quality or state of being plump, full-fed, or corpulent. — Richness; fertility; fruitfulness; that which gives fertility. — Unctuousness; oiliness; greasiness.

Fat'ten, *v. a.* [A.S. *fattian*, to make fat.] To make fleshy or plump with fat; to feed for slaughter. — To make fertile; to render fruitful; as, fields *fattened* with blood.

—*v. n.* To grow corpulent, thick, plump or fleshy; to be pampered.

Fat'tener, *n.* He who, or that which, fattens; a fatner.

Fat'tening, *n.* The state of becoming fat; the process of becoming plump or corpulent.

F. domestic animals. The object of fattening is to accumulate flesh and fat for sale. The means used by all fatteners of domestic animals, whether quadrupeds or poultry, are: preventing the animals from taking exercise, and tempting them to eat by the variety and quality of their food. The best system is called *box-feeding*, by which a dry and warm lair is provided along with opportunity for a minimum of exercise.

Fat'tiness, *n.* Greasiness; unctuousness; grossness.

Fat'tish, *a.* Inclined to corpulency.

Fat'ty, *a.* Greasy; oleaginous; unctuous; as, the *fatty* tissue.

(*Anat.*) The cellular membrane has been called *fatty* or *adipose*, from an opinion that in its areolæ the fat is deposited. The areolar membrane, however, merely lodges between its lamellæ and filaments, the vesicles in which the fat is contained.

Fatty vesicles are small bursæ which enclose the fat.

Fatty Acids, *n. pl.* (*Chem.*) When a fat or oil is saponified by an alkali, a peculiar change takes place, the *stearinolein*, and *palmitin* or *margarin* of which it is composed, and which are the *stearate*, *oleate*, and *palmitate* or margarate of glycerine respectively, leave the glycerine and unite with the alkali to form *stearate*, *oleate*, and *palmitate* or margarate of potash or soda, as the case may be. On decomposing either of these compounds with a strong mineral acid, the alkali unites with it, setting the fatty acid free. To try this, dissolve some tallow or oil in a solution of potash or soda, and precipitate the fatty acids by means of oil of vitriol. The *F. A.* fall into two groups, — the *stearic* series, and the *oleic* series. The principal members of the *stearic* series are the *melissic* and *cerotic* found in beeswax, the *stearic* in most animal fats; the *palmitic*, in palm-oil; the *lauric*, in cocoa-nut-oil; and the *butyric*, in butter. Those of the *oleic* series are the *crucic*, found in mustard-seed and rape-seed; the *oleic*, in all non-drying oils; the *physetoleic*, in sperm-oil, and some others. These acids are insoluble in water, but soluble in alcohol and in ether, and are less fusible than the original fats. They are also soluble in benzole and oil of turpentine, and when free from volatile products are insipid and odorless.

Fatu'itous, *a.* Weak in mind; foolish; stupid; imbecile.

Fatu'ity, *n.* [Lat. *fatuitas*, from *fatuus*, foolish.] Foolishness or weakness of mind. In fatuous persons, the mental powers they once possessed have been impaired or extinguished; while in the case of the imbecile or idiot, the mental powers have been deficient from birth. In *F.*, the impoverishment of mind is sometimes so extreme, and the sufferer is so little influenced by consciousness as to lose a knowledge of his own existence; and so little by impressions through the external senses, and by the instincts of the sensory ganglia, as to be equally ignorant of the existence of others. Life is vegetative merely. This deprivation may be partial or complete. It may appear as a weakening of sensibility. This is not the tolerance of powerful or painful impressions, or indifference to such, springing from abstraction or engrossment of the attention, but positive extinction of perception; or it may present the more common form of enfeeblement of intelligence, of memory, of the will, where the patient is apathetic, passive, plastic. It is frequently the disease of youth, of the period of puberty, contemporaneous with growth, with debilitating and exhaustive processes, and depending, in all probability, as in the other forms, upon insufficient nutrition of the brain. At this age, the injury is reparable; and what may be designated *juvenile dementia* has the rare distinction of being curable. More frequently, it is the sequel of mania, melancholia, and severe affections of the nervous system. The deterioration here arises from actual changes in the nervous structure, which render healthy nutrition impossible; so that, although mitigation, and sometimes to a marvellous extent, is within reach of treatment, recovery is believed to be impracticable. Again, it is an affection of old age; and although senile dementia may seem but an exaggerated state of dotage, it is accompanied by such marked physical changes as to leave no doubt that it originates in circumstances differing widely from that gradual degeneration of the tissues which is evidenced by the "second childishness and mere oblivion." Lastly, this state may follow fever, when it is transitory, and generally of brief duration. Fatuity is one of the few morbid mental conditions recognized in our legal code, even by name, as relieving from the consequences of criminal acts, and as disqualifying for the administration and disposal of property.

Fat'uous, *a.* [Lat. *fatuus*, from *fari*, to speak; allied to Heb. *patha* and *chale*, *pothah*, to open, to allow one's self to be deceived.] Babbling; garrulous; open-mouthed; foolish; silly; weak-minded.

—Illusory; deceptive; without reality.

Fat'-witted, *a.* Dull; heavy; stupid.

Faubourg, (*fō'boorg,*) *n.* [Fr. *faubourg*, from *faux*, false, and *bourg*, a market-town; Lat. *burgus.*] A district now within, but which was formerly without the walls of a city; a suburb of a city.

Fau'cal, *a.* [Lat. *faucalis*, from *fauces*, the throat, or opening of the throat.] Guttural; produced in the throat; said of certain sounds produced in the fauces, or opening of the throat.

Fau'ces, *n. pl.* [Lat., from obs. *faux* — plu. *fauces*, probably from the obs. Gr. *pharein*, to cleave.] (*Anat.*) The upper part of the throat, from the root of the tongue to the entrance of the gullet; the posterior part of the mouth terminated by the pharynx and larynx.

(*Bot.*) The gaping part or orifice of a monopetalous flower.

(*Conch.*) The opening into the first chamber of a shell.

Fau'cet, *n.* [Fr. *fausset*, or *faucet*, a spigot; from Lat. *fauces*, the throat.] The pipe inserted in a keg or barrel, to give vent to its contents: a spigot, top, or slide.

Fau'fel, *n.* [Hind. *fawfal* or *fufal*, the betel-nut.] The fruit of a species of palm-tree.

Faugh, (*faw,*) *interj.* An expression of contempt or abhorrence.

Fau'jasite, *n.* (*Min.*) A hydrous silicate of alumina, lime, and soda, found in octohedral crystals at Kaiserstuhl, Baden. Lustre vitreous; color white, brown externally. *Hard.* 5; *sp. gr.* 1·923. *Comp.* Silica 45·5, alumina 17·4, lime 4·7, soda 5·2, water 27·2.

Faulhorn, (*fole'horn,*) a mountain of the Bernese Alps, in the Oberland, 30 m. from Berne, lying between the valley of the Grindelwald and the lake Brienz, and attaining an elevation of 8,800 ft. above sea-level. On its summit is a place of entertainment for visitors.

Fault, *n.* [Fr. *faute;* O. Fr. *faulte*, from *failler;* Lat. *fallere*, to deceive; allied to *fail.*] Offence; slight crime; mistake, error, or blunder; something liable to censure or objection; any deviation from propriety.

—Defect; want; absence; puzzle; difficulty; as, to be *at fault*; — said of a person who knows not how to proceed, or of a dog that has lost the scent in hunting.

(*Geol.*) A fracture of strata accompanied by displacement. See UPLIFT.

—*v. a.* To cause a displacement in; — said of veins or strata.

Fault'finder, *n.* One who objects; a detractor; a censurer.

Fault'ful, *a.* Full of blemishes, defects, or errors.

Fault'ily, *adv.* Defectively; erroneously; improperly; wrongly; imperfectly.

Fault'iness, *n.* Badness; viciousness; evil disposition. — Deficiency; delinquency; actual offences; as, the *faultiness* of a person.

Faul'ting, *n.* (*Geol.*) State or condition of being faulted.

Fault'less, *a.* Not deficient; lacking in no respect; perfect; completely excellent; free from blemish.

Fault'lessly, *adv.* In a manner free from defect or blemish.

Fault'lessness, *n.* Freedom from blemishes or defects.

Fault'y, *a.* Blamable; criminal; not innocent; worthy of censure; wrong; erroneous; imperfect; bad.

Faun, (*fawn,*) *n.* (*Myth.*) The name of a class of deities supposed to inhabit the groves and forests. The fauns are nearly identical with the panes of Greek mythology. They are supposed to be the descendants of Faunus, one of the kings of Latium, who was worshipped as the god of fields and of shepherds. He is thus identified with the Greek Pan, and the Egyptian deity Mendes. The festival of the Faunatia was celebrated by the country-people of Rome on the 5th of Dec., and referred to the protection Faunus exercised over the fields and cattle. Sacrifices were also burnt to him during the ides of February. The poets describe the fauns as having horns, and bodies resembling those of goats below the waist, but gayer, and not so hideous in appearance as the satyrs.

Fauna, (*fawn'a,*) *n.* (*Nat. Hist.*) A term comprehending all the members of the animal kingdom living in a particular district or at a particular time. Thus the Mexican *F.* includes all the animals naturally living in Mexico. Those inhabiting the land form the *terrestrial F.*, and those inhabiting the seas, the *marine F.* The extinct species constitute the *fossil F.*, and the living species the *recent F.* The term bears the same relation to the animal kingdom that *Flora* does to the vegetable. Its derivation is from the mythological fauns, regarded as the patrons of wild animals. In the fauna of any country are included only those animals which are indigenous to it, and not those which have been introduced.

Fau'nich, (Loch,) a lake of Scotland, in Rosshire, having a length of 12 m., by a breadth of 1 m.

Fau'nist, *n.* A naturalist.

Fau'nus, *n.; pl.* FAUNI. See FAUN.

Fau'quier, in *Virginia*, a N.E. co.; *area*, about 680 sq. m. · *Rivers.* Rappahannock and North rivers, and Goose Creek. *Surface*, hilly, the Blue Ridge extending along its N.W. border; *soil*, very fertile. *Min.* Gold, magnesia, and soapstone. *Cap.* Warrenton. *Pop.* 22,590.

Fauquier (White Sulphur) Springs, in *Virginia*, a post-village of Fauquier co., on the Rappahannock river, about 57 m. W. S. W. of Washington.

Fau'sen, *n.* [W. *llyswen.*] A species of great eel.

Fau'serite, *n.* (*Min.*) A sulphate of manganese and magnesia, found in orthorhombic crystals, at Herrengrund, Hungary. Lustre, vitreous; color, reddish and

yellowish-white to colorless; translucent to transparent. *Hard.* 2–2½. *Sp. gr.* 1·888. *Comp.* Sulph. acid 34·7, protox. manganese 20·5, magnesia 5·8, water 39.

Fausse-braye, (*fōse-brāi,*) *n.* [Fr.; Ital. *fossa-brea.*] (*Mil.*) A low rampart and parapet which was sometimes raised in the ditch surrounding the defensive works of the 15th, 16th, and 17th centuries. It seems to have been an addition to the main rampart that was more beneficial to the attacking party than to the defenders, as no effectual fire could be directed from thence until the enemy appeared on the crest of the glacis, and it would afford considerable assistance to an attacking force in scaling the walls of a fortress after effecting a lodgment in the ditch. It is mostly discarded by modern engineers, but sometimes used in front of curtains, under the name of *Tenailles,* q. v.

Fausse Rivière, (*foss-re-vē-air',*) in *Louisiana,* a post-village of Point Coupée parish.

Faust, or **Fust,** (*fowst,*) JOHANN, one of the three artists to whom the invention of printing has been ascribed, was the son of a goldsmith at Mentz, Germany. The other two were Guttenberg and Schäffer; to the former of which the invention of printing with wooden blocks has been attributed; and to the latter, who married the daughter of Faust, is allowed the honor of having invented punches and matrices, by means of which this grand art was carried to perfection. It has been pretended that, when Faust went to Paris to sell a second edition of his Bible of 1462, he was arrested on the supposition that he effected the printing of his books by magic: but this story appears to be a mere fiction. It is believed that he D. of the plague in 1466.

Faust, or **Faustus,** DR. JOHANN, the famous magician, about whose name and existence so many obscure legends have grown, lived in the beginning of the 16th cent., and was probably born at Knittlingen, in Suabia. After receiving his education at Wittenberg, he went to Ingolstadt, where he studied medicine, astrology, and magic, and occupied himself in alchemical experiments. Faust was a man of great scientific acquirements; and, according to legendary tradition, he made use of his powers to inspire his countrymen with a firm belief that he had dealings with the devil. The story of Dr. Faustus furnished the subject of a remarkable dramatic poem by Christopher Marlowe, and has been immortalized by the genius of Goethe. Gounod's well-known opera is also founded on this character.

Fausta, FLAVIA MAXIMIANA, (*faws'ta,*) the second wife of Constantine the Great. By her accusations the emperor put his son Crispus, by a former wife, to death; but her infidelity becoming notorious, she was suffocated in a bath, 327.

Faustina, the name of two Roman ladies, mother and daughter, both remarkable for their profligacy. The elder was married to Antoninus Pius, and D. in the 3d year of his reign, 141; the younger was the wife of Marcus Aurelius.

Fauteuil, (*fō'tûl,*) *n.* [Fr.] An arm-chair; the seat of the chairman or presiding officer of an assembly.—Membership in the French Academy.

Faux, (*fawks,*) GUY. See FAWKES, (GUY.)

Faux, *n.*; *pl.* FAUCES. [Lat.] The pharynx. See FAUCES.

(*Bot.*) The orifice of the tube of the corolla, the tube being formed by the confluence of the petals.

(*Conch.*) That portion of the cavity of the first chamber of a shell which may be seen by looking in at the aperture.

Faux-pas, (*fō-pa(r.*) *n.* [Fr.] A false step; a mistake.

Fave'olate, *a.* [Lat. *favus,* a honey-comb.] (*Bot.*) Honey-combed; cellular.

Fav'ersham, (formerly FEVERSHAM,) a seaport-town of England, co. Kent, 45 m. S.E. of London. *Manuf.* Gunpowder. *Pop.* 6,443.

Faviguana, (*fa-veen-ya'na,*) an island lying in the Mediterranean, off the coast of Sicily, 12 m. from Trapani. It is 6 m. long, by 2 broad. *Pop.* 4,000.

Fa'vor, Fa'vour, *n.* [Lat. *favor,* a new word in the age of Cicero, from *faveo,* to be well-disposed or inclined toward, probably from Gr. *phaō,* to shine; Sansk. *bha,* to shine; Fr. *faveur.*] Propitious aspect; good-will; countenance; kindness; grace; friendly disposition; as, he enjoyed the royal *favor.*

—A disposition to aid, befriend, support, promote, or justify; act of countenancing or looking propitiously upon.

"The *favour* of learning was the humour and mode of the age." *Temple.*

—Any act of grace or good-will; a kind act or office; a boon granted; benevolence expressed by word or deed; as, may I ask a *favor* of you?

—Lenity; mildness; mitigation of punishment; a yielding or concession; pardon.

"I could not discover the lenity and *favour* of this sentence." *Swift.*

—The recipient or object of good-will or regard; the person or thing favored; as, "Man (God's) chief delight and *favour*." — *Milton.*

—Something bestowed as an evidence of good-will; a token of love; anything emblematic of preference or regard, as a knot of ribbons given by a lady; something worn as a gage of devotion or badge of affection; as, wedding *favors.*

"Here, Fluellen, wear thou this *favour* for me, and stick it in thy cap." — *Shaks.*

—Prejudice; partiality; bias.

—An epistolary communication; a letter; a billet; — used in a complimentary sense; as, "your esteemed *favor* is duly to hand."

In favor of, favorable to; inclined in another's behalf; as, to be *in favor of* a certain candidate. — *In favor with,* encouraged by; propitiously looked upon by; receiving countenance from; as, *in favor with* the government. — *With* or *by one's* or *your favor,* with leave; by countenance or permission.

"But, *with your favor* I will treat it here." — *Dryden.*

Fa'vorable, *a.* [Fr., from Lat. *favorabilis.*] Showing good-will; kind; gracious; auspicious; propitious.

—Palliative; tender; averse to censure.

—Conducive to; convenient; advantageous; suitable; fit; adapted; beneficial.

Fa'vorableness, *n.* Kindness; benignity; partiality; suitableness.

Fa'vorably, *adv.* Kindly; with favor; with tenderness; with kind regard.

Fa'vored, *p. a.* Treated with good will or favor; kindly regarded; having a certain look of features; as, well, or ill-*favored.*

Fa'vorer, *n.* One who regards with favor, or friendship; a well-wisher.

Fa'voress, *n.* A female who regards with favor or friendship.

Fa'voringly, *adv.* In a friendly or favoring manner.

Fa'vorite, *n.* [Fr. *favori;* It. *favorita,* from Lat. *favere.*] A person or thing regarded with peculiar preference or affection; one greatly beloved; a darling; a minion. — One undeservedly and unduly intrusted with favors by a person of authority.

—*a.* Regarded with special kindness, favor, esteem, or preference: as, a *favorite* author.

Fa'voritism, *n.* [Fr. *favoritisme.*] Disposition to favor one or more persons or classes, to the neglect of others having equal claims; exercise of power by favorites.

Fa'vorless, *a.* Having no patronage; not favored; deficient in countenance.

Favose', *a.* [Lat. *favosus,* from *favus,* a honey comb.] (*Bot.*) Same as FAVEOLATE, *q. v.*

Fa'vosite, *n.* [Fr. *favosite,* from *favose.* See SUPRA.] (*Pal.*) A kind of cellular fossil coral.

Favre, (*fāv'r,*) GABRIEL CLAUDE JULES, a French advocate, author, and orator, B. at Lyons, 1809, was prosecuting his studies for the bar at the outbreak of the revolution of July, 1830, in which he took an active part. He soon afterwards commenced practice, whilst the independence of his character, the bitter irony of his address, and the radicalism of his political opinions, made him a reputation, and he has remained the consistent champion of French republicanism, in the press, in the different national assemblies, and at the bar. After the revolution of Feb., 1848, *F.* became Secretary-general of the Ministry of the Interior, and was the author of the circular to the Commissioners of the Provisional Government, as well as of the "Bulletins" of the same year. He acted for some time as Under Secretary for Foreign Affairs, and opposed the expedition to Rome of Dec., 1848. *F.* became the strenuous opponent of Louis Napoleon after the latter's election to the Presidency, and the leader of the party of the *Montagne* on the flight of Ledru Rollin. *F.*'s defence of Orsini in 1858 created a great sensation by its boldness and eloquence. In the same year he became a member of the legislative body; since which time he has distinguished himself by his speeches in favor of complete liberty of the press, against the law of "Deportation," the war with Austria of 1859, and, in 1864, by an attack on the policy of the imperial govt. in the Mexican war. He became vice-president of the provisional government of national defence, and minister of foreign affairs in Sept., 1870; signed the definitive treaty of peace with Prussia, May 10, 1871, and resigned his post two months later. He was elected to the French Academy in 1867. D. 1880.

Fawkes, Faux, or **Vaux,** GUY, one of the conspirators in the "Gunpowder Plot," was B. in Yorkshire, England, and enlisted in the Spanish army in the Netherlands. There he was found by Winter, one of the Roman Catholic conspirators, and with him returned to England, in 1604, after agreeing to assist in the plot. He passed under the name of Johnson, as servant to Thomas Percy, another conspirator, and was placed to lodge in the house next to the Parliament House. After collecting the necessary combustibles, *F.* worked his way into the coal-cellar under the House of Lords, and after storing it with gunpowder, &c., was appointed to the dangerous duty of firing the mine. The govt. having had timely information of the detestable plot, the House of Lords and its cellar was searched, and *F.* found secreted amidst some casks of gunpowder, Nov. 5, 1605. He was at once arrested, soon after tried, and, Jan. 31, 1606, suffered death at Westminster with several of the other conspirators.

Fawn, *n.* [Fr. *faon,* probably from Lat. *hoedus,* a young goat; in the Sabine tongue, *fedus.*] The young of various animals; as of a lion, bear, wolf, deer, &c.

—A buck or doe of the first year.

—A color resembling that of a fawn.

—*v. a.* [Fr. *faonner,* to bring forth a fawn.] To bring forth a fawn, or young.

Fawn, *v. n.* [A. S. *fægnian, fægenian,* to be glad in; to be delighted with.] To court favor or show attachment to by frisking about one, as a dog; to cringe and bow to gain favor; to wheedle.

—*n.* A smile, cringe, or bow; mean flattery.

Fawn, in *Pennsylvania,* a township of Alleghany county.

Fawn, or FAWN GROVE, in *Pennsylvania,* a post-township of York co.

Fawn'er, *n.* One who cringes meanly, or flatters basely; a sycophant; a toady.

Fawn'ing, *n.* The act of meanly, or servilely flattering, or cringing to any one.

Fawn'ing, *p. a.* Flattering by cringing and meanness. —Bringing forth a fawn.

Fawn'ingly, *adv.* In a cringing or servile way; with mean flattery.

Fawn River, in *Michigan,* enters the St. Joseph's River from St. Joseph's co.

—A post-township of St. Joseph's co.; *pop.* about 600.

Faxar'do, or FAJAR'DO, a town and small island of Porto Rico, in the W. Indies; *pop.* about 3,500.

Fax'on, in *Minnesota,* a post-township of Sibley co., on the Minnesota River, about 8 miles N.E. of Henderson.

Fay, *n.* [Fr. *fée,* a fairy.] An elf: a sprite; a fairy.

Fay, THEODORE SEDGWICK, an American author and diplomatist, B. at New York, 1807, was called to the bar in 1828, but did not follow the profession. He was at first a contributor to, and then editor of, the *New York Mirror,* some of his articles to which were published in a collected form in 1832, under the title of *Dreams and Reveries of a Quiet Man.* In 1833 he proceeded to Europe, where he remained for three years, and published his *Minute Book,* a journal of travel, and his first novel, *Norman Leslie.* In 1837 he was appointed U. S. Secretary of Legation at Berlin, whence he was transferred in the capacity of resident Minister to Berne, in Switzerland, a post he held till 1860. In 1840 he published the *Countess Ida;* in 1843, *Hoboken, a Romance of New York;* both novels written against the practice of dueling; and in 1851, *Ulric, or the Voices,* a poem in 20 cantos. *F.*, who is the author of other works, has published a *History of Switzerland.*

Fay'al, one of the Azores Islands. See AZORES, (THE.)

Fay'alite, *n.* (*Min.*) A silicate of the protoxide of iron, of a black or greenish-black color, metalloid lustre, opaque, and attractible by the magnet; *sp. gr.* 4–4·14. Found in Mourne Mts., Ireland, and at Fayal, Azores. It also occurs as a product of the puddling furnace. *Comp.* Silica 29·5, protoxide of iron 70·5. Some varieties contain also lime, manganese, magnesia, and alumina, in small quantities.

Faye, HERVE AUGUSTE ETIENNE ALBANO, an eminent French astronomer, B. 1814, was educated at the École Polytechnique, and afterwards became a pupil at the Observatoire. In 1852 he discovered a new comet, to which his name was assigned, and received the "Lalande" prize from the Academy of Sciences. In 1862 *F.* was appointed a member of the Bureau of Longitudes, and in 1864, a member of the Imperial Council of Public Instruction. M. Faye was Professor of Geodesy at the École Polytechnique from 1849 to 1854. He is the author of several works on astronomy.

Fayette'. See LAFAYETTE.

Fayette', in *Alabama,* a W. N. W. co., bordering on the Mississippi; *area,* about 700 sq. m. *Rivers.* Sipsey (or New) river, and Cold Fire, Yellow, and Luxapatilla creeks. *Surface,* uneven; *soil,* fertile. *Cap.* Fayette. *Pop.* (1890) 12,823.

—A post-village, cap. of the above co., about 150 m. N. W. of Montgomery. *Pop.* (1897) about 1,000.

Fayette, in *Arkansas,* a township of Calhoun co.

Fayette, in *Georgia,* a N. W. central co.; *area,* about 162 sq. m. *Rivers.* Flint river, and Whitewater, Line, and Rose creeks. *Surface,* generally level; *soil,* not very fertile. *Min.* Iron and granite. *Cap.* Fayetteville. *Pop.* (1890) 8,728.

Fayette, in *Illinois,* a S. central co.; *area,* about 720 sq. m. *Rivers.* Kaskaskia river. *Surface,* level; *soil,* fertile. *Cap.* Vandalia. *Pop.* (1890) 23,367.

—A post-village of Greene co., about 30 m. N. of Alton.

Fayette, in *Indiana,* an E. S. E. co.; *area,* about 210 sq. m. *Rivers.* W. Fork of Whitewater river. *Surface,* level. *Cap.* Connersville. *Pop.* (1890) 12,630.

—A township of Vigo co.

Fayette, in *Iowa,* a N. E. co.; *area,* about 720 sq. m. *Rivers.* Turkey river. *Surface,* undulating; *soil,* fertile. *Cap.* West Union. *Pop.* (1890) 23,141.

—A township of Decatur co.

—A post-village of Fayette co., on the Volga river, about 70 m. W. N. W. of Dubuque.

—A township of Linn county.

Fayette, in *Kentucky,* a N. E. central co.; *area,* about 252 sq. m. *Rivers.* Kentucky river, and Hickman's creek. *Surface,* diversified; *soil,* fertile. *Cap.* Lexington. *Pop.* (1890) 35,698.

Fayette, in *Maine,* a post-township of Kennebec co.

Fayette, in *Michigan,* a township of Hillsdale co.

Fayette, in *Mississippi,* a post-village, cap. of Jefferson co., about 30 m. E. N. E. of Natchez.

Fayette, in *Missouri,* a city, the cap. of Howard co., on Bonne Femme creek and the M., K. & T. R. R., 13 m. N. of Boonville. Seat of Central College (Methodist) and Howard Female College. *Pop.* (1897) abt. 2,550.

Fayette, in *New York,* a village of Chautauqua co., on Lake Erie, about 31 m. S. W. of Buffalo.

—A village of Chenango co., abt. 106 m. W. S. W. of Albany.

—A post-township of Seneca co., about 12 m. N. of Ovid.

Fayette, in *Ohio,* a S. W. central co.; *area,* about 415 sq. m. *Rivers.* Paint and Deer creeks. *Surface,* generally level; *soil,* fertile. *Cap.* Washington C. H. *Pop.* 22,309.

—A village of Fulton co., about 45 m. W. of Toledo.

—A township of Lawrence co.

Fayette, in *Pennsylvania,* a S. W. co., bordering on W. Virginia; *area,* about 830 sq. m. *Rivers.* Monongahela and Youghiogheny rivers, and Redstone, Dunlap's, Indian, and Jacob's creeks. *Surface,* diversified; in some parts mountainous; *soil,* very fertile. *Min.* Iron and bituminous coal are abundant and unsurpassed. *Cap.* Uniontown. *Pop.* (1890) 80,006.

—A village of Alleghany co., about 13 m. W. of Pittsburg.

—A post-borough of Fayette co.; now FAYETTE CITY (*q.v.*)

—A township of Juniata county.

Fayette, in *Tennessee,* a S. W. co., bordering on the Mississippi; *area,* about 630 sq. m. *Rivers.* Loosahatchie and Wolf rivers. *Surface,* generally level; *soil,* fertile. *Pop.* (1897) about 30,100. *Cap.* Somerville.

Fayette, in *Texas,* a S. E. central co ; *area,* about 960 sq. m. *Rivers.* Colorado river. *Surface,* undulating; *soil,* very fertile. *Min.,* coal. *Pop.* 31,481. *Cap.* La Grange.

Fayette, in *Wisconsin,* a post-village and township of Lafayette co., about 50 m. of Madison. *Pop.* of township about 850.

Fayette, in *West Virginia,* a S. central co.; *area,* about 750 sq. m. *Rivers.* Kanawha (or New), Gauley and Meadow rivers. *Surface,* mountainous. Marshall's Pillar, a remarkable cliff, some miles from Fayetteville, rises 1,000 feet above Kanawha river, on which it is located. *Soil,* fertile. *Min.,* iron ore. *Pop.* (1897) about 21,500. *Cap.* Fayetteville.

Fayette' City, in *Pennsylvania,* a post-borough of Fayette co., 45 m. S. of Pittsburg. *Pop.* (1897) abt. 1,250.

Fayette Cor'ners, in *Tennessee,* a post-village of Fayette co., about 175 m. W. S.W. of Nashville.

Fayette Court-House, in *Alabama.* See FAYETTEVILLE.

Fayette Ridge, in *Maine,* a former post-office of Kennebec co.

Fayette Springs, in *Pennsylvania,* a post-office of Fayette co.

Fay'etteville (now called FAYETTE), in *Alabama,* a post-village, cap. of Fayette co., about 150 m. N.W. of Montgomery. *Pop.* (1897) about 1,000.

Fay'etteville, in *Alabama,* a post-village of Talladega co.

Fay'etteville, in *Arkansas,* a city, the cap. of Washington co., 60 m. N. of Ft. Smith; a trade and educational center. *Pop.* (1897) about 3,400.

Fay'etteville, in *Georgia,* a post-town, cap. of Fayette co., about 20 m. S. of Atlanta.

Fay'etteville, in *Illinois,* a post-village of St. Clair co., on the Kaskaskia River, abt. 14 m. S.E. of Belleville.

Fayetteville, in *Indiana,* a village of Fayette co.
—A post-village of Lawrence co.

Fayetteville, in *Missouri,* a post-village of Johnson co., about 20 m. S. by E. of Lexington.

Fayetteville, in *N. Carolina,* a post-town, capital of Cumberland co., on Cape Fear River, about 60 m. S. of Raleigh.

Fayetteville, in *New York,* a post-village of Manlius township, Onondaga co., abt. 120 m. W. by N. of Albany.

Fayetteville, in *Ohio,* a post-village of Brown co.

Fayetteville, in *Pennsylvania,* a post-village of Franklin co., about 145 m. W. of Philadelphia.

Fayetteville, in *Tennessee,* a post-town, cap. of Lincoln co., on Elk river, about 75 m. S. by E. of Nashville.

Fayetteville, in *Texas,* a post-town of Fayette co.

Fayetteville, in *Vermont,* a village of Windham co., co., about 100 m. S. of Montpelier.

Fayetteville, in *West Virginia,* a post-village, cap. of Fayette co., about 35 m. S. E. of Charleston.

Fay'mouth, in *Michigan,* former name of a township of Saginaw co.

Fayoum, or **Faioum,** (*fa-yoom',*) a famous valley and prov. of Central Egypt, anciently the name of *Arsinoë,* and stretching out into the desert, which almost entirely surrounds it. In extent, its length may be taken at 40 m., by a width of 30. *Desc.* Generally fertile, producing dhurra, rye, barley, flax, cotton, and sugar. Near the cap. large quantities of roses are cultivated, and are converted into rose-water which is highly esteemed. The land capable of cultivation in *F.* has been estimated at 450 sq. m., of which scarcely the half is at present tilled. *Manuf.* Woollen, linen, and cotton goods. The communication with *F.* is carried on by caravans, which set out weekly from the village of Tamieh. *Cap.* Faïoum. *Pop.* unascertained, but considerable, and chiefly Arabs.

Fays'ton, in *Vermont,* a township of Washington county.

Fays'ville, in *Michigan,* a village of Genesee co., abt. 9 m. N. of Flint.

Fay'ville, in *Massachusetts,* a P. O. of Worcester co.

Fazzolet, (*fa'tzo-let,*) *n.* [It. *fazzoletto.*] A handkerchief.

F. D. [Abbreviation of Lat. *Fidei Defensor,* Defender of the Faith.] A title first conferred upon Henry VIII. of England by the Pope, and subsequently retained by his successors on the throne.

Feale, (*fēēl,*) a river of Ireland, in Munster, which, rising in the mountains dividing the cos. Cork and Limerick, falls, by a tidal æstuary called the *Cashin,* into the Shannon, 11 m. above Kerry Head.

Feal'ty, *n.* [Fr. *féauté;* O. Fr. *féaultzé,* from Lat. *fidelitas—fides,* faith.] (*Feudal Law.*) The oath of fidelity taken by every tenant, on admission, to be true to his superior lord. *General F.* was that due from the subject to the prince; *special F.,* from tenant to mesne lord. *F.* is said to differ from *homage* in being due to every new lord.

Fear, *n.* [A. S. *fær,* fear; *afæran,* to frighten; Ger. *gefahr,* danger; akin to Lat. *vereri,* to be afraid.] Apprehension of approaching evil, danger, or death; solicitude; dread; terror.—The source, cause, or occasion of danger; apprehension or alarm.—Apprehension of incurring the anger of God; feeling of awe and reverence toward the Supreme Being; due regard to the law and word of God: as, the *fear* of God is the beginning of wisdom.—*Prov.* ix. 10.

(*Med.*) This operation upon the mind is often, if uncorrected, attended with the most serious consequences where sickness is present or disease expected. On many persons the influence of fear is far more serious in its effect than the worst form of the dreaded malady. In all epidemic diseases, particularly plague and cholera, the terror inspired by either scourge has been quite as fatal as the infection,—paralyzing the system, and robbing the body of the natural elasticity of its nervous stamina, and the mind of the buoyancy of hope, making voluntary victims of those who, from age and strength, had the best probability of escaping. There are few medical men who have not had cases of smallpox, where the patient, by his own alarm, has produced the disease, and where no direct contagion to excite it was possible. Fear is a mental poison, and the most potent of all antagonists to health and medicine; and as *faith* has cured more diseases than physicians ever prescribed for, so *fear* is more destructive than the worst form of contagion.

Fear, *v. a.* To dread; to consider with apprehension or terror; as, "I *fear* not death."—*Dryden.*
—To affright; to terrify; to make afraid.
—To be anxious or solicitous for.
—*v. n.* To live in horror; to be afraid; to feel an apprehension, as of some impending evil; to expect with emotions of alarm or solicitude.

Fear'er, *n.* One who fears or dreads.

Fear'ful, *a.* Timorous; timid; easily made afraid; as, "he's gentle and not *fearful.*"—*Shaks.*
—Awful; to be dreaded; terrible; frightful; impressing fear.
—Indicative of fear; caused by fear.

Fear'fully, *adv.* In a fearful manner; frightfully; timorously.

Fear'fulness, *n.* State or quality of being timorous or afraid; timidity; terror; dread; awe; apprehension of evil.

Fear'ing, in *Ohio,* a post-township of Washington co.

Fear'less, *a.* Bold; intrepid; without dread; as, *fearless* of danger.

Fear'lessly, *adv.* Without dread; intrepidly.

Fear'lessness, *n.* Freedom from fear; boldness; courage; intrepidity.

Fear'naught, *n.* A dreadnaught; a thick, heavy woollen stuff.

Fearn's Springs, in *Mississippi,* a post-village of Winston co., abt. 105 m. N.E. of Jackson.

Feasibil'ity, *n.* [See FEASIBLE.] Capability of execution; practicability; a thing practicable.

Fea'sible, *a.* [Fr. *faisable,* from *faire,* to make; Lat. *facere,* to do.] Practicable; that may be effected; capable of being done or accomplished; as, a *feasible* undertaking.

Fea'sible, *n.* Whatever is practicable; as, the *feasible* differs from the *possible.*

Fea'sibleness, *n.* Practicability; capability of being executed.

Fea'sibly, *adv.* Practicably.

Feast, *n.* [N. Fr. *feste;* Fr. *fête;* Lat. *festus;* Sc. *dies,* a holiday.] A festival; a holiday; a joyous anniversary; a solemnity.—An entertainment at table; a sumptuous meal given to a number of persons; a rich repast; a banquet.

(*Eccl.*) Almost every religion, true or false, has had its solemn feast-days. The ancient Greeks and Romans had them, as well as the Jews and modern Christians. God appointed several festivals among the ancient Jews, the first and most ancient of which was the Sabbath, or seventh day of the week, commemorative of the creation. The Passover was instituted in memory of their deliverance out of Egypt, and of the favor of God in sparing their first-born, when those of the Egyptians were slain. The feast of Penteeost was celebrated on the 50th day after the Passover, in memory of the law being given to Moses on Mount Sinai. The feast of Tents, or Tabernacles, was instituted in memory of their fathers having dwelt in tents for forty years in the wilderness, and all Israel were obliged to attend the temple and dwell eight days under tents. These were their principal feasts; but they had numerous others: as the feast of Trumpets, the feast of Expiation or Atonement, the feast of the Dedication of the Temple, the Moons, &c. In the Christian Church, no festival appears clearly to have been instituted by Jesus Christ or his apostles, yet Christians have always celebrated the memory of his resurrection, and numerous others were introduced at an early period. At first, they were only appointed to commemorate the more prominent events in the life and death of our Redeemer, and the labors and virtues of the apostles and evangelists; but martyrs came soon after to be introduced, and by the 4th century their number had increased to a very extravagant extent. And not only so, but instead of being spent in devotional exercises, they were employed in the indulgence of sinful passions, and in criminal pursuits; indeed, many of the festivals were instituted on a pagan model, and perverted to similar purposes. Feasts are either movable or immovable. Immovable feasts are such as are celebrated constantly on the same day of the year, the principal of which being Christmas-day, Circumcision, Epiphany, Candlemas or Purification, Lady-day or the Annunciation, All-Saints, All-Souls; besides the days of the several apostles, as St. Thomas, St. Paul. Movable feasts are such as are not confined to the same day of the year. Of these, the principal is Easter, which gives law to all the rest, all of them following and keeping their proper distances from it: as Palm-Sunday, Good Friday, Ash-Wednesday, Sexagesima, Ascension-day, Pentecost, and Trinity Sunday. Besides these, which are general, there are others which are local or occasional, enjoined by the magistrate, or voluntarily set on foot by the people, such as, in this country, the *Anniversary of American Independence* celebrated annually on the 4th of July, and *Thanksgiving-day,* also held every year on a day set apart by the President for the occasion.

—*v. a.* To entertain sumptuously, or magnificently; as, "to *feast* with great show of favor."
—To delight; to pamper; to gratify luxuriously.
—*v. n.* To eat sumptuously; to eat together on a day of joy; To dine or sup on rich or rare provisions.

"Our church-wardens *feast* on the silver, and give us the farthings."—*Gay.*

Feast'-day, *n.* A holiday; a day of festivity.

Feast'er, *n.* One who fares sumptuously; one who gives splendid banquets.

Feast'erville, in *Pennsylvania,* a P. O. of Bucks co.

Feast'ful, *a.* Festive; joyful; as, "his *feastful* friend." *Milton.*
—Luxurious; riotous.

"The suitor train
His herbs and flocks in *feastful* rites devour."—*Pope.*

Feast'fully, *adv.* Festively; joyfully; luxuriantly.

Feast'-rite, *n.* Custom observed at entertainments.

Feast'-won, *a.* Procured by giving a banquet; bribed by an entertainment.

Feat, *n.* [Fr. *fait;* O. Fr. *faict;* Lat. *factum,* a deed, from *facere,* to make.] An act; deed of prowess or strength; an exploit; an achievement by strength, skill, or cunning; as, a *feat* of arms.

Fea'ther, *n.* [A. S. *fether;* Ger. *feder;* Icel. *feodur;* allied to Lat. *penna,* equiv. to *petna,* and Gr. *pteron,* from *petesthai.*] A plume of a bird.—The general name of the covering of birds.—Kind; nature; species; as, "birds of a *feather,*" i. e., of the same kind or species.—An ornament; a vain or empty title.—A sort of natural frizzling of the hair on the neck or forehead of a horse, rising above the surrounding hair, and resembling the tip of an ear of corn.—A small piece of iron used in splitting stone.

(*Physiol.* and *Com.*) Feathers are a peculiar modification of the tegumentary system forming the external covering or plumage of birds. Though chemically similar to, and homogeneous with, the hair of mammals, their anatomical structure is in some respects different. They consist of the *quill,* the *shaft,* and the *vanes,* (Fig. 996.) The quill, *a,* is a hollow, semi-transparent, horny cylinder, by which the feather is attached to the skin, and terminates below in an obtuse extremity, presenting an orifice, *e,* termed the lower umbilicus. A second orifice, leading into the interior of the quill, and termed the second umbilicus, *f,* is situated at the opposite end, where the two vanes meet and unite. It combines strength with lightness in a very extraordinary manner. The cavity of the quill contains a series of conical capsules united together by a central pedicle, forming the membranous remains of the original formation-pulp. The *shaft, b b,* is quadrilateral, with a smooth convex surface; it contains a white, dry, and very light pith. The *vanes, c c,* are subdivided into two parts,—the *barbs* and the *barbules.* The sides of the shaft are covered with the barbs, and each barb forms of itself a small shaft, which is covered in a similar manner with little barbs on each edge. These barbules are so firmly bound to each other, that, although in reality separate, they seem to adhere. The feathers of birds are changed at periodical intervals. This is called "moulting." Feathers vary in their size, form, and function, and in most cases are accompanied by an accessory plume, which is usually in the form of a small downy tuft. In high northern latitudes, the inhabitants wear the skins of some birds, with the feathers on, as clothing. In Greenland, clothes made with the skins of eider-ducks are worn with the feathers inside. The ancient Mexicans made pictures with the colored plumes of humming-birds, after the manner of mosaic. Feathers form a considerable article of commerce. The feathers of the ostrich have been held in high estimation from the times of antiquity, and have been used as ornaments for the fans and head-dresses of ladies, the helmets of warriors, and for gay processions. The finest feathers used for beds are those of the eider-duck, which is chiefly obtained in Greenland, Iceland, and Norway. Very fine feathers, especially for quills, are obtained from Hudson's Bay.—*Down,* or the first covering of young birds, is also an article of commerce. The down of the swan is brought from Dantzic.



Fig. 996.—FEATHER.

A feather in one's cap, an honor or credit; a mark of distinction.—*To show the white feather,* to display cowardice.—*To be in high feather,* to be in exuberant spirits.—*To cut a feather,* (*Naut.*) to cause a wake behind a vessel in motion; to cause the water to foam by the quick, vibratory action of oars.

—*v. a.* To dress, fit, or deck with feathers; to cover with foliage in a feathery manner; to furnish with a feather or feathers; as, to *feather* an arrow, to *feather* a bonnet.
—To tread, as a cock.

"He *feather'd* her a hundred times a day."—*Dryden.*

—To enrich; to deck; to embellish; to adorn; as, he is *feathered* like a peacock.

To feather one's nest, to provide for one's self, by abstracting a portion of money, property, &c., belonging to another when passing through one's hands, and self-appropriating the same; to accumulate wealth, whether by fair or unfair means;—this expression takes rise from the practice of birds in collecting here and there

materials for their nests. — *To feather an oar.* (*Naut.*) A term used in rowing, signifying the bringing of an oar-blade out of the water into a horizontal position, in such a manner as to cut both wind and water without resistance from either.

—*v. a.* To throw or swing into a horizontal position; as, to *feather* an oar.

"The *feathering* oar returns the gleam." — *Tickell.*

Feath'er-alum, *n.* (*Min.*) A variety of alum. Same as HALOTRICHITE, *q. v.*

Feath'er-bed, *n.* A bed stuffed with feathers; a soft bed.

Feath'er-boarding, *n.* That kind of weather-boarding in which the edge of one board overlaps that of another.

Feath'er-driver, *n.* One who beats or prepares feathers for use by freeing them of extraneous matter and airing them.

Feath'ered, *p. a.* Covered with feathers; enriched, fitted, or furnished with feathers, as an arrow; winged. —Furnished with anything similar to feathers; as, land is said to be *feathered* with trees.

Feath'er-edge, *n.* Boards or planks having one edge thinner than the other, are called *feather-edge* stuff.

Feath'er-edged, *a.* Having one edge thinner than another.

Feath'er-few, *n.* An inaccurate spelling of FEVERFEW, *q. v.*

Feath'er-grass, *n.* (*Bot.*) See STIPA.

Feath'ering, *n.* (*Arch.*) See FOIL.

(*Naut.*) In rowing, the act of turning the blade of the oar, while emerging from the water preparatory to being thrown forward for another dip, from a vertical to a horizontal position. The oar thus turned offers less resistance to the wind or to the water, should waves strike it, and has a more elegant appearance.

Feath'erless, *a.* Unfledged; destitute of feathers.

Feath'erly, or **Feathery,** *a.* Having the appearance of feathers; plumose.

Feath'er Ore, *n.* (*Min.*) A sulphuret of antimony and lead, in capillary or cobweb crystallizations; a variety of JAMESONITE, *q. v.*

Feath'er River, in *California*, rises in the E. part of Plumas co., and flowing generally S.W., enters the Sacramento River, abt. 30 m. above Sacramento City.

Feath'er River, in *Idaho*, enters the S. Fork of the Boisé river in Elmore co.

Feath'erstone, in *Minnesota*, a village and township of Goodhue co., abt. 9 m. S.W. of Red Wing.

Feath'er-veined, *a.* (*Bot.*) Same as PENNINERVED, *q. v.*

Feath'er-weight, *n.* A very light weight, so exact that a feather might turn the scale; the smallest weight that can be put on the back of a horse in a race or other match; the lightest champions among pugilists.

Feat'ly, *adv.* Neatly; deftly; skilfully; adroitly; dexterously.

Feat'ness, *n.* Neatness; nimbleness; adroitness.

Fea'ture, *n.* [N. Fr. *faiture;* O. Fr. *faiture*, from *faire;* Lat. *factura*, from *facere*, to make.] The cast or make of the face, or of any single lineament; general appearance of the person; used in the *plural* for the entire face.

"It is for homely *features* to keep home." — *Milton.*

—The form of any part of the surface of a thing. — The cast or structure, as of a landscape; an essay. — Any prominent point; as, a *feature* of the law. — Any marked peculiarity.

Fea'tured, *a.* Having good lineaments; resembling in features.

Fea'tureless, *a.* Not having features, or presenting indistinct ones.

Fea'turely, *adv.* Prominently; showing striking peculiarities.

Feaze, (*fēz,*) *v. a.* [Ger. *fasen*, to separate, from *fase*, a fibre or thread.] To untwist the end of a rope.

—*n.* State of fretfulness; worry or anxiety; excitement.

Febric'ula, *n.* [Lat. dim. of *febris*, a fever.] (*Med.*) A slight fever.

Febrifa'cient, *a.* [Lat. *febris*, a fever, and *facere*, to produce.] Tending to produce fever; febrific.

—*n.* [See SUPRA.] That which tends to produce, or cause fever.

Febrif'ic, *a.* [Fr. *fébrifique.*] Causing or producing fever; febrifacient.

Febrif'ugal, *a.* [Lat. *febrifugalis*, from *febris*, a fever, and *fugare*, to put to flight.] Tending to mitigate or cure fever.

Feb'rifuge, *n.* [See above.] (*Med.*) A medicine tending to cure, or alleviate fever. As fevers are cured by several classes of medicines, the list of *F.* would be very numerous, embracing articles from the mineral, vegetable, and animal kingdoms, and comprehending tonics, stimulants, emetics, diaphoretics, purgatives, and diuretics. The term, however, should properly be confined to such substances as exercise a direct and specific action on the chain of morbid actions which constitute the disease, as cinchona, quinine, and arsenic.

Feb'rifuge, *a.* Anti-febrile: having the quality of curing fever.

Feb'rile, *a.* [L. Lat. *febrilis;* Fr. *fébrile*, from Lat. *febris*, a fever.] Pertaining to, or indicating, fever; derived from fever; as, *febrile* action of the pulse.

Feb'ruary, *n.* [Lat. *Februarius*, from *februare*, to purify.] The second month of our year, and containing, ordinarily, twenty-eight days, except in leap-year, when it has twenty-nine, an intercalary day being added. It is so called because in that month funeral lustrations were performed at Rome. It was introduced into the calendar by Numa, who gave it the twelfth place; but the decemviri subsequently transferred it to where it now stands.

Fe'cal, *a.* [Lat. *fex*, pl. *fæces*, dregs, excrement. See FÆCAL.] Containing dregs, lees, sediment, or excrement.

Fecamp, (*fā'kawm,*) a sea-port town of France, dep. Seine-Inférieure, cap. cant., 48 m. N.W. of Rouen. *F.* is a place of considerable importance, having an exchange, and a chamber of commerce. Its port, though small, is one of the best on the English Channel. *Manuf.* Sugar, linen, and cotton fabrics, &c. It has also a brisk trade in ship-building. *Pop.* 13,465.

Fe'ces, *n. pl.* [Lat. *fæces*, which see.] See FÆCES.

Fe'cials, or **Fe'tials,** *n. pl.* [Lat. *fetiales.*] (*Roman Hist.*) The Roman heralds, whose peculiar office it was to declare war and conclude peace. The former office they performed with the following ceremonies: They were first sent to demand redress; if it was not given within thirty-three days, they returned to the confines of the hostile state, and threw a bloody spear within them, having proclaimed war according to a given formula before not less than three adult witnesses. The *F.*, who took the oath in the name of the Roman people in concluding a treaty of peace, was called *Pater Patratus.* The college of *F.*, said to have been instituted by Numa, is supposed to have been borrowed from the Greeks.

Fe'cifork, *n.* [Lat. *fæces*, dung, and Eng. *fork.*] (*Zoöl.*) The anal fork on which the larvæ of certain insects carry their fæces.

Feck'less, *a.* [See EFFECTLESS.] Feeble; weak; imbecile; deficient in spirit.

Fec'ula, *n.* [Lat. dim. of *fæces*, lees; Fr. *fécule.*] A name applied to starch obtained from various sources, but more especially to the starch of the potato. —See STARCH.

Fec'ulence, or **Fec'ulency,** *n.* [Lat. *fæculentia;* Fr. *féculence.*] Muddiness; quality of abounding with lees or sediment.

—Lees; fæces; sediment; dregs.

Fec'ulent, *a.* [Lat. *faculentus;* Fr. *féculent*, from Lat. *fex*, sediment.] Abounding in dregs; foul; filthy; muddy; impure; excrementitious; abounding in impure substances.

Fe'cund, *a.* [Fr. *fécond;* Lat. *fecundus*, from the same root with *fetus*, an embryo; allied to Gr. *phuō*, to produce; Sansk. *bhū*, to be.] Fruitful, said of plants and animals; prolific; fertile; productive.

Fec'undate, *v. a.* [Fr. *féconder;* Lat. *fecundare*, from *fecundus.* See SUPRA.] To make fruitful or prolific; to impregnate.

Fecunda'tion, *n.* [Lat. *fecundatio.* See FECUND.] The act of rendering fruitful or prolific; fertilization; impregnation. — See IMPREGNATION.

Fecun'dity, *n.* [Fr. *fécondité*, from Lat. *fecundus.*] Fruitfulness; the quality of producing or bringing forth in abundance, particularly the power in female animals of producing their young in great numbers. — Power of bringing forth; fertility; richness of invention; as, the *fecundity* of his intellect.

Fed, *imp.* and *pp.* of FEED, *q. v.*

Fed'eral, *a.* [Fr. *fédéral*, from Lat. *foedus*, a covenant.] Derived from an agreement or covenant; pertaining to a league, contract, or treaty, especially between states or nations; founded on compact by treaty or mutual agreement; as, a *federal* union of states.

"Contrary to all *federal* right and justice."—*Grew.*

F. government. A government formed by the union of several sovereign states, each surrendering a portion of its power to the central authority. But the amount of the power thus surrendered varies in different federations. Thus, the government of the German empire as it existed before the French revolution, and that of the United Provinces of the Netherlands, were both termed *F.;* and the Swiss cantons, under the present Swiss constitution, have retained more of their individual sovereignty than those of the United States of America, inasmuch as they have no permanent federal executive body, and their legislature, or *diet*, is little more than a meeting of delegates with full powers from separate republics to consider certain common concerns. (See DIET.) The theory of our constitution, on the contrary, recognizes not only unity in respect of foreign relations, but also a common legislature, which alone has the right to impose certain taxes (such as customs), to regulate the management of waste or public lands throughout the Union, &c., as well as a permanent common executive, consisting of the president and his cabinet, charged with the superintendence of those branches of administration which regard the whole community.

Fed'eral, Fed'eralist, *n.* [Fr. *fédéraliste.*] One who upholds the doctrine of confederation.

(*Amer. Hist.*) The name assumed by a political party, formed in 1788, who claimed to be the particular friends of the Constitution and the Federal government. Their opponents, the Republicans, they called *Anti-Federalists*, and charged them to a certain extent, with hostility to, or distrust of, the Constitution and the general government. The leading *F.* were Washington, Adams, Hamilton, and Jay, and the leading Federalist States were Massachusetts and Connecticut, supported, generally, by the rest of New England. The opposition was led by Jefferson, Madison, Monroe, Burr, and Gallatin. In the contests of the French Revolution, the *F.* leaned to the side of England, the Republicans to that of France. The opposition of the *F.* to the War of 1812, and especially the calling of the Hartford Convention, effected their destruction as a national party. In the presidential election of 1816 they were signally defeated, and in 1820 they were completely disbanded. During the late civil war the term was applied distinctively to those who adhered to the national cause, as opposed to those who favored and carried out the principles of secession, who were so-styled *Confederates.*

Fed'eral Hill, in *Maryland*, a P.O. of Harford co.

Fed'eralism, *n.* [Fr *fédéralisme.*] The principles of federals, or federalists.

Fed'eralize, *v. a.* [Fr. *fédéraliser.*] To make federate; to confederate for political ends and requirements; to unite in league and compact, as states and nations.

Fed'eral Point Light-house, in *N. Carolina*, on the N. side of the mouth of Cape Fear River. It exhibits a light 48 feet above the sea-level.

Fed'eralsburgh, in *Maryland*, a post-village of Carolina co., about 50 m. E.S.E. of Annapolis.

Fed'eralton, in *Ohio*, a post-village of Athens co., abt. 90 m. S.E. of Columbus.

Fed'erate, *a.* [Lat. *fœderatus*, from *fœdero* — *fœdus*, *fœderis*, a league.] Leagued: united by compact or confederation; as, *federate* powers.

Federa'tion, *n.* [Fr., from L. Lat. *federatio.*] Confederation; act of joining in a league.

—A federal or confederate government; a league; a confederacy; a compact; a bond of union.

Fed'erative, *a.* [Fr. *fédératif.*] Uniting or combining in a league: forming a confederation; federal.

Fe'dia, *n.* (*Bot.*) A genus of plants, order *Valerianaceæ*, having a toothed calyx and 5-fid corolla, three stamens, and a 3-locular fruit, crowned with the calyx. The species are annual plants of humble growth, with repeatedly forked stems, and very small flowers, growing in cultivated grounds, &c. *F. fagopyrum*, the Corn-salad, or Lamb-lettuce, (the *Mâche* of the French, and the *Rapünzscher* of the Germans,) is frequently used in this country as spring-salad. The plant is extremely easy of cultivation, and can be obtained in the very first days of spring, when vegetables are scarce.

Fedor, or **Feodor,** IVANOVITCH, (*fa'dor,*) the last czar of the dynasty of Ruric on the throne of Russia. He began his reign in 1584, and being weak both in body and mind, assigned the government of his affairs to Goudonoff, who seems to have managed them with dexterity and vigor. In his reign the peasants of Muscovy were converted into serfs, and attached to the land. Previously they had enjoyed personal liberty. The conquest of Siberia was achieved by Goudonoff, and many remarkable diplomatic relations with foreign courts were effected; so that this reign may be deemed by no means the least remarkable in the Muscovite annals. D. 1598.

Fe'dor, or **Feodor,** ALEXIEVITCH, czar of Russia, and eldest brother of Peter the Great. He ascended the throne when only 19 years of age, and evinced a strength of will and determination of character, which, had he lived, might have anticipated the reforms which his younger brother was subsequently destined to effect among the people over whom he was called to reign. His reign is rendered memorable on account of his calling into his presence the Muscovite nobles, who desolated the country with broils about their claims of family precedence, and throwing the rolls of the *Razriad*, or "Arrangement," into the fire. The genealogical records, which did not relate to claims of precedence, were preserved and properly arranged, in accordance with his will. D. in his 25th year, 1682.

Fee, *n.* [Du. *vee;* Icel. *fe;* L. Sax. *vee*, cattle; Gr. *pōïi*, a flock. The Goth. *faihn* signifies goods, and is derived from *fahan*, to acquire.] Hire; stipend; reward; compensation for services rendered; recompense, either gratuitous or established by law, particularly for professional services; as, a lawyer's *fee*, a boatman's *fee*, &c.

"Nothing in courts is done without a *fee.*" — *Hubbert.*

(*Feud. Law.*) A fief; an estate in trust granted by a prince or lord, to be held on condition of personal services or other condition.

(*Eng. Law.*) Any land or tenement held of a superior on certain understood conditions.

(*Amer. Law.*) An estate of inheritance, on which the holder has a full right of proprietorship.

—*v. a.* To pay a fee to; to reward pecuniarily: to recompense for services rendered: to hire; to engage in one's service by advancing a fee or sum of money; as, to *fee* a physician.

"There's not a lord of them but in his house
I have a servant *fee'd.*" —*Shaks.*

Feeble, (*fē'bl,*) *a.* [Fr. *faible;* O. Fr. *fleble*, from Lat. *flebilis*, lamentable; in L. Lat. used as equivalent to *debilis*, debilitated. See DEBILITY.] Weak: infirm; debilitated of bodily system; destitute of proper physical strength; sickly; enervated; impotent.

Fee'ble-minded, *a.* Weak of intellect; defective in constancy or resolution; vacillating; irresolute; as, "comfort the *feeble-minded.*" — 1 *Thess.* v. 14.

Fee'ble-mindedness, *n.* Lack of firmness or constancy of mind; irresolution; vacillation.

Fee'bleness, *n.* Weakness of body or mind; imbecility; want of force or vigor; infirmity.

Fee'bly, *adv.* Weakly; without strength or force; as, to creep along *feebly.*

Feed, *v. a.*, (*imp.* and *pp.* FED.) [A.S. *fedan, afedan;* D. *voeden;* Ger. *füttern;* Goth. *fodjan.* See FODDER, and FOOD.] To supply with nutriment; to give food to; to furnish with provisions; as, to *feed* a child.

"If thine enemy hunger, *feed* him." — *Rom.* xii. 20.

—To supply; to furnish with anything of which there is constant consumption, waste, or use; as, to *feed* a furnace with fuel. — To graze; to consume or crop, as grass by cattle.

"Once in three years *feed* your mowing-lands." — *Mortimer.*

—To pamper; to glut; to foster; to satiate.

"To *feed* despair, and cherish hopeless love." — *Prior.*

—To fatten; to make fat or plump; as, well-*fed* oxen.

"I will *feed* them in a good pasture." — *Ezek.* xxxiv.

—*v. n.* To take food; to eat; to subsist by eating; as, to

feed with an appetite. — To pasture; to graze; to crop; to place cattle to feed.

"If a man's beast shall *feed* in another man's field, he shall make restitution." — *Exod.* xxii. 5.

—To prey; to encroach upon; to sponge; as, to *feed* on anticipation.

"I am not covetous of gold;
Nor care I who doth *feed* upon my cost." — *Shaks.*

Feed, *n.* That which is eaten by beasts, — particularly a certain allowance of provender or fodder devoured by cattle, hogs, &c.; as, to give a horse a *feed*. — Pasture; grass; meadow-land.

"His bounds of *feed* are now on sale." — *Shaks.*

—Act of eating; a meal; — generally applied in a vulgar sense; as, we had a capital *feed* at his house.

Feed'er, *n.* One who gives food or supplies nourishment; one who fattens cattle for slaughter. — An encourager, exciter, or abettor; as, "thou wast the *feeder* of my riots." (*Shaks.*) — A fountain, stream, or channel that supplies a main canal with water. — A branch line of railroad, which furnishes additional business to the main stem.

(*Mining.*) A lateral branch of a vein of ore, running into a lode.

Feed'-head, *n.* A tank high enough to supply water, by its own gravity, to the boiler of an engine.

Feed'-heater, *n.* (*Mach.*) That vessel in which the water for the boiler of a steam-engine is heated by the furnace before entering the boiler.

Feed'ing, *n.* A fattening; the act of eating; that which is eaten.—Affording food for animals; pasture-land.

Feed'ing Hills, in *Massachusetts*, a post-office of Hampden county.

Fee'jee, or **Fi'ji, Islands,** a group in the S. Pacific, comprising abt. 255, of which 100 are inhabited; Lat. bet. 15° 30′ and 19° 30′ S., Lon., bet. 177° E. and 178° W. *Desc.* Volcanic, with a fertile soil, displaying a *flora* of remarkable luxuriance. *Pop.* abt. 150,000, generally in a state of entire barbarism. An American expedition under Lieut. Wilkes explored these islands, 1838-'42; and they passed under the sovereignty of Great Britain in 1874. *Total area*, 8,034 sq. m. *Cap.* Suva, on Viti Levu, the largest island.

Feel, *v. a.* (*imp.* and *pp.* FELT.) [A. S. *gefelan, fælan*; Fris. *fiele*; Ger. *fühlen*; Dan. *foele*; allied to Lat. *palpo, palpārĕ*, to touch softly.] To have perception of things by the touch; to touch; to handle; as, to *feel* one's way in the dark.

—To have sensation excited by contact of a thing with the body or limbs, or by any of the senses; to have the sense of, as of pain or pleasure; to suffer or enjoy.

"Come near . . . that I may *feel* thee, my son." — *Gen.* xxvii. 21.

—To be affected by; to perceive mentally; to experience.

"Woes . . . he best can paint who can *feel* them most." — *Pope.*

—To know; to be acquainted with; to have a real and just view of; as, to *feel* a sense of one's own littleness. — To try; to sound: to search for; to explore; as, to *feel* one's way through a difficulty.

—*v. n.* To have perception of things by the touch; to be gifted with sensation; as, "the meanest thing that *feels*." — *Wordsworth.*

—To have the sensibility or the passions moved or excited.

"Those who would make us *feel* must *feel* themselves." — *Churchill.*

—To give perception; to excite sensation; as, ice *feels* cold to the touch. — To have perception in a mental sense.

—*n.* The sense of feeling; the perception caused by the touch; as, a greasy *feel*.

Feel'er, *n.* An observation or remark, put forth or thrown out as if casually, in order to ascertain the views of others.

(*Zoöl.*) See PALP.

Feel'ing, *p. a.* Easily moved; readily affected; possessing great sensibility; as, a *feeling* heart, a *feeling* sense of favor. — Expressive of great sensibility; sensibly or deeply affected; as, to speak with *feeling* eloquence.

Feel'ing, *n.* The sense of touch; that power by which the mind through the nerves apprehends certain conditions of external objects or of the body itself. — The state of perception by the touch; the act of apprehending any object whatever; power of action upon sensibility.

—Susceptibility; nice sensibility; excitement; emotion; sympathy with the distressed; tenderness of heart; as, a man destitute of *feeling*, our angry *feelings*.

(*Phil.*) Primarily, the feelings denote the perceptions which we have of external objects by the sense of touch; but the term has also come to be applied to our inward sensations: thus a man may have a feeling of pleasure from heat, or from contemplating a beautiful landscape. We have intellectual, moral, sensual feelings, feelings of taste, &c. Sir W. Hamilton divides feelings into two great classes, the mental and the corporeal, or, in other words, into sentiments and sensations. Though, strictly speaking, all consciousness and all *F.* is only mental, yet there are certain feelings that are clearly marked out to be in proximate relation to the body; and these he terms sensual feelings, or sensations, while the internal or mental feelings he terms sentiments. The sensations are divided into two classes: those which accompany our perceptions through the five determinate senses of touch, taste, smell, hearing, and sight, and those which are comprised under the common or vital sense, as *F.* of heat and cold, *F.* of health, muscular *F.*, &c. The sentiments may be divided into two classes, *contemplative* and *practical*, the former being the concomitants of our cognitive powers, or powers of knowledge, the latter of our powers of cognation, or of will and desire. The feelings are not primitive and independent states, but merely states which accompany the exertion of our faculties or the excitation of our capacities, and take their differences from the differences of the powers which they attend.

Feel'ingly, *adv.* Tenderly; susceptibly; affectingly.

Fees'burg, in *Ohio*, a post-village of Brown co., abt. 40 m. E.S.E of Cincinnati.

Fee'-simple, *n.* (*Law.*) An estate of inheritance; a fee, called *fee-simple* to distinguish it from FEE-TAIL, *q. v.*

Feet, *n. pl.* of FOOT, *q. v.*

Fee'-tail, *n.* [FEE, *q. v.*, and Fr. *taillé*, cut.] (*Law.*) An estate descendible by inheritance, but limited to some special heirs.

Feet'less, *a.* Wanting feet; as, "*feetless* birds." *Camden.*

Feeze, *v. a.* and *n.* Same as FEAZE, *q. v.*

Fehmern, Femern, (*fā'mern,*) an island belonging to Denmark, lying in the Baltic, bet. Lat. 26° 10′ N., and Lon. 11° 12′ E.; *area*, 70 sq. m. *Surface*, level; *soil*, fertile, producing corn. Cattle are abundant. *Ind.* The inhabitants are mostly engaged in fishing and coastwise navigation. *Pop.* abt. 8,000.

Fehrbellin, (*fere-bel-leen',*) a town of Prussia, abt. 33 m. N.N.W. of Potsdam; *pop.* about 1,650. In 1675 the Swedes were here defeated by the elector of Brandenburg.

Feia, (*fāy'a,*) a large lake of Brazil, 130 m. N.E. of Rio Janeiro, connecting with the Atlantic by the Furado Canal. It abounds with fish.

Feign, (*fane,*) *v. a.* [Fr. *feindre*, from Lat. *fingere*, to form, to make; the root *fig* is found in Lat. *figura*.] To invent; to image by an act of the mind: to imagine; to contrive as an appearance or semblance; to assert by a fiction; to state as if true, that which is not so.

—To make a show of; to represent falsely; to pretend; to counterfeit; as, to *feign* lameness; to *feign* sickness.

Feigned, (*faned,*) *p. a.* Invented: imagined; assumed; pretended; as, a *feigned* friend, *i. e.*, a false friend.

(*Law.*) A *feigned issue* is where a case is tried on fictitious presentment before a jury, in order to establish a question of fact subsequently to come up in a real cause.

Feign'edly, *adv.* Not really; fictitiously; pretendedly.

Feign'edness, *n.* Want of reality; fiction; pretence; deceit.

Feign'er, *n.* One who invents or devises fiction.

Feign'ing, *n.* Deceit; pretence; fiction.

Feign'ingly, *adv.* In a false manner; with assumed and unreal appearance.

Feint, (*faint,*) *n.* [Fr. *feinte*, from *feindre*. See FEIGN.] A pretence; an assumed or false appearance.

(*Mil.*) A mock attack; as, "his remark was but a *feint* to elude the argument."

(*Fencing.*) An appearance of aiming at one part of the body, when another is intended; — said of certain motions in boxing or fencing.

Feint, *v. n.* To make a mock or feigned attack.

Feit'sui, *n.* (*Min.*) A stone much prized among the Chinese for making ornaments. Same as JADEITE, *q. v.*

Felch'ville, in *Vermont*, a post-village of Windsor co., abt. 65 m. S.S.E. of Montpelier.

Feld'spar, *n.* (*Min.*) The common name of a family or group of silicious minerals varying much in appearance, and presenting numerous and complicated crystalline forms. The minerals included in this group are ANORTHITE, LABRADORITE, HYALOPHANE, ANDESITE, OLIGOCLASE, ALBITE, and ORTHOCLASE, all of which are described under their respective heads. The mineral Orthoclase is the common *F.* The mineral *F.* is the basis of so many rocks, and is distributed so widely in various forms, that it almost ranks as a rock. Hardly any simple minerals, except quartz and limestone, are found in such large masses as feldspar. It is a constituent of granite, gneiss, mica schist, syenite, trachyte, and other rocks.

Feld'spathic, or **Feld'spathose,** *a.* Of, or belonging to, feldspar.

Feleghya'za, a town of Hungary, cap. of district of Little Cumania, between the Danube and Theiss, 65 m. S.E. of Pesth. It is in the centre of a fine, fruitful country, and holds large cattle-markets annually. *Pop.* 21,362.

Felicia'na, in *Kentucky*, a post-village of Graves co., about 250 m. W.S.W. of Frankfort.

Feliciana, in *Louisiana*. See EAST and WEST FELICIANA.

Felic'itate, *v. a.* [Fr. *féliciter*; L. Lat. *felicitare*, from *felix*, happy.] To delight, or render very happy; to render prosperous.

—To congratulate; to express joy or pleasure; to compliment: as, to *felicitate* on his marriage, promotion, &c.

Felic'itate, *a.* [L. Lat. *felicitatus*, pp. of *felicitare*, to make happy.] Rendered very happy; as, "I am *felicitate* in your love." — *Shaks.*

Felicita'tion, *n.* [Fr. *félicitation*.] Congratulation; the act of complimenting.

Felic'itous, *a.* [Lat. *felix*, happy.] Prosperous; delightful; well selected, or applied; as, a *felicitous* word or expression.

Felic'itously, *adv.* In a happy manner; appropriately.

Felic'itousness, *n.* Condition of being very apt or happy.

Felic'ity, *n.* [Fr. *félicité*; Lat. *felicitas*, from *felix*, happy.] Prosperity; blissfulness; blessedness; beatitude; enjoyment of good; — especially applied to the joys of heaven.

Felic'ity, in *Ohio*, a post-village of Clermont co., about 42 m. S.E. of Cincinnati.

Fe'lidæ, or FELINÆ, *n. pl.* [Lat. *felis*, cat.] The Cat tribe, a family of carnivorous quadrupeds, including the domestic cat, lions, tigers, panthers, leopards, and lynxes. In these animals the destructive organs reach the highest perfection. The head is short and almost rounded in its form. The principal instruments of their destructive energy are the teeth and claws, their strong, sharp retractile talons, with which all the four feet are armed, and the corresponding destructive nature of the dentary organs constituting the essential characteristics of the family. They have six small incisors in each jaw, the exterior ones larger than the rest; two canine teeth in each jaw, long, sharp, conical, slightly incurved: eight præmolars in the upper jaw, and four in the lower, furnished with two roots, compressed, pointed, and serrated; and generally four flesh-teeth, or true molars, in the upper jaw, and two in the lower, very large, sharp-edged, and terminated by two or three points. In addition to this formidable apparatus of cutting-teeth, the tongue is covered with small recurved prickles by which they can clean from the bones of their prey every particle of flesh.



Fig. 997. — CHARACTERISTIC FEATURES OF THE FELIDÆ.

1, tiger's head; 2, showing the dentition; 3, portion of tongue; 4, right fore-paw, showing claws; 5, claw, showing tendon.

The palate is soft, and that part of the tongue which corresponds with it is smooth; as it advances forward, it is covered with large soft papillæ directed backwards; then there are four large fessulate papillæ, anterior to which the simple conical papillæ continue increasing in size to near the tip of the tongue. These papillæ are armed with the strong spines before mentioned. There are no quadrupeds in which the muscles of the jaws and limbs are more fully developed. The skeleton presents a light but well-built mechanism; the bones, though slender, are extremely compact; the trunk, having to contain the simple digestive apparatus requisite for the assimilation of highly organized animal food, is comparatively slender, and flattened at the sides. The muscular forces are thus enabled to carry the light body along by extensive bounds, and thus it is that the larger felines generally make their attack. The five toes of the fore-feet and the four toes of the hind-feet of cats are armed with very strong, hooked, subcompressed, sharp claws, which are preserved from being blunted by a peculiar arrangement of the phalanges. For this purpose the claw-joint of each toe is drawn back by ligaments attached to the penultimate joint, until it assumes a perpendicular position, when the claw which it supports is completely retracted within a sort of sheath, and is entirely concealed by the fur. When, however, the animal springs upon its prey, the tendons of the flexor muscles of the toes, overcoming the elasticity of the retractile ligaments, push forward the claws, and they are ready to be buried in the flesh of the victim. The lower surface of the foot is furnished with thick ball-like pads of the epidermis, upon which the animal walks; this gives them the noiseless tread peculiar to this family. It will be seen, on reference to any members of the cat tribe, that their mode of walking is different from that of man, monkeys, or bats. The weight of the body rests only on the toes, and not on the entire foot. This manner of walking is termed "digitigrade," from the Lat. *digitus*, a finger, and *gradus*, a step. Cats hunt in the gloom, and, consequently, while escaping observation, require every ray of light that can be made available. (See CAT.) The pupil is a long, vertical fissure; but this only obtains among the smaller genera; in all the *F.* above the ocelot in size, the pupil assumes again the rounded form. On the top of the skull there runs a tolerably high bony crest, which reaches its greatest elevation at the very back of the head. This bone ridge is intended for the attachment of the powerful muscles which raise the head and enable the animal to perform its prodigious feats of strength. The first two vertebræ partake of a similar enlargement to that which has already been observed on the back of the skull. The vertebra which is nearest to the head, and is called the "atlas," is broad and strong, and spreads laterally; while the second, or "axis," is long, and is developed upwards into a very powerful crest. The ribs are beautifully formed, and placed rather widely apart, giving plenty of room for the heart and lungs to perform their duties effectually. The vertebræ that fill the space between the ribs and the hip-bones are very large, and so exquisitely jointed together that they unite a graceful flexibility of movement with great muscular power. With regard to the digestive organs of the *F.*, the salivary glands are small, as might be expected when it can hardly be said that mastication is exercised. In the case of the lion, the stomach is divided, by a slight contraction in its middle, into two portions. As in most of the family, its muscular coats are very strong. In the carnivora, the stomach, which is of a cylindrical form, has no culs-de-sac; the œsophagus opens at its anterior extremity, and the intestine commences from the posterior; so that everything favors a quick passage of the food, which receives no mastication, and is retained a

very short time in the stomach. The intestine has no valves, is small in diameter, but muscular, and the whole canal, when compared with the length of the body, is extremely short, being as 3 or 5 to 1. In the domestic



Fig. 998. — THE PUMA, OR AMERICAN PANTHER.
(*Felis concolor.*)

cat they are 5 to one; but in the wild cat only as 3 to 1. The *F.* are found in all parts of the world except Australia, but principally in the warmer regions, where alone the larger species are met with.

Fe'line, *a.* [Fr. *félin*, Lat. *felinus*, from *felis*, a cat.] Like a cat; pertaining to the cat tribe; as, *feline* rapacity.

Felipe, (San.) See SAN FELIPE.

Fe'lis, *n.* [Lat., a cat.] (*Zoöl.*) The true Cat, a gen. of ferocious animals, family *Felidæ*. The species are described separately under CAT, LEOPARD, LION, OCELOT, PANTHER, TIGER, and YAGUARUNDI.

Fe'lix, CLAUDIUS or ANTONIUS, a Roman procurator of Judea, before whom Paul so "reasoned of righteousness, temperance, and judgment to come," that he trembled, saying, "Go thy way for this time; when I have a convenient season I will call for thee." — Felix rose from slavery, having been manumitted by Claudius Cæsar. To what qualifications he was indebted for his advancement may be surmised from the historian Suetonius, calling him "the husband of three queens or royal ladies." His rule in Judea, notwithstanding its severity, or rather in consequence of it, was marked by constant disorders and disaffection; and, but for the interest of his brother (the notorious freedman Pallas) with Nero, the charges carried up against him to Rome would have been his ruin. Drusilla, "the Jewess," his second wife, had been seduced by him from her husband Azizus, king of Emesa. Tacitus paints Felix in the darkest colors, — a character confirmed by what is related of him in the New Testament, that he had expected a bribe from Paul, and that, disappointed in this, he left him bound, "to show the Jews a pleasure."—*Acts* xxiii., xxiv.

Felix I., pope and saint, succeeded Dionysius, 269. He suffered martyrdom in the persecution of Aurelian

FELIX II., occupied the pontifical see during the banishment of Liberius, 355. In reply to a proposition for the recall of Liberius, it was proposed by the emperor Constantius that Liberius and Felix should reign conjointly; but the people exclaimed, "One God, one Christ, and one bishop!" Felix was exiled in 358, but became pope again the same year, and died in 359.

FELIX III., succeeded Simplicius in 483. He had a violent dispute with the emperor Zeno in behalf of the Western church, and died in 492.

FELIX IV., a native of Benevento, ascended the chair after John I., in 526. He governed the church with zeal and piety, and died in 530. He introduced extreme unction.

Fe'lix, in *Illinois*, a township of Grundy co.

Fe'lix, in *Iowa*, a township of Grundy co.

Fe'lix, in *Missouri*, a village of Mouiteau co., abt. 38 m. W. of Jefferson city.

Fe'lix Har'bor, of Boothia, in British N. America. See BOOTHIA FELIX.

Fell, *a.* [A. S. *felle;* O. Fr. *fel*, from *fal*, *feale*, bad, wicked, *fala*, a grudge; allied to Lat. *fallere*, and Gr. *sphallein*, to deceive.] Cruel; barbarous; inhuman; savage; ravenous; bloody.

"The keen hyena, *fellest* of the *fell*." — *Thomson.*

Fell, *n.* [A. S. *fell;* Ger. *fell;* Icel. *vildr;* Goth. *fill;* allied to Lat. *pellis*, a skin.] The skin or hide of a beast; —used mostly in composition; as, a *fell*-monger, one who deals in hides or skins.

Fell, *n.* [Icel. *fell*, hill, *fiall*, mountain; Sw. *fyäll*, a ridge of mountains; Ger. *fels*, a rock, allied to Gr. *phella*, a stone.] A stony or barren hill.

Fell, *n.* [From *fell*, pp. of *fall.*] The last weft of thread that terminates a piece of cloth in weaving.

Fell, *v. a.* [A. S. *fellan*, *fyllan*, v. causative from *feallan*, to fall; Ger. *fällen.*] To knock down; to bring to the ground; to cause to fall; as, to *fell* an ox. — To hew down; to cut down; as, to *fell* timber. — To hem or baste in sewing a seam.

Fell'able, *a.* Capable of being prostrated, or hewn down.

Fel'lahs, *n. pl.* [Ar., poor.] The people in Egypt who live in villages and cultivate the soil. They are the most ancient race in that country, and are generally believed to be the descendants of the old Egyptians, their physiognomy resembling that which is found on the ancient sculptures. They are a patient and laborious population, but are heavily taxed, and subjected to great hardships. They form the great bulk of the population of that country. — See EGYPT.

Fell'er, *n.* One who knocks or hews down.

Fell-mon'ger, *n.* [See FELL.] A dealer in sheepskins; one who separates the wool from the hide.

Fell'ness, *n.* [See FELL, cruel.] Cruelty; barbarity; rage.

Fel'lor, *n.* See FELLY.

Fel'low, *n.* [A. S. *feláw*, from *fylgan*, to follow; Icel. *felagi*, a partnership in goods, from *fe*, money, and *lag*, a compact.] A companion with whom we consort; one united in the same affair; an associate; a sharer; as, "each on his *fellow* for assistance calls." (*Dryden.*)— One of the same kind; a thing suited to another; one of a pair; a thing like or equal to another; as, "this knave hath not his *fellow*." (*Shaks.*)—An ignoble, mean, ill-bred, or worthless man.

"Worth makes the man, the want of it the *fellow*." — *Shaks.*

—A familiar appellation, usually of contempt; as, "now, *fellows*, to your work." — A member of an English college, or other incorporated society, sharing in its revenues. — A trustee of a college. (U. S.)

—In composition it indicates association for a purpose, or equality; as, our *fellow*-members, my *fellow*-citizens.

Fel'low-com'moner, *n.* At an English university, one who has the same right of commons with the Fellows; a student who dines with the Fellows.

Fel'low-creat'ure, *n.* One made by the same creator.

Fel'low-heir, *n.* A co-heir; a joint-heir; one entitled to the same inheritance.

Fel'lowless, *a.* Matchless; peerless; without equal.

Fel'lowmen, *n. pl.* Men partaking of the same common nature.

Fel'lowship, *n.* Partnership; mutual association of persons for their joint interest. — Familiar intercourse; mutual association of persons on equal and friendly terms; companionship. — State of being together; confederation; as, the *fellowship* of States.

(*Arith.*) A rule of considerable use in balancing accounts among partners in trade. Considered as an arithmetical process, it is simply a method of dividing a number into parts which shall have given proportions to each other. Fellowship is either simple or compound. To simple fellowship belongs a question of this sort: "A contribution of $20,000 is levied on three towns, and each is required to pay in proportion to the number of its inhabitants. Now the first contains 2,000 inhabitants, the second 3,000, and the third 5,000; what sum must each contribute?" This question is obviously the same as if it had been required to divide the number 20,000 into three parts, having the ratios of 2, 3, and 5, which is done by dividing 20,000 by the sum of 2, 3, and 5, that is by 10, and multiplying the quotient by each of those numbers separately; the several results are the sums required. — *Compound F.* is when the parts into which the given number is to be distributed are proportional to more than one set of numbers. This is usually called *F. with time*, because in distributing the profits of a mercantile transaction carried on by several partners, the share of each must be proportional, both to the amount of the capital which he contributed and to the time during which it was employed. It must therefore be proportional to the product of these two.

Fel'lowship, *v. a.* To admit to fellowship.

Fel'lowship, in *New Jersey*, a P. O. of Burlington co.

Fel'lowsville, in *West Va.*, a post-village of Preston co.

Fel'ly, *adv.* [From *fell.* See SUPRA.] Cruelly; fiercely; barbarously.

Fel'ly, or FEL'LOE, *n.* [A. S. *felg*, *felge*, or *fealga;* Dan. *felg;* Ger. *felge*, a bending or turning; allied to Lat. *volvere*, to turn, and Sans. *para*, to turn around.] One of the circular pieces of wood, which, being joined together, form the circular rim of a cart or carriage wheel.

Felo-de-se', *n.* [Lat.] (*Law.*) A felon of himself; a self-murderer; one who, by premeditation, puts an end to his life; one who loses his life, while engaged in the commission of an unlawful act. As the offender is beyond the reach of human law, he cannot be punished.

Fel'on, *n.* [Fr. *félon;* *felo*, *fello;* A.S. *fel*, cruel. See FELL, *a.*] A cruel, bloodthirsty, and wicked person; one who has been guilty of a capital crime.

(*Med.*) A whitlow; an inflammation in the joints of the fingers, or toes.

—*a.* Malignant; malicious; disloyal; issuing from a depraved heart; as, with *felon* intent.

Felo'nious, *a.* Wicked; traitorous; malignant; villanous; perfidious; destructive; proceeding from a corrupt heart; as, "a *felonious* thief." — *Shaks.*

Felo'niously, *adv.* (*Law.*) In a felonious manner. This word is necessarily used in all indictments for *felonies*, to describe the manner and intent.

Felo'niousness, *n.* Wickedness of heart: perfidiousness; villany.

Fel'onry, *n.* The whole body of culprits convicted of capital crimes. — The convicts who remain in the penal colonies, after expiration of sentence. (England.)

Fel'ony, *n.* (*Law.*) *F.* in its general sense comprises every species of crime that occasioned, at common law, the forfeiture of lands and goods. This commonly was accessory to those crimes for which capital punishment either is, or was, liable to be inflicted. Hence, all offences now capital are in some degree or other felony, as well as many others that are not capital, as suicide, homicide, larceny, &c., all of which are, strictly speaking, felonies, as they subjected the committers of them to forfeitures. The most probable derivation of the word is from the Teutonic or German *fee*, *fief*, or *feud*, and *lion*, price or value; felony being thus the *pretium*, *feudi* the consideration for which a man gives up his fief. — In the U. States the word has no clearly defined meaning at common law, but includes offences of considerable gravity. It is, however, clearly and fully defined by statute in many of the States.

Fel'site, *n.* (*Min.*) Compact feldspar. See ALBITE.

Felsobanyte, *n.* (*Min.*) A hydrous sulphate of alumina, from Kapnik, Hungary. *Hard.* 1·5; *sp. gr.* 2·33. Lustre, pearly; color, snow-white; surface, often yellowish. *Comp.* Sulph. acid 17·2; alumina 44·1; water 38·7.

Fel'spar, *n.* (*Min.*) Same as FELDSPAR, *q. v.*

Felt, *imp.* and *pp.* from FEEL, *q. v.*

Felt, *n.* [A.S. *felt;* Ger. *filz*, wool wrought together; O. Fr. *feutre;* Fr. *feutre;* Lat. *filtrum*, allied to Lat. *plicare*, to fold, and Gr. *pilos*, wool or hair wrought into stuff.] (*Manuf.*) The material formed by uniting and compressing fibres of wool, fur, and other substances fit for the purpose, into a compact body, by what is termed the felting process. This consists in mixing the fibres of the materials employed until they become interlaced or matted together in the form of a soft, loose cloth or sheet, which is done by the instrumentality of carding- and doffing-machines. The cloth is then wound on a roller, and carried to the felting-machine, in which the fibres are combined and interlaced still more closely by the action of heat and pressure, until the loose substance is converted into a close, thick material, possessed of great strength and durability. *F.* of a fine kind is used for making hats (see HAT); and a coarser description is used for table-cloths and carpets. A stiff rough *F.* is also manufactured for making roofing for sheds, and coverings for hay-ricks and cornstacks, as well as supplying a lining to the copper sheathing of vessels; and another sort for covering steam-boilers, for which it is well adapted on account of its properties as a non-conductor of heat. The last-named material is made of the waste woollen cloths used in paper-mills, reduced to a pulp, and beaten together after being put on the boiler in a wet state. It is then allowed to dry, when it becomes stiff, solid, and utterly impervious to heat. All the other different kinds of *F.* are made by amalgamating the materials by the agency of heat, moisture, and pressure. Table-cloths of this material are either embossed, having a raised pattern in one color on a ground of another hue, or printed in a variety of tints and designs. Carpets of *F.* are also printed in colors. In addition to being inexpensive, they are warm and comfortable, the closeness of their texture preventing draughts of air from entering an apartment through crevices in the flooring; they are also tolerably durable, but, on account of the pattern being printed on the surface of the fabric, the colors are apt to fade and become obliterated by constant wear. Roofing-*F.* is rendered water-proof by being soaked with a preparation of tar or bitumen; it is cheap and much used for roofs, being impervious to rain. To preserve it from danger by fire and from the effects of the weather it is covered with coal-tar and a layer of sand or fine, clean gravel. Felt is also used for lining wooden buildings and the walls of rooms that are affected by damp. It is further used for water-tight compartments in ships, for some kinds of heavy clothing, for lining coats and dresses, and a great variety of other purposes. Some ascribe the invention of *F.* to St. Clement, who found the carded wool, placed in his shoes to protect his feet while on a pilgrimage, worked into a felt by the pressure and moisture; by others it is said to have been invented by the Saracens, who used it as a covering for their tents, and introduced into Europe at the time of the Crusades.

Felt, *v. a.* To make cloth, or stuff of wool, by milling. —To surround with felt; as, to *felt* the driving axle of a mill.

Felt'er, *v. a.* [From *felt.*] To clot together like felt.

Felt'-grain, *n.* The grain of timber transverse to the annular rings.

Felt'ing, *n.* The wool, or wool and fur, from which felt is made. — The cloth itself after manufacture. — Act of splitting timber transversely to the annular rings.

Fel'ton, in *Delaware*, a post-village of Kent co.

Fel'tonsville, in *Massachusetts*, a village of Middlesex co., about 34 m. W.N.W. of Boston.

Fel'tre, HENRI JACQUES GUILLAUME CLARKE, DUC DE, a marshal of France, b. (of an Irish family) at Landrecy, 1765. In 1781 he entered the Military School at Paris; in 1790 he accompanied the French embassy to London, and was, afterwards, imprisoned during the Revolution. He was subsequently employed by Carnot; and the Directory, in 1795, appointed him general of division. In 1807 he became minister of war, and was created *Duc de Feltre*. Though indebted to Bonaparte for his dukedom, he contributed towards the restoration of the Bourbons, by whom, in 1816, he was created marshal of France. D. 1818.

Feltre, (*fail'tra,*) (anc. *Feltria,*) a partially fortified town of N. Italy, prov. Belluno, on a hill at the foot of the Alps, near the junction of the Colmeda with the Piave, 16 m. S.W. of Belluno. It is a handsome and well-built place, with some silk manufactures, and the centre of an extensive trade in silk, wine, &c., the produce of the country about. *Pop.* 5,995.

Fel'tre, *n.* A kind of cuirass made of wool.

Felts, in *N. Car.*, a P. O. of Wilkes co.

Felt's Mills, in *New York*, a post-village of Jefferson co., abt. 160 m. N.W. of Albany.

Feluc'ca, *n.* [Span. *faluca;* Ital. *feluca.*] A small vessel used chiefly in the Mediterranean and adjacent waters for coasting voyages. It has a low, graceful, and



Fig. 999. — FELUCCA.

buoyant hull, with a high stem and raking stern, three masts, *latten* sails, a jib set on a small bowsprit, and long, powerful oars to assist their progress during calms. Before the introduction of steam they were often used as gunboats.

Fel'wort, *n.* (*Bot.*) See SWERTIA.

Fe'male, *n.* [Fr. *femelle;* Lat. *femella*, dim. of *femina*, a woman.] One of the sex that conceives and brings forth young; as, "male and *female* of each living thing."

Dryden.

(*Bot.*) The plant without stamen, but bearing the pistil, which, upon impregnation with the pollen of the staminated flower, becomes productive.

Fe'male, *a.* Noting the sex which produces young; not male. — Feminine; characteristic of the sex; delicate; effeminate; destitute of manly qualities.

(*Bot.*) Pistillate; having no stamens.

Female rhymes, are double rhymes, so called because in French, from which the term is taken, they end in *e* weak or feminine, as,

"The excess of heat is but a fable,
The torrid zone is habitable." — *Cowley.*

The *female screw*, is the cavity into which the screw is inserted.

Fe'male Flower, *n.* (*Bot.*) A flower furnished with pistils, or female organs, but not with stamens, or male organs of production.

Fe'malist, *n.* One who dangles after women; a gallant.

Fe'malize, *v. a.* To effeminate; to render feminine; to make unmanly.

Feme-cov'ert, *n.* [O. Fr. *feme*, a woman, *covert*, pp. of *couvier*, to cover.] (*Law.*) Same as COVERT-BARON, *q. v.*

Fem'erell, *n.* An opening in a roof for the escape of smoke, or for purposes of ventilation.

Feme-sole', *n.* [O. Fr. *sole*, single.] (*Law.*) A single or unmarried woman.

Femgerichte, FEHMGERICHTE, or VEHMGERICHTE, (*faim-ge-rikt'ta,*) *n. pl.* [O. Ger. *Fm*, punishment, and *Gericht*, court of justice.] The name of celebrated secret tribunals which existed in Westphalia, and possessed immense power and influence in the 14th and 15th centuries. They are said by some to have been originated by Charlemagne, but it is more probable that they were relics of the ancient German courts of justice, which continued to exist in Westphalia after they had ceased in other parts of Germany. The *F.* first came into notice after the deposition and outlawry of the Emperor Henry the Lion, when all law and justice seemed to be set at defiance, and anarchy everywhere prevailed. In such circumstances the secret tribunals took upon themselves the protection of the innocent and defenceless, and inspired with salutary terror those whom nothing else would keep in check. These tribunals soon acquired great power, and spread themselves over the whole of Germany, though their principal seat still continued to be Westphalia, the *red land*, as it was called, probably on account of its clayey soil. The secrecy with which they carried on their operations, and the power they manifested in carrying out their sentences, rendered them the terror of all Germany, and princes and nobles eagerly sought admission into their society. Their number is said at one time to have amounted to 100,000. Though originally established for the support of right and justice, there can be little doubt that they afterwards were frequently made use of to carry out party feelings. Any one who had a complaint against his neighbor, which could not be sustained before the ordinary judges, betook himself to the Fehmgericht. From the secrecy in which they were involved, little is known regarding their internal organization. The members were called the *Wissende*, or the knowing ones; and, before being admitted, they must be of blameless life, of the Christian religion, and take a terrible oath, "to support the holy Fehm, and to conceal it from wife and child, from father and mother, from sister and brother, from fire and wind, from all that the sun shines upon or the rain wets, from all that is between heaven and earth." From among the *Wissende* the *Freischöffen* (free justices) were elected, who were the assessors of the court and executors of its sentences. The president of the court was called the *Freigraf* (free count). The general superintendence of the whole of the tribunals was in the hands of the lord of the land, who, in Westphalia, was the archbishop of Cologne. The chief superintendence, however, was in the hands of the emperor, who was usually, on his coronation at Aix-la-Chapelle, admitted a member of the society. The court of a Freigraf was called a *Freiding*, and the place where it was held a *Freistuhl*. The members had certain signs and watchwords, by which they were able to recognize each other, and which were concealed from the uninitiated. Their courts were either open or secret; the former were held by day in the open air, the latter by night in a forest, or in concealed and subterranean places. The process of trial, and the circumstances of judgment, were different in the two cases; the former decided in all civil causes, the latter took cognizance of such as had been unable to defend themselves sufficiently before the open courts, as well as such as were accused of heresy, sorcery, rape, theft, robbery, or murder. The accusation was made by one of the Freischöffen, who, without further proof, declared, upon oath, that the accused had been guilty of the crime. The accused was then thrice summoned to appear before the secret tribunal, and the citation was secretly affixed to the door of his dwelling, or some neighboring place, the name of his accuser being concealed. The citation mentioned that the accused was to meet the *Wissenden* at a certain hour and place, and to be conducted by them before the tribunal. Here by an oath the accused might clear himself; but the accuser might also oppose it with his oath and the oaths of witnesses. If the accused could now bring forward six witnesses in his favor, the accuser might strengthen his oath with fourteen witnesses; and sentence of acquittal did not necessarily follow until the accused had supported his case with the oaths of twenty-one witnesses. The judges were all armed, and dressed in black gowns, with a cowl that covered their faces like a mask. The condemned, as well as those who did not obey the summons, were then given over to the Freischöffen. The first Freischöffe who met him was bound to hang him on a tree; and if he made any resistance, it was lawful to put him to death in any other way; and a knife was left by the corpse, to indicate that it was a punishment inflicted by one of the Freischöffen. The punishment, however, was rarely inflicted on those who readily appeared, the judges being satisfied with cautioning the offender to redress the wrong he had been guilty of. At length a great outcry was raised against these courts, and in 1461 various princes and cities of Germany, as well as the Swiss Confederates, united in a league to resist the free judges, and to require that the trial of accused persons should take place in open day. Their influence, however, was not entirely destroyed until the public peace was established in Germany, and an amended form of trial and penal judicature introduced. Goethe, in his *Götz von Berlichingen*, has given an account of the workings of these secret tribunals; but the best historical account of them is by Paul Wigand, *Das Fehmgericht Westfalens*, Hamm., 1825.

Fem'inal, *a.* Pertaining to a woman, or to the female sex.

Feminal'ity, *n.* Female nature.

Femine'ity, *n.* Quality or nature of the female sex.

Fem'inine, *a.* [Fr. *féminin, féminine;* Lat. *femininus*, from *femina*, a woman.] Pertaining to women, — the opposite of masculine. — Soft; tender; delicate; effeminate; destitute of the manly qualities.

"Her form more soft and *feminine*."—*Milton.*

Feminine gender. See GENDER.

Fem'ininely, *adv.* In a manner peculiar to a woman.

Fem'ininess, *n.* Quality of being like a woman.

Femme Osage, (*fem-o'saj,*) in *Missouri*, a post-village of St. Charles co., abt. 45 m. W. of St. Louis.

Fem'oral, *a.* [Fr. *fémoral;* Lat. *femoralis*, from *femur*, the thigh.] Belonging to the thigh; as, the *femoral* artery, the *femoral* vein.

Fe'mur, *n.; pl.* FEMORA. [Lat., the thigh.] (*Anat.*) *Os femoris*, the first bone of the leg or pelvic extremity. See THIGH, and LEG. — The first joint of the leg of an insect, which is long, and usually compressed.

(*Arch.*) The interstitial space between the channels of the triglyphs in the Doric order. These femora are sometimes called the *legs* of the triglyphs.

Fen, *n.* [A. S. *fen, fenn;* Ger. *fenne;* Icel. *fen*, allied to Fr. *fange;* L. Lat. *phanus;* Sansk. *panka*, mud; W. *fynn*, to abound.] Muddy land; land partially or entirely covered with water, but producing sedge, coarse grass, and other aquatic plants; boggy land; a moor; a marsh; a bog; a swamp where water stagnates. — Used frequently in compound words, as *fen*-fowl, *fen*-land.

Fen'-berry, *n.* A species of blackberry.

Fence, *n.* [From *fend.* Obs. Lat. *fendere, fensus.* See DEFEND.] That which guards, protects, or defends; a security; a cover; a shield; as, "there's no *fence* against inundations." — Inclosure; mound; hedge; fortified boundary; anything to restrain entrance or approach. — Skill in the arts of manual defence; especially applied to skill and readiness with the sword; hence, defence in argument; quickness at repartee. — A man who receives knowingly stolen goods; the place where such goods are kept. (Cant.)

To be on the fence, is said of a person who has not committed himself to either political party on any matter or question.

Fence, *v. a.* To defend; to guard; to inclose with a wall or anything that prevents the entrance or escape of cattle; to secure by an inclosure; as, "a sheep-cote *fenced* about with olive-trees." — *Shaks.*

—To give security to; to fend off danger from; as, "to *fence* my ear against thy sorceries." — *Milton.*

Fence, *v. n.* To practise the art of fencing; to fight and defend by giving and avoiding blows and thrusts.

"He will *fence* with his own shadow."—*Shaks.*

—To raise a fence; to act on the defensive; to guard against; to make secure; to avoid danger; as, to *fence* a field, to *fence* a question, &c.

"Vice . . . is in the first place to be *fenced* against."—*Locke.*

Fence'less, *a.* Without a fence; exposed.

Fence'-month, *n.* (*Law.*) The month during which, in England, hunting in any forest is prohibited.

Fen'cer, *n.* One who fences; one who teaches or practises the art of fencing or sword-play.

"Cunning *fencers* suffer heat to tire."—*Herbert.*

Fence'-roof, *n.* A defensive covering.

Fen'cible, *a.* That may be defended; capable of defence.

—*n. pl.* (*Mil.*) Soldiers enlisted for the defence of a state or country, but without liability to be sent abroad.

Fenc'ing, *n.* The art of using skilfully, in attack or self-defence, a sword, rapier, or bayonet; but usually taken to mean address in the use of the second of these weapons. In the school of fence the foil is wielded. The foil is a circular or quadrangular rod or blade of pliable, highly tempered steel, blunted and covered with leather at the point, so as to prevent accidents in its practice. From its nature, the foil can only be employed in thrusting, and, being edgeless, it can be handled without liability to cutting wounds. In length it varies between 31 and 38 inches, and, for the purposes of the art, it is divided into two parts, — the *forte*, which occupies the half of the blade ending with the hilt, and the *faible*, which occupies the other half terminating with the button. During the pastime, the fencers wear a strong wire mask upon their faces as a defence against accidental thrusts, &c. *F.* was cultivated by the ancients; the Roman gladiators instructed the soldiery of that period; but as their weapons differed so materially from those of the present day, and as they defended themselves by shields and armor, their methods were infinitely less complicated and efficient than those of the present day. During the period comprised within the Middle Ages, *F.* became greatly neglected, and this was owing most likely to the fact that there was a great improvement in the armor worn by knights in battle; from which circumstance battle-axes and other ponderous weapons of offence were substituted for the sword. When metal casing became somewhat, if not altogether disused, *F.* came once more into vogue; and as all gentlemen wore swords, and quarrels were matters easily got up, it was absolutely necessary that all should have some knowledge of the "fence." The peculiar state of society in Italy made this even more needed than in any other country, and it followed that the Italians became the best fencers in Europe. Spain next found the art necessary, and soon France, in which latter country it created such a favorable impression that a school was established for its prosecution, and new improvements were found out every day in the science. The early Italian and Spanish schools taught the management of the sword, aided, generally, by the dagger or the mantlet; the shifting of the position of the fencer was also necessary to avoid attack. But since the habit of wearing the dagger and mantlet has been abandoned, and the velocity of attack and defence become so great, instruction in *F.* has been strictly limited to the foil, and shifting position would be fatal to one engaged. In *F.* there are three openings or entrances, — *the inside*, comprising the whole breast from shoulder to shoulder; *the outside*, which can be attacked by all the thrusts made above the wrist on the outside of the sword; and, finally, *low ports*, which embraces the armpits to the hips. In a work of this description it would be impossible to give all the different attacks and defences; the following, however, are the principal: 1. The *carte* is a guard which is shown by turning the wrist with the nails upwards, and the hand in a line with the lower part of your breast, the arm somewhat bent, the elbow inclining a little to the outside, and the point of your foil directed towards the upper part of your adversary's breast at an angle of about 15°. The *thrust*, *lunge*, or *longe*, is an attack. When at the guard in carte (as just shown), straighten the arm, raising your wrist above your head, keeping the point of your foil still pointing to your adversary's breast, and then thrust out first the wrist and then the whole body by a "lunge" of the right foot some two feet from the guard; your left foot remaining firm all the time. The *parade* is formed by moving your sword over from your guard, when received, obliquely downward to the right about 6 inches, and opposing the inside of your foil to your adversary's blade. The *seconde* is shown by holding your nails and wrists downwards, hand opposed outwards; and the blade should form an angle of 45° with the ground, pointed low. *Feints* consist in threatening an attack on one side of your foil and executing it on the other. There are many varieties of these, and the best defence is the *half-circle parade*, which is done by straightening your arm with your wrist on a line with your shoulder, and by a quick motion of your wrist sweeping the point of your foil from right to left; thus covering your body from head to knee, and obliging your adversary once more to come to to position. The cavalry sword-exercise is but another instance of *F.* applied on horseback, and the bayonet-exercise, in point of fact, may be regarded in the same light.

(*Agric.*) Material employed in making fences, for fields, &c.

—A system or succession of fences, as of a railroad. &c.

Fen'-cricket, *n.* (*Zoöl.*) Same as MOLE-CRICKET, *q. v.*

Fend, *v. a.* [Obs. Lat. *fendo*, root of *defendo.*] To defend; to guard; to keep off; to shut out: to debar from entrance; — sometimes followed by off; as, to *fend off* a boat alongside.

—*v. n.* To act on the defensive, or in opposition; to resist; to counteract; to parry; to shift off a charge.

Fender, *n.* That which defends or wards off; particularly a detachable device used on the front of a trolley car, consisting of a metal frame-work, with rubber buffer, springs, and a net, to pick up and remove obstacles from the track; also a frame-work of steel, brass, or iron used to prevent live coals from an open grate from rolling forward upon a hearth or floor.

—*pl.* (*Naut.*) Pieces of old rope, or billets of wood, hung over the sides of ships to prevent injury or chafing from contact or collision with other ships alongside.

Fen'der-bolts, *n. pl.* (*Naut.*) Iron pins placed in the sides of ships, to protect the timbers.

Fen'der-piles, *n. pl.* Wooden piles driven to protect work either on land or in water.

Fen'-duck, *n.* (*Zoöl.*) A common name for a wild duck, as a shoveller, that lives in marshy ground.

Fén'élon, FRANÇOIS DE SALIGNAC DE LA MOTTE, Archbishop of Cambrai, was B. in 1651, at the château de Fénélon, in Périgord, of a family illustrious in church and state. He studied at Cahors and Paris, where he made such progress in the most difficult studies, that, in his 15th year, he preached with great applause. At the age of 24, *F.* took holy orders, and commenced his regular ministerial functions in the parish of St. Sulpice. He was afterwards appointed chief of a mission for the conversion of heretics in Saintonge and Aunis; and on his return he became known to the public as a writer, by a work, *Sur le Ministère des Pasteurs*, and a treatise, *De l'Education des Filles.* In 1689, Louis XIV. intrusted to him the education of his grandsons, the dukes



François de Fenelon

1651-1715

of Burgundy Anjou, and Berri. *F.* was successful in forming the mind of the young duke of Burgundy, heir-presumptive to the throne of France, and sowed the seeds of every princely virtue in his heart; but his premature death blasted the pleasing anticipations entertained respecting him. In 1694, *F.* was created archbishop of Cambrai; soon after which, a theological dispute with Bossuet, his former instructor, respecting the devotional mysticism of the celebrated Madame Guyon, whose opinions *F.* favored, terminated in his condemnation by Pope Innocent XII., and his banishment to his diocese by Louis XIV. From this time he lived in his diocese, sustaining the venerable character of a Christian philosopher, and scrupulously performing his sacred duties. His works in the departments of philosophy, theology, and the belles-lettres, have immortalized his name. He was familiar with the best models of ancient and modern times, and his mind was animated by a gentle spirit of benevolence. In person and manners *F.* was one of the most attractive of men. He wrote many excellent works; among the chief of which may be reckoned his *Dialogues of the Dead*, *Dialogues on Eloquence*, &c. But his most celebrated production is his *Adventures of Telemachus*, in which he endeavored to exhibit a model for the education of a prince; and more pure and elevated maxims were never woven into a tale either of truth or fiction. His death was accelerated by the overturning of his carriage, which brought on a fever, and the amiable and virtuous prelate expired in Jan., 1715.

Fen'elon, in *Ohio*, a village of Stark co., about 8 m. N.N.W. of Massillon.

Fenelon Falls, a post-village of Ontario, co. of Victoria, about 16 m. N. of Lindsay.

Fenestel'la, *n.* [Lat. dim. of *fenestra*, window.] (*Eccl.*) The niche at the side of an altar containing the *piscina*, a vessel for holding water to wash the hands of the officiating priest.

(*Arch.*) A little window.

Fenes'tra, *n.* [Lat., a window.] The name of two apertures in the stony portion of the temporal bone appertaining to the internal ear.—See EAR.

Fenes'tral, *a.* [From Lat. *fenestra*.] A window-blind or casement covered with cloth or paper in lieu of glass.

—*a.* [Lat. *fenestralis*, from *fenestra*; W. *ffenestr*, an opening.] Pertaining or relating to a window.

Fenes'trate, *a.* [Lat. *fenestratus*.] Having the appearance of being perforated with large holes,—generally applied to the transparent spots observable on the wings of some insects.

Fenes'trated, *a.* (*Arch.*) Possessing or characterized by windows.

Fenestra'tion, *n.* (*Arch.*) The system of construction and mode of design marked by windows;—in contradistinction to *columniation*. Fenestration and columniation are so far antagonistic and irreconcilable, that *F.* either interferes with the effect aimed at by columniation with insulated columns, as in a portico or colonnade, or reduces it, as is the case with an engaged order, to something quite secondary and merely decorative. *Astylar* and *fenestrated* ought, therefore, to be merely convertible terms; but as they are not, that of *columnar fenestration* has been invented, to denote that mode of composition which unites fenestration with the *semblance*, at least, of the other. Employed as a collective term, *F.* serves to express the character of a building or design with regard to windows generally; thus it is said the *F.* is excellent, or the contrary,—ornate or meagre, well arranged or too crowded,—which last circumstance is a very common fault, and is destructive both of grandeur and of repose.

Fenks, *n.* The ultimate refuse of the blubber of the whale.

Fe'nians, *n. pl.* The name adopted by an Irish secret society formed in the U. States for the purpose of subverting British supremacy in Ireland. The origin of the name cannot with any degree of positiveness be determined, but we find, according to tradition, that the *Fenians*, *Fenii*, or *Finans*, were a national militia established in Ireland by Finn, Fingal, or Fionn (McCoul) the son of Cumhal, and son-in-law of King Cormac, (A. D. 213–253.) Other authorities regard the ancient *F.* as a distinct Celtic race, who migrated at an early period from Germany into the North of Scotland and Ireland; and others conjecture that the word is a corruption of "Phœnicians." Sir Walter Scott, quoting a Celtic poem, speaks of the "bare-armed *Fenians*."—(*Antiquary*, ch. XXX.)

Fen'nec, *n.* (*Zoöl.*) A beautiful little animal, genus *Vulpes*, family *Canidæ*. It is of a slight build, and seldom measures more than a foot in length, exclusive of the tail, which is fox-like and bushy, and measures eight inches in length. Its color is very pale fawn, with a slight touch of jetty black at the base and extremity of the tail. Although without doubt a carnivorous animal, the *F.* is especially fond of the fruit of the date-palm, and is said to be able, and frequently to exercise his ability, to climb the lofty trees, and gather the dates. Bruce, who claims the honor of introducing the *F.* to zoölogical science, asserts that it builds its nest in trees. In later times, however, it has been certainly ascertained that it burrows like the foxes. It is of nocturnal habit.



Fig. 1000. — NUBIAN FENNEC. (*Megalotis Nubianus.*)

Fen'nel, *n.* [A. S. *finol*; Ger. *fenchel*; Bohem. *fenikl*; Lat. *feniculum*, dim. of *fœnum*, hay.] (*Bot.*) See FŒNICULUM.

Fen'nel-flower, *n.* (*Bot.*) See NIGELLA.

Fen'ner, in *New York*, a post-township of Madison co., abt. 112 m. W. by N. of Albany.

Fen'nersville, in *Pennsylvania*, a post-village of Monroe co., abt. 110 m. N.E. of Harrisburg.

Fen'nimore, in *Wisconsin*, a post-township of Grant co.

Fen'nish, *a.* Full of fens; fenny; marshy.

Fen'nit, or FENIT, a town of Ireland, on an island of the same name, which separates Ballyheigue and Tralee bays, abt. 8 m. W.N.W. of Tralee.

Fenn's Bridge, in *Georgia*, a village of Jefferson co., about 40 m. E. of Milledgeville.

Fenn'ville, in *Michigan*, a post-village of Allegan co.

Fen'ny, *a.* Growing in fens; boggy; marshy; moorish; as, a "*fenny* brake."—*Prior.*

Fen'-sucked, (*-sŭkt,*) *a.* Sucked out of marshes.

"*Fen-suck'd* fogs, drawn by the powerful sun."—*Shaks.*

Fen'ton, a town and par. of England, co. Stafford, 3 m. S.W. of Newcastle-under-Lyme. *Manuf.* Earthenware, tiles, &c. *Pop.* abt. 6,227.

Fen'ton, in *Michigan*, a flourishing township of Genesee co.

Fenton, in *Missouri*, a post-village of St. Louis co., abt. 16 m. S.W. of St. Louis.

Fenton, in *Ohio*, a post-office of Wood co.

Fen'tonville, in *Michigan*, a post-village of Genesee co., abt. 50 m. N.W. of Detroit.

—A village of Jackson co., abt. 10 m. S. of Jackson.

Fen'tonville, in *New York*, a P. O. of Chautauqua co.

Fen'tress, in *Tennessee*, a N. co., bordering on Kentucky; *area*, abt. 570 sq. m. *Rivers.* Obey's River, and other smaller streams. *Surface*, elevated, and in some parts mountainous; *soil*, moderately fertile. *Min.* Stone coal. *Cap.* Jamestown.

Fen'ugreek, *n.* (*Bot.*) See FŒNUM GRÆCUM.

Feod, (*fūd,*) *n.* See FEUD.

Feodal, (*fū'dal.*) See FEUDAL.

Feodary, (*fū'da-ry.*) See FEUDARY.

Feodatory, (*fū'da-to-ry.*) See FEUDATORY.

Feodor, two emperors of Russia. See FEDOR.

Feoff, (*fĕf,*) *v. a.* [L. Lat. *feoffare*; Fr. *fieffer*. See FEE.] (*Law.*) To give or grant to any one a corporeal hereditament; to enfeoff; to invest with a fee or feud.

—*n.* (*Law.*) A fief.

Feoffee, (*fef-fee',*) *n.* [L. Lat. *feoffator.*] (*Law.*) One in whose favor a feoffment is made

Feoffer, Feoffor', *n.* [O. Fr. *feoffor.*] (*Law.*) One who enfeoffs.

Feoffment, (*fĕf'ment.*) *n.* [L. Lat. *feoffamentum.*] (*Law.*) The grant of a feoff, fend, or fee.

(*Eng. Law.*) The gift or grant of a fee, or corporeal hereditament, as land, honors, or other immovable things; also, the instrument of conveyance of same.

Feracious, (*fe-ra'shus.*) *a.* [Lat. *ferax*, from *ferre*, to bear.] Abundantly fruitful, prolific, or productive.(R.)

Feræ, (*fe're,*) *n. pl.* [Lat., wild beasts.] (*Zoöl.*) The name given by Linnæus to an order of *Mammalia*, nearly corresponding to the *Carnivora* of Cuvier.—See CARNIVORA.

Fe'ræ natu'ræ, [Lat., beasts of a wild nature.] (*Law.*) A term applied to animals, such as foxes, wild ducks, &c., in which no one can claim property.

Fe'ral, *a.* [Lat. *feralis.*] Funereal; deadly; fatal; as, "*feral* madness."—*Burton.*

Fer'berite, *n.* (*Min.*) A tungstate of iron with a little manganese; massive, granular, of black color, and imperfectly vitreous lustre. *Hard.* 4·4½. *Sp. gr.* 6·801. Occurs in the Sierra Almagrera, Spain.

Fer'dinand. [From Ger. *verdienen*, to merit.] The name of several European monarchs, of whom the following are the most noticeable:

EMPEROR OF AUSTRIA.

FERDINAND I., son of Francis, ascended the imperial throne of Austria in 1835, and continued to pursue the policy of his father, leaving the chief direction of affairs in the hands of Prince METTERNICH, *q. v.* In his reign, the republic of Cracow was annihilated, and a portion of it added to the empire. During the Revolutionary War of 1848 he dismissed Metternich, and made several concessions which were found insufficient. Vienna revolted in May, and *F.* at length retired to Olmütz, and on Dec. 2, 1848 abdicated, having no children, in favor of his nephew, Francis Joseph I.

EMPERORS OF GERMANY.

FERDINAND I., younger brother of Charles V., was B. at Alcala in 1503. He married, in 1521, Anna, daughter of Ladislaus, king of Hungary and Bohemia, became king of Bohemia in 1527, and at the same time contended with John Zapolski for the crown of Hungary. The war lasted many years, and was terminated by an unsatisfactory treaty. *F.* was elected king of the Romans in 1531, took the title of emperor on the abdication of his brother, Charles V., and was recognized by the electors in 1558. As the pope, Paul IV., refused to acknowledge his title, it was resolved that the pope's consent should be thenceforth dispensed with in the election of the emperor. *F.* was a moderate and just ruler, and especially aimed at reconciling the conflicting religious parties in the empire. He sent ambassadors to the council of Trent, which he saw closed the year before his death. D. at Vienna, 1564.

FERDINAND II., grandson of Ferdinand I., was B. in 1578. He was crowned king of Bohemia in 1617, king of Hungary in the next year, and was elected emperor on the death of his cousin Matthias in 1619. His Bohemian subjects revolted and chose for their king Frederick V., elector palatine, who reluctantly accepted the crown, and lost it by his defeat at the battle of Prague in 1620. Thus began the famous Thirty Years' War, Catholics and Protestants contending for the supremacy—Tilly and Wallenstein distinguishing themselves at the head of the Imperial armies, Gustavus Adolphus, Bernhard of Saxe-Weimar, generals Horn and Bannier, at the head of the Protestants. The bigotry and intolerance of *F.* led him, at the beginning of the war, to take the most violent measures against the Bohemian Protestants, and 30,000 families quitted the country. D. at Vienna, 1637.

FERDINAND III., the son of the preceding, B. 1608, was made king of Hungary in 1625, of Bohemia in 1627, and succeeded his father in 1637. Sweden and France being in alliance, gained several advantages over the Imperialists, which terminated with the peace of Westphalia in 1648. D. 1657.

KINGS OF NAPLES AND SICILY.

FERDINAND I., KING OF NAPLES, succeeded Alphonso I. in 1458. His false and cruel character provoked a civil war, in which John of Anjou took part with the barons, and the king was aided by the pope, Storza, duke of Milan, and by Scanderbeg. The king defeated his rival in 1462, and made peace: but breaking his word, war broke out again. Again the king won, and established order by terror. He afterwards joined with the pope against the Florentines; but Lorenzo de Medici, by the bold step of a personal visit to Naples, succeeded in detaching him from that alliance, and negotiated a treaty of peace. He died in 1494, aged 70, detested for his debaucheries and cruelties, and at the very time that Charles VIII. of France was setting out on his celebrated expedition for the conquest of Naples.

FERDINAND II., KING OF NAPLES in 1495; D. 1496.

FERDINAND III. is the same as FERDINAND V. OF SPAIN, *q. v.*

FERDINAND IV. OF NAPLES, AND I. OF THE TWO SICILIES; B. 1751. He ascended the throne in 1759, and reigned in peace and security until the outbreak of the French Revolution in 1792, when, after the death of Louis XVI., *F.* joined the coalition engaged in the general war against France (1793–6). The victory gained at Aboukir by Lord Nelson again brought *F.* into a hostile attitude against the French, who summarily drove him from his kingdom, and inaugurated the Parthenopean Republic, in 1799. In the same year, however, his troops regained possession of the capital. In 1806 *F.* was again forced to abandon Naples, the crown of which Napoleon I. conferred first on his brother Joseph Bonaparte, and afterwards on his brother-in-law, Murat (*q. v.*). *F.*, however, continuing to reign in Sicily under English protection. In 1814 the Congress of Vienna finally established *F.* as *King of the Two Sicilies*. Revolutionary movements, set afloat by the Carbonari (*q. v.*), compelled the establishment of a constitution, against the advice and interests of Austria, Russia, and Prussia; the first-named power marched an army across the Po, defeated the Neapolitan army, and occupied Naples. *F.*, who, refusing to sanction the liberal declarations of his subjects, had quitted his capital, was then reëstablished, and ruled thenceforward with absolute power. D. 1825.

FERDINAND V., surnamed BOMBA, and one of the most detestable tyrants who ever sat on a throne, was the son of Francis I. of Naples, by Isabella of Spain, and succeeded his father in 1830. At the outset of his reign he professed to adopt constitutional measures for the regeneration of his unhappy country, but unhappily placing himself in the hands of the Jesuits, he became the instrument by which the most odious tyranny was carried into effect. Insurrection after insurrection broke forth among his outraged and oppressed people, till at length the entire country became one scene of arbitrary imprisonment, torture, and death. In 1848, when half the thrones in Europe were trembling in the balance, Sicily burst out into open rebellion. Naples followed suit, and *F.* was compelled to summon a parliament, and take oath to adopt and maintain a constitution. After succeeding in suppressing the Neapolitan revolt, *F.* in 1849 dissolved the parliament, and violated his oath by annulling the constitution. After succeeding in subjugating Sicily, *F.*'s tyranny knew neither bounds nor sense of common decency, and the revelations respecting it, published in Mr. Gladstone's famous letter to Lord Aberdeen in 1851, evoked one sentiment of indignation and disgust throughout Europe. Even the most absolute of European sovereigns shared in this feeling, and grave remonstrances were addressed to him at the Congress of Paris in 1856. These proving unavailing, France and England proceeded in the same year to recall their ambassadors, and suspended all diplomatic intercourse. D. at Naples in 1859, execrated by the world at large.—See BOMBA.

KINGS OF PORTUGAL.

FERDINAND, succeeded his father, Peter, in 1367. On the death of Peter the Cruel, king of Castile, he assumed the latter title, which produced a war between him and Henry of Transtamara, who ravaged Portugal, and forced Ferdinand to make peace and marry his daughter. This marriage he afterwards disowned, and entered into an alliance with John of Gaunt, duke of Lancaster, who laid claim to the Castilian throne. This war proved very disastrous to the Portuguese, and Ferdinand was obliged to sue for peace. Another war was entered into in which he was supported by the English, and was for a time successful, but was at last under the necessity of making peace. D. 1383.

FERDINAND, infant of Portugal, son of John I., passed into Africa, at the age of 14, to attack the Moors, and laid siege to Tangier. He was, however, made prisoner by the Moors, and spent the remainder of his life in

captivity, dying of chagrin, 1443.—This prince's misfortunes have formed the subject of a great number of legends and tales.

KINGS OF SPAIN.

FERDINAND I., KING OF CASTILE AND LEON, called the Great, was the second son of Sancho II., king of Navarre. By the death of Bermudo, in 1037, he became king of Leon. He then made war against the Moors, from whom he took several cities, and pushed his conquests as far as Portugal. He next declared war against his brother, Garcias III, king of Navarre, in which that prince lost his kingdom and his life. D. 1065.

FERDINAND II., son of Alphonso VIII., king of Leon and Castile, gained great advantages over the Portuguese, and made their king, Alphonso Henriquez, prisoner, whom he used with moderation. D. 1188.—In the reign of this prince the military order of St. James was instituted, for the purpose of defending the dominions of the Christian powers against the Saracens.

FERDINAND III., son of Alphonso IX., obtained the crown of Castile by the abdication of his mother, Berengere, in 1217, and that of Leon by the death of his father in 1230. He took many places from the Moors; but while he was projecting an expedition against Morocco, died, in 1252.—He was canonized by Pope Clement X., and is regarded as the founder of the university of Salamanca.

FERDINAND IV. succeeded to the throne of Castile in 1295, at the age of ten years, under the guardianship of his mother, who governed the kingdom with great prudence. D. 1312.—In 1309 Gibraltar was taken from the Moors by the Spaniards. This prince, in a fit of anger, caused two noblemen to be precipitated from a high rock. Just before undergoing this fate, they told him that he would appear before God in thirty hours from that time. Their prediction was verified, and thence he obtained the name of the "Summoned."

FERDINAND V., called THE CATHOLIC, son of John II., king of Navarre and Aragon, was B. 1452. He married, in 1469, the Princess Isabella of Castile, in whose right he succeeded, on the death of her brother, Henry IV., to the throne of Castile. A rival claimant, Joanna, was supported by Alfonso, king of Portugal, who invaded Leon, and was defeated by *F.* at Toro, in 1476. Three years later *F.* succeeded his father in the kingdom of Aragon, thus reuniting the two crowns of Castile and Aragon. He applied himself to the reform of the great abuses in the administration, and in 1480, at the instigation of Torquemada, established the Inquisition at Seville, and, after courageous resistance on the part of the people, at Saragossa also. One of the greatest events of this reign was the conquest of Granada. The war with the Moors began in 1483; victory after victory attended the arms of *F.*, and in 1492 the capital city was taken after a siege of eight months. The "two kings," as they called Ferdinand and Isabella, made their entrance in January, 1493. The dominion of the Moors in Spain had lasted 800 years. By a cruel edict of the same year, 1493, the Jews in Spain were commanded to receive baptism, or quit the country in four months. Multitudes of them, counted at from 30,000 to 170,000, became exiles, and the prisons were filled with those who remained. It was at this period that Columbus, with vessels furnished by *F.* and Isabella, made his memorable voyages and discovered America, which the Pope Alexander VI. assumed authority to give to those sovereigns. The great Cardinal Ximenes was then confessor to Isabella, and in 1495 was made archbishop of Toledo. In 1500, Gonsalvo was sent to make the conquest of Naples, which, partly by the sword and partly by the most unscrupulous perfidy, he effected. On the death of Isabella, in 1504, the kingdom of Castile passed to Philip, son-in-law of *F.*; but on Philip's death, two years later, *F.* again assumed the government. In 1507 Ximenes became first minister, labored successfully for the conversion of the Moors, and achieved the conquest of Oran. The infamous *League of Cambray* was concluded in 1508. Soon after Navarre was conquered and united to Castile and Aragon. *F.* D. in 1516, and was interred in the cathedral of Granada with his Queen Isabella. Of *F.*'s four daughters, one was married to the Archduke Philip, two in succession to Emanuel, king of Portugal, and the fourth, Catharine, first to Prince Arthur of England, and afterwards to his brother, Henry VIII. The brilliant *History of the Reigns of Ferdinand and Isabella*, by Prescott, the American historian, is well known.

FERDINAND VI., son of Philip V., ascended the throne in 1746, and during the thirteen years of his reign was one of the most just and humane monarchs who ever ruled the Spanish destinies. He promoted the internal welfare of his country, reorganized the navy, encouraged manufactures, and by his judicious political conduct placed his elder brother on the throne of Naples, and another under the ducal canopy of Parma. D. 1759. The destruction of Quito, Lima, and Lisbon, by earthquakes, occurred in this reign.

FERDINAND VII., B. 1783, succeeded his father Charles IV. in 1808. Upon the entry of Napoleon's troops into Spain, *F.* was taken prisoner and carried to Valençay, where he and his family remained till 1813, when he was restored to his kingdom. After his restoration, he dissolved the Cortes, and assumed the powers of an absolute monarch. Like all the later Bourbons, "adversity taught him nothing, and in prosperity he forgot nothing." He re-established the Inquisition, and those very liberals who had fought bravest for the expulsion of the French from Spanish soil, he persecuted with pitiless rancor. In 1820, his people broke out into rebellion, and re-established the Cortes. *F.* was, however, by the aid of French bayonets, restored to his crown, but not to his former absolutism. D. 1833, bequeathing the crown to his daughter, Isabella, to the exclusion of his brother, Don Carlos—an act that led to a long and disastrous civil war. See CARLISTS.

Fer'dinand, in *Illinois*, a post-vill. of Rock Island co.

Fer'dinand, in *Indiana*, a post-village and township of Dubois co. *Pop.* of township about 1,000.

Fer'dusi, or FIRDUSI, one of the greatest of the Oriental poets, B. in Persia, 916. His talents attracted the notice of Mahmond, the reigning sultan, who received him with honor at his court, and employed him to write a metrical history of the Persian sovereigns. This work, which is called the *Schahnameh*, contained 60,000 couplets, and occupied the poet 30 years, during which long period *F.*'s enemies succeeded in prejudicing Mahmoud against him. Instead of being rewarded, according to promise, with 60,000 pieces of gold, the same number of the smallest silver coin was sent to him, which the poet indignantly distributed among the menials, wrote a severe satire on the sultan, and fled to Bagdad, where he D. 1020. Although the "Schahnameh" has little historical value, it is still much read by his countrymen for its poetic beauties and the excellence of its language and style. A complete edition of the works of *F.* was published at Calcutta, by Turner Macau, in 1829.

Fere'tory, *n.* [Lat. *feretrum*, a bier, from Gr. *pheretron* — *pherō*. Heb. *pārā*, Sansk. *bhri*, to bear or carry,] A place in a church for a bier; a movable chest or shrine in which bones or relics of a dead person were inurned.

Ferenti'no, (anc. *Ferentinum,*) a town of Italy, 6 m. N.W. of Frosinone; *pop.* 8,714.

Ferghana, see Khokan.

Fer'gus I., king of Scotland, was the son of Fergus, king of the Irish-Scots, and was invited to Scotland to repel the Picts, and for this was chosen king. Drowned in his passage to Ireland, about 305 B. C.

Fer'gus, a river of Ireland, which rises in co. Clare, and, after a course of 30 m., embouches into the Shannon, by a wide æstuary, 10 m. from Ennis.

Fer'gus, a village of Ontario, county of Wellington.

Fer'gus, in *Montana*, a central co.; *area*, 6,762 sq. m.; drained by Judith and Carrow rivers and Box Elder creek. *Surface*, mountainous. *Min.*, gold, silver and coal. *Pop.* (1897) about 4,800. *Cap.* Lewiston.

Fer'gus Falls, in *Minnesota*, a city, cap. of Otter Tail co., on G. N. and N. P. R. Rs., 215 m. W. by S. of Duluth. *Pop.* (1895) 4,497.

Fer'guson, ADAM, a Scottish philosopher and historian, born in Perthshire, 1724. He was professor of moral philosophy in the Edinburg University, and is the author of *Principles of Moral and Political Science*, &c. The former of these has been often reprinted, and translated, and adopted as a text-book in some foreign universities; its principle is the admission of a moral sense. Died 1816.

Fer'guson, in *Missouri*, a post-village of St. Louis co.

Ferguson, in *Pennsylvania*, a township of Centre co.
—A township of Clearfield co.

Fer'gusonite, *n.* (*Min.*) A columbate of yttria, in tetragonal, hemihedral crystals. Lustre dull, externally brilliantly vitreous and sub-metallic on fracture. Color, brownish-black. *Hard.* 5·5–6; *sp. gr.* 5·838. Occurs at Cape Farewell, Greenland, and Ytterby, Sweden.

Fer'gusonville, in *New York*, a P. O. of Delaware co.

Fer'gusson, JAMES, an English architect and author, B. 1808. His principal works are, *Illustrations of the Rock-cut Temples of India; The Palaces of Nineveh and Persepolis Restored;* and the *Handbook of Architecture* (1855). *F.* is the architect of the Nineveh Court in the Crystal Palace, Sydenham, near London. D. 1886.

Fer'gusson, SIR WILLIAM, BART., F. R. S., an eminent English surgeon, B. 1808, and educated at Edinburgh University. Sir William was esteemed one of the leading consulting surgeons in Europe, is the author of *A System of Practical Surgery*, which is held in the highest estimation by the profession; and is the inventor of numerous surgical instruments, embodying ingenious improvements. *F.* was created a baronet in 1865, "in consideration of distinguished merit and eminence as a surgeon." D. Feb. 10, 1877.

Fe'riæ, *n. pl.* [Lat.] (*Roman Antiq.*) Solemn religious festivals. The most celebrated were the *Feriæ Latinæ* (Latin holidays), celebrated on the Alban Mount by all the states of Latium in common. This festival is said to have been originally instituted by the second Tarquin. At first it lasted for one day only: but in process of time it was extended to four. It was observed by the consuls regularly before they set out for their provinces.

Fe'rial, *a.* [L. Lat. *ferialis.*] Belonging, or having reference, to holidays.

Fe'rine, *a.* [Lat. *ferinus*, from *fera*, Gr. *phēr*, *phēros*, a wild beast; probably allied to Heb. *paratz*, to rend.] Pertaining to wild beasts; wild; untamed; savage; ferocious.
—*n.* A wild beast; an animal of prey.

Ferish'ta, MOHAMMED CASSIM, a Persian historian, who flourished in the 16th and 17th cent., was B. at Astrabad in Persia, but went early to India, and settled at Ahmedneggur in the Deccan. He was liberally patronized by the Sultan of Visipore, under whose auspices he published his *History of Hindostan under the Mussulmans*, a work of acknowledged merit for impartiality and truth. An English translation by Col. Briggs appeared in 1829.

Fermanagh, (*fer-măn'ā.*) an inland co. of Ireland, prov. Ulster, having S. Cavan, E. and N. Monaghan, Tyrone, and Donegal, and W. Leitrim. *Area*, 471,348 acres. Of this area, 48,797 acres are absorbed by Lough Erne and other waters. *Surface*, mountainous, and with a good deal of boggy land interspersed. Other parts are well wooded. *Soil*, tolerably fertile, producing oats, barley, wheat, flax, and potatoes. Many cattle are reared. Iron-ore is found, but is little worked. Lough Erne (see ERNE) divides this co. into two nearly equal portions, and is celebrated for its romantic beauty. *Cap.* Enniskillen.

Fermanagh, in *Pennsylvania*, a township of Juniata co.; *pop.* abt. 1,500.

Fermata, [It.] (*Mus.*) The name given to a pause, or resting-point, generally marked by the sign 𝄐. The notes over which this sign is placed are prolonged beyond their true length. The *F.* is frequently found near the end of a part of a composition, which affords an opportunity for the singer or player to introduce an extempore embellishment.

Ferment, *n.* [Lat. *fermentum*, for *fervimentum* — *ferveo*, *ferveo*, to boil up, to foam. See FERVENT.] That which causes fermentation, as yeast, leaven, &c. Intestine motion, or commotion; tumult; heat; agitation; as, one's blood is in a *ferment*.

"Subdue and cool the *ferment* of desire." — *Rogers.*

(*Chem.*) The substance which is essential to the process of fermentation. It is either naturally present in the fermentable juice, as in the grape; or it is added, as in the manufacture of beer, where *yeast* constitutes the ferment. Ferments are of an albuminous or glutinous character; the presence of nitrogen seems essential in their composition; hence they are classed by chemists among azotized compounds. Their modus operandi is still unexplained.

Ferment', *v. a.* [Lat. *fermento*, from *fermentum*.] To cause to boil up, rise or swell, by exciting into motion or agitation; to set in internal emotion; to heat; as, to *ferment* liquors.

"Ye vig'rous swains! while youth *ferments* your blood." — *Pope.*

—*v. n.* To rise and swell by internal commotion; to work inwardly; to effervesce; to be in motion, or to be excited into sensible internal motion.
—To palpitate with rage or anger; to become in a state of active excitement; as, "a *fermenting* intellect." — *De Q.*

Fermentabil'ity, *n.* Capability of being fermented or heated.

Ferment'able, *a.* Susceptible of fermentation, as a liquor.

Fermenta'tion, *n.* [Fr.; L. Lat. *fermentatio.*] Act or process of fermenting. — Active or excited state of the mind or senses.

"It puts the soul to *fermentation* and activity." — *Taylor.*

(*Chem.*) The conversion of an organic substance into new compounds in the presence of a *ferment*. This ferment acts simply by its presence in the substance undergoing fermentation, and does not take anything from or add anything to it. Certain extraneous conditions are necessary in all cases of *F.*, for instance, the presence of water and a moderately warm temperature. There are various kinds of *F.* designated according to their products. In *vinous F.*, sugar, or any substance capable of being easily converted into sugar, is resolved into carbonic acid and alcohol, 45 parts of sugar yielding 22 of carbonic acid and 23 of alcohol. Thus when the juices of plants or fruits containing sugar are kept at a temperature of 70° for several hours, the liquor becomes turbid, and small bubbles of gas make their appearance; in common language, it has begun to work or ferment. Under the combined influence of warmth, moisture, and oxygen, the albuminous matter has become decomposed and a change has commenced, which, after it has once begun, continues until the whole of the gas has been eliminated. If the gas is collected, it will be found to consist of carbonic acid only, and on distilling the fermented liquor, a spirit lighter than water passes over, which is readily recognized as dilute alcohol. If the liquor be further examined with a microscope, it will be found to contain a number of oval organized bodies in the form of cells. These cells will be fully described under the head of YEAST. This yeast is the ferment in this case, and if dried at a low temperature, it will preserve its power of exciting *F.* for a long time. This power is stopped by several chemical agents, such as strong mineral acids, the alkalies, excess of sugar, certain corrosive metallic salts, creosote, carbolic acid, and the essential oils. The change taking place in the sugar may be made plain by the formula:

$$\underset{\text{Grape-sugar}}{C_6H_{12}O_6} = \underset{\text{Carb. acid}}{4CO_2} + \underset{\text{Alcohol.}}{2(C_4H_{12}O_2)}$$

Pure cane-sugar (sucrose $C_{12}H_{22}O_{11}$) does not readily ferment; grape-sugar (glucose $C_6H_{12}O_6$) ferments easily, but the process takes place most easily in fruit-sugar, and it is probable that both grape and cane-sugar pass into fruit-sugar before they undergo the change of *F.* When *F.* is complete, 100 parts of fruit-sugar are resolved into 51·12 of alcohol and 48·88 of carbonic acid, so that the ferment adds nothing to and takes nothing from the elements of the sugar. The change that dough undergoes in bread-making is only a modification of the *alcoholic F.*, produced by the action of the yeast upon the starch and sugar contained in the flour. (See BREAD.) The change which commonly takes place when milk is allowed to ferment is the transformation of milk-sugar into lactic acid. This is the *lactic* acid *F.* The caseine of the milk acts the part of a ferment and induces the change in the sugar of milk. Other animal bodies are capable of effecting the same change in a shorter time; the use of rennet being a familiar example. By fermenting a mixture of sugar, cheese, and chalk with the milk, a second stage of the process is reached, in which butyric acid is formed, called the butyric acid *F.* Liquors containing sugar often pass into a ropy or thick condition, from the transformation, in part, of the sugar into a mucilaginous substance resembling gum-arabic. This change is called *viscous F.* Ferments are of two classes,

soluble and *organized*. The commonest of the former is diastase, occurring in malt. Pepsin in gastric juice is another. The organized ferments are minute plants, which feed upon and decompose sugar or other substances in solution, and yield the products of *F.*

Fermen'tative, *a.* [Fr. *fermentatif.*] Causing, or having power to cause or produce, fermentation; consisting in fermentation: as, a *fermentative* method.

Fermen'tativeness, *n.* State or condition of being fermentative.

Fermentes'cible, *n.* A constituent of a fermenting body.

Fer'mo, a walled city of Central Italy, until 1860 cap. of a delegation of same name, forming part of the States of the Church, prov. Ascoli, 3 m. from the Adriatic, and 32 S.S.E. of Ancona. Its harbor on the Adriatic, called *Porto di Fermo*, is small, and but little frequented. *Exp.* Corn, silk, and woollens. *F.* was founded by the Sabines before Rome existed, was colonized by the Romans towards the beginning of the First Punic War, and was repeatedly sacked by the Goths and other barbarians. In the 8th century the city was transferred to the Holy See. *Pop.* 20,895.

Fermoy', a thriving town of Ireland, co. Cork, on the Blackwater, 118 m. S.W. of Dublin. *F.*, formerly a village, has, of late years, owing to the establishment of a barracks for troops, developed into a handsome town. *Manuf.* Paper. *Pop.* 9,575.

Fern, or **Farne, Islands,** a group of 17 rocky islets off the N.E. coast of England, co. Northumberland; Lat. 55° 37′ N., Lon. 1° 30′ W. Two light-houses are found here, a vicinity noted for its perils to mariners. St. Cuthbert died here, and his stone coffin is still pointed out. The "Forfarshire" steamer was wrecked here in 1838, when 9 persons were saved by the heroism of Grace Darling, the daughter of a light-house keeper, and the "Ida Lewis" of England. The islands are the haunt of myriads of sea-birds.

Fern, *n.* [A.S. *fearn;* Ger. and O. Ger. *farn;* allied to Gr. *pteron*, a feather.] (*Bot.*) See FILICES.

Fernan'dez, NAVARETTE, surnamed *El Mudo*, or "the Dumb," an eminent Spanish painter, B. 1526. He was one of the most distinguished of Titian's pupils, and became painter to Philip II., for whom he adorned the Escurial with some of its finest pictures. Among his chief works are a *Martyrdom of St. James*, a *Nativity of Christ*, *St. Jerome in the Desert*, and his chef-d'œuvre *Abraham with the three Angels*. *F.*, whose brilliant coloring earned for him the name of the *Spanish Titian*, D. 1579.

Fernan'dez, (Juan.) See JUAN FERNANDEZ.

Fernan'dez de Ta'os, in *New Mexico*, a post-village, cap. of Taos co. Now called TAOS.

Fernandi'na, in *Florida*, a city, cap. of Nassau co., on Amelia Island, 33 miles N.N.E. of Jacksonville. *Pop* (1897) about 3,200.

Fernando-de-Apure, (San,) in Venezuela. See SAN FERNANDO-DE-APURE.

Fernan'do de Noron'ha, an island in the S. Atlantic Ocean, belonging to Brazil; Lat. 3° 59′ 4″ S., Lon. 32° 25′ 5″ W. It is 8 m. long, by a mean breadth of 2 m., and has a rugged, mountainous, wooded surface. It is used as a penal settlement for Brazilian offenders.

Fernan'do Po, an island in the Bight of Biafra, 20 m. from the African coast, and about 40 in length by 20 in breadth; Lat. between 3° 10′ and 3° 44′ N., Lon. between 8° 22′ and 8° 54′ E. *Desc.* Mountainous in the interior, and presenting a rich and varied aspect of beauty and fertility. A large portion of its surface is covered with dense forests of valuable timber, while the land gradually rises from the steep and rocky coasts into two peaks, culminating upwards of 10,000 ft. above sea-level. It is well watered, and the sugar-cane grows in spontaneous abundance. Yams form the staple food of the natives. Birds, some varieties of animals, and fish, are plentiful. *Climate.* Very unhealthy. *Chief Settlement.* Clarence Town. This island was discovered in 1471, by the Portuguese, who ceded it to Spain in 1778. The Spaniards eventually abandoned it, and the British, in 1824, selected it as a suitable military depôt and naval station. They, in their turn, abandoned it in 1834, on account of its insalubrity. The Spaniards again took possession in 1844, and called the island *Puerto de Isabel.* It is now used by them as a penal settlement, to which, in 1869, several Cuban patriots were deported, as being political prisoners.

Fern Creek, in *Kentucky*, a P. O. of Jefferson co.

Fern'dale, in *California*, a post-village of Humboldt co., abt. 15 m. S.E. of Eureka.

Fern'ery, *n.* A place or building expressly devoted to the culture and preservation of ferns.

Fer'ney, a village of France, dep. Ain, 5 m. N.W. of Geneva. This place not merely owes its celebrity, but even existence, to its having been for a lengthened period the residence of one of the greatest writers of modern times. Voltaire purchased this estate in 1768, and conferred the greatest advantages on *F.* Out of a paltry village, consisting of a few miserable cottages, he constructed a neat little town, in which he established a colony of industrious artisans, principally consisting of watchmakers from Geneva. The château, to which a fine small theatre was attached, was fitted up in a style of elegant simplicity; and his hospitalities were on the most liberal scale. Voltaire resided here, with little interruption, for more than 20 years. During the whole of this period, *F.* was to the literary and refined what Mecca is to the Mohammedan world; and the most distinguished personages of the time eagerly resorted to *F.* from all parts of Europe, to pay their respects to its illustrious master. Voltaire quitted *F.* for the last time, on the 6th of Feb., 1778. The inhabitants still cherish the remembrance of their benefactor, and admirers of Voltaire still make pilgrimages to Ferney, although the castle in which he lived has undergone so many alterations that it contains but few relics of him.

Fern Leaf, in *Kentucky*, a P. O. of Mason co.

Fern'-owl, *n.* (*Zoöl.*) A name applied to the goat-sucker.

Fern-root, *n.* See LASTRÆA.

Fern'ticle, *n.* A term applied, in some parts of England, to a freckle on the skin, appearing like the seed of a fern.

Fern'y, *a.* Containing fern; abounding in, or overgrown with fern; as, a *ferny* covert.

Ferocious, (*fe-ro'shus,*) *a.* [Fr. *féroce;* Lat. *ferox*, allied to *ferus*, wild. See FERINE.] Fierce; savage; rapacious; bloodthirsty; betokening cruelty; as, a *ferocious* beast, a *ferocious* look.

Fero'ciously, *adv.* With savagery or cruelty; fiercely; rapaciously; as, he looked at me *ferociously.*

Fero'ciousness, *n.* Quality of being ferocious; savageness; ferocity; fierceness; cruelty.

Feroc'ity, *n.* [Fr. *férocité;* Lat. *ferocitas*, from *ferox*, fierce.] Savage wildness or fierceness; fury; cruelty; as, the *ferocity* of a Highland chieftain, *ferocity* of mien.

Feronia, (*fe-ro'ne-a.*) (*Myth.*) A goddess at Rome, who presided over the woods and groves.

Fero'nia, *n.* [From the above goddess.] (*Bot.*) A genus of plants, order *Aurantiaceæ.* The species *F. elephantum* is a large tree, growing in India. A kind of gum, closely resembling gum-Arabic, exudes from its stem, and it is very probable that this constitutes part of the gum imported from the East Indies. The young leaves have an anise-like odor, and are used by the native doctors of India for their stomachic and carminative effects. The fruit is known as the elephant or wood-apple.

Fe'rons, *a.* [Lat. *ferus*, wild.] Savage; untamed.

Ferozabad', a town of Hindostan, British pres. Bengal, 24 m. E. of Agra; *pop.* abt. 10,000.—Also, the name of several minor places in India, Persia, &c.

Ferozepore', a town of N.W. Hindostan, dist. Sishind, near the Sutlej, 85 m. W. of Loodianah.—Another, prov. Agra, 5 m. S.S.W. of Delhi.

Ferozeshah', a village of Hindostan, in Lahore, 10 m. E.N.E. of Ferozepore. Here, Dec. 21st and 22d, 1845, a British force of 16,700 men and 69 guns, under Lord Gough, utterly defeated a Sikh army of 50,000 men, with 108 pieces of cannon, which were nearly all captured. The British lost 2,415 men killed and wounded.

Ferran'dine, *n.* A cloth composed of wool and silk.

Ferrara, (*fair-rar'a.*) a famous fortified city of Central Italy, cap. prov. of same name, and formerly an independent duchy under the rule of the House of Este, is situate in a low marshy plain, on the left bank of the Volano, 5 m. S. of the Po, and 26 N.N.E. of Bologna. Under the rule of its native princes, *F.* was the seat of one of the most polished and refined of the Italian courts, and is said to have had from 90,000 to 100,000 inhabitants. But it has long been in a state of decay, and numbers of its splendid palaces are uninhabited. The *Duomo*, or cathedral, was built in 1135, and is a vast but tasteless edifice. *F.* contains a great number of other churches, a university, and a fine public library (in which are deposited the MSS. and other relics of the poets Ariosto and Tasso), and one of the finest theatres in Italy. Its manufactures and trade are inconsiderable. The celebrity of *F.* is almost wholly derived from its association with two of the greatest names in the literature of Europe. Ariosto resided here, where, in 1516, was published the first edition of his immortal "Orlando;" and here, too, in 1533, he breathed his last. The house in which he lived is still carefully preserved. *F.*, besides being the birthplace, is also memorable as being the place of imprisonment of the poet Tasso, (*q. v.*) Guarini, author of the *Pastor Fido*, and Cardinal Bentivoglio, were also natives of *F.* From a small town *F.* became a walled city, A. D. 670. The family of Este possessed it first as chief magistrates, and afterwards as hereditary sovereigns, from abt. 1030 to 1597; when, on the death of its last duke, and the extinction of the male line of the house, it was taken possession of by the pope. In 1796, the French entered *F.*, and made it the cap. of the dep. of Basso Po. In 1814 the Church again recovered it, but in 1859 it became a part of the new kingdom of Italy. *Pop.* 68,516.

Ferra'ra, *n.* A kind of sword manufactured at Ferrara, in Italy. The most thoroughly tempered were stamped with the name of the manufacturer, Andrea di Ferrara, and were called *Andrew Ferraras.*

Ferrarese', *a.* Pertaining to Ferrara, in Italy.

Ferrarese', *n. sing.* and *pl.* An inhabitant of Ferrara; the whole body of its inhabitants.

Ferra'ri, LUDOVICO, an Italian mathematician, B. 1522, at Bologna, where he became professor. He was a pupil of Cardan, and the discoverer of the method of resolving bi-quadratic equations. D. 1566.

Ferreira, (*fer-rī'ra.*) ANTONIO, a poet ranked by the Portuguese as one of their classic authors, was B. at Lisbon, 1528. He carried to perfection the elegiac and epistolary style, and his *Inez de Castro* is the second regular tragedy that appeared after the revival of letters in Europe. D. 1560.

Fer'reous, *a.* [Fr. *ferreux;* Lat. *ferreus*, from *ferrum*, iron.] Made of, or pertaining to, iron; like iron.

Ferre'ras, JUAN DE, a Spanish historian, B. 1652. He wrote works on philosophy, theology, &c., but his chief performance is his *History of Spain*, 10 vols. 4to. He also aided the compilation of the great Spanish Dictionary. D. 1735.

Fer'ret, *n.* [Fr. *furet;* Lat. *furectus, furetus;* W. *ffured*, that which is cunning or subtle, wily; Ger. *frett;* allied to Lat. *fur*, a thief.] (*Zoöl.*) The *Mustela furo*, a useful but ferocious little animal of the family *Mustelidæ*, kept in a domesticated state in Europe, and used for rabbit-hunting, as well as for destroying rats. In its general form it resembles the Polecat, but is rather smaller; its usual length being about 13 inches, exclusive of the tail, which is about five. It has a very sharp nose, red and fiery eyes, and round ears. Its color is a pale yellow. In the slenderness of its body and the shortness of its legs it resembles the weasel. In its wild state it is a native of Africa. The cold of European winters is so severe for it, that it becomes necessary to keep it in a warm box, with wool or some other substance in which it may imbed itself. In this state it sleeps almost continually; and when awake, immediately begins to search about for food: that which is usually given is bread and milk, but its favorite food is the blood of smaller animals. It is by nature an enemy to the rabbit; and Buffon affirms, that whenever a dead rabbit is presented for the first time to a young *F.*, he flies upon it in an instant, and bites it with great fury; but if it be alive, he seizes it by the throat, and sucks its blood. When sent into the burrows of rabbits, the *F.* is always muzzled, that he may not kill the rabbits in their holes, but only drive them out to be caught in the nets prepared for them. The *F.* is tame without attachment; and such is its appetite for blood, that it has been known to attack and even kill children in their cradles. It is of an irascible nature, and when irritated, the odor it emits is very disagreeable, and its bite is not easily cured. The female has two broods in the year, each consisting of from six to nine. She not unfrequently devours her young as soon as they are born.



Fig. 1001.—FERRET, (*Mustela furo.*)

Fer'ret, *n.* [Fr. *fleuret*, coarse silk.] A sort of narrow tape made of coarse spun silk.—The iron used by glass-blowers to test the liquefied matter, to see whether it is yet fit for working, and to make the circular protuberance at the month of bottles.

—*v. a.* To drive out of lurking-places; to find out by patient and laborious effort; as, to *ferret* out a crime. In the latter sense, it is most frequently used with *out.*

Ferret Col, (*fer'rā,*) a pass of the Pennine Alps, in Switzerland, connecting Orsières, in the latter country, with Cormayeur, in Piedmont. Height 7,640 feet above sea-level.

Fer'reter, *n.* One who searches for, or hunts patiently, a person or thing.

Ferret'to, *n.* [It. dim. of *ferro*, from Lat. *ferrum*, iron.] A material used in glass-coloring, composed of copper and white vitriol.

Fer'riage, *n.* [See FERRY.] The fare to be paid for conveyance in a boat, over a river, strait, or other water.

Fer'ric, *a.* [Fr. *férrique;* Lat. *ferrum*, iron.] Pertaining to, or extracted from, iron; as, *ferric* acid.

Fer'ric Acid, *n.* [Lat. *ferrum*, iron.] (*Chem.*) An unstable teroxide of iron known only in combination with bases as *ferrates.* If one part of sesquioxide of iron and 4 of dry nitre be fused together for an hour in a covered crucible, a brown mass is obtained, giving a violet-colored solution, containing ferrate of potash. Solutions of the ferrates of the earths may be formed by mixing ferrate of potash with solutions of their salts. *F. A.* has never been obtained in a free state. *Form.* FeH_2O_4.

Ferricya'nogen, or FERRIDCYANOGEN, *n.* [Lat. *ferrum*, iron, and *cyanogen.*] (*Chem.*) A radical derived from cyanogen, but which has never been isolated. It gives rise to salts known as ferricyanides, a good example of which is the *ferricyanide of potassium*, or red prussiate of potash of commerce. This salt is formed by passing chloride through a solution of ferrocyanide of potassium. The liquid assumes a brown color, and, when evaporated, deposits beautiful red rhombic crystals. Ferricyanide of potassium is prepared in large quantities for the use of the calico-printer. The splendid dye known as Turnbull's blue is formed by mixing it with a solution of protosulphate of iron. *Form.* for *F.*, $C_{12}N_{12}Fe_2$.

Fer'rier, *n.* One who has charge of a ferry-boat.

Fer'rier, JANE, a Scottish novelist, B. at Edinburgh, 1782. She was an intimate friend of Sir Walter Scott, and of some of the most eminent literati of her day. She wrote three novels, which are still popular, viz.: *Marriage; The Inheritance;* and *Destiny, or the Chief's Daughter.* They are vigorous and lively pictures of Scottish life and character. D. 1854.

Ferrif'erous, *a.* [Fr. *ferrifère*, from Lat. *ferrum*, iron, and *ferre*, to bear.] Producing or yielding iron.

Fer'ris, in *Michigan*, a post-township of Montcalm co., about 50 m. W. of Saginaw City.

Fer'risburg, in *Vermont*, a post-township of Addison co., on Lake Champlain, about 30 m. W. by S. of Montpelier.

Fer'ro. See CANARY ISLANDS.

Ferrocal'cite, *n.* (*Min.*) Calcite containing carbonate of iron.

Ferroco'baltite, *n.* (*Min.*) Cobaltite (or Cobaltine, *q. v.*) containing iron.

Ferrocy'anate, *n.* [Lat. *ferrum*, iron, and Gr. *kúanos*, a dark-blue substance.] (*Chem.*) Same as FERROCYANIDE, *q. v.*

Ferrocy'anide, *n.* (*Chem.*) See FERROCYANOGEN.

Ferroeyan'ogen, *n.* [Lat. *ferrum*, iron, and *cyanogen*.] A radical derived from cyanogen that has never been isolated. It gives rise to salts known as ferrocyanides, of which the *ferrocyanide of potassium*, or yellow prussiate of potash, is an example. This salt is manufactured on a very large scale for the use of color-makers and calico-printers, by heating dried blood, bones, parings of hides, and other nitrogenous animal matter, with an equal weight of carbonate of potash, and ⅓ of iron-filings. The fused mass is heated with water in open boilers, when a yellow solution is obtained, which, after evaporation, yields truncated pyramidal crystals of ferrocyanide of potassium, containing 3 equivalents of water. It is very soluble in water, but insoluble in alcohol. It contains the elements of prussic acid when in solution, but is not poisonous. Distilled with sulphuric acid it yields prussic acid in large quantities. It is much used in calico-printing and color-making for the production of a fine blue color known as Prussian blue (*q. v.*), with the persalts of iron. When protosalts of iron are used, a dirty, greenish-white precipitate falls down, which constitutes one of the distinguishing tests between the per- and proto-salts of iron. It is also used in the manufacture of cyanide of potassium. With the salts of copper it forms a characteristic purple-brown precipitate, and is used as a test for salts of that metal. With salts of cobalt it gives a yellowish-green precipitate.

Fer'rol, a fortified seaport-town of Spain, on the N.W. coast of Galicia, prov. of Corunna, and one of the 3 naval deps. of the kingdom. It is situated on the N. arm of the Bay of Betanzos, 12 m. N.E. of the city of Corunna, and 25 S.W. of Cape Ortegal; Lat. 43° 29′ 30″ N., Lon. 8° 15′ W. The harbor of *F.* is one of the best in Europe in point of depth, capacity, and safety, and is approached by a narrow channel only admitting one vessel at a time, and which is commanded by strong forts. This port being intended for the royal navy, general commerce and all foreign merchant-ships are excluded. It was captured by Marshal Soult in 1809. *Pop.* 19,144.

Fer'romont, in *New Jersey*, a village of Morris co., about 10 m. W.N.W. of Morristown.

Ferrotit'anite, *n.* (*Min.*) Same as SCHORLORNITE, *q. v.*

Ferru'ginated, *a.* [See INFRA.] Having the properties of oxide of iron.

Ferrugin'eous, or **Ferru'ginous,** *a.* [Fr. *ferrugineux*; Lat. *ferrugineus*, from *ferrugo*, oxide of iron.] Of the color of rust, or oxide of iron.

—Partaking of iron; containing particles of iron.

Ferru'go, *n.* [Lat., iron rust, from *ferrum*, iron.] A disease in certain plants, commonly called RUST, *q. v.*

Fer'rule, (*fer'ril*, or *fer'rool.*) *n.* [Fr. *virole*, from Lat. *viriola*, a little bracelet; dim. of *viriæ*, an ornament for the arm.] A ring of metal put around the end of a cane, staff, or other thing, to strengthen it.

Ferru'minate, *v.a.* [Lat. *ferruminare*, from *ferrumen*, cement for brazing.] To braze, solder, or unite metals.

Ferrumina'tion, *n.* [See SUPRA.] The brazing, or soldering of metals.

Fer'ry, *n.* [A. S. *fær*, *faru*, a passage, from *faran*, to pass.] A liberty to have a boat upon a river for the transportation of men, horses, and carriages with their contents, for a reasonable toll. — Also the place across which such vessel passes. — In the U. States, ferries are established by legislative authority, exercised either directly or by a delegation of powers to courts, commissioners, or municipalities. Without such authority no one, though he may be the owner of both banks of the river, has a right to keep a public ferry. The owners of ferries are common carriers, and liable, as such, for the carriage of the goods and persons that they receive on their boats. They may determine when and how often, and upon what terms, their boats shall cross the river, and what they will transport; but all these things they must do by general rules, without favoritism or arbitrary exception.

—The term is also commonly applied to the vessel for ferrying, or ferry-boat.

Fer'ry, *v. a.* [A. S. *ferian*, to cause to pass, from *faran*, to go.] To convey, or carry over a river, strait, or other water, in a boat.

—*v. n.* To pass over a stream, or strait, in a boat.

Fer'ry, in *Iowa*, a post-office of Mahaska co.

Fer'ry-boat, *n.* A boat for conveying passengers across a ferry.

Fer'ryland, a town on the S.E. coast of Newfoundland, about 35 m. S.W. of St. John's.

Fer'ry-man, *n.* One who, for hire, transports goods or passengers across a stream or strait.

Ferry Point, in *California*, a village of Del Norte co., about 65 m. E. of Crescent City.

Fer'rysburg, in *Michigan*, a post-village of Ottawa co., on Grand River, about 2 m. from Lake Michigan.

Fer'ryville, in *Alabama*, a post-office of St. Clair co.

Fer'ryville, in *Wisconsin*, a P. O. of Crawford co.

Fer'tigs, in *Pennsylvania*, a post-office of Venango co.

Fertile, (*fer'til,*) *a.* [Fr. *fertile*; Lat. *fertilis*, from *ferre*, to produce.] Fruitful; producing fruit abundantly; rich; prolific; productive; inventive; as, a *fertile* mind, a country *fertile* in mineral, a *fertile* flock.

(*Bot.*) Capable of producing fruit. Stamens are also said to be fertile when their anthers contain good pollen. — A *fertile flower* is one having pistils.

Fer'tilely, *adv.* In a fertile manner.

Fer'tileness, *n.* Fertility.

Fertil'ity, *n.* [Fr. *fertilité*; Lat. *fertilitas*, from *fero*, to bear, to produce.] Richness; quality of producing fruit in abundance; abundant resources; fertile invention.

Fertil'ity, in *Pennsylvania*, a P. O. of Lancaster co.

Fer'tilize, *v.a.* [Fr. *fertiliser*.] To make fertile or productive; to enrich; to fecundate; as, to *fertilize* the soil.

Fer'tilizer, *n.* The person or thing that renders productive; as, guano is a great *fertilizer*.

Fertiliza'tion, *n.* The act or process of rendering productive.

(*Bot.*) See IMPREGNATION.

Fer'ula, *n.* (*Bot.*) A genus of the order *Apiaceæ*, including plants with yellow flowers, and thin, flat fruit resembling that of the parsnip. The species are chiefly natives of Persia. *F. asafœtida* is the plant described by Kæmpfer as yielding the milky juice called asafœtida; but *F. persica* and others are no doubt also the origin of the drug.

Ferula'ceous, *a.* [Lat. *ferulaceus*, from *ferula*, the giant fennel.] Having a stalk like a reed, or resembling the giant fennel; as, the *ferulaceous* plants.

Fer'ule, *n.* [Lat. *ferula*, from *ferio*, I strike.] A little flat piece of wood for punishing children at school, by striking them on the palm of the hand. It is often applied, also, to a species of cane used for the same purpose of castigation. — In the time of the Eastern empire, the *ferula* was the name given to the emperor's sceptre. It consisted of a long stem with a flat head, and is often seen depicted on old medals.

Fer'ule, *v. a.* To punish with a ferule.

Fer'veney, *n.* [It. *fervenza*, from Lat. *fervere*, to boil, to glow.] Heat of mind; ardor; eagerness; pious ardor or zeal; warmth of devotion; as, when you pray, let it be with *fervency*.

Fer'vent, *a.* [Lat. *fervens*, from *fervere*, to be aglow.] Glowing; boiling; burning; hot; as, the *fervent* summer.

—Warm in feeling; hot in temper; ardent; excited; animated; glowing with religious zeal: flaming with devotion; as, a *fervent* desire to do good, a *fervent* Catholic.

Fer'ventiy, *adv.* Ardently; zealously; eagerly; vehemently.

Fer'ventness, *n.* The quality of being zealous or vehement.

Ferves'cent, *a.* [Lat. *fervescere*, incept. from *fervere*, to boil, to glow.] Beginning to grow hot.

Fer'vid, *a.* [Lat. *fervidus*, hot, from *fervere*.] Hot: burning: boiling; as, the *fervid* rays of the sun.

—Vehement; eager; zealous; as, you have my *fervid* wishes.

Fer'vidly, *adv.* With glowing warmth; very hotly.

Fer'vidness, *n.* Glowing heat; ardor of mind; warm zeal.

Fer'vor, *n.* [Lat., from *fervere*.] Heat: warmth; as, the *fervor* of the day. — Heat of mind; zeal; ardor of piety: as, the *fervor* of his devotion.

Fesa, (*fā'sa,*) a town of Persia, prov. Farsistan, 78 m. S.E. of Shiraz. *Manuf.* Silks, cottons, woollens. *Pop.* estim. at 18,500.

Fes'cennine Verses, *n. pl.* (*Anc. Poetry.*) A kind of rude licentious poetry, common in ancient Italy, and said to have derived their name from Fescennium, an Etrurian city where they had their origin. They were in the form of dialogues between two persons, who satirized and ridiculed each other's follies and vices. They were sung on festive occasions, as the harvest-home and weddings. The emperor Augustus prohibited them, as tending to corrupt the public morals. They are chiefly remarkable as giving rise to Satire, *q. v.*

Fesch, (*fesh,*) JOSEPH, Cardinal-Archbishop of Lyons, and brother of Letitia Ramolino, mother of Napoleon I., B. at Ajaccio, Corsica, 1764. He was educated in France for the Church; in 1790 he was appointed by his nephew, Gen. Bonaparte, commissary-general of the army of Italy, in which capacity he realized a princely fortune. He afterwards resumed his clerical studies, and adopting the profession, was, in 1802, consecrated archbishop of Lyons. In the year afterwards, *F.* received a cardinal's hat, and was sent to Rome as French ambassador. In 1804 he accompanied Pius VII. to Paris, to assist at the emperor's coronation, and in the following year was created Grand Almoner of France. As president of the Council of Paris, he energetically opposed his nephew on many occasions, and especially espoused the cause of the unfortunate pope. He finally fell into disgrace with the emperor, and retired to Rome, where he passed the remainder of his life in dignified ease and affluence, possessing the finest library and picture-gallery that even Rome could boast of. D. 1838.

Fes'cue, *n.* [Fr. *fêtu*; O. F. *festu*, from Lat. *festuca*, a grass.] A small stick, stalk, wire, or the like, used to point out the letters to children learning to read.

—*v. a.* To point out the letters with a fescue.

Fes'cue-grass, *n.* (*Bot.*) See FESTUCA.

Fe'sels, or **Fa'sels,** *n.* [Fr. *faséoles*; Lat. *phaseolus*; Gr. *phasiolus*, the kidney-bean.] A kind of base grain.

Fess, or **Fesse,** *n.* [N. Fr. *fasce*; Lat. *fascia*, a band.] (*Her.*) One of the memorable ordinances, consisting of lines drawn horizontally across the shield, and containing the third part of it, between the honor point and the nombril. It is supposed to represent the waist-belt or girdle of honor, which was one of the insignia of knighthood. — *Per Fess.* A shield, or charge in a shield, is said to be *party per fess*, when it is horizontally divided through the middle, or, as the French say, simply *coupé*. — *Fesswise* is said of a charge placed *in* fess; that is to say, horizontally across the shield.

Fess'-point, *n.* (*Her.*) The exact centre of an escutcheon.

Fes'tal, *a.* [Lat. *festalis*, from *festum*, a feast. See FEAST.] Pertaining to a festival; joyous; gay; mirthful.

Fes'tally, *adv.* Joyously; mirthfully.

Fes'tennine, or **Fescennine,** *n.* See FESCENNINE VERSES.

Fes'ter, *v. n.* [Perhaps from Lat. *pus*, or *pustula*, matter, or a sore emitting matter.] To rankle; to putrefy; to become corrupt or purulent: said of wounds or sores.

—To become malignant; as, the quarrel *festers* in his breast.

—*v. a.* To cause to grow virulent.

—*n.* An inflammatory tumor discharging matter.

Fes'terment, *n.* The condition of rankling, as of the passions.

—The discharge of matter, as of sores or wounds.

Festi'no, *n.* (*Logic.*) The third term of the second figure of the syllogism, the first of which is a universal negative proposition, the second a particular affirmative, and the third a particular negative; as,

> "*Fes.* No had man can be happy;
> *Ti.* Some rich men are bad men; ergo,
> *No.* Some rich men are not happy."—*Craig.*

Fes'tival, *n.* [Lat. *festivus*, joyous, gay; from *festum*, a feast.] Time of feasting; an anniversary day of civil or religious joy. — See FEAST.

—*a.* Pertaining to a feast; joyous; mirthful.

Fes'tive, *a.* Gay; mirthful; joyous.

Festively, *adv.* In a festive manner.

Festiv'ity, *n.* [Lat. *festivitas*, a holiday.] Joyfulness; gayety; social joy, or exhilaration of spirits at an entertainment; as, the *festivities* of this holiday time.

—A time of rejoicing; a festive celebration.

Fes'tivous, *a.* Pertaining to a feast; joyous; mirthful.

Festoon', *n.* [Fr. *feston*, from Lat. *festum*, a feast.] Something in imitation of the garland or wreath much used by the Italians on the church-doors, at the celebration of their feasts; a wreath hanging in a dependent curve.



Fig. 1002. — FESTOON.
(From St. Mark's Library, Venice.)

(*Arch. & Sculp.*) An ornament composed of flowers, fruits, and leaves interwoven or twisted together, suspended at each end, and falling down in the form of a curve or arch.

—*v. a.* To form into, or deck with garlands, thickest at the middle and suspended by the two extremes.

Festooned', *p. a.* Adorned with festoons.

Festoon'y, *a.* Consisting of festoons.

Festu'ca, *n.* (*Bot.*) The Fescue, a genus of plants, order *Graminaceæ*, having in some species a loose, in some a contracted panicle; the spikelets many-flowered, with two unequal glumes, which they much exceed in length; each floret having two lanceolate paleæ, the outer palea rounded at the back, and acuminate or awned at the summit; the stigmas growing from the apex of the germen. The species are numerous, and are very widely diffused over the world, both in the northern and southern hemispheres. Among them are many of the most valuable pasture and fodder grasses. None are more valuable than some of the British species. — *Meadow Fescue* (*F. pratensis*), a species with spreading panicle and linear spikelets, from two to three feet high, introduced in fields and pastures, is perhaps excelled by no meadow or pasture grass whatever. It is suitable both for alternate husbandry and for permanent pasture.

Fes'tus, PORCIUS, pro-consul and governor of Judæa, before whom St. Paul was accused by the Jews; but the apostle appealing to the emperor, Festus sent him to Rome. — Also, a celebrated Latin grammarian, whose age is not accurately ascertained; but he is believed to have lived in the 3d century. He compiled some voluminous works on his favorite science, and is classed by Scaliger among the best or most useful etymologists for understanding the language of ancient Rome. Porcius Festus lived in the 1st Century, A. D.

Fe'tal, *a.* [From FETUS, *q. v.*] Belonging to a fœtus.

Feta'tion, *n.* The formation of a fœtus.

Fetch, (*fech,*) *v. a.* [A. S. *feccan*, *gefeccan*; Fris. *faka*, to prepare; Icel. *fâk*, haste; Dan. *fage*, quick, fleet.] To go and bring, or simply to bring; to bring or draw; to get; as, to *fetch* a book.

> "And with a corded ladder *fetch* her down." — *Shaks.*

(In strictness, the term *fetch* expresses the *going* to a place for the purpose of *bringing* something thence; but the distinction is often colloquially lost sight of, and *fetch* and *bring* are thus used synonymously.)

—To obtain as its price: to sell for; as, the goods *fetched* a handsome profit. — To make: to perform; to do; to accomplish; as, she *fetched* a deep sigh, to *fetch* one a blow in the face, to *fetch* a turn in a cable.

"The fox *fetched* a hundred leaps at a cluster of grapes." *L'Estra.*

—To reach: to arrive at; to come to; to attain; — sometimes before *up*.

"Says the hare, I can *fetch up* the tortoise when I please." *L'Estra.*

—To bring back or recall, as to consciousness; as, to *fetch* a person out of a swoon.

—To reduce; to throw; as, to be *fetched* down by a push. *To fetch a pump.* (*Naut.*) To pour water into in order to make it suck. — *To fetch way.* (*Naut.*) To be cranky, or inclined to be hove from one side to the other; — said of a ship.

—*v. n.* To move or turn; to reach: to attain: as, to *fetch* to windward.

—*n.* [A. S *facen*, *faecn*, fraud, guile: Ger. *faxen*; Icel. *fyx*, cunning. See FOX.] A stratagem by which anything is indirectly performed, or by which one thing

seems intended and another is done; as, "It is a *fetch* of wit." (*Shaks.*) — A wraith; the apparition of a living person.

"The very *fetch* and ghost of Mrs. Gamp, bonnet and all." *Dickens.*

Fetch'er, *n.* One who fetches or brings.

Fête, (*fāt,*) *n.* [Fr. See FEAST.] A festival; a celebration; a merrymaking; a festivity.

Fête, *v. a.* To entertain; to feast; to give a festival in honor of; as, to *fête* royalty.

Fête-champêtre, (*fāt-sham-pā'tr,*) *n.* [Fr.] A festival held in the open air; an *al fresco* entertainment; a picnic.

Fethard, a town of Ireland, co. Tipperary, 8 m. S.E. of Cashel; *pop.* 4,306.

Fe'tich, Fe'tish, *n.* [Fr. *fétiche*, from Lat. *factitius.*] An object of idol-worship among certain of the African negro tribes.

Fetichism, Feticism, (*fĕt'i-shizm,*) *n.* [Fr. *fetichisme.*] The worshipping of a fetich. The word fetich is said to be derived from the Portuguese word *fetiso*, bewitched, or possessed by fairies, and was applied by them to the object worshipped by the negroes of Africa. Hence the term has come to be generally received, and is applied to anything in nature or art to which a magical power is ascribed, as stones, carved images, &c. Fetichism is the worship of material substances, and prevails very extensively among barbarous nations, especially those of the negro race. Among them, tribes, families, and individuals have their respective fetiches; which are often objects casually selected, as stones, weapons, vessels, plants, &c., and the rude worshipper does not hesitate to chastise, or even throw away or destroy his fetich, if it does not seem to gratify his desires. "To transfer," says Mr. Grote, "to inanimate objects the sensitive as well as the willing and designing attributes of human beings, is among the early and wide-spread instincts of mankind, and one of the primitive forms of religion; and although the enlargement of reason and experience gradually displaces this elementary fetichism, and banishes it from the regions of reality into those of conventional fictions, yet the force of momentary passion will often suffice to supersede the acquired habit, and even an intelligent man may be impelled, in a moment of agonizing pain, to kick or beat the lifeless object from which he has suffered." *History of Greece*, vol. v.



Fig. 1003.
FETICHES AND AMULETS.

Fe'ticide, *n.* [From *fœtus*, and Lat. *cædere*, to kill.] (*Med.*) The act or process of killing the fœtus in the womb.

(*Law.*) The act of causing abortion.

Fe'tid, *a.* [Lat. *fœtidus*, from *fœteo*, to stink.] Having a strong or rancid scent; possessing noxious or offensive smell; stinking; as, a *fetid* breath.

"Cairo's filth and *fetid* fields." — *Thomson.*

Fe'tidness, *n.* Quality of being fetid, or of smelling offensively; fetor; putrescent stench.

Fetiferous, *a.* [See FETUS.] Bringing forth young, as animals.

Fe'tish, *n.* Same as FETICH, *q. v.*

Fet'lock, *n.* [From *feet* and *lock.*] The tuft of hair that grows behind on a horse's foot; also, the joint on which such hair grows; the part of a leg where a tuft of hair grows behind on horses.

"Their wounded steeds fret *fetlock* deep in gore." — *Shaks.*

Fe'tor, *n.* [Lat. *fœtor.*] Stench; stink; an offensive smell; a putrescent odor; fetidness.

(*Med.*) The term is generally confined to the offensive gases given off from decomposition, the result of inflammation, as in cases of sloughing or mortification after wounds and injuries: also from the decay of the teeth, or a depraved state of the stomach, tainting the breath, when the person is said to have a fetid breath; and also from the exhalations given off from the mouth and body in typhus or low putrid fever; and finally, in cases of salivation, where the breath becomes highly disagreeable from the absorption of the mercury.

Fett'bol, *n.* (*Min.*) Same as CHLOROPAL, *q. v.*

Fet'ter, *n.* [A. S. *fœter*, *fetor*, pl. *fœtero*, from *fot*, pl. *fēt*, a foot; Icel. *fiötur*, (pl.) See FOOT.] A chain or shackle put on the leg of a malefactor, or a person accused of crime.

—Anything that confines or restrains from motion or action; as, the *fetters* of love.

"Passions too fierce to be in *fetters* bound." — *Pope.*

—*v. a.* To put fetters upon; to shackle or confine, as the feet with a chain; to bind.

"My heels are *fettered*, but my fist is free." — *Milton.*

—To confine, as action; to restrain motion; to impose checks or restraints upon; as, *fettered* by obligations.

"My conscience! thou art *fetter'd* more than my shanks or wrists." *Shaks.*

Fet'terless, *a.* Unshackled; free from fetters.

Fet'terman, in *W. Virginia*, a post-village of Taylor co., abt. 100 m. S.E. of Wheeling.

Fet'tle, *v. a.* [From O. Fr. *faiture.*] To repair; to manage; to set to rights; to put in order. (In extensive provincial use in England.)

"Pretend to *fettle* about the room." — *Swift.*

—*v. n.* To do job-work; to manage small matters.

Fet'tle, *n.* Act of fettling or putting to rights; a placing in order. (Prov. English.)

Fett'stein, *n.* [Ger., fat-stone.] (*Min.*) Same as NEPHELITE, *q. v.*

Fe'tus, *n.*; *pl.* FETUSES. [Lat. *fœtus*, from the root *feo*, implying fruitfulness, increase.] The young of an animal in the womb after being perfectly formed.

Fet'wah, *n.* [Ar.] A decision rendered in writing by a Turkish mufti.

Feuch'tersle'ben, EDUARD, BARON VON, an eminent German physician and lyrical writer, b. at Vienna, 1806. He graduated in medicine at the university of that city in 1833, and in 1845 was appointed dean of the Medical Faculty. His principal works are, *Lehrbuch der ärztlichen Seelenkunde* (1845), which has been translated into English, and *Zur Diätetik der Seele* (1838), which has run through not less than 28 editions. *F.* wrote many "Burschenlieder," (student-songs,) one of which, *Es ist bestimmt in Gottes Rath*, is very popular in Germany. His complete works, in 7 vols., were published by Hebbel, Vienna, 1851–3. D. 1849.

Feud, (*fūd,*) *n.* [A. S. *fachthe*, vengeance; Ger. *fehde*; Dan. *fejde*; Icel. *fued*, smothered anger. Root Sansk. *pīḍ*, to pain.] A deadly quarrel; hatred or contention, to be terminated only by death; a contention, broil, contest, strife, or quarrel; particularly families or parties in a state.

"In former ages it was a policy of France to raise intestine *feuds* and discords in Great Britain." — *Addison.*

—A combination of persons, connected by ties of blood or descent in common, to revenge any affront or injury done or offered to one of their race, on the offender and all his kindred; a vendetta.

"As fierce and lasting as a Highland *feud.*" *Marquis of Montrose.*

Feud, *n.* [From L. Lat. *feudum*; It. *feudo*, *fio*; Fr. *fief.*] (*Law.*) Same as FEE, *q. v.* See, also, FEUDAL SYSTEM.

Feudal, (*fū'dal,*) *a.* [O. Fr.] Pertaining to fends, fiefs, or fees; as, held by *feudal* tenure. — Consisting of feuds or fiefs; embracing tenure by military services; as, the *feudal* system, the *feudal* ages.

Feu'dalism, *n.* The feudal system.

Feu'dalist, *n.* One versed in feudal laws; one who advocates the feudal system.

Feudal'ity, *n.* [Fr. *féodalité.*] State or quality of being feudal; feudal form or constitution.

Feudaliza'tion, *n.* Act of reducing to feudal tenure.

Feu'dalize, *v. a.* To reduce to a feudal state or tenure.

Feu'dally, *adv.* In a feudal manner; after the feudal laws.

Feudal System, *n.* (*Hist.*) That constitutional system which was introduced into Europe by the northern nations after the fall of the Roman power, and which has left important traces of its existence in most European countries. The constitution of *feuds* had its origin in the military policy of the Goths, Huns, Vandals, and other northern nations, who overran Europe at the declension of the Roman Empire. The term feud is of very doubtful derivation, but most probably it is formed from the Teutonic *fee* or *feh*, wages or pay for service, and *odh*, or *od*, property or possession; a feud, then, being the property or possession given as wages for service. In order to secure their newly acquired possessions, and at the same time to reward their deserving followers, the conquering generals were wont to allot large districts, or parcels of land, to the superior officers of the army, and these were by them again dealt out in smaller allotments or parcels, to the inferior officers and soldiers. The condition annexed to these holdings was that the possessor should do service faithfully, both at home and in the wars, to him by whom they were given; for which purpose he took the oath of fealty (*juramentum fidelitatis*), and in case of the breach of this condition and oath, by not performing the stipulated service, or by deserting the lord in battle, the lands were again to revert to him who granted them. The ownership of the land, therefore, properly remained in the hands of the superior, and probably at first was resumable by him at pleasure, or at least on the death of the holder; but in most countries, lands soon came to assume an hereditary character, the rights of a superior, on the death of a vassal, being confined to the exaction of certain dues from his son and successor, as a consideration for confirming to him the feud which his father had held. Where the land descended to a female, the superior was entitled to control her marriage, for the purpose of procuring a trustworthy vassal, a privilege which, like the other, was afterward converted into a pecuniary payment. According to this system, every receiver of land, or feudatory, was bound, when called upon, to serve his immediate lord or superior, and to do all in his power to defend him. Such lord or superior was likewise subordinate to, and under the command of, a higher superior or lord; and so on upwards to the prince or general himself. The several lords were also reciprocally bound in their respective gradations to protect the possessions they had given. Thus the connection between lord and vassal was made to wear all the appearance of a mutual interchange of benefits — of bounty and protection on the one hand, and of gratitude and service on the other. In this way the feudal connection was established, and an army was always at command, ready to fight in defence of the whole or of any part of the newly acquired territory. The wisdom of these measures became evident to the other princes of Europe, and many of them who were independent adopted this system as a means of strengthening their power, parcelling out their royal territories, or persuading their subjects to surrender up and retake their own landed property under the like feudal obligations of military fealty. Thus the feudal constitution, or doctrine of tenure, extended itself over all the Western world; and the feudal laws drove out the Roman, which had hitherto universally prevailed. This system was adopted in most countries of Europe from the 9th to the end of the 13th cent.; but it differed in various particulars in the different countries. Though there can be no doubt that feudal principles prevailed to a considerable extent in the polity of the Saxons in England, yet it was only when that country was conquered by the Normans that it was regularly established. In some respects, however, the system of feudalism established in England differed from that of France, from which it was taken. One of these was that the king was the universal lord and original proprietor of all the lands in his kingdom, and that no man could possess, or hold, any part of it, but what was mediately or immediately derived from him, to be held mediately or immediately of him upon feudal service. Hence the Conqueror introduced the practice of compelling those holding mediately as well as immediately of himself to swear fealty to him; and thus the inferior vassals were under two oaths — the one of fealty to the king, the other of fealty to their immediate superior. It has been remarked, however, that when the two interests came into collision, the vassal rarely failed to obey his lord rather than his king. A country, under the feudal law, was divided into *knights' fees*, the tenant of each of which appears to have been obliged to keep the field at his own expense for forty days, whenever his lord chose to call upon him. For smaller portions of land, smaller periods of services were due. Every great tenant exercised a jurisdiction, civil and criminal, over his immediate tenants, and held courts, and administered the laws within his lordship, like a sovereign prince. The existence of manor-courts and other small jurisdictions within the kingdom is one of the features of the *F. S.* The land escheated to the lord when the tenant left no heir, and it was forfeited to him when he was found guilty either of a breach of his oath of fealty or of felony. There were also fines payable to the lord on certain occasions, as well as aids, reliefs, &c. The vassal had also to attend the lord's courts, sometimes to witness, and sometimes to take part in, the administration of justice; in battle, he was bound to lend his horse to his lord if dismounted, to keep to his side while fighting, and go into captivity as a hostage for him when taken. It was a breach of faith to divulge his (the lord's) counsel, to conceal from him the machinations of others, to injure his person or fortune, or to violate the sanctity of his roof.

Feu'dary, *a.* Holding land of a superior, or by feudal service; a feodary.

Feu'datary, Feu'datory, *a.* [O. Fr. *feudataire*; Sp. *feudatário.*] Holding from another on some conditional tenure.

Feu-de-joie, (*fū-de-zhwâ',*) *n.* [Fr., fire of joy.] A bonfire lighted in public places and in villages to celebrate any important event or festive season. These *feux-de-joie* were known among the Romans, as Romulus instituted a species of them, particularly in honor of the building of the city of Rome. The term *feu-de-joie* is also often applied to a salute fired on any particular occasion, in celebration of festivals, &c.

Feu'dist, *n.* A writer on feudal law.

Feuerbach, PAUL JOSEPH ANSELM, (*foi'er-bak,*) an eminent German writer on criminal law, b. at Frankfort-on-the-Maine, 1775, who became successively professor at the universities of Giessen, Jena, Kiel, and Landshut. Although he wrote a number of able papers on criminal jurisprudence, his fame did not become established till he produced his *Review of the Fundamental Principles and Ideas of Penal Law.* This work, in conjunction with another which appeared shortly afterwards, exercised a great influence on German criminal legislation, and placed *F.* in an eminent position in the eyes of his countrymen. In 1808 he became a privy councillor in Bavaria; in 1817 second president of the court of appeals at Bamberg; and in 1821 first president of appeals at Anspach. To these offices his sphere of action was entirely confined throughout the rest of his life. D. 1833.

Feu'erstein, *n.* [Ger., fire-stone.] (*Min.*) Same as FLINT, *q. v.*

Feuillage, (*fúl'yazh,*) *n.* [Fr., from *feuille*, Lat. *folium*, a leaf.] A bunch of leaves; foliage.

Feuillant Club, *n.* (*French Hist.*) During the Revolution, a club in Paris, first called the club of 1789, that assembled in the old convent of the Feuillants (1791), was named after them. A ministry composed of their leaders assumed power in June, 1792. The Jacobins conspired against them, and the *F. C.* was closed in July, 1792.

Feuil'lantines, *n. pl.* (*Eccl. Hist.*) An order of nuns, subject to the rule of the Feuillants (*q. v.*), was founded in 1590, and possessed a house in Paris, established in 1622 by Anne of Austria.

Feuillants, (*fu-e'yāns,*) *n. pl.* (*Eccl. Hist.*) A reformed branch of the Cistercian order of monks. It was founded by Jean de la Barrière, abbot of the Cistercian monastery of Feuillants near Toulouse, in 1577, who, being opposed to the great laxity of discipline that then prevailed, introduced a much more austere mode of life. He soon found many followers, and they were declared independent by Sixtus V. in 1586. They were afterwards divided, in 1630, into two congregations by Pope Urban VIII., who separated the French from the Italians, and gave them two generals. They practised great austerities, going barefoot, and living only on herbs.

Feuilleton, (*fu(r)'ye-ton(g)*, *n.* [Fr.] (*Lit.*) A small leaf; but it is generally applied to that part of a political newspaper which is devoted to news of a non-political character, as criticisms on literature and art, &c., and which is commonly, in French newspapers, to be found at the bottom of the page. The *F.* is an invention of the *Journal des Débats*, which, in 1800, introduced the system of giving literary criticisms in this form. In the years immediately preceding the revolution of February, whole romances were spun out in the *F.*, and in particular, the *Constitutionnel* made large sums from the social romances of Eugene Sue, which it first published in this way. The French system has been imitated in England and Germany, though not to the same extent, and with less marked success. In fact, the *F.* proper seems only to be in its natural element in France. The language and the character of the people are particularly fitted for imparting that grace, point, neatness, and vivacity, that give a particular charm to the higher productions of this class of literature, and which draw additional power from their many-sidedness and frequent changes.

Feu'ra Bush, in *New York*, a railroad station of Albany co., about 22 miles N. of Athens.

Feve'da, in *Washington*, an island in the Gulf of Georgia, Lat. 49° 41′ N., Lon. 124° W. It is 32 miles long by about 2 miles wide.

Fe'ver, *n.* [Fr. *fièvre*; Ger. *fieber*; Lat. *febris*, allied to *fervere*, to be hot, to glow.] (*Med.*) A disease affecting the entire system; characterized by an accelerated pulse, with increase of heat, impaired functions, diminished strength, and preternatural thirst. The subject of fever has given rise to endless medical discussions and theories, and the definitions of the disease, given by different writers, are not less varied than numerous. In fevers there is generally great constitutional derangement, unaccompanied by local or perceptible organic disease. Fevers generally begin with languor of body and mind; chilliness amounting to shivering, though the skin often at the same time feel hot; the pulse is quicker than it should be; respiration hurried or labored; pains are complained of in various parts, and especially about the head, back, and loins; the appetite falls off, or there is nausea and vomiting; the mouth is dry; the bowels generally irregular; and the urine small in quantity and deep in color. These, which constitute the first stage of ordinary febrile symptoms, are succeeded by flushings, a quicker pulse, and by mental anxiety and wandering, which, under many aspects and modifications, constitute the second stage. They are succeeded by the third stage, in which the leading appearances are a cleaner tongue, a more natural pulse, a moist skin, calm mind, the urine becoming more copious in quantity, and depositing a sediment as it cools. The symptoms of fever generally undergo an increase every evening, which is called an *exacerbation*; and this fluctuation often takes place more than once in the twenty-four hours, the violence of the attacks increasing with their occurrence, and forming what is called a *continued fever*. After some days, a *crisis* takes place; that is, the symptoms either take a favorable or an unfavorable turn. If the exacerbation and remission of symptoms are well marked, and occur once or oftener in the day, the fever is called a *remittent*; if the fever leaves the patient after some hours' duration, and returns at stated intervals, it is called an *intermittent*. (See AGUE.) Fevers are also variously denominated, according to the characteristic symptoms, as *inflammatory*, *typhoid* (sometimes called *gastric* or *intestinal fever*), *relapsing fever*, and *typhus* or *putrid*, *nervous fever*, &c., or according to cutaneous appearances connected with them, such as *scarlet fever* and *yellow fever*. See AGUE; INTERMITTENT AND REMITTENT FEVER; MEASLES; SMALL POX; TYPHUS; TYPHOID FEVER; YELLOW FEVER, &c.

Fe'ver, *v. a.* To put into a fever; to affect with fever; as, this news *fevers* me, the fatigue *fevered* him.

—To be seized with fever; as, she *fevered* the day after.

Fever-bush, *n.* (*Bot.*) A popular name for *Benzoin odoriferum*. — See BENZOIN.

Fe'verfew, *n.* [A. S. *feferfuge*; — same as *febrifuge*, q. v.] (*Bot.*) See PYRETHRUM.

Fe'verish, *a.* Having a fever; diseased with heat. — Uncertain; inconstant; fickle; as, our *feverish* will. — Hot; sultry; burning; as, *feverish* heat.

Fe'verishly, *adv.* In a feverish manner.

Fe'verishness, *n.* A slight febrile affection.

Fe'verous, *a.* [Fr. *fiévreux*; Lat. *febrilis*.] Having the nature of fever; as, "all *feverous* kinds." — *Milton.*

—Troubled with fever or ague; as, "if the world were *feverous*." — *Shaks.*

—Tending to produce fever; as, *feverous* weather.

Fe'ver-root, *n.* (*Bot.*) Same as fever-wort. See TRIOSTEUM.

Fe'versham, in England. See FAVERSHAM.

Fe'ver-sore, *n.* (*Med.*) The common name of a species of caries or necrosis.

Fe'ver-weed, *n.* (*Bot.*) A plant of the genus ERYNGO, *q. v.*

Fe'ver-wort, *n.* Same as fever-root. See TRIOSTEUM.

Few, *a.* [A. S. *feawa*; Icel. *fâ*; Fr. *peu*; Lat. *paucus*.] Not many; small, or confined in number; — sometimes used with ellipsis of the noun; as, *few* know it. — *In few*, meaning, in few words, is found only in the more ancient poets.

Few'met, or **Fumet,** *n.* [Lat *fimus*, dung; compare Fr. *fumier*, a dunghill.] The dung of a deer.

Few'ness, *n.* Smallness of number; paucity.

Fez, (properly *Fas*,) a walled city of Morocco, and, next to the city of Morocco and Mequinez, the principal in that empire, cap. of the prov., as it formerly was of the kingdom of the same name, and residence of a *Kaid* or governor. It is singularly and beautifully situated in a funnel-shaped valley, open only to the N. and N.E., the sloping sides of which are covered with fields, gardens, orchards, and orange-groves, 95 m. from the Atlantic, 225 N.E. of Morocco, and 80 m. S.E. of Tangier; Lat. 34° 6′ 3″ N., Lon. 5° 1′ 19″ W. *F.* contains about 100 mosques, the chief of which, called *El Carubin*, is a fine structure, and possesses a covered place for women who may choose to participate in public prayers — a circumstance unique in Mohammedan places of worship. Public baths are numerous and good. — *Manuf.* Morocco leather, woollen fabrics, silks, gauzes, gold and silver stuffs, jewelry, arms, copper goods, &c. Twice a year caravans go from *F.* across the desert to Timbuctoo. This city has always been considered one of the chief seats of Moslem learning. Old Fez was founded in 793 by Edris II., a descendant of Mohammed, and continued the cap. of an independent kingdom till 1548, when it was, together with its territory, conquered, and annexed to Morocco. *F.* has always been held so sacred by the Arabs and others, that when the pilgrimages to Mecca were interrupted in the 10th cent., the Western Moslems journeyed to this city, as the Eastern did to Mecca; and even now none but the Faithful can enter *F.* without express permission from the emperor. — *Pop.* Estim. at 60,000, of which about three-fourths are Moors and Arabs, and the remainder Berbers and other cognate tribes, Jews, and Negroes.

Fez, *n.* A red, rimless cap, worn by Turks, Egyptians, &c. See Fig. 916.

Fez'zan, (anc. *Phasania Regio*, and the country of the *Garamantes*,) a country of Central Africa, immediately S. of Tripoli, to which pashalic it is tributary. It is supposed to reach from about 23½° to 31° N. Lat., and from 12° to 16° E. Lon. But its true boundaries are ill defined, and its area is, consequently, uncertain. Fezzan is, as far as has been ascertained, the largest *oasis*, or cultivable tract in the Great African Desert of Sahara by which it is surrounded on three sides, having W. the country of the Tuaricks, and S.E. that of the Tibboos. A great portion of this region consists of an extensive valley bounded by an irregular circle of mountains on all sides except the W., where it opens into the desert; but a great part of the mountainous territory to the E., as well as of the desert to the W., are nominally included within its limits. One of these ranges is called the *Black Mountains*, and is composed of basalt, nearly black and of a shining or polished appearance. — *Rivers.* No streams (properly so called), but water is plentifully found at a depth of from ten to twelve feet below the surface of the soil. A few small lakes, incrusted with carbonate of soda, are dotted here and there. — *Zoöl.* The ostrich and antelope are commonly met with, while to the ordinary domestic animals, camels may be added. — *Clim.* In summer, the temperature is insupportably hot, and, on the other hand, the cold of winter is sufficiently severe to be acutely felt by the natives. — *Prod.* Some wheat is raised, but maize and barley form the staple grains. Dates, figs, legumes, and pomegranates form an abundant source of food to the denizens. — *Manuf.* None. *F.* derives its chief importance as being a depôt for the great caravan traffic between Egypt and Barbary, and the countries to the E. and S. of the Niger. Since 1842, *F.* has belonged to Turkey. *Cap.* Mourzouk. *Pop.* Unknown.



Fig. 1004. — MODE OF TRAVELLING IN THE DESERT.

F. G. S., Fellow of the Geological Society.

Fiacre, (*fē-ak'r.*) *n.* [Fr.] A kind of French hackney-coach, — so called as having been introduced by Savage, who lived about 1650, in the Hotel St. Fiacre.

Fi'ars, *n. pl.* A word of Gothic origin, signifying, in Scotland, the prices of grain for the current year in the different counties, fixed by the sheriffs respectively in the month of February, with the assistance of juries.

Fiasco, (*fē-as'ko,*) *n.* [It.] A word borrowed from the Italian theatre. It signifies a failure to please on the part of an actor or singer, and is thus the opposite of *furore*; although why the word, which simply means a bottle, should come to be thus applied, is more than anybody knows.

Fi'at, *n.* [Lat., let it be done.] (*Law.*) A decree; a short order or warrant of some judge for making out and allowing certain processes.

Fiatt', in *Illinois*, a post-office of Fulton co.

Fib, *n.* [Probably a contraction of *fable*, q. v.] A lie; a falsehood. (Colloq.)

—*v. n.* To lie; to speak falsely. (Colloq.)

—*v. a. Among pugilists*, to strike from below upwards; as, to *fib* one under the chin.

Fib'ber, *n.* One who tells lies.

Fib'bing, *n.* The telling of lies; as, *fibbing* is natural to him.

Fi'ber, *n.* (*Zoöl.*) A genus of the *Muridæ* or Rat family. The Muskrat, *F. zibethicus*, (Fig. 1005,) abundant throughout N. America, and called in Canada *Musquash*, is about the size of a small rabbit, and of a reddish-brown color; its feet are partly webbed; and its tail somewhat flattened. It has four very strong cutting teeth, of which those in the lower jaw are nearly an inch long; the fur on the whole body is soft and glossy, and beneath is a fine fur or thick down, as in the beaver. It has also similar instincts and dispositions; living in a social state in the winter, in curiously constructed huts, built near the edge of some lake or river. These huts are about two feet and a half or three feet in diameter, plastered with great neatness in the inside, and covered externally with a kind of basket-work, of rushes, &c., carefully interlaced together so as to form a compact and secure guard, impermeable by water. The entrance to them is under water, for the purpose of procuring food, which consists entirely of roots and vegetables. In summer these creatures wander about in pairs, feeding voraciously on herbs and roots; at this season they become extremely fat, and are much sought after, partly for their flesh, but chiefly for their skins, which are valuable. Their odor resembles that of musk; and the skin, when taken from the body, still retains the scent. This musky odor is owing to a whitish fluid deposited in certain glands near the origin of the tail. The fur is used in hat-making.



Fig. 1005. — MUSKRAT. (*Fiber zibethicus.*)

Fibre, (*fī'br,*) *n.* [Fr., from Lat. *fibra*.] A filament, or thread, the minute part of either animal or vegetable substances. The scientific use of fibre will be described with regard to the animal kingdom under MUSCLE and TISSUE; and with regard to the vegetable kingdom, under VEGETABLE TISSUE, WOOD, and WOODY FIBRE. — In its more popular, but perfectly accurate use, the word *F.* includes the hair and wool of quadrupeds, the threads of the cocoons of silk-worms, &c.; the fibres of the leaves of plants and of their inner bark, the elongated cells or hairs connected with the seeds of plants, and the ordinary materials used in making cordage and textile fabrics. Mineral substances are called fibrous in structure, even when it is impossible to detach the apparent fibres. The only fibrous mineral which has been used for textile fabrics is *Amianthus*, a variety of Asbestus (*q. v.*), but that only to a very limited extent. The animal substances used are divided into two classes — the first including hair and wool, and the second the silk of cocoons. Nearly all textile fabrics are made from the first, and the wool of the sheep is the most important division of the class. The hair of the goat, alpaca, camel, bison, and other animals, is also used. The hair of most animals is, however, in general, too short to allow of its being used for textile manufacture. The vegetable kingdom yields the largest number of useful fibres, which are obtained from natural orders very different from each other. The carogenous or cryptogamous plants do not, however, afford any. From exogenous plants, fibres are obtained from the inner bark, as in the case of flax, hemp, &c., and from the hairs of the fruit, as in cotton. In endogenous plants the fibre is sometimes obtained from the fruit, as in the cocoa-nut fibre. The spathe of some palms is also used. Some of the slender palms called rattans, and the bulrush, &c., are much used, on account of their fibrous nature, for wicker-work, chair-bottoms, and similar purposes. The most valuable fibres obtained from endogenous plants come from the leaf or leaf-stalk. The fibres of the bark of exogens are readily separated, usually by steeping or continually moistening with water. As this process injures the color of endogenous substances, the fibres are generally separated by beating or passing between rollers. Fibres obtained from fruits, as cotton-fibre, like the wool and hair of animals, exist naturally in a separate state, and only require to be collected and cleaned. Among the useful vegetable fibres, those of flax, hemp, and cotton have long held the first place. The principal additions, of late years, have been New Zealand flax, jute, Sunn or Snnn hemp, coir, Pita flax, Abaca or Manilla hemp, Chinese grass, and some others. One of the most important uses of vegetable *F.* is in the manufacture of paper. Among exogenous plants whose fibres are used for economical purposes, are a species of gossypium which produces cotton; the *Bombax villosum*, which produces silk-cotton, or vegetable silk; and the *Asclepias syriaca*, producing the silk-like down of Virginian silk. These three substances are obtained from the fibres of the fruit. Those obtained from the inner bark include the following: several species of Hibiscus, producing Deckanee hemp; the *Corchorus olitorius*, from which jute is obtained; the *Linum usitatissimum*, producing flax; several species of the Crotolaria: together with other leguminous plants, producing Sunn, Jubblpore hemp, &c.: several species of Bœhmeria, one of which produces China-grass fibre; the *Cannabis sativa*, producing hemp; and the inner bark and roots of some species of pine and fir. Among the endogenous plants from which fibres are obtained, are the *Phormium tenax*, yielding New Zealand flax; *Agave Americana*, yielding Pita flax; some species of Musa, from the leaves of which are obtained Abaca or Manilla hemp, and plantain fibre; several species of Bromelia,

from which are obtained pine-apple fibre, &c.; the husk of the cocoa-nut and the fibre of the stem yield coir; and mats, chair-bottoms, and other important articles in general use, are obtained from the fibre yielded by the leaves of the cotton-grass and other species of the order *Cyperaceæ*, q. v.

Fi'bred, *a.* Having fibres.

Fi'breless, *a.* Destitute of fibres.

Fi'bril, *n.* [Fr. *fibrille*; L. Lat. *fibrilla*, dimin. of *fibra*, a fibre.] The branch of a fibre; a very slender thread.

Fibril'lated, *a.* Furnished with fibres; fringed.

Fibrilla'tion, *n.* The condition of being reduced to fibres.

Fib'rillose, *a.* (*Bot.*) Covered with appendages like hair, as the under portion of some lichens.

Fibril'lous, *a.* Pertaining to small fibres.

Fi'brine, *n.* [Fr., from Lat. *fibra*, a fibre.] (*Chem.*) A term applied to muscular fibre when cleansed by washing from all adhering impurities; or to the coagulum of the blood when the whole of the serum and coloring-matter are washed out of it. It is whitish, insipid, and inodorous. Its composition is given as follows: carbon 52·7, hydrogen 6·9, nitrogen 15·4, oxygen 23·5, sulphur 1·3, phosphorus 0·3. In the fresh state *F.* forms long, white elastic filaments. When dried *in vacuo*, or at a gentle heat, it loses about 80 per cent. of water, and becomes translucent and horny. It constitutes a large portion of muscle, arranged in bundles of fibres; whence its name. When gluten is boiled with alcohol, one portion does not dissolve, which has been named vegetable fibrine.

Fib'rinous, *a.* Containing fibrine, or relating to it.

Fibrocar'tilage, *n.* (*Anat.*) An organic tissue, partaking of the nature of the fibrous tissue, and of that of cartilage. It is dense, resisting, elastic, firm, supple, and flexible. It serves chiefly to form sheaths for the sliding of tendons; to form a junction between two bones; or as moulds to certain parts, as the alæ nasi and eyelids.

Fibrocartilag'inous, *a.* Pertaining to fibrocartilage.

Fibrofer'rite, *n.* [So called from its fibrous structure.] (*Min.*) A delicately fibrous sulphate of iron, of a silky, pearly lustre, and pale-yellow or nearly white color. Translucent. *Hard.* 1·5–2; *spec. gr.* 1·84. *Comp.* Sulphuric acid 29·30, sesquioxide of iron 35·15, water 35·55. Occurs at Copiapo, Chili, and in the mines of Paillieres, in dep. Gard, France.

Fib'rolite, *n.* [So called from its fibrous structure.] (*Min.*) A silicate of alumina, occurring in fibrous or columnar masses, or in long slender crystals. Lustre, vitreous. Color, from a hair-brown to a pale olive-green. Transparent to translucent. *Hard.* 6–7; *sp. gr.* 3·2–3·3. *Comp.* Silica 36·8, alumina, 63·2. Identical in composition with cyanite. It is found in gneiss, mica schist, and related metamorphic rocks. *F.* was much used for stone implements in W. Europe in the "Stone Age."

Fi'brous, *a.* [Fr. *fibreux*; L. Lat. *fibrosus*, from *fibra*, a fibre.] Consisting of fibres; containing fibres.

Fi'brousness, *n.* State of being fibrous.

Fibs'ter, *n.* One who habitually tells falsehoods.

Fib'ula, *n.*; *pl.* FIB'ULÆ. [Lat., that which clasps, — contracted for *figibula*, from *figere*, to fasten.] A clasp; a buckle.

(*Anat.*) The outer and lesser bone of the leg, much smaller than the tibia. — See LEG.

(*Surg.*) A needle for making sutures.

Ficellier, (*fi-sel'ēēr.*) *n.* [Fr. *ficelle*, pack-thread.] A roller for pack-thread.

Fichte, JOHANN GOTTLIEB, (*fesh'tā,*) one of the greatest philosophers of modern times, B. at Rammenau, in Upper Lusatia, 1762. He entered Jena University in 1780, where his study of dogmatic theology led him directly to the higher philosophical speculations. About 1790, while at Zurich, *F.* first began to study the philosophy of Kant, which took him, as he says, into a new world, and in 1791 he visited Kant at Königsberg. *F.*'s first work, the *Critique of all Revelation*, was published in the following year. In 1794 he became professor of philosophy at the university of Jena, where his influence, especially as a moralist, became immense. Among his friends were Gœthe, Schiller, Novalis, the Schlegels, and many others of the distinguished men of that age. A charge of atheism was brought against *F.* in 1799, in consequence of which he left Jena, and settled in Prussia, where he applied himself to the further development of his philosophy. In 1805 he was appointed professor of philosophy at Erlangen. The French occupation of Berlin drove *F.* for a time to Königsberg and Copenhagen. On his return to the Prussian capital in 1807, he was intrusted with the task of organizing the new university established by Frederick William. *F.*'s voice was heard at this time, like that of a prophet, in the famous *Addresses to the German People*, calling them to shake off the foreign yoke, and re-establish the independence of their country. In 1810 he was elected rector of the university, and D. in 1814. — Whatever be the value of *F.*'s philosophy, there is no question of the very high worth of his moral doctrine, or of the wholesome influence it exerted on some of the highest minds, and on the best literature of our age. His most popular works (translated into English by W. Smith) consist of *The Vocation of the Scholar; The Nature of the Scholar; The Destination of Man;* and *The Characteristics of the Present Age, and the Way towards the Blessed Life.*

Fich'telite, *n.* (*Min.*) A hydro-carbon occurring in the form of shining scales, flat crystals, and thin layers, in pine wood from peat-beds in the vicinity of Redwitz, North Bavaria. Lustre, greasy; color, white; translucent, brittle, odorless, and tasteless. *Comp.* Carbon 88·35, hydrogen 11·65.

Fic'inite, *n.* (*Min.*) A variety of SVANBERGITE, *q. v.*

Fic'kle, *a.* [A.S. *ficol*, from *wicelian*, to wag; Ger. *wackeln*; Lat. *vacillare*, to hesitate, to change opinion.] Wavering; of a changeable mind; not firm in appearance or purpose; irresolute; inconstant; variable; capricious; as, "the *fickle* sex."

"A *fickle*, wavering nation." — *Shaks.*

Fic'kleness, *n.* Wavering disposition; inconstancy; instability; unsteadiness in opinion or purpose.

Fic'kly, *a.* Without steadiness.

Fico, (*fē'co.*) *n.* [It., from Lat. *ficus*, a fig.] An act of contempt, done by thrusting the thumb between two of the fingers, expressing, *a fig for you*; as, "he gives the *fico* to his adversaries." — *Carew.*

Fi'coidales, *n. pl.* [From Lat. *ficus*, a fig.] (*Bot.*) An alliance of plants, class *Exogens* (*perigynous*). DIAG. Monodichlamydeous flowers, central or axile placentæ, a polypetalous corolla, if one is present, and an external embryo, curved around a small quantity of mealy albumen. The alliance is divided into the orders *Brasillaceæ*, *Mesembryaceæ*, *Tetragoniaceæ*, and *Scleranthaceæ*.

Ficoid'eæ, *n. pl.* (*Bot.*) A synonym for MESEMBRYACEÆ, *q. v.*

Fictile, (*fic'til.*) *a.* [Lat. *fictilis*, from *fictus*, pp. of *fingere*, to make or form.] Moulded into shape by art; made of clay; manufactured by the potter; as, *fictile* vessels.

Fiction, (*fick'shun,*) *n.* [Fr., from Lat. *fictio*, derived from *fictus*, pp. of *fingere*, to form.] The act of imagining, inventing, or feigning; as, "a mere *fiction* of the mind." (*Stillingfleet.*) — The thing feigned, invented, or imagined; as, "the *fictions* of the poets." (*Sidney.*) — A lie; a fabrication: a fable. — Fictitious literature or writings. — See NOVEL, and ROMANCE.

(*Law.*) A *F. of law* [Lat. *fictio juris*] is a supposition of law that a thing is true, without inquiring whether it be so or not, that it may have the effect of truth so far as is consistent with equity. The utility of such fictions is merely, by substituting the imaginary for the true state of the case, to pass more rapidly over those parts of the subject which were not disputed, and arrive at the points really at issue. The fictions of the Roman law apparently had their origin in the edictal power, and they were devised for the purpose of providing for cases where there were no legal provisions. Fictions must be framed according to the rules of law, and there ought to be equity and possibility in every legal fiction. "These fictions of law," says Blackstone, "though at first they may startle the student, he will find, upon further consideration, to be highly beneficial and useful: especially as this maxim is ever invariably observed, that no fiction shall extend to work an injury: its proper operation being to prevent a mischief, or remedy an inconvenience that might result from the general rule of law."

Fic'tional, *a.* Same as FICTITIOUS.

Fic'tionist, *n.* One who writes works of fiction.

Ficti'tious, *a.* [L. Lat. *fictitius.*] Feigned; imaginary; not real; counterfeit; false; not genuine; as, "he needs no trappings of *fictitious* fame." — *Dryden.*

Ficti'tiously, *adv.* By fiction; falsely; counterfeitly.

Ficti'tiousness, *n.* Feigned or false representation.

Fic'tive, *a.* [Fr. *fictif*; L. Lat. *fictivus*, from *fictus*, formed.] Feigned; pretended; simulated; as, "*fictive* tears." — *Tennyson.*

Fic'tor, *n.* [Lat., from *fingere*, to form. See SUPRA.] One who models statues and reliefs in any plastic substance.

Fi'cus, *n.* [Lat., a fig.] (*Bot.*) A genus of plants, order *Moraceæ*. They are trees or shrubs, distinguished by having the flowers — male and female mixed — within an almost closed, top-shaped, fleshy receptacle, which enlarges to form the fruit, and encloses numerous one-seeded carpels, imbedded in its pulp. There are more than 100 species, some of them very large trees. Almost all belong to tropical and sub-tropical countries, of the vegetation of which they often form a most important feature. The most notable species are the BANYAN, *q. v.*; the PEEPUL, *q. v.*; the SYCAMORE, *q. v.*; and the Common Fig, *F. carica*, a native of Asia Minor, but now cultivated in all the southern countries of Europe, and in our Southern States. It is seldom to be seen farther N. than Philadelphia. The fig is a low, deciduous tree or shrub, with large, deeply-lobed leaves, which are rough above, and downy beneath. The branches are clothed with short hairs, and the bark is greenish. The fruit, termed *Syconus*, is produced singly in the axils of the leaves, is pear-shaped, and has a very short stalk; the color in some varieties is bluish-black; in others red, purple, yellow, green, or white. The varieties in cultivation are numerous. In warm climates, the fig yields two crops in the year — one from the older wood (midsummer shoots of the preceding year), and a second from the young wood (spring shoots of the same year); but in colder regions the latter never comes to perfection. Fig-trees are propagated by seed, by suckers, &c.: very frequently by layers or by cuttings. Dried figs form an important article of food in the Levant; in more northern regions they are used for dessert, or for medicinal purposes, being applied to gum-boils and other sores, and also administered in pulmonary and nephritic affections, and to relieve habitual constipation. The pulp contains about 62 per cent. of a kind of sugar called *Sugar of Figs*. Figs are either dried in the sun or in ovens built for the purpose. The best are mostly brought from Smyrna, and are known as *Turkey figs*, of which those called *Eleme* or *Elemi* are most highly esteemed. In the Levant and Portugal, a spirit is distilled from fermented figs. Though subjected to a very high duty *ad valorem*, figs are an important item of importation in this country. The total value of importation for the year 1868 was $242,455, for which the Customs received the large sum of $205,705. — The milky juice of some species is bland and abundant, as of *F. Saussureana*. In others it is acrid. That of the Common Fig produces a burning sensation on the tongue. That of *F. toxicaria*, a native of the Malayan Islands, is used for poisoning arrows. *Lac* is gathered from some species. The leaves of *F. politoria* are so rough that they are used for polishing wood and ivory in India.



Fig. 1006. — COMMON FIG (*Ficus carica*).

a, male flower, magnified; *b*, male flower, natural size; *c*, female flower, magnified; *d*, female flower, natural size.

Fid, *n.* [From Lat. *findere*, *fidi*, to divide.] (*Naut.*) A large, pointed pin, with an eye at the thick end, of iron or lignum vitæ, used in separating and interlacing the strands of which the splicing-rope is composed. — A *mast-fid* is a bolt inserted through the bottom of a ship's topmast or top-gallant-mast, with ends resting on the trestle-trees sustained by the head of the lower mast or topmast. Unless the mast-fid be withdrawn, the supported mast cannot be lowered.

Fidal'go, *n.* [Port., contracted from *filho de alguiem*; Lat. *filius alicujus*, son of somebody.] The lowest title of nobility in Portugal, corresponding to the Spanish *Hidalgo*.

Fidal'go, in *Alaska*, a large harbor on the S. coast, Lat. 60° 50′ N., Lon. 145° 45′ W.

Fid'dle, *n.* [A.S. *fidhele*; Ger. *fiedel*; Icel. *fithla*; L. Lat. *vidula*, a stringed instrument. Compare Lat. *fides*, *fidis*; Gr. *sphidé*, cat-gut.] A stringed instrument of music; a VIOLIN, *q. v.*

To play second fiddle. To take a secondary or subordinate part in anything. (Colloq.)

Fid'dle, *v. a.* To play on a violin or fiddle.

—*v. n.* To play the fiddle, or violin. — To trifle; to shift the hands often and do nothing, like a fellow playing the fiddle.

Fid'dle-block, *n.* (*Naut.*) A block with two sheaves, the smaller being underneath.

Fid'dle-dee-dee', *interj.* An exclamatory word, signifying, *trash*, *nonsense*. (Low.)

Fid'dle-dock, *n.* (*Bot.*) See RUMEX.

Fid'dle-fad'dle, *n.* Trifles; trifling talk. (Colloq.)

Fid'dle-fad'dle, *v. n.* To talk trifling.

Fid'dle-head, *n.* (*Naut.*) An ornament on the bow of a ship, underneath the bowsprit, — so called from its being curved like the head of a violin.

Fid'dle-lipped, Fid'dle-shaped, *a.* (*Bot.*) Inversely ovate, and deeply hollowed out on both sides.

Fid'dler, *n.* One who plays on a fiddle.

—A species of small crab, found on the sea-shore, and having one claw much shorter than the other.

Fid'dle-sticks, *n.* The bow and hair which a fiddler draws over the strings of his instrument.

Fid'dle-string, *n.* The string of a fiddle fastened at the extremities, and raised towards one end on the bridge.

Fid'dletown, in *California*, the former name of OLETA, a post-village of Amador co. The vicinity abounds in gold mines.

Fid'dling, *p. a.* Playing on a fiddle; trifling.

Fiddling, *n.* Act or manner of playing on the violin; as, "I do not like his *fiddling*."

Fide'i commis'sum. [Lat., committed to the trust.] (*Civil Law.*) Something given, usually by will, to one in confidence that he will convey it or dispose of it for the good of another. The obligation was not created by words legally binding, but by words of request: as, *volo*, I wish, *peto*, I ask; and hence, originally there was no legal means of enforcing its fulfilment till the time of Augustus, when a prætor was appointed whose sole business it was to see to the *fidei commissa*. The person intrusted with the property was called *fiduciarius*, and the one to whom it was intended to be conveyed, *fidei commissarius*. Fidei commissa were either particular or universal, the former being the bequest of a particular subject, the latter of the whole estate. They seem to have been introduced in order to evade some legal restriction, and to give the inheritance or a legacy to a person who was either incapacitated from taking it directly, or who could not take as much as the donor wished to give. In some parts of Europe, as in Germany and Holland, the *F. C.* forms an important feature in the conveyance of heritable property, resembling the laws of entail, *q. v.* — A person receiving

the use of certain lands during his life, on condition of transmitting them unimpaired, in a certain line, after his death.

Fi'de-jus'sion. [Lat. *fidejussio.*] (*Civil Law.*) A suretyship, or act by which any one, called *Fide-jussor*, or *guarantor*, engages himself for the debt of another, promising to pay in case the original debtor should make default.

Fidel'ity, *n.* [Fr. *fidélité*; Lat. *fidelitas*, from *fides*, faith or trust, *fidere*, to confide.] Careful or exact performance of duty or adherence to obligations; firm adherence to a person or party to which one is united, or bound; loyalty. — Veracity; honesty; adherence to one's promise or pledge.

"The thing required in a witness is *fidelity*." — *Hooker.*

—Adherence to the marriage-contract; as, she proved her *fidelity* to her marriage-vow.

Fidel'ity, in *Illinois*, a post-office of Jersey co.

Fidel'ity, in *Missouri*, a post-village of Jasper co., abt. 8 m. S. of Carthage.

Fidel'ity, in *Ohio*, a post-office of Miami co.

Fi'des. [Lat., faith.] (*Myth.*) The Roman goddess of faith and honesty. Numa was the first who paid her divine honors.

Fidget, (*fij'it,*) *v. n.* [Dan. *fige*; Icel. *fika*, to hasten. Cf. FICKLE.] To move quickly and irregularly; to move by fits and starts.

Fidget, *n.* Quick and irregular motion; motion by fits and starts. — In the pl. this word signifies nervous restlessness, with resultant, frequent change of position.

Fid'getiness, *n.* State of being restless, or uneasy.

Fid'getу, *a.* Restless; uneasy.

Fid'ji, or **Fiji, Islands.** See FEEJEE.

Fidu'cial, *a.* [L. Lat. *fiducialis*, from *fiducia*, trust. The root is found in *fides*, faith.] Confident; firm; undoubting; as, "*fiducial* reliance on the promises of God." *Hammond.*

—Having the nature of a trust; as, *fiducial* power.

Fidu'cially, *adv.* With confidence.

Fidu'ciary, *a.* [L. Lat. *fiduciarius.* See FIDUCIAL.] Confident; steady; undoubting; unwavering; firm; as, a *fiduciary* assent.

—Holding in trust; held in trust; as, *fiduciary* powers, a *fiduciary* estate.

Fie, *interj.* [A. S. *fian, figan*, to hate.] An exclamation denoting contempt or dislike.

Fief, (*feef,*) *n.* [Fr.] The French name for an estate in lands held of a feudal superior: — corresponding to the English *fee*, also termed *feud* by writers on feudal jurisprudence.

Field, *n.* [A. S. and Ger. *feld.*] (*Agricult.*) A portion of land enclosed by a fence, or rendered distinct by some line of separation, so as to adapt it for culture. In former times, and until within the last two centuries, almost all the land cultivated with the plough throughout Europe was unenclosed; and the term field was then applied to the lands under culture by the plough. Subsequently, when farmers enclosed and sub-divided a portion of the lands near the farmyard, these portions were called *fields*, the more distant portion which remained open being called *open field*, or *common field*; while grass lands unenclosed were called *commons*. In the present improved state of agriculture, every farm is divided into fields, either simply by lines of demarcation, which are sufficient when no animals are to be grazed on the farm; or by lines of separation which will act as fences, such as walls, hedges, ditches, &c., where cattle are to be grazed.

—The open country, as opposed to house or quarters; as, "at home or in the *field*." — An open space; free scope; an unrestricted opportunity; a wide expanse; as, "*fields* of light." (*Dryden.*) — The ground or blank space on which figures are drawn; as, the *field* of a picture. — The ground where a battle is fought; the battle or action itself; as, "a *field* may be dispatched and fought."

(*Her.*) The whole surface or continent of the escutcheon or shield. It is so called, according to some, because it represents the field of battle on which the achievements or charges represented on it are supposed to have been gained. In blazoning, the tincture or metal of the field must be the first thing mentioned.

A *field of ice*, a large body of floating ice.—The *field of view*, the range of a telescope or microscope.

Field, in *South Carolina*, a post-office of Pickens co.

Field'-basil, *n.* (*Bot.*) A plant of the genus *Thymus*.

Field'-bed, *n.* A folding-bed; a bed readily portable and suitable for campaigning.

Field Bend, in *Pennsylvania*, a post-office of Pike co.

Field'-book, *n.* A book in which surveyors or civil engineers set down the admeasurements of angles, stations, distances, &c., taken in the field.

Field'boro, in *N. Carolina*, a post-office of Greene co.

Field'-colors, *n. pl.* Small flags to mark out the ground for the manœuvring of a regiment or larger body of troops, on occasions of review or muster; markers.

Field'-day, *n.* (*Mil.*) A day when troops are drawn out for instruction in field-exercises and evolutions.

Field'-duck, *n.* (*Ornith.*) The little bustard. See OTIS.

Field'-equipage, *n.* (*Mil.*) All the apparatus necessary for field-service or active duty.

Field'er, *n.* That one of the cricket-players who stops the balls.

Field'-fare, *n.* [A. S. *faran*, to go or wander.] (*Zoöl.*) The *Turdus pilaris*, an English bird of the family *Turdideæ*.

Field'-glass, *n.* A species of telescope, used for the purpose of observing the movements of armies and operations during a military campaign. — Also the term applied to the lens usually placed between the object-glass and eye-glass of a microscope.

Field'-gun, *n.* (*Mil.*) Same as FIELDPIECE, *q. v.*

Field'ing, *n.* The act of stopping the balls at the game of cricket.

Field'ing, or FIELDON, in *Illinois*, a P. O of Jersey co.

Field'ing, HENRY, one of the great masters of English fiction, sometimes styled the "Cervantes" of the language, was born in Somersetshire, England, in 1714. He was of a noble family, deriving its descent from the Imperial House of Hapsburg, and was educated at Eton Coll. and Leyden. On his return to England, *F.*, then in his 21st year, began writing for the stage, a pursuit in which he was unsuccessful. He subsequently studied law, but tiring of this, he embarked upon a literary career, and in 1742 produced his *Joseph Andrews*, a novel full



Fig. 1007. — BIRTH-PLACE OF FIELDING.
(Sharpham Hall, Eng.)

of humor, and admirable delineations of human nature. In 1749 his genius attained its climax in the wonderful novel of *Tom Jones, or the History of a Foundling*, — a work which such authorities as Gibbon, Byron, Macaulay, and Thackeray, have pronounced to be the finest prose epic in the English language. This book was, in 1751, followed by *Amelia*, of which Dr. Johnson said that "It is perhaps the only book of which, being printed off betimes one morning, a new edition was called for before night." The same great moralist also affirmed that he read the work through without stopping. For this novel *F.* received the then extraordinary remuneration of $5,000. As regards "Joseph Andrews," *F.* tells us himself that it was written as an imitation of the style and manner of Cervantes; and it cannot be denied that he has well succeeded in copying the humor, the gravity, and the exquisite satire of his master. Of "Tom Jones," Gibbon declared (in allusion to *F.*'s consanguinity to the House of Austria), "that it was a nobler monument of human genius than the Escurial, and would outlive the imperial dynasty of so many hundred generations." Indeed, "taking him for all in all," it may be assumed that *F.* will continue to be that which Byron calls him, —

"The prose Homer of human nature."

F., being obliged to seek a warmer climate owing to ill-health, D. at Lisbon, 1754.

Field'ite, *n.* (*Min.*) A variety of TETRAHEDRITE, *q. v.*

Field'-madder, *n.* (*Bot.*) See GERARDIA.

Field'-marshal, *n.* [Ger. *feld-marschall.*] The highest military rank in Germany and in Great Britain. It is occasionally conferred on general officers for distinguished services in the field, and on princes of the blood-royal in virtue of their position and connection with the sovereign. It is rather a title of honor in the British service than one which implies any particular duty to be discharged by the holder, like those of commander-in-chief, general of division, general of brigade, &c. It corresponds to the French title of *Maréchal de France*.

Field'-mice, *n. pl.* (*Zoöl.*) *Arvicola*, a genus of the family *Muridæ*, characterized by small size, soles naked anteriorly, tail rather short, cylindrical, and hairy. There are in the U. States more than 20 species, the most common of which are the Red-backed Mouse of the U. States, the Meadow-Mouse of the N. and Middle States, the Gray Mouse and the Upland Mouse of the E., and the California Arvicola.

Field'-mint, *n.* (*Bot.*) See MENTHA.

Field'-officer, *n.* (*Mil.*) An army officer above the rank of captain and below that of general.

Field of Mars. (*Hist.*) See CHAMP DE MARS.

Field of the Cloth of Gold. (*Hist.*) Henry VIII. of England, and Francis I. of France, held interviews between Guisnes and Ardres, near Calais, June 7–24, 1520. Such was the magnificence displayed that the place of the meeting was called the *Field of the Cloth of Gold*.

Field'piece, *n.* (*Mil.*) A cannon of light calibre, capable of being transported from place to place, according to the movements of an army on service, for use in a field of battle.

"The pasha planted his *field-pieces* upon the hills."—*Knolles.*

Field'-preacher, *n.* An itinerant preacher who goes about preaching in the open air, in a field, &c.

Field'-preaching, *n.* Preaching practised in fields, or in the open air.

Fields'borough, in *Delaware*, a P. O. of Newcastle co.

Field'-spaniel, *n.* (*Zoöl.*) This variety of dogs has very long hair in some parts; it is generally white, with large, brown, liver-colored, or black spots, of irregular size and shape; the nose is sometimes cleft, and the ears are very long and pendulous, and covered with long hair like its body. The *F. S.* is useful for shooting in field-sports, like its congener the setter. — See SPANIEL.

Field'-sport, *n.* Open-air diversion, as hunting, shooting, hawking, coursing, &c. (Used chiefly in the pl.)

Field'-vole, *n.* [Icel. *völlr.*] The common meadow-mouse. — See FIELD-MICE.

Field'-works, *n. pl.* (*Mil.*) Temporary works thrown up in besieging or defending a place.

Fiend, (*fēnd,*) *n.* [A. S. *feond*, from *feon, fian*, to hate. See FOE.] An enemy; a malicious foe; the devil; an infernal being; Satan.

"All hell contains no fouler *fiend*."—*Pope.*

Fiend'-fraying, *a.* Terrifying the infernal beings.

Fiend'ful, *a.* Full of evil beings; full of malignant practices.

Fiend'fully, *adv.* In a malignant manner.

Fiend'ish, *a.* Like a fiend; malignant.

Fiend'ishly, *adv.* In a fiendish manner.

Fiend'ishness, *n.* Maliciousness.

Fierce, (*fērs,*) *a.* [Fr. *farouche*; Lat. *ferox, ferus*, savage; akin to Gr. *thēr*, a wild beast.] Violent; outrageous; not to be restrained; passionate; as, their anger was *fierce*. — Savage; ravenous; easily enraged; as, a *fierce* lion. — Passionate; angry; furious; as, "a *fierce* mind." *Locke.*

—Strong; forcible; violent; rapid; as, the *fierce* winds.

Fierce'ly, *adv.* Violently; furiously; with rage; as, to look *fiercely*.

Fierce'-minded, *a.* Of a vehement, furious, or violent temper.

Fierce'ness, *n.* Ferocity; fury; savageness; eagerness for blood; quickness to attack.—Vehemence; keenness in anger or resentment; violence; excessive passion.

Fie'ri-fa'cias, *n.* [Lat., you may cause to be done.] (*Law.*) A judicial writ, commanding the sheriff to make good a sum already adjudged the plaintiff, out of the lands, goods, or chattels of the defendant.

Fi'erily, *adv.* In a hot or fiery manner.

Fi'eriness, *n.* Heat; acrimony; heat of temper; irritability.

Fi'ery, *a.* [From *fire*, q. v.] Consisting of fire; hot, like fire; as, a *fiery* gulf.—Vehement; ardent; active; unrestrained; as, a *fiery* steed. — Easily provoked; irritable; passionate; outrageous; as, the *fiery* duke.— Heated by fire; as, "a *fiery* wound."—*Pope.*

Fi'ery-chamber, *n.* (*Hist.*) See CHAMBRE ARDENTE.

Fi'ery-cross, *n.* The rallying symbol of the Highlanders of Scotland in any sudden emergency. It was also called *Crantara*, from the Gael. *Crean tarigh* (the cross of shame), because disobedience to what the symbol implied was considered infamous.

Fi'ery-footed, *a.* Eager for motion; swift in motion; as, "a *fiery-footed* team."—*Spenser.*

Fieschi, JOSEPH, (*fe-es'ke,*) a Corsican, and the author of one of the most terrible conspiracies of which history has preserved the remembrance. Having conceived a hatred for the French king, Louis Philippe, in consequence of the deprivation, by the prefect of the Seine, of a situation which he held, he constructed an infernal machine of about 100 gun-barrels fixed in a frame, which he discharged simultaneously, by means of a train of gunpowder, from a house in the Boulevard-du-Temple, during a review of the National Guard, July 28, 1835. The king escaped unhurt, but Marshal Mortier and 17 people were killed, and many more wounded. *F.*, with his accomplices, Pepin and Morey, was guillotined, Feb. 16, 1836.

Fies'co Conspir'acy. (*Hist.*) Giovanni Luigi Fiesco, Count of Lavagna, disliking the republican government established at Genoa by the Admiral Andrew Doria, formed a plot for his assassination and the establishment of an oligarchy. The insurrection took place Jan. 2, 1547, when Doria was compelled to flee, and his grand-nephew Giannetino was put to death; but the leader, *F.*, at the commencement of the outbreak, slipped while stepping from a galley, and being overweighed by his armor, sank in the waves and perished.

Fiesole, (*fē-a-sō'la,*) (anc. *Fæsulæ,*) in antiquity, a considerable city of Etruria, now a small though celebrated town of Central Italy, prov. Florence, on a precipitously steep hill commanding a fine view of the *Val d'Arno*, 4 m. N.E. of Florence. It is dotted with many beautiful villas belonging to the Florentine citizens. After the fall of Etruria, *F.* was colonized by the Romans under Sylla, and in 1010 was destroyed by the Florentines. *Pop.* 3,887.

Fieso'le, FRA GIOVANNI DA, commonly called *Fra Angelico*, B. at Mugello, 1387. His family-name was *Guido*; his surname of Fiesole he acquired from the order of predicants at that place, whom he joined in 1409. He died in 1455. — Fra Angelico was distinguished for his pious life, and the same sentiment pervaded all his works; he was remarkably methodic in his habits, he commenced every picture with prayer, and invariably carried out the first impression, looking upon it as a species of inspiration. His principal works are some frescoes in the convent of San Marco at Florence, and others in the chapel of San Lorenzo in the Vatican. His chief merit is a refined sentiment and high order of expression, in which qualities Fra Giovanni was, as it were, the type of his successors, the model of the *quattrocento* school of painters.

Fife, *n.* [Fr. *fifre*; Ger. *pfeife*; Icel. *pipa*; W. *pib.* See PIPE.] (*Mus.*) A wind-instrument, resembling a small flute in its form and method of performance, seldom having any keys, and never more than one. Fifes are of three kinds, called respectively A, B, and C. They are made from ten to sixteen inches in length, with or without a joint. The B fifes are the longer and lowest in tone, while those tuned to the key of C are the shortest and highest, and are much oftener used; they have a compass of two octaves. When employed for military purposes, or open-air performance, the fife is a very pretty as well as useful instrument; but its tone is too harsh and acute to be pleasant in chamber-music.

Fife, *v. n.* To play on the fife; as, to *fife* the live-long day.
—*v. a.* To play on the fife, as a tune.
Fife'-major, *n.* (*Mil.*) The chief of the fifers of a regiment; he who directs the fifers of a regimental band.
Fif'er, *n.* One who plays on a fife.
Fife'-rail, *n.* (*Naut.*) A rail around the mast of a ship, in which the belaying-pins are ranged, and where the loose cordage belonging to the rigging of that mast is coiled.
Fife, or **Fifeshire,** a maritime co. of Scotland, consisting of the peninsula lying between the Frith of Forth on the S., the German Ocean on the E., and the Frith of Tay on the N.; having W. the cos. of Perth, Kinross, and Clackmannon. *Area*, 513 sq. m. *Desc.* This is one of the best situated and most beautiful of the Scottish counties, exhibiting every variety of surface and soil, from the mountain to the level plain, and from moss and gravel to the finest loams. *Rivers.* Eden and Leven. *Prod.* Cereal crops. The Fife breed of cattle are well-known and highly esteemed. *Min.* Copper, iron, coal, lime, &c. *Manuf.* Linens. *Prin. towns.* Cupar (the cap.), Dunfermline, Kirkaldy, and St. Andrews. *Pop.* 170,247.
Fife'-Ness, a cape on the E. coast of Scotland, co. Fife, projecting into the North Sea, in Lat. 56° 17′ N., and Lon. 2° 36′ W. Beyond it is the dangerous reef, known as the *Carr Rocks*, extending for some distance into the sea.
Fife's, in *Virginia*, a post-office of Goochland co.
Fif'teen, *a.* [A. S. *fiftene, fiftyne—fif*, five, and *tyn*, ten; Ger. *fünfzehn.*] Five and ten added together.
—*n.* The sum of five and ten; the symbol that is used to represent this sum, as 15, or XV.
Fif'teenth, *a.* [A. S. *fifteotha, fiftetha*, ordinal of *fiftyne.*] The fifth after the tenth; the ordinal of fifteen; containing one part in fifteen.
—*n.* One of the 15 equal parts into which any unit may be divided.
(*Mus.*) An interval of two octaves; also, a name given to a stop on the organ, a double octave above the diapason, as its name imports.
Fifth, *a.* [A. S. *fifta.* See FIVE.] The ordinal of five; the next in order after the fourth; containing one part in five.
Fifth, *n.* One of the five equal parts into which any unit may be divided.
(*Mus.*) A distance comprising four diatonic intervals, that is, three tones and a half. It is the second of the consonances in the order of their generation. As consecutive fifths do not produce a good effect, they are not allowable in harmony. There are three kinds of fifths: viz., the perfect fifth (C—G), consisting of three whole tones and a semitone; the flat, diminished, or imperfect fifth (B—F), consisting of two whole tones and two semitones; and the extreme sharp, or superfluous fifth (C—G sharp), composed of four whole tones.
Fifth'ly, *adv.* In the fifth place.
Fifth-mon'archy-men, *n. pl.* (*Eng. Hist.*) A set of fanatics who formed a principal support of Cromwell during the Protectorate. They considered his assumption of power as an earnest of the foundation of the fifth monarchy, which should succeed to the Assyrian, the Persian, the Grecian, and the Roman, and in which Jesus Christ should reign with the saints on earth for the space of a thousand years. Upon the restoration of the royal family, and the return of the kingdom to its former principles in Church and State, a party of these enthusiasts, headed by a man of the name of Venner, made a desperate insurrection in the streets of London, which was put down with the slaughter of a great number of them.
Fif'tieth, *a.* [A. S. *fifteotha, fiftigetha.*] The ordinal of fifty; the next in order after the forty-ninth; containing one part in fifty.
Fif'tieth, *n.* One of the fifty equal parts into which any unit may be divided.
Fif'ty, *a.* [A. S. *fiftig*, from *fif*, five, and *tig*, ten.] Five times ten.
Fif'ty, *n.* The product of five by ten; the symbol that is used to represent this number, as 50, or L.
Fig, *n.* [A. S. *fic*; Ger. *feige*; Lat. *ficus*: Cf. Gr. *sykon.*] (*Bot.*) The fruit of the fig-tree. — See FICUS.
—Anything valueless; an expression of contempt; as, not to value it a *fig.*
(*Far.*) An excrescence on the frog of a horse's hoof, arising from a bruise.
Fig, *v. a.* To insult with contemptuous motions of the fingers.
Fig'-apple, *n.* An apple having no core or kernel.
Figa'ro. (*Lit.* and *Mus.*) A dramatic character, brought by Beaumarchais on the stage in Paris about 1785, in his two dramas, the *Barbier de Seville*, and *Mariage de Figaro.* Since that time, Mozart, Paesiello, and Rossini have made the name celebrated in classic operas; and now the term is frequently used to denote an adroit and cunning accomplice.
Figeac, (*feezh'ak,*) a town of France, dep. Lot, cap. arrond., on the Célé, 31 m. N.E. of Cahors. *Manuf.* Linen and cotton fabrics, &c. It is the birthplace of Champollion, the Egyptian traveller and archæologist. *Pop.* 9,219.
Fight, (*fīte,*) *v. n., (imp.* and *pp.* FOUGHT, (*fawt.*) [A.S. *feohtan*; Ger. *fechten*; Icel. *fikta*; — allied to Gr. *pykteuo*, to box, from adv. *pyx*, with clenched fist.] To strive, or contend for victory in battle or single combat; to contend in arms; to battle; as, to *fight* against our country's foes. — To strive; to struggle; to resist; to check; to oppose.
—*v. a.* To carry on a contention against; to maintain, as a struggle for victory over enemies; to contend with in battle; to war against; as, to *fight* the enemy in battle. — To cause to fight; as, to *fight* cocks, to *fight* a frigate.
—*n.* A struggle for victory; a battle; an engagement; a combat; an encounter; a duel; as, millions ranged for *fight*, to slay in single *fight.*
Fight'er, *n.* A combatant; a warrior.
Fight'ing, *p. a.* Qualified for war; fit for battle; as, *fighting* men.—Occupied in war; being the scene of war; as, a *fighting* field.
—*n.* Contention; strife; quarrel.
Fighting Island, an island of L. Canada, in the Detroit River, about 3 m. below Sandwich.
Fight'ingly, *adv.* Pugnaciously.
Fight'-wite, *n.* (*Eng. Law.*) A fine anciently imposed upon such persons as, by fighting or quarrelling, disturbed the public peace.
Fig'-leaf, *n.* The leaf of the fig-tree. — Any thin or scanty covering, — alluding to the garments of our first parents.
Fig'-marigold, *n.* (*Bot.*) See MESEMBRYANTHEMUM.
Fig'ment, *n.* [Lat. *figmentum*, from *fingere*, to form or shape.] An invention; a fabrication; something feigned or imagined; as, the *figments* of idle brains.
"It carried rather an appearance of *figment* and invention, than of truth and reality."—*Woodward.*
Fig'-pecker, *n.* (*Zoöl.*) A bird, the BECAFICO, *q. v.*
Fig'-shell, *n.* (*Conch.*) A univalve shell shaped like a fig.
Fig'-tree, *n.* (*Bot.*) The *Ficus carica.* See FICUS.
Figueira, (*fe-gu-ēēr'a.*) a town of Portugal, prov. Beira, at the mouth of the Mondego, 24 m. S.W. of Coimbra: *pop.* 5,375.
Figueras, (*fe-gair'as,*) a town of Spain, near the N.E. corner of Catalonia, prov. Gerona, 71 m. N.N.E. of Barcelona. The citadel or castle of San Fernando, near the town, is one of the finest fortresses in Europe. It will serve as an intrenched camp for from 16,000 to 17,000 men. It was, however, taken by the French three times successively, in 1808, 1811, and 1823. *Manuf.* Linen and woollen goods, leather, soap, corks, oil, wine, &c. *Pop.* 11,383.
Fig'ulate, or **Fig'ulated,** *a.* [Lat. *figulatus*, pp. of *figulare*, to shape, from *figulus*, a potter; root *fig*, found in *fingere*, to form.] Moulded; shaped; made of potter's clay. (R.)
Figurabil'ity, *n.* Capacity for taking and retaining a certain form.
Fig'urable, *a.* [Fr.; L. Lat. *figurabilis*, from *figura*, shape.] That may be brought to a certain fixed form.
Fig'ural, *a.* [See FIGURATE.] Represented by delineation; consisting of figures; as, "the *figural* resemblances of various regions." — *Browne.*
Fig'urant, *n.* [Fr., pp. of *figurer*, to represent, to dance in figures, from Lat. *figura.*] An operatic dancer who never performs alone. — An accessory on the stage, who appears in the scenes, but takes no part in the dialogue. — One who appears on any scene, without taking other than a very subordinate part.
Figurante, *n.* [Fr.] A female figurant.
Fig'urate, *a.* [See FIGURE.] Of a determinate form; as, *figurate* plants.
—Resembling anything of a determinate form; as, "*figurate* stones retain the form of shells into which they were formed at the deluge." — *Johnson.*
Figurate counterpoint. (*Mus.*) That which contains a mixture of discords together with the concords.
Figurate or *figural numbers.* (*Math.*) A series of numbers, formed from an arithmetical progression having a unit for its first term, and a whole number for the regular difference — by taking the first term and the sums of the first two, first three, &c., as terms of a new series, from which another may be formed in the same way, and so on; the numbers in all the resultant series being such that if they be represented by dots or points, such dots can be readily arranged into geometrical figures, as triangles, squares, pentagons, &c.
Fig'urated, *a.* Having a determinate figure or form.
Fig'urately, *adv.* In a figurate manner.
Figura'tion, *n.* [Lat. *figuratio*, from *figura*, shape.] The act of giving figure; determination to a certain form.
(*Mus.*) Mixture of concords and discords.
Fig'urative, *a.* [Fr. *figuratif*; Lat. *figurativus.*] Representing something else; representing by resemblance; typical; as, "his, they will say, was *figurative.*" (*Hooker.*) — Not literal or direct; changed from the direct meaning; as, a *figurative* sense, a *figurative* expression. — Abounding with tropes and figures of speech; as, a highly *figurative* description.
Fig'uratively, *adv.* By a figure or type; not literally.
Fig'urativeness, *n.* State of being typical; not literal.
Figure, (*fig'ur,*) *n.* [Fr.; Lat. *figura*, from *fingo*, to shape, to form. Etymol. uncertain.] A form, shape, or fashion; the form of anything as expressed by the outline or terminating extremities; semblance; structure; appearance.
"Doing in the *figure* of a lamb the feats of a lion."—*Shaks.*
—Person; distinguished or elegant appearance; distinctive trait presented to one's observation or knowledge; as, she was the finest *figure* there, to look a sorry *figure*, &c.
"I was charmed with the gracefulness of his *figure* and delivery."—*Addison.*
—A statue; an image; representation in painting, modelling, carving, &c.; as, a *figure* in ivory, bronze, &c.
—A design or representation woven in, or painted on, cloth; any design or fanciful ornamentation stained or drawn on paper, or wrought out in any manufactured article.
"A coin that bears the *figure* of an angel."—*Shaks.*
—A character denoting a number; a digit; a numeral; as 1, 2, 3, &c.: — hence, a person expert at *figures.*
—Magnificence; splendor; dignified appearance.
"His chief end to grow rich, that he may live in *figure* and indulgence."—*Law.*
—A horoscope; a diagram of astrological aspects; as, "*figure*-flingers and star-gazers." — *L'Estrange.*
—Type; representative; emblem; symbol.
"Who is the *figure* of Him that was to come."—*Rom.* v. 14.
—Amount; price; value; as, goods at a low *figure*, what is the *figure?*
(*Dancing.*) The several steps which the dancer makes, as marking figures or diagrams on the floor.
(*Mus.*) An ornamental phrase or group of tones from or about a single tone.
(*Gram.*) Any deviation from the rules of analogy or syntax.
(*Rhet.*) It is defined to be, in general, "that language which is prompted either by the imagination or by the passions." Rhetoricians commonly divide them into two great classes, — *figures of words*, and *figures of thought*; the words in the former case being employed in a sense different from their original and primitive meaning; in the latter the words are used in their proper and literal meaning, the *F.* consisting in the turn of thought; but the distinction is of no great use. One is apt to imagine, that as *F.* of speech always denote some departure from simplicity of expression, they are therefore artificial, are of late growth. This, however, is by no means the case; for the earliest and least cultivated languages are generally those that abound most in *F.* From the very paucity of his language, and the want of proper expression to convey his meaning, man, in his untutored state, is led to exercise his fancy, and express his ideas in image and metaphor. Hence, then, what is a necessity in the language of the savages is that which also gives beauty and grace to the polished languages of civilized life. *F.* serve to enrich a language and render it more copious; and they also bestow a dignity upon style, by enabling us to avoid the frequent use of common expressions to which the ear has been accustomed. More particularly, *F.* give us the pleasure of enjoying two objects presented together to our view without confusion, — the one signified by the figurative sense, which may be termed the *principal* object, and the other signified by the proper sense, which may be termed *accessory*: the principal making a part of the thought, the accessory being merely ornamental. Lastly, *F.* possess a signal power of aggrandizing an object, giving frequently a much clearer and more striking view of the principal object than could have been the case if it had been expressed in simple terms and divested of its accessory idea.
To cut a figure, to make a figure; to act a distinguished part; to attract observation in a manner to elicit surprise or admiration.
—*v. a.* [Fr. *figurer*; Lat. *figuro.*] To form, fashion, or mould into any determinate shape; to show by a corporeal resemblance, as in a picture or statuary; to make a drawing of.
"Accept this goblet rough with *figured* gold."— *Dryden.*
—To cover or adorn with figures or images; to mark with figured representations; to form figures in by art; as, a *figured* waistcoat.
"The top of heaven *figured* o'er with burning meteors."— *Shaks.*
—To represent by a typical or figurative resemblance; to symbolize; to emblematize; as, "white vestments *figure* innocence." — *Shaks.*
—To image in the mind; to conceive.
"We *figure* to ourselves the thing we like." — *Henry Taylor.*
—To note by numeral characters; also, to reckon; to calculate; to compute; as, "the *figured* hours." — *Dryden.*
—To prefigure; to foreshow.
"Three glorious suns, . . . is this the heaven *figures* some event?" *Shaks.*
(*Mus.*) To pass several notes for one; to form runnings or variations.
To figure out, to ascertain the amount by computation.
To figure up, to cast up figures; to add; to reckon.
—*v. n.* To make a figure; to be distinguished or notable; as, as a man of fashion he *figured* about town.
Figured, (*fig'urd,*) *p. a.* Represented by resemblance; adorned with figures; as, *figured* damask.
(*Mus.*) Free and florid. — Noted by figures.
Fig'ure-head, *n.* (*Naut.*) The figure, bust, statue, or emblematic representation at the projecting part of a ship's head, above, or at an angle with the cutwater; where ships have no distinctive figure-head, but in lieu of it a scroll of wood-work, it is then called a *billet-head.*
Fig'ure-stone, *n.* (*Min.*) Same as AGALMATOLITE, *q. v.*
Fig'urist, *n.* An interpreter or exponent of figures.
Fig'-wort, *n.* (*Bot.*) See SCROPHULARIA.
Fiji Islands. See FEEJEE ISLANDS.
Fike, *n.* Same as FYKE (*q. v.*).
Filaceous. (*fi-la'shus.*) *a.* [From Lat. *filum*, a thread.] Composed of threads; consisting of threads; resembling threads.
Filadel'fia, a town of S. Italy, in Calabria, 12 m. N. of Nicastro: *pop.* 4,550.
Fil'age, *n.* [Lat. *filum*, a thread.] (*Bot.*) The Cotton-rose, a genus of plants, order *Asteraceæ.* They are downy, canescent herbs, native of Europe. *F. Germanica*, the German Cudweed, is sparingly naturalized in fields and roadsides in the N.W. States.
Fil'ament, *n.* [Fr., from L. Lat. *filamentum*; Lat. *filum*, a thread. Etymol. uncertain.] A slender thread; a fibre; as, "withered veins and *filaments.*" — *Harvey.*
(*Bot.*) The long thread-like part which supports the anther of a stamen.
(*Physiol.*) The primitive form of all animal tissue — a thread, a fine muscular hair — an indefinite number of which bound together constitute a *fibre*; a congeries of fibres similarly bound together forming a *fasciculus*; and a series of fasciculi comprising a MUSCLE, *q. v.*

Fil'amentoid, *a.* [*Filament*, and Gr. *eidos*, form.] Of the nature of a filament.

Filamen'tous, *a.* Like a thread; composed of fine filaments, or thread-like processes.

Fil'ander, *n.* (*Zoöl.*) See HALMATURUS.

—*pl.* [Fr. *flandres*, from Lat. *filum*.] A disease peculiar to hawks, resembling filaments of congealed blood; — also, small thread-like worms that breed in hawks.

Filangieri, GAETANO, (*fi-lan-je-air'e,*) a celebrated writer on political economy and legislation, was B. in Naples, 1752. He was at first intended for the army, but being of studious habits, he was allowed to gratify his inclination for a literary life. His great work, entitled *The Science of Legislation*, notwithstanding it was never completed according to his original design, attracted great attention, from its bold and original views, and the liberality of its sentiments; and placed him in the rank of a first-rate writer upon one of the most difficult and important subjects that can engage the mind of man. In 1787 he was made a member of the supreme council of finance, and D. 1788.

Fil'ar, *a.* [From Lat. *filum*.] Pertaining to a thread; constructed with a thread or threads.

Filaria, (*fe-lar're-ă,*) *n.* [Lat. *filum*.] (*Zoöl.*) A genus of *Nematoids*, or intestinal worms, common to large and small animals, and infesting even certain of the mollusca. Of this family the most inimical to the comfort of man is the Guinea-worm (*Filaria medinensis*), called also *Dracunculus*, which, in hot climates, insinuates itself under the skin of the lower members, causing excruciating pain. It has a slender and thread-like body, and sometimes attains a length of six feet. It is met only in certain portions of the torrid and temperate zones in Africa and Asia, and is especially frequent on the African coast.

Fil'ature, *n.* [L. Lat. *filatura*.] An elongating into thread; — hence, the reeling of silk from cocoons. — A reel for drawing off silk from cocoons.

Fil'bert, *n.* [Etymol. uncertain.] (*Bot.*) See HAZEL.

Filch, (*filsh,*) *v. a.* [Allied to *pilfer*, and Sp. *pellizcar*, to pinch, to take only a bit, from Lat. *vellico*, to pinch, pinch, nip.] To steal something of little value; to pilfer; to steal; to pillage on a small scale; to take wrongfully.

"He that *filches* from me my good name . . . makes me poor indeed." — *Shaks.*

Filch'er, *n.* A thief; a pilferer; one who filches, or commits a petty theft.

Filch'ingly, *adv.* By petty larceny; pilferingly.

File, *n.* [Fr., from *fil;* Lat. *filum*.] A thread, string, or line, particularly, a line or wire on which documents or papers are strung for security; the whole number of papers strung on a line or wire; a bundle of papers tied together, with the title of each indorsed; as, a letter-*file*, a *file* of newspapers.

"From *files* a random recipe they take." — *Dryden.*

—A catalogue; a roll; a list; a roster.

"Our present musters grow upon the *file*." — *Shaks.*

(*Mil.*) The term applied to two soldiers standing one before the other, or conjointly to any soldier in the front rank and the one who stands directly behind him in the rear rank, when the company is drawn up in line. A body of soldiers is often spoken of as consisting of so many *rank-and-file;* this includes the privates and the non-commissioned officers except the sergeants. File-marching is when a company is drawn up in line, and the order given to face to the right or left, and march in that direction. Each front-rank man and his rear-rank man on his right or left, as the case may be, still compose a file. File-marching is a difficult movement for recruits, unless the leading file marches steadily, and takes its proper length of space, and each file behind takes care to "lock up," or keep closely in the rear of the file immediately before it. Men marching singly in line, one after another, are said to be marching in single or Indian *F.*

On file, preserved for reference or security, in collected order and condition; as, newspapers are on *file* at the office.

—*v. a.* To fasten, as papers, on a line or wire for preservation.

—To arrange or insert in a body or bundle, as documents, indorsing the title of contents on each; as, to *file* letters. —To present or exhibit officially, or for trial; as, to *file* a petition, a schedule, &c.

—*v. n.* To march in a file or line, as troops, not abreast, but one after another; as, to proceed in Indian *file*. (Generally preceding *off*.)

"We drew up in good order, and *filed off*." — *Spectator.*

To file with, to follow close upon the heels of another; to keep up with.

"My endeavors have ever . . . *filed with* my abilities." — *Shaks.*

File, *n.* [A. S. *feol;* D. *vijl;* Ger. *feile*, allied to Lat. *polio*, to smooth, and to Gr. *phallos*, shining.] An instrument used to produce a smooth surface on hard substances, as metals, ivory, wood, &c. They are made of bars of steel rendered doubly hard by a process called *double conversion*, drawn the required size at the tilt-hammer, and then shaped. The square and flat ones are formed by the hammer and common anvil only, but the round, half round, and triangular ones are shaped by means of bosses or dies made in the above shapes. The steel *blanks* are next annealed (see ANNEALING), to render them capable of being cut, by placing a number of them together in a brick oven, rendered air-tight by filling up all the interstices with sand, to prevent oxidation of the steel to which it is liable if air be admitted, and then making a fire play as equally as possible all round until they are red-hot, when the heat is discontinued and the steel allowed to cool gradually before it is uncovered. The surfaces on which teeth are to be cut are now rendered as smooth as possible by grinding or filing, and the teeth are cut with a carefully ground chisel, each incision being made separately. They are then hardened and tempered. This operation requires great care, for if a file is too hard the teeth easily break off, and if too soft they quickly wear down. Care must also be taken to keep them straight, as by sudden cooling the steel is apt to warp. Most files are cut by hand. As it is almost impossible to make a large number of *blanks* of the same degree of hardness, the force of the blow in cutting must be modified by the hardness of each one; hence, the difficulty in regulating machinery to perform the work. — The files employed in the mechanical arts are almost endless in variety.

—Any instrument for smoothing or polishing.

"Mock the nice touches of the critic's *file*." — *Akenside.*

—An astute, shrewd, keen person; one more apt to take advantage of others than to become a dupe himself; as, he 's a sharp old *file*. (Vulgar.)

File, *v. a.* [Ger. *feilen*.] To cut, as with a file; to wear off or away; to abrade; as, to *file* a tooth.

—To polish; to make smooth, as with a file.

"His tongue is *filed*, and his eye ambitious." — *Shaks.*

File'-cutter, *n.* One who makes or cuts files.

"*File-cutters* use gad-steel to make their chisels." — *Moxon.*

File'-fish, *n.* (*Zoöl.*) See BALISTIDÆ.

File'-leader, *n.* (*Mil.*) The leading soldier of a file; one who marches in front.

Fil emot, *n.* [Fr. *feuille*, a leaf, and *morte*, dead.] The color of a faded leaf; a dun, or yellowish-brown color.

"The colors . . . are blue and *filemot* turn'd up with red." — *Swift.*

Fil'er, *n.* One who uses a file.

Filer City, in *Michigan*, a post-office of Manistee co.

Filial, (*fil'yal.*) *a.* [Fr., from L. Lat. *filialis;* Lat. *filius*, a son, or *filia*, a daughter.] Relating or belonging to a son or daughter; becoming a child in relation to his parents; as, *filial* duty, *filial* love.

—Bearing the character or relation of a son.

"And thus the *filial* godhead answ'ring spoke." — *Milton.*

Fil'ially, *adv.* In a filial manner.

Fil'iate, *v. a.* [See AFFILIATE.] To affiliate; to father; to establish the relation of father; to adopt, as a son or daughter.

Filia'tion, *n.* [Fr.] Act of filiating or affiliating, particularly, the fixing of a bastard child on some one as its father; adoption. — The relation of a child to a father; — correlative to PATERNITY, *q. v.*

Fil'ibuster, (sometimes erroneously written *fillibuster,*) *n.* [Sp.; Fr. *flibustier*, perhaps a corruption from the Eng. *freebooter*.] A sea-rover; a pirate; a corsair; a freebooter; a buccaneer; — sometimes applied to any military adventurer who undertakes an expedition against a territory, unauthorized by law or the exigencies of war.

(*Amer. Hist.*) The term *F.*, now used in any country where the English language is spoken, was first applied in New Orleans to certain adventurers who, after the termination of the war between this country and Mexico, exerted themselves with setting on foot within the U. States, military expeditions designed to operate in the Spanish-American countries to the south of us. The pretended object of these expeditions was the emancipation of those countries from tyranny, foreign or domestic, and the introduction of democratic institutions after the model of the U. States; but their real object undoubtedly was their own aggrandizement, by re-enacting the part of the original Spanish conqueror. Though the setting on foot of such expeditions is contrary to our neutrality laws, yet, as they enjoyed a considerable degree of popularity, especially in Mobile and New Orleans, the laws were frequently evaded. The most noted expedition of this sort was that led by William Walker against Nicaragua in 1855, who succeeded in maintaining himself in that country for nearly two years; but was at length expelled by the union against him of the other Central American States. Walker was subsequently taken and shot at Truxillo, while engaged in another similar expedition.

Fil'ibuster, *v. a.* To perform the acts of a filibuster.

Fil'ibustering, *pp.* or *a.* A cant word, much used some years ago in our legislative assemblies to designate the employment of parliamentary tactics to defeat a measure, by raising frivolous questions of order, calls of the house, motions to adjourn, &c., in order to weary out the opposite party and to gain time.

Fil'ibusterism, *n.* Piracy; predatory action; course of conduct pursued by a filibuster or freebooter.

Fil'ical, *a.* Pertaining to the *Filicales*, or Ferns.

Fil'ices, *n. pl.* [Lat. pl. of *filix*, a fern.] See FILICALES.

Filica'les, *n. pl.* (*Bot.*) The Ferns, an alliance of plants, class *Acrogens*, corresponding to the order Filices of De Jussieu, and consisting of herbs with rhizomatous stems, and of arborescent plants. The leaves, or *fronds*, as they are generally called, arise irregularly from the rhizome, or are placed in tufts upon the apex of the stem; they are almost always circinate in vernation, and are simple or compound. The fructification consists of little, somewhat rounded cases inclosing *spores*. These cases are called *sporangia*, and are collected in heaps, usually on the under surface or at the margin of the fronds, or rarely on the upper surface, or occasionally in a spiked manner upon a simple or branched rachis. Ferns are found in greater or less abundance in every part of the globe. In the northern hemisphere, they are herbaceous plants, but in the southern hemisphere, and in the tropics, they are sometimes arborescent, (see Fig. 28,) having stems occasionally fifty feet or more in height, and with the general habit of palms. The alliance is divided into the three sub-orders, OPHIOGLOSSACEÆ, POLYPODIACEÆ (the true ferns), and DANÆACEÆ, *q. v.* See *F. of N. Am.*, (Cassino,) 1878.



Fig. 1008. — COMMON MALE FERN.

Filic'iform, Fil'icoid, *a.* Fern-like.

Fil'icoid, *n.* (*Bot.*) A fern-like plant.

Filiferous, *a.* [Lat. *filum*, a thread, and *ferre*, to produce.] Producing threads.

Fil'iform, *a.* [Fr. *filiforme*, from Lat. *filum*, a thread, and *ferre*, to produce.] Having the form of a thread or filament; slender; like a thread; as, a *filiform* peduncle.

Fil'igrane, *n.* [Fr., from Lat. *filum*, a thread, and *granum*, a grain.] Same as FILIGREE. *q. v.*

Fil'igrained, *a.* Ornamented with filigree; filigreed.

Fil'igree, *n.* [See FILIGRANE.] A delicate species of ornamental work in gold or silver, wrought in little threads of the metal intertwisted in eccentric forms and patterns. It is of eastern origin, and was first introduced into Europe by the Italians. In the East, India, Sumatra, and Java have been celebrated for the high excellence to which they have arrived in the prosecution of this art. When the gold or silver has arrived at a molten state, it is drawn into wire on an anvil, and then twisted. After twisting, it is hammered down again into a flat state, and formed into the shape of flowers and leaves. When the *filigree* is finished, it is cleansed by boiling in water with common salt and alum, or occasionally lime-juice. This work is chiefly done in Malta, Sardinia, and the Ionian Islands.



Fig. 1009. — FILIGREE ORNAMENT.
(From a drawing by M. Mariana, in the Florence exhibition, 1861.)

Fil'igree, *a.* Relating to work in filigree; as, a *filigree* basket.

Fil'igreed, *a.* Ornamented with filigree.

Fil'ings, *n. pl.* Fragments or particles rubbed off by the act of filing.

Filippo d'Argiro (San), (*fe-lip'po dar-zhē'ro,*) (anc. *Agyrium,*) a central town of Italy, in Sicily, Val di Catania, 34 m. W. by N. of the city of Catania. The best saffron in Sicily is grown in the neighborhood. Diodorus Siculus was born here. *Pop.* abt. 4,000.

Fill, *v. a.* [A. S. *fyllan;* D. *vullen;* Swed. and Icel. *fylla;* Dan. *fylde;* Ger. *füllen;* allied to Lat. *pleo—plēre*, to fill; Sansk. *pūr*, to fill, of which the form *purayâmi* = Lat. *pleo*, *r* being changed into *l*.] To occupy the whole or empty space of; to pour liquids into; to pour into; to put or pour in, till the thing will hold no more; to occupy, as a void space; to store; as, to *fill* a glass

"With joy and shout the hollow universal orb they *fill'd*." *Milton*

—To supply with abundance; to cause to abound or be plenteous; to make universally prevalent; to furnish with as much as is needful or desirable; as, reservoirs *filled* with water.

"*Fill'd* with fury, rapt, inspir'd." — *Collins.*

—To satisfy; to content; to surfeit; to glut: as, to *fill* with admiration, *filled* with wine, &c.

"Going? Aye, to see meat *fill* knaves, and wine heat fools.' *Shaks.*

—To possess and perform the duties of; to officiate in, as an incumbent; to hold; to occupy; as, to *fill* the chair, to *fill* a situation, &c. — To furnish with an incumbent or occupant; as, to *fill* a vacancy.

To fill in, to insert or enter, so as to fill; as, to *fill in* the lights of a picture.

To fill out, to enlarge; to extend to a larger compass; to spread; as, she has of late *filled out* in figure.

To fill up, to fill completely, or to the brim.

"Come, *fill up* my cup; come, *fill up* my can."—*Scott.*

—To occupy or absorb wholly or entirely; as, to *fill up* one's time.

"Hope pours the bliss that *fills up* all the mind."—*Pope.*

Fill, *v. n.* To fill a cup, glass, or vessel for drinking; as, they *filled* and drank his health in bumpers.

"We *fill* to th' general joy of the whole table."—*Shaks.*

—To grow or become full; to make replete; to glut or satiate.

"Sails *fill'd*, and streamers waving."—*Milton.*

To fill up, to grow quite full; as, *filling up* with flesh, the cañon *fills up* with water.

—*n.* Fulness; repletion; as much as supplies want or demand; as, to have one's *fill* of food.

"Who scorneth peace shall have his *fill* of war."—*Fairfax.*

—A till; the space between the shafts of a carriage.

"This mule being put in the *fill* of a cart, ran away with it." *Mortimer.*

Fil'agree, *n.* See FILIGREE.

Fill'er, *n.* The person who, or thing which, fills; as, the *filler* of a wagon.

"'Tis a mere *filler*, to stop a vacancy in the hexameter." *Dryden.*

Fil'let, *n.* [Fr. *filet*, dim. of *fil*, from Lat. *filum*, a thread.] A little band to bind the hair.

(*Cookery.*) The fleshy part of the thigh in veal.—Meat rolled together and tied aronud.

(*Arch.*) A small flat face or band used principally between mouldings, to separate them from each other, in Classical architecture (Fig. 1010). In Gothic architecture it is frequently worked upon larger mouldings and shafts; in these situations it is not always flat, but is sometimes cut into two or more narrow faces with sharp edges between them. When this appendage is placed upon the front of a moulding, as at A, it has been termed the *keel* of the moulding, and when attached to the sides, as at B, its *wings*.—*F.* is distinguished from the *band* by being of narrow width and always flat.

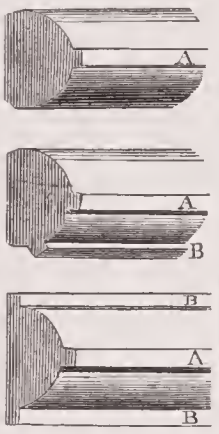


Fig. 1010.—FILLETS.

(*Her.*) An ordinary which, according to Guillim, contains the fourth part of the chief.

(*Carpentry.*) Any small timber or scantling equal to, or less than, battens.

(*Gilding.*) A little rule or ringlet of leaf gold, drawn over certain mouldings, or on the edges of frames, panels, &c.

(*Man.*) The loins of a horse.

Fil'let, *v. a.* To bind with a fillet or little band.

Fil'leting, *n.* The material of which fillets are composed.

Fil'libeg, *n.* [Gael. *filleadh*, plait, and *beag*, small.] A small plaid; a kind of dress hardly reaching to the knees, formerly much worn by the clansmen of the Highlands of Scotland, and still in use. (Written also *philibeg.*)

Fil'libuster, *n.* See FILIBUSTER.

Fill'ing, *n.* A supply; that which fills up.

Fill'more, MILLARD, 13th president of the U. States, b. at Summer Hill, Cayuga co., New York, 1800, and rose from the humblest beginnings to the highest position attainable by an American citizen. Apprenticed to a wool-carder in his father's locality, he made amends, by his zeal in the pursuit of knowledge, for the scantiness of his means; and before he was of age, his talents and aptitude procured him the notice and esteem of Judge Wood, an eminent lawyer of his native county, who invited the young man to a desk in his office, and offered to defray his expenses while he qualified himself for the profession of the law. *F.* accepted the offer to a certain extent, while he contrived, by teaching in a school, to press as lightly as possible upon the generosity of his benefactor. In 1821 he removed to Erie county, and pursued his legal studies in the city of Buffalo. In 1827 he was admitted as an attorney; in 1829, as a counsellor in the supreme court; and in 1830 he entered into partnership with an older member of the bar. It was in 1829 that he commenced his political career as a representative of Erie county in the state legislature, and in 1832 he was elected to the Congressional House of Representatives. For a number of years he alternated between political life and the exclusive practice of his profession, rising steadily in the general estimation as an able lawyer and consistent and promising leader of the Whig party. Elected in 1847 to the important post of comptroller of the State of New York, he enjoyed in 1848 the still higher honor of being carried by his party as vice-president of the United States. The new president, General Taylor, entered upon his office in the March of 1849, and on his sudden death in July, 1850, Mr. *F.* became, in virtue of his office, president of the United States. He was installed in the White House, at what was, in several respects, a critical moment in the history of the Union. It was the æra of the Lopez expedition against Cuba; and of a more than usual bitterness in the relations between North and South on the slavery question. Mr. *F.* made Daniel Webster his secretary of state, an appointment which strengthened and popularized his administration. President *F.*'s messages favored the fugitive-slave law, and recommended a protective, but not a prohibitory tariff. Under his presidency, California was admitted as a new State into the Union. In his final message he had to deplore the death of Webster; and in the March of 1853 he yielded up his office to his successor, General Pierce. He left the country at peace within and without, and in the enjoyment of a high degree of prosperity in all departments of its industry. He was the candidate of the American party for the presidency in 1856, but he received a very small minority of votes, the contest lying mainly between Mr. Buchanan and Col. Fremont. Mr. *F.* was then visiting Europe, and was received at the principal courts with the distinction which his character and career claimed for him. After his retirement from public life he resided at Buffalo,—which was his home for some 30 years, and where he enjoyed among all classes that high consideration to which, by his talents and integrity, he was so justly entitled. Died March 8, 1874.


Fig. 1011.—FILLMORE.

Fill'more, in *California*, a post-office of Ventura co.

Fillmore, in *Illinois*, a village of Coles co.

—A post-village of Montgomery co., about 15 m. N.W. of Vandalia.

Fillmore, in *Indiana*, a post-village of Putnam county, about 35 m. W. by S. of Indianapolis.

Fillmore, in *Iowa*, a post-village of Dubuque county, about 20 m. S.W. of Dubuque.

—A township of Iowa co.

Fillmore, in *Michigan*, a township of Allegan co.

—A post-office of Barry co.

Fillmore, in *Minnesota*, a S.E. co., bordering on Iowa; *area*, about 864 sq. m. *Rivers.* Root river. *Surface*, undulating; *soil*, fertile. *Cap.* Prestou. *Pop.* (1895) 28,599.

—A thriving post-village and township of Fillmore co.

Fillmore, in *Missouri*, a post-village of Andrew co., about 17 m. N. by W. of St. Joseph.

Fillmore, in *Nebraska*, a S.E. co.; *area*, 576 sq. miles; fertile prairie, little timber. *Rivers.* West fork of the Blue and Turkey creeks. *Cap.* Geneva. *Pop.* (1890) 16,022.

Fillmore, in *New York*, a post-office of Allegany co.

Fillmore, in *Ohio*, a post-office of Washington co.

Fillmore, in *Pennsylvania*, a post-office of Centre co.

Fillmore, in *Tennessee*, a post-office of Sequatchie co.

Fillmore, in *Wisconsin*, a post-office of Washington co.

Fillmore, in *Utah*, a post-town, capital of Millard co., on the Nuquin River, at the foot of the main Wabash range, about 150 m. S. from the Great Salt Lake, and 600 m. E. by N. of San Francisco. Both town and county were named in honor of President Millard Fillmore, who is held in great esteem among the Mormons on account of the favor he displayed towards them at the time of the organization of the territory in 1850.

Fil'lip, *v. a.* [Probably formed from the sound.] To strike with the nail of the finger, forced from the thumb with a sudden spring.—To snap with the finger and thumb.

Fil'lip, *n.* A jerk of the finger suddenly forced from the thumb; as, a *fillip* on the nose.—Anything that suddenly arouses one; as, to give a *fillip* to the imagination.

Fil'lipeen, *n.* Same as PHILOPENA, *q. v.*

Fil'ly, *n.* [A. S. *fola*; Goth. *fula*; Ger. *füllen*, a colt; allied to W. *ffilog*, a young mare.] A young mare before it has reached its third year.—A wanton young woman; a flirt.

Film, *n.* [A. S. *film*, a skin, *fylmnen*, a thin skin; Cf. W. *pilen*, a membrane, from *pil*, a rind.] A thin skin; a pellicle on the eye; as, the *film* of a cataract.

—The threads of a spider's web; as, to clear away the *film* from a room long disused.

—*v. a.* To cover with a thin skin or pellicle.

Film'iness, *n.* State of being filmy.

Film'y, *a.* Composed of thin membranes or pellicles; cobweb-like; as, "the *filmy* dew."

Filose', *a.* [L. Lat. *filosus*, from *filum*, a thread.] That ends in a threadlike process.

Fil'ter, *n.* [Fr. *filtre*; Lat. *filtrum*, or *feltrum*, properly felt, or fulled wool, used originally as a strainer. See FELT.] (*Chem.*) An apparatus by which fluids are separated from any solid matter held in suspension. They may be divided into 4 classes,—those used in straining chemical liquids, those used for purifying water for household purposes, those employed on a large scale by water-companies, and those used on shipboard for changing salt water into fresh. Chemical filters are either used for rendering fluids transparent, or for the purpose of separating and washing precipitates. They are usually made of unsized or blotting paper, folded into four, and placed on a funnel (Fig. 1012). When the liquid to be filtered is corrosive, sand, powdered glass, or wisps of asbestos, are generally used. When a liquid contains mucilaginous or other matter having viscous properties, there is considerable difficulty in filtering it, as the pores of the medium become filled up and made water-tight. Special filters are therefore required for syrups, oils, &c. Such liquids as ale, beer, &c., would be exceedingly difficult to filter, and therefore they are clarified by the process described under FINING. Oil is usually passed through long bags made of twilled cotton cloth (*Canton flannel*). These are commonly 4 to 8 feet long, and 12 to 15 inches in diameter, and are enclosed in coarse canvas bags, 8 or 10 inches in diameter; and thus the inner filtering-bag is corrugated or creased, and a large surface in proportion to its size is thus presented. Syrups are filtered on a small scale by confectioners, &c., by passing them through conical flannel bags, and on a large scale in the *creased bag-filter* just described. Thick syrups have to be diluted or clarified with white of egg, to collect the sediment into masses, and then they may be filtered through a coarse cloth strainer. Vegetable juices generally require to be treated in this manner.—Household filtres for purifying water, either for drinking or culinary purposes, are made in various forms. In Paris a large quantity of the river-water is purified by passing it through boxes, at the bottom of which is a layer of charcoal between two layers of sand. But the contrivance which we especially wish to recommend to the notice of our readers, and particularly of hunters and travellers, is an apparatus that in the bush or shrub, where water is often so loaded with sand, and so bad as scarcely to be fitted for use, is an invaluable companion.

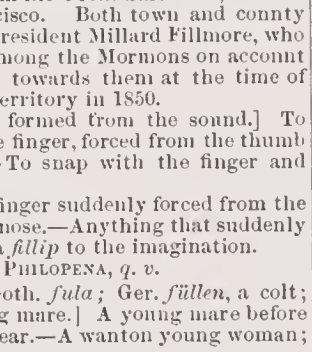

Fig. 1012.—FILTRATION.


Fig. 1013.—SUCKING-FILTER.

The instrument as shown in use in Fig. 1013 fully speaks for itself as to its utility. A small sphere of carbon, to which a gutta-percha tube and mouth-piece is attached, comprises the whole invention, with the exception of a tin box in which to carry this unique drinking-filter. The merits of this little filter, however, do not end here, for it can be made to answer the purpose of a family filter by merely sinking the carbon into a pail of water placed on a table, exhausting the air from the tube by sucking, bending it over the side, and inserting the mouth-piece into a jug placed on a chair, when the stream of filtered water will continue to flow as long as any remains in the pail.

Fil'ter, *v. a.* [Fr. *filtrer*; L. Lat. *filtrare.*] To purify or defecate liquor by passing it through a filter or a porous substance.

—*v. n.* To percolate; to pass through a filter.

Fil'ter, *n.* A love-potion.—See PHILTER.

Fil'tering, *n.* The act of passing through a filter.

Fil'tering-paper, *n.* An unsized, porous paper, used for filtering.

Filth, *n.* [A. S. *fylth*, from *fulian*, *befylan*, from *ful*, corrupt, rotten.] Foulness; dirt; any foul matter; waste matter; nastiness.—Anything that sullies or defiles the moral character; pollution; corruption; as, "the *filth* of sensual delights."—*Tillotson.*

Filth'ily, *adv.* Foully; grossly.

Filth'iness, *n.* The state of being foul; nasty; filthy.—Whatever is filthy, or causes filth, whether of mind or body; corruption; pollution.

Filth'y, *a.* Nasty; foul; dirty; unclean; squalid; gross.—Corrupt; polluted; defiled by sinful practices; morally impure.—Obtained by base and dishonest means; as, *filthy* lucre.

Fil'trate, *v. a.* [L. Lat. *filtrare*, to percolate. See FILTER.] To strain; to defecate, as liquor, by percolation.

Filtra'tion, *n.* [Fr.] The mechanical separation of a liquid from the undissolved particles floating in it.—See FILTER.

Fim'ble, *n.* [Corrupted from *female*; Ger. *fimmel.*] The light summer hemp that bears no seed.

Fim'bria, *n.*; *pl.* FIM'BRIÆ. [Lat.] (*Anat.*) A fringe. Especially applied to a number of loose, fringe-like processes, terminating the Fallopian tubes.

(*Bot.*) The dentated or fringe-like ring of the operculum of mosses, by the elastic power of which the operculum is displaced.

Fim'briate, Fim'briated, *a.* [Lat. *fimbriatus*, from *fimbria*, the edge or border of anything.] (*Bot.*) Fringed; bordered with slender processes or appendages.

(*Her.*) Ornamented, as an ordinary, with a narrow border of another tincture.

Fim'brieate, *a.* (*Bot.*) Fringed; jagged; fimbriate.

Fin, *n.* [A. S. *fin;* D. *vin;* allied to Lat. *pinna, penna;* old form *petna*, the root of which is found in Gr. *petesthai*, to fly.] One of the projecting *wing-like* organs which enable fishes to balance themselves in an upright position, and assist in regulating their motions in the water. In the Fig., D is the dorsal or back-fin, P the pectoral or breast-fin, V the ventral or belly-fin, A the anal, and C the caudal or tail-fin. The name fins is given to the locomotive organs of the *Cetacea*, but not to those of any other *Mammalia*, even when, as in the case of the hind-feet of seals, they approach very nearly to the character of the fins in fishes.

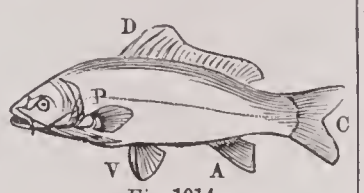


Fig. 1014.

—Anything resembling a fin; as, the *fin* of the plough-colter.

Fin, *v. a.* To carve, as a chub.

Fin, *n.* (*Geog.*) A native of Finland; — written also *Finn.*

Fin'able, *a.* [From *fine*, q. v.] Subject to a mulct or penalty.

Fi'nal, *a.* [Fr., from Lat. *finalis; finis*, the end.] Relating to the end; last; ultimate; as, "the *final* hope." — Conclusive; decisive; as, a battle *final* to a war. — Mortal; destructive; as, "resolved to work his *final* smart." — *Spenser.*

(*Log.*) *The final cause* is the end for which a thing is done, or the object to which it contributes; the thing itself in its entirety.

Finale, (*fe-nä'la,*) *n.* [Fr. and It., from Lat. *finis*, the end.] Conclusion; termination; as, a fitting *finale* to such a life.

(*Mus.*) The last note of a piece of music. — The piece which closes a musical entertainment.

Finale, (*fe-nä'lai,*) a walled town of Central Italy, prov. Modena, on an island in the Panaro, 21 m. N.E. of Modena, and 16 W. of Ferrara. *Manuf.* Silks and woollens; and an active trade prevails in corn, wine, and hemp. *Pop.* 12,861. — Another, in N. Italy, 10 m. from Albenga, on the Gulf of Genoa; *pop.* 4,750.

Final'ity, *n.* The state of being settled, finished, or concluded.

Fi'nally, *adv.* Ultimately; lastly.

—Completely; beyond recovery; as, "many men are *finally* lost."

Finance', *n.* [Fr., from L. Lat. *financia*, a money-payment.] The art of managing money-matters, the person who professes this art being called a *financier*. *F.*, in the plural, is often used for money itself, but still with a reference to the purpose to which it is to be applied, as where the finances of a country are said to have improved or fallen off — that is to say, have become abundant or scanty according to the expenditure of the country. Sometimes the word is applied to private wealth, but it is properly applicable to public funds. We use it in this country, as it is in England, rather in a political and economic sense than officially; but in France there have been, from time to time, *comptrollers-general of finances, councils of finances, bureaux of finances*, &c.; and at the present time, *Minister of Finances*, corresponding to our Secretary of Treasury. Many statesmen have been spoken of as great financiers, from the talent which they have shown for adjusting national revenue and expenditure.

Finan'cial, *a.* Pertaining to public, corporate, or individual revenue.

Finan'cially, *adv.* In relation to finances.

Financier, (*fi-nan-sēēr',*) *n.* [Fr.] A manager or collector of the public revenues. — One skilled in matters of finance. — See FINANCE.

Fin'castle, in *Indiana*, a village of Putnam co., abt. 14 m. N. of Greencastle.

Fin'castle, in *Ohio*, a post-village of Brown co., abt. 90 m. S.S.W. of Columbus.

Fin'castle, in *Tennessee*, a post-village of Campbell co., abt. 200 m. E. of Nashville.

Fin'castle, in *Texas*, a post-office of Henderson co.

Fin'castle, in *Virginia*, a post-village, cap. of Botetourt co., abt. 175 m. W. of Richmond.

Finch, *n.* [A. S. *finc;* Ger. *finke.*] (*Zoöl.*) See FRINGILLIDÆ.

Finch'-backed, *a.* Striped or spotted on the back, as cattle.

Finched, *a.* Having a white streak on the back, as a steer.

Finch'ley, a suburb of London, co. Middlesex, England, noted for its common, and fine public cemetery, 7½ m. N. of St. Paul's Cathedral; *pop.* abt. 7,000.

Find, (*fined,*) *v. a.*, (*imp.* and *pp.* FOUND.) [A. S. *findan*, Icel. *finna;* Ger. *finden;* Dan. *finde*, probably allied to Gr. *punthanesthai*, to find out by inquiry.] To reach; to meet; to discover; to meet with; to obtain by searching or by accident.

"Seek and ye shall *find.*" — *Matt.* vii. 7.

—To gain; to get; to acquire; to procure; to obtain; as, "to *find* leisure."

—To observe; to perceive; to remark; as, to *find* beauty, or wit, in a person.

—To detect; to catch; as, to *find* one in a lie.

—To supply; to furnish; as, he *finds* me in money and victuals.

(*Law.*) To approve; to determine by verdict; as, to *find* a bill, to *find* the prisoner guilty.

To find one's self, to be with regard to health; as, how do you *find yourself?* — *To find out*, to unriddle; to solve; as, to *find out* the meaning of a parable; — to discover something hidden; as, "canst thou by searching *find out* God?" (*Job* ii. 1.) — To discover; as, to *find out* a friend.

Find, *v. n.* To come to a determination; to be informed; to discover; as, he has *found* his notch.

Find'er, *n.* One who discovers, or meets with.

(*Law.*) The finder of goods is to use all due means to discover the rightful owner; and if he keep and appropriate the articles to his own use, knowing the rightful owner, or without having made due exertion to find him out, he is held guilty of larceny. Failing the rightful owner, the goods become the property of him who finds them.

Find'-fault, *n.* A censurer; a caviller.

Find'ing, *n.* Discovery; act of discovering.

(*Law.*) A verdict; as, the *finding* of the jury.

Find'ings, *n. pl.* The tools and materials used by shoemakers.

Find'ing-store, *n.* A shop where shoemakers' tools and materials are vended.

Find'lay, in *Ohio*, a city, cap. of Hancock co., on five lines of railroad, 40 m. S. of Toledo. In the center of a rich natural gas region, and contains numerous important manufacturing establishments, including glass works, machine shops, oil refineries, &c.; is also the trade center of a fine farming region. *Pop.* (1897) about 20,000.

Find'lay, in *Pennsylvania*, a township of Alleghany co.

—A township of Mercer co.

Find'ley's Lake, in *New York*, a post-office of Chautauqua co.

Find'lorn, a seaport of Scotland, co. Moray, 3 m. N. by E. of Forres, and 10 W. by N. of Elgin, situated on the river of same name. *F.* is celebrated for its salmon. *Pop.* abt. 1,200. — The river *F.* has its source in Invernesshire, falling into the Moray Frith, after a flow of abt. 45 m.

Fine, *a.* [Fr. *fin;* Ger. *fein*, bright, polished, allied to Lat. *finitus*, limited, bounded. Cf. W. *ffin*, a boundary.] Thin; slender; minute in size or bulk.

"*Fine* by degrees, and beautifully less." — *Prior.*

—Keen; smoothly sharp; as, "the *finer* edges of wit." (*Bacon.*) — Made of fine materials; not coarse; as, *fine* stuffs. — Clear; pure; refined; nice; delicate; exquisite; as, "a *fine* perfection of the sense." (*Davies.*) — Subtle; artful; dexterous; sly; fraudulent; as, "to be too *fine* in giving testimony." — Elegant in thought or manners; very handsome; accomplished; excellent; as, a *fine* gentleman, a *fine* scholar. — Subtile; thin; tenuous; as, the *fine* spirits evaporate — Amiable; noble; ingenuous. — Showy; splendid; as, a *fine* woman.

—Something that will serve a purpose; something worth contemptuous notice; as, *fine* feathers make *fine* birds. (Ironically.)

—*v. a.* To refine, clarify, or purify; to free from feculence or foreign matter; as, to *fine* wine. — To purify; to free from dross, as a metal.

"A place for gold, where they *fine* it." — *Job* xxviii. 1.

—To make less coarse.

"It *fines* the grass, but makes it short, though thick." *Mortimer.*

(*Crim. Law.*) A pecuniary mulct or punishment imposed by a competent jurisdiction, and was so called because it was said *finem facere de transgressione* — to make an end of the transgression. The statute law has seldom determined the amount of fines to be inflicted for particular offences, and the common law never. They vary according to the aggravation or otherwise of the offence, the quality and condition of the parties, and numerous other circumstances. This power, however, which is in the hands of the court, is far from being wholly arbitrary: for the Constitution of the U. States directs that "excessive bail shall not be required, nor excessive fines imposed, nor cruel or unusual punishment inflicted." It is not usual to inflict a larger fine than a man is able to pay without touching the implements of his livelihood; but instead thereof, to inflict a limited imprisonment.

(*Eng. Law.*) An amicable composition or agreement of a suit, either actual or fictitious, by leave of the court, by which the lands in question become or are acknowledged to be the right of one of the parties.

—*v. n.* To impose a pecuniary penalty for an offence; to set a fine on by judgment of a court; to punish by fine.

Fine, in *New York*, a post-township of St. Lawrence co.

Fine Arts, *n. pl.* This term is generally applied to those arts in which the artist seeks chiefly to give pleasure by the immediate impression produced on the mind by his work. These arts are thus distinguished from arts which are designed to answer some practical purpose, and so have been termed *useful*. By some, the term fine arts, which is generally taken to include those which appeal to the eye and ear alike, has been limited to the arts of *painting, sculpture*, and *architecture*. — *Antique art.* In its general acceptation, the term *A. A.* is understood to be that of a period antecedent to the revival of the classical studies in Western Europe, or before the *risorgimento*, or *renaissance*, of the arts from their assumed period of lethargy. There was, in fact, a distinct character about the productions of the artists of the more ancient and the more modern times, which was sufficiently marked to produce in the best of them a separate style of art, and which has led to the establishment of the schools of the so-called antique and modern styles; the mediæval arts form, as it were, an intermediate class, which was as distinctly marked as any of the other styles. The antique school was distinguished by an anthropomorphism and a divination of the human form; the mediæval school was formed upon and characterized by a species of contempt for the human figure, and an aspiration after an ideal perfection, and therefore there is something vague and undefined in its efforts to represent the objects it copied; while the modern school has united the indefiniteness of its aim with that clearness of the perception of its objects which is so marked a characteristic of its productions. The antique schools date from the dawn of civilization to the end of the tenth cent.; the mediæval schools date from the tenth to the fifteenth cent.; and the modern schools have continued the traditions of the masters of art to the present times. The works of the various authors are respectively known by the names of their actual schools, and are called *antique, mediæval*, or *modern*, as they belong either to the one or the other of them.

Fine'-draw, *v. a.* To sew up, as a rent, so nicely that when the parts are drawn together, the rent is not perceived.

Fine'-drawer, *n.* One who fine-draws.

Fine'-drawing, *n.* The dexterous sewing of rents.

Fineer', *v. a.* See VENEER.

Fine'-fingered, *a.* Accurate in work; as, a *fine-fingered* workman.

Fine'ly, *adv.* In minute parts; gayly; handsomely; beautifully; elegantly; very favorably; nicely; delicately.

Fine'ness, *n.* Elegance; beauty; delicacy; niceness. — The quality of being composed of fine materials. — Keenness, or sharpness of edge, as of an axe. — Show; splendor; gayety of appearance.

"The *fineness* of clothes destroys ease in wearing them." *Decay of Piety.*

—Subtlety; artfulness; ingenuity. — Purity; freedom from dross or base mixtures.

Fin'er, *n.* One who refines or purifies.

Fin'ery *n.* Show; splendor; gayety of colors or appearance; showy articles of dress; gay clothes, jewels, trinkets, &c. — The furnace in which cast-iron is converted into malleable iron.

Fin'ery Cin'der, *n.* The slag resulting from the refining of cast-iron. — See SLAG.

Fine'-spoken, *a.* Using fine phrases.

Fine'-spun, *a.* Delicately interwoven; composed of fine thread.

—Artfully contrived; as, a *fine-spun* theory.

Finesse', *n.* [Fr.] Artifice; stratagem; subtlety of contrivance to gain a point; as, the *finesse* of diplomacy.

—*v. a.* To use trickery or artifice.

Finess'ing, *n.* The act or practice of artifice.

Fine'-still, *v. a.* To distil spirits from molasses.

Fine'-still'ing, *n.* The distillation of spirits from molasses or other saccharine matter.

Fine'-stuff, *n.* The second coat of plaster for the walls of a room.

Fines'ville, in *New Jersey*, a village of Warren co., on the Musconetcong Creek, about 20 m. S.S.W. of Belvidere.

Fin'ew, *n.* [A. S. *finie*, mouldy.] The state of being mouldy; mouldiness.

Fin'-fish, *n.* (*Ichthy.*) A small species of whale.

Fin'-footed, *a.* Having palmated feet, or feet with toes connected by a membrane; web-footed; palmipedous.

Fingal, (*fin'gawl,*) a personage celebrated in the poems of Ossian, who was his son. He was prince of Morven, a province of ancient Caledonia, and struggled against the power of the Romans, who were in his time the rulers of England. He also undertook warlike expeditions to the Orkneys, Ireland, and even Sweden, and was a prince of a highly chivalric character. Indeed, as painted by Ossian, he was a great hero, and the father of his people. Lived in the 3d cent.

Fingal, (*fin'gawl,*) a district of Ireland, co. Dublin, where are settled the descendants of some Finns or Norwegians, who still retain a dialect and other features of their origin.

Fingal, a village of Upper Canada, co. of Middlesex, about 157 m. S.W. of Toronto.

Fin'gal's Cave, a curious cavern (see Figs. 298, 299) formed of basaltic columns, situate in the isle of Staffa, one of the Hebrides, on the W. coast of Scotland, 25 m. from Oban. — See BASALT.

Fin'ger, *n.* [A.S. and Ger. *finger*; Icel. *fingr.* The root is found in Icel. *fang*, a seizing, a taking.] One of the five extreme parts of the hand. — One of the four extremities of the hand, as contradistinguished from the thumbs: as, "between the *finger* and thumb." (*Shaks.*) An ancient measure — the fourth part of a palm; the breadth of a finger.

(*Mus.*) Ability in execution, particularly upon a keyed instrument; as, "a rapid or delicate *finger.*" — *Moore.*

—*v. a.* To play, as a musical instrument. — To touch lightly; to toy with; as, "to *finger* papers." (*Shaks.*) — To touch unseasonably or thievishly; as, to *finger* the pockets of another. — To perform any work exquisitely with the fingers.

—*v. n.* To dispose the fingers aptly to play upon a musical instrument.

Fin'ger-board, *n.* [A.S.] (*Mus.*) The black board attached to the necks of instruments of the viol class, on which the strings are pressed by the fingers for the purpose of adjusting their lengths so as to produce the different sounds. The whole of the keys, both black and white, of a piano or organ are also so called.

Fin'ger-bowl, *n.* Same as FINGER-GLASS, *q. v.*

Fin'gered, *p. a.* Having fingers, or parts like fingers.

(*Bot.*) Digitate.

(*Mus.*) Touched or played on, as an instrument. — Marked with figures showing the fingers to be touched. Formed by pressing the fingers on a string, as a note.

Fin'ger-fern, *n.* (*Bot.*) See ASPLENIUM.
Fin'ger-glass, *n.* A glass vessel to hold water for rinsing the fingers after dessert.
Fin'ger-grass, *n.* (*Bot.*) The common name of the genus *Digitaria*. — See MILLET.
Fin'gerin, *n.* Worsted spun from combed wool, on a small wheel.
Fin'gering, *n.* The act of touching lightly or handling; as, the mere *fingering* of money.
—Delicate work made with the fingers.
(*Mus.*) The art of arranging the fingers on any musical instrument so as to produce the required notes in an easy and graceful manner. A good method of *F.* is of the utmost importance to the student, as without it the easiest passages will often appear difficult, and the difficult ones almost impracticable.
Fin'ger-parted, *a.* (*Bot.*) Divided into lobes; having a fanciful resemblance to the five fingers of the human hand.
Fin'ger-plate, *n.* An ornamental plate attached to the edge of a door to prevent the soiling of the paint by the hands of those passing in and out.
Fin'ger-post, *n.* A post having a finger to direct passengers.
Fin'ger-ring, *n.* An ornamental ring of gold, or other material, to be worn upon the finger.
Fin'ger-shell, *n.* (*Conch.*) A shell shaped like a finger.
Fin'ger-stall, *n.* A cot of leather or other material worn by workmen as a protection for the finger.
Fin'ger-stone, *n.* (*Geol.*) A fossil resembling an arrow.
Fin'grigo, *n.* (*Bot.*) See PISONIA.
Fin'groms, *n. pl.* Woollen cloth made of combed-wool.
Fin'ial, *n.* [Lat. *finis*, end, termination.] (*Arch.*) In Gothic architecture, the carved ornament which surmounts the top of pinnacles, gables, canopies, mouldings, &c. It is generally in the form of foliage clustering around a knob or boss. The ornament called a poppy-head, frequently used to finish the upright sides of open pews in churches, is a *F.* The fine example of decorated style in Fig. 1016 shows the application of *F.* to a doorway.

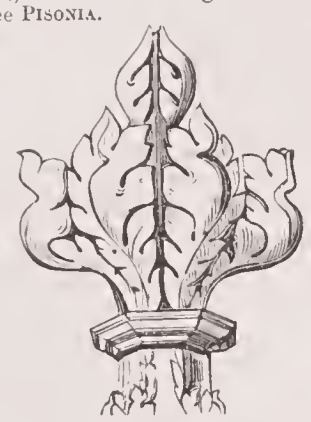


Fig. 1015. — FINIAL.
(At King's College, Cambridge.)

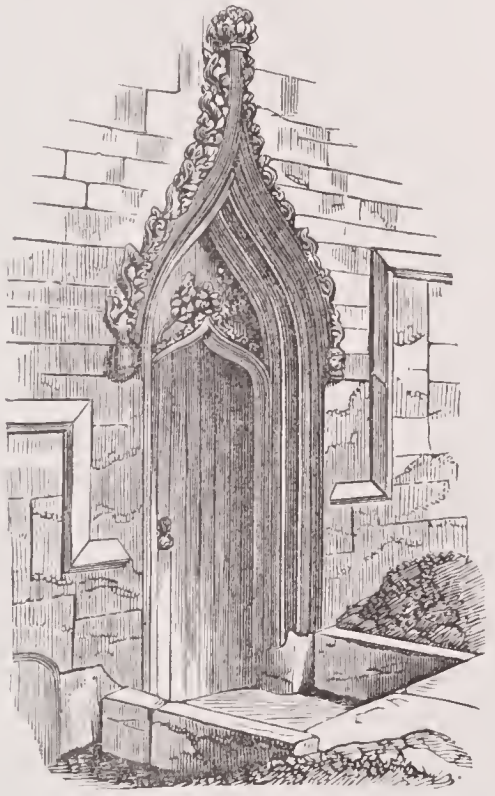


Fig. 1016. — DOORWAY IN DECORATED GOTHIC STYLE.
(From Crick, England; 14th century.)

Fin'ical, *a.* [From FINE, *q. v.*] Over-nice; spruce; foppish; pretending to superfluous elegance; affectedly nice, or showy.
"I cannot bear a *finical* fop romancing." — *L'Estrange.*
Finical'ity, *n.* State of being finical or foppish.
Fin'ically, *adv.* With great nicety or spruceness; foppishly.
Fin'icalness, *n.* Extreme nicety in dress, manners, or appearance; foppishness.
Finific, *n.* [Lat. *finis*, an end, and *facere*, to make.] A limiting element or quality.
"The essential *finific* in the form of the finite." — *Coleridge.*
Fin'ikin, *a.* [From *fine*, with dim. termin.] Precisely particular, or nice in trifles; pottering; idly busy; of would-be importance; as, a *finikin* man.

Fin'ing, *n.* The act of imposing a fine.
(*Manuf.*) The process of refining, purifying, or clarifying turbid liquors. The simplest mode of *F.* is by passing the liquor through a porous substance that retains the solids and allows the clear liquid to pass through (see FILTER); but this method is only applicable to particles mechanically suspended in a limpid liquid. When the liquid contains mucilaginous or other matter, that readily clogs the filter, some other means of *F.* must be used. Such is the case with all malt liquors and most wines when turbid. When in good condition, these do not usually require *F.*, as the suspended matter agglomerates, and sinks to the bottom shortly after the fermentation is completed. When this does not take place, some means of promoting such action are usually adopted. One of the simplest is to add soluble albumen, such as white of egg, to a portion of the liquid, and after beating it well in this, to add the mixture, and stir it into the whole of the liquid. Upon the application of heat, the albumen coagulates and contracts from its diffusion into a scum, enveloping and drawing together the suspended matter. The scum is then easily removed. This method is adopted for syrups and other liquids that may be heated without mischief. In making clear soups, the albumen of the meat performs this function. As alcohol coagulates albumen, it may be used for *F.* wines and cordials without the application of heat. It is generally used for red wines. Malt liquors are usually fined by means of gelatine, either isinglass or cheaper substitutes being used. One pound of isinglass is soaked in three or four pints of water, or sour beer, then more sour liquor added as the isinglass swells, until it amounts to about a gallon. The jelly thus formed is next dissolved in seven or eight gallons of the liquor to be fined. This solution, having the consistence of a syrup, is called *brewers' finings*, and about a pint to a pint and a half is added to a barrel of ale or porter, or to a hogshead of cider or wine. The action of this depends upon the combination of the gelatine with the astringent matter (*tannic acid*) of the liquor, forming thereby an insoluble solid, which sinks to the bottom, and carries with it, like the coagulating albumen, the suspended matter; but as the flavor of malt liquors partly depends upon the astringents they contain, the *F.* affects the flavor; the astringents also help to preserve the liquor, and hence their removal is in this respect disadvantageous. Malt liquors thus fined do not "stand well on draught." The use of gelatine for *F.* red wines is objectionable, as in most of these the astringent flavor is an esteemed quality, and therefore albumen is preferred.— There are other methods of *F.*, but all of them are more or less objectionable. Liquors that are unusually difficult to fine are called *stubborn* by coopers and cellarmen.
—*n. pl.* A preparation of isinglass, gelatine, or other substances, for clarifying beer, syrup of sugar, &c.
Fin'ing-pot, *n.* A vessel used in refining metals.
Fin'ish, *v. a.* [Fr. *finir*, p. pr. *finisant*; Lat. *finio*, *finitus*.] To end; to terminate; to arrive at the end of, in execution or performance; to complete; to bring to an end; to put an end to; to close; to conclude; as, to *finish* a day's work.
"Heroically hath *finish'd* a life heroic." — *Milton.*
—To perfect; to accomplish; to polish to the degree of excellence intended.
"It is a *finish'd* work, and perfect in its kind." — *Blackmore.*
—*n.* That which finishes, completes, or perfects; the last touch of polish or excellence; as, there 's a degree of *finish* about the picture.
Finished, (*fin'isht,*) *p. a.* Complete; perfect; polished to the highest degree of excellence; as, a *finished* gentleman.
Finished work. (*Mach.*) Work, whether complete or uncomplete, that is made smooth or polished.
Fin'isher, *n.* One who finishes, or completely performs; one who, or that which, puts an end to; one who makes complete or perfect.
"Death a *finisher* of all his troubles." — *Hooker.*
(*Mach.*) A person who gives the finishing strokes or touches to work.
Finistere, the extreme W. dep. of France, formerly a part of the prov. Brittany, between Lat. 47° 45′ and 48° 45′ N., and Lon. 3° 26′ and 4° 50′ W., surrounded on three sides by the Atlantic and British Channel, and having E. the deps. Côtes-du-Nord and Morbihan. Length, N. to S., 65 m.; breadth, abt. 55 m.; *area*, 2,690 sq. m., or 672,112 hectares. The coasts of this dep. are generally steep, rocky, and indented with many bays and harbors, some of which, as that of Brest, are of the first excellence. Numerous small islands skirt the coast. *Surface.* Diversified, two chains of hills running through the dep. E. to W. *Soil.* Various. *Climate.* Humid, and subject to tempests and fogs. *Prod.* Agriculture is in a backward state, although oats, rye, wheat, barley, flax, and potatoes are largely raised. Pasturage is excellent, rearing large numbers of cattle. The condition of the farmers is, on the whole, prosperous. Cider is, for all classes, the favorite and almost only drink. The fisheries yield a good return. *Min.* The mines of lead at Poullaouen and Huelgoet, are the most productive in France. *Manuf.* Sail-cloth, linen, ropes, leather, oil, tobacco, &c. *Chief towns.* Quimper (the cap.), Brest, and Morlaix. *Pop.* 695,609.
Finite, (*fi'nite,*) *a.* [Lat. *finitus*—*finio*, *finis*.] Having a limit; limited; bounded; terminable; — in contradistinction to *infinite;* as, a *finite* being.
Finite force. (*Phys.*) A force that acts for a finite time, such as the force of gravity.
Fi'nitely, *adv.* Within limits; to a certain degree only.
Fi'niteness, *n.* State of being finite; limitation; confinement within certain boundaries; as, "*finiteness* of natural powers."
Finks'burgh, in *Maryland*, a post-village of Carroll co., abt. 50 m. N.W. of Annapolis.
Fin'land, (GRAND-DUCHY of,) (called by the natives, *Suomen-maa*, "land of marshes,") a country of N. Europe, including (with the exception of part of Lapland) the extreme N.W. portion of the Russian empire. It lies between Lat. 59° 50′ and 70° 25′ N., and Lon. 21° and 32½° E.; having N. Russian Lapland; E. the govts. of Archangel and Olonetz; S. Lake Ladoga, the govt. of St. Petersburg, and the Gulf of Finland; and W. Sweden and the Gulf of Bothnia. Length, N.N.E. and S. S.W., 600 m.; average breadth abt. 240 m. *Total area*, 136,000 Eng. sq. m.; divided into 8 provs. DESC. *F.* consists principally of a table-land from 400 to 600 feet above the level of the sea, and interspersed with hills of no great elevation. In the N., however, the Manselka Mountains have an average height of between 3,000 and 4,000 ft. The coasts, particularly on the S., are surrounded by a vast number of rocky islets, separated from the main-land and from each other by intricate and narrow channels, rendering the shores of the country easy of defence in case of hostile attack by sea. But the chief natural feature of *F.* is its myriads of lakes, which spread like a network over a large proportion of its surface; some of them being of very considerable size. The greater number of these are in the S. and E.; they have frequent communications with each other, and generally abound with islands. There are numerous rivers, but none of much importance. *Climate*, rigorous. Even in the S. the winter lasts from 6 to 7 months, and in the N. from 8 to 9 months. Dense fogs are very frequent; heavy rains take place in autumn, and in May and June the thaws put a stop to nearly all travelling. In the N. the sun is absent during Dec. and Jan.; but during the short summer, while that luminary is almost perpetually above the horizon, the heat is often very great; and near Uleaborg, in abt. 65° Lat., the corn is sown and reaped within 6 or 7 weeks. Crops in all parts of the duchy are exposed to the double danger of being destroyed by sudden frosts, and by the ravages of a variety of caterpillar called *turila* by the natives. The principal geological formations are granite, which very easily disintegrates, hard limestone, and slate. *Soil*, for the most part stony and poor. *Min.* Iron, copper, marble, sulphur. *Prod.* Rye, oats, and barley. The most important products are, however, timber, deals, potash, pitch, tar, and rosin; all of which articles are extensively exported. Next to agriculture, stock-breeding and fishing form the leading occupations of the inhab. *Manuf.* None of importance. *Chief towns.* Helsingfors (the cap.), Abo, Uleaborg, and Tornes. *Hist.* The Finns were Pagans, living under their own independent kings till the 12th cent., about the middle of which the country was conquered by the Swedes, who introduced Christianity. The prov. of Wyborg was conquered and annexed to Russia by Peter the Great, in 1721: the remainder of the country became part of the Russian dominions (also by conquest) in 1809. Ever since that period the Russian govt. has endeavored, by conciliating the Finnish party, and promoting objects of national importance, to attach the bulk of the population to its interests; and in this it is said to have been eminently successful. *Pop.*, chiefly Finns and Lapps (1895), 2,442,315.—See FINNISH LANGUAGE.
Fin'land, GULF OF, one of the great arms of the Baltic sea, exteuding E. and N. between Lat. 58° 40′ and 60° 40′, and between Lon. 23° and 30° 10′ E. It has a length of 260 miles, by a varying width of between 25 and 90 miles. Numerous islands dot its waters, the principal of which is Cotlin Ostrof, or Kotlinoi, upon which the great Russian arsenal of Cronstadt (*q. v.*) is situated.
Fin'less, *a.* Without fins; having no fins.
Fin'ley, in *Missouri*, a township of Christian co.
—A township of Douglas co.
—A village and township of Webster co., about 24 m. E.S.E. of Springfield.
Fin'ley, or **Find'ley,** in *Ohio*. See FINDLAY.
Finley Station, in *N. Jersey*, a P.O. of Cumberland co.
Fin'leyville, in *Pennsylvania*, a post-village of Washington co., abt. 180 m. S.W. of Harrisburg.
Fin'mark, [Nor. *Finmarkens*,] an exteusive prov. or *arot* of Norway, forming the most N. portion of continental Europe, and lying between Russian Lapland and the Arctic Ocean. *Area*, estim. at 27,500 sq. m. *Desc.* Bleak and sterile, but yielding crops of rye and potatoes. The inhabitants are principally engaged in the cod-fisheries. *Pop.* Finns and Lapps, estim. at 22,000.
Finn, *n.* (*Geog.*) A native or inhabitant of Finland; a Fin.
Finn, a river of Ireland, rising in co. Donegal, which after a course of 24 m. empties into Lough Foyle, near Lifford.
Fin'nan, or **Fin'don,** a fishing-village of Scotland, co. Kincardine, 6 m. S. of Aberdeen. It is a poor place, but has been long celebrated for its preparation of smoked haddocks, known, far and wide, as "Finnan haddocks" or "haddies." This delicacy is prepared by gutting, cleaning, splitting, and smoking the fish. The most particular part of the process is the smoking, which should be done by the green branches of the fir-tree, or still better, spruce; thus communicating to the fish its peculiar odor and bright yellow color. A somewhat similar result may be effected by the use of pyroligneous acid; but nothing else but the fir has ever been used for the purpose at *F.* and other places on the coast. The genuine Finnan haddock should never be kept above two, or, at the furthest, three days after it has been cured, should be roasted by a very quick fire, and served up immediately.

Finned, (*finn'd,*) *a.* With a broad edge on either side, as a plough.

Fin'ner, *n.* Same as FINBACK, *q. v.*

Fin'nikin, *n.* [Prov. Eng. See FINIKIN.] A sort of crested pigeon.

Fin'nish, *a.* (*Geog.*) Pertaining or relating to Finland.

Fin'nish Language and Literature. The language of Finland forms one of the chief branches of the Uralo-Altaic family, being, with the Esthonic and Lappish collaterals, kindred to the languages of the Urgrians, or Eastern Turks, Osmauli Turks, Samoyedes, and other Tartars, Magyars, Mongols, and Tunguses, whose chief branch are the Mautchoos. All these constitute the so-called Scythic, or Turanian, or Allophylic family. The Finnish comprises a number of dialects, of which the principal are the lower, which is used along the coasts, its Abo variety being that which is used in books; and the upper, which is spoken in the inland regions, divided into the sub-dialects of Ulea and Viborg. It is written in Latin or German characters; but the letters *b, c, d, f, g* occur only in a few foreign words, and *q* is obsolete. It is, however, rich in vowel sounds, having no fewer than eight, *ä* and *ö* standing at the end of the alphabet. It has also many diphthongs, and, according to Rask, it has the most harmonious of tongues. The nouns have fourteen cases, which are expressed by suffixes or post-positions to the nominative, and plurality is denoted for the nominative by suffixing *t*, and for the other cases by inserting *i* before their endings. There are only two declensions, the one for nouns ending in a vowel, the other for those ending in a consonant. The declension of adjectives is essentially the same as that of substantives, while the comparative ends in *mbi* and the superlative in *in*. There are no grammatic genders, the sexes being indicated either by distinct words or by epithets. The verbs have only two simple tenses, — the present and the past, the others being periphrastic. Their conjugation is complicated, their voices, moods, and other nice shades of meaning being expressed by certain syllables inserted between the root and the personal suffixes. There are no separate particles, and all their prepositions are placed at the end of the words to which they are related. From the number of syllables thus brought together, some of the words are of great length (from eight to ten, and sometimes even as many as eighteen syllables); but in this way the most complicated ideas may often be expressed in one word, which would require several in most other languages. The construction is extremely free, without endangering the clearness of the sense. There can be little doubt, from the character and construction of the language, that this is not only one of the most ancient, but one of the purest of the whole Asiatic-European family, being less mixed with foreign elements than the Hungarian, Turkish, or Mongolian. The literature of Finland is particularly rich in popular songs or *runes*, which are sung by the *runolainen*, or songmen, to the sound of the favorite national instrument, the *kantele*, a species of harp with five wire strings. In 1834, the Finlandic Society of Literature was established at Helsingfors, and has done much to spread a knowledge of, and develop a taste for this language. Its publications have given a great stimulus to the study of the Finnish language; and while the upper classes still cling to the use of the Swedish, the peasantry welcome with avidity every addition to the limited stock of their printed literature. Newspapers and periodicals in their native tongue now circulate among them, and are eagerly read. A Finnish translation of the New Testament appeared in 1548, and a portion of the Old Testament in 1552; but the whole Bible was not translated into Finnish till 1612. From ancient mythological odes of Finland an epic poem, the famous *Kalevala*, was constructed by Dr. Löunrot, in 1835. This striking production was imitated by Longfellow, in his *Hiawatha*.

Finn's Point, in *New Jersey*, a point of Salem co., extending into the Delaware River, about 4 m. above Salem Creek.

Fin'ny, *a.* Furnished with fins; having reference to fish; as, the *finny* tribes.

Finos, (*fē'noz.*) *n. pl.* [Sp. pl. of *fino*, fine wool.] The secondary class of wool obtained from Merino sheep.

Fins'bury, a parliamentary borough of England, forming a division of London, the British metropolis, and lying between Hackney on the N., the Tower Hamlets on the E., Marylebone on the W., and the city of London and liberties of Westminster on the S.

Fin'-scale, *n.* (*Zoöl.*) An English provincialism for the RUDD, *q. v.*

Finster-Aar'horn, the highest peak of the Bernese Alps, in Switzerland, between Berno and the Valais. Height, 14,020 feet.

Fin-toed, (*fin'tōd,*) *a.* Palmiped; palmated; having a membrane between the toes, as aquatic fowls.

Fio'ra, a river of S. Italy, having its source near Mt. Amiata, and embouching into the Mediterranean near Civita Vecchia, after a course of 40 m.

Fiord, (*fyord*, pronounced in one syllable.) [Dan. and Nor.; Icel. *fiördr.*] (*Geog.*) An inlet of the sea, generally long, narrow, and deep; — a term applied in Scandinavian countries to any bay, creek, or arm of the sea which extends inland, and sometimes used to express an inland lake or considerable sheet of water; as, Sogne *Fiord*. The *F.* of Iceland, like those which indent the granitic coasts of Norway, were formed by immense flows of lava, raised and rent by subterraneous forces. These immense crevasses raising their huge beds to a great height above the level of the sea, present, through the lapse and disintegration of the rock, the appearance of crenellated walls, of huge pyramids, ruins, and monuments. In the southern part of the island, the caverns, basaltic colonnades, and natural arches of Stapi (Fig. 1017) remind one of the strangest formations of Ireland, and the beautiful grotto of Antrim. These gulfs, often but half a mile in width, extend as far as 5 or 6 miles into the mountains, where they are surrounded on all sides by perpendicular rocks, rising to an immense

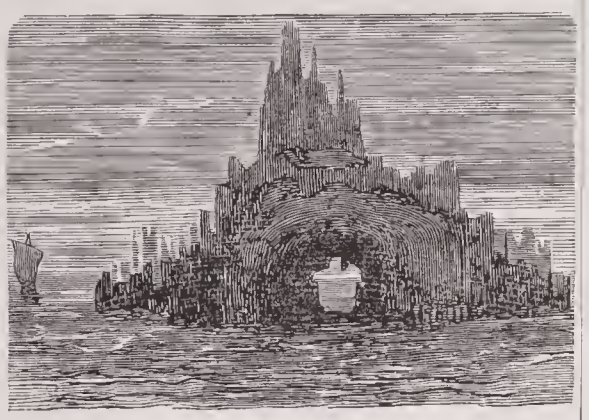


Fig. 1017. — NATURAL ARCH OF STAPI, (Iceland.)

height. "The upper half of these gigantic walls," says M. Krug de Nîdda, in his remarkable work on Iceland, "covered with eternal snow, is concealed among dense clouds; — there one finds no further trace of life, all is death and solitude; nothing human is found amid these masses heaped together by nature; no forests nor trees; rocks bare, and generally too steep to give hold to the humblest vegetation; no other sound than the breaking of the sea, repeated by the echoes; no other motion than that of the snow-fed torrents, which furrow the sides of the rocks, like ribbons of silver." "Toward midnight," adds M. Robert, (*Travels in Iceland,*) "at the season when, in northern countries, the sun is always above the horizon, and when the air is perfectly calm and pure, there reigns in the depths of these *fiords* an indefinable, mysterious light, which I have seen nowhere but in Iceland; one might call them so many sanctuaries where nature is at rest."

Fiorenzuola, (*fe-o-rain-zoo-o'la,*) a town of Central Italy, prov. Piacenza, on the Lardi, 15 m. S.E. of Piacenza. *Manuf.* Unimportant. Cardinal Alberoni was B. here. *Pop.* 6,475. — Also, the name of several other Italian towns, too small to notice.

Fi'orite, *n.* (*Min.*) A silicious incrustation, occurring near Santa Fiora, Italy, also in Ischia and at the Solfatera near Naples in globular, botryoidal and stalactitic concretions, pearly in lustre.

Fip'penny-bit, *n.* A silver coin of the value of five pence sterling; also, applied, occasionally, to the sum of five pence in general.

Fir, *n.* [A.S. *furh;* Ger. *föhre*, pine; Scot. *fir;* Dan. *fyrr;* allied to A. S. *fyr*, and Gr. *pyr*, fire.] (*Bot.*) The common name of a large number of coniferous trees, of a pyramidal form and elegant proportions. This name is often used in a sense co-extensive with the widest sense of the word PINE (*q. v.*), and therefore so as to include a large portion of the PINACEÆ (*coniferæ*), or at least the whole of the Linnæan genus *Pinus*. But the



Fig. 1018. — SILVER FIR, (*Abies picea.*)

name *fir* is also often used in a more restricted signification, and the trees so designated are those forming the genus *Abies* of some authors, *Abies* and *Picea* of others, which the greater number of botanists have now agreed in separating from *Pinus*. In the classification of Lindley, all the firs are included in the genus *Abies*. The common SILVER FIR, *Abies picea*, has erect cylindrical cones, 5–6 inches long, and two-rowed leaves, with two white lines upon the under side. It forms considerable woods upon the mountains of Central Europe and of the north of Asia, and attains a height of 150–180 feet, and an age of 300 years. The wood is white, contains little resin, is very soft and light, and is employed for the ordinary purposes of coopers, turners, and joiners, and in ship and house carpentry, also for making bandboxes, and for many fine purposes, especially for the sounding-boards of musical instruments. It yields the beautiful clear turpentine known as Strasburg Turpentine. Very similar to the Silver Fir, but generally of much smaller size, and indeed seldom much above 40 feet in height, is the BALM-OF-GILEAD FIR (*Abies balsamea*), a native of this country, from Virginia to Canada. The wood is of little value, but the tree yields the *Canada balsam*. (See TURPENTINE.) The other important species of firs will be seen under their particular names.

Fire, *n.* [A.S. *fyr;* O. Sax. and O. Ger. *fiur;* Fris. *fior;* Ger. *feuer;* Dan. *vuur;* akin to Gr. *pyr;* Goth. *funa* = Sansk. *pavana*, pure, *pâvaka*, fire — *pû*, to purify.] The great agent of purification; that one of the so-called four elements which burns, inflames, warms, or heats; the igneous principle; heat and light emanating visibly, perceptibly, and simultaneously from any body; caloric; the effect of combustion.

"Then air succeeds, in lightness next to *fire*." — *Dryden.*

— The burning of fuel upon a hearth: a conflagration: a burning; a flame; as, make a good *fire*, the place took *fire*, &c. — Light; lustre; splendor; as, "Stars, hide your *fires!*" (*Shaks.*) — Torture by burning; the punishment of the impenitent in another state; trouble; severe ordeal; affliction.

"Like a pale martyr in his shirt of *fire*." — *Alex. Smith.*

— Ardor of temper; violence of passion; ardent affection; the passion of love; ardor; heat of the feelings.

"The *fire* of love in youthful blood, but for a moment burns." *Shadwell.*

— Liveliness of imagination; vigor of fancy; intellectual brightness and activity; animation; force of sentiment or expression; intellectual and moral enthusiasm; as, the poet's *fire*.

"Exact Racine, and Corneille's noble *fire*,
Taught us that France had something to admire." — *Pope.*

(*Hist.*) The terrific energy of fire, the most important agent of civilization, the similarity of its effects with that of the sun, its intimate connection with light, its terrible and yet genial power, and the beauty of its changeful flame, easily account for the reverence in which it was held in ancient times. At a period when cause and effect, form and essence, were not distinctly separated, fire became an object of religious veneration, a distinguished element in mythology, an expressive symbol in poetry, and an important agent in the systems of cosmogony. It gained a place among the elements, and for a long time was believed to be a constituent part in the composition of all bodies, and to require only the concurrence of favorable circumstances to develop its activity. At a later period, fire, under the name of *phlogiston*, was considered to be the source of all chemical action. At the present day, the phenomena which were formerly ascribed to fire are attributed to the effects of heat. — See COMBUSTION and HEAT.

(*Mil.*) A discharge of musketry or small arms; as, the column advanced under a heavy *fire*. — *Direct fire.* (*Mil.*) See DIRECT. — *Greek fire.* See GREEK FIRE. — *Horizontal fire.* (*Mil.*) See HORIZONTAL. — *On fire.* Burning; in a state of combustion; as, a house *on fire*. — *Plunging fire.* (*Mil.*) See PLUNGING. — *Running fire.* (*Mil.*) The rapid, rattling discharge of musketry kept up in succession by troops.

To set on fire, or *a-fire*, to cause to burn; to inflame; as, "Desire may *set* her heart *a-fire*." — *Carew.*

— *v. a.* To set on fire; to kindle; to cause to burn, or enter into a state of combustion; as, to *fire* a chimney, to *fire* a city, &c.

"The aspiring youth that *fired* th' Ephesian dome
Outlives in fame the pious fool that raised it."—*Colley Cibber.*

— To inflame; to excite: to irritate, as the passions; as, *fired* with anger. — To infuse animation into; to give life and spirit to; as, to *fire* the enthusiasm of men. — To cause to explode; to discharge; to ignite the charge of a gun or fire-arm; as, *fire* blank cartridge.

— *v. n.* To take fire; to be kindled. — To be excited, irritated, or inflamed with passion. — To discharge artillery or fire-arms; as, the *firing* could be heard at a great distance. "The fainting Dutch remotely *fire*."—*To fire up*, to allow one's temper to burst forth; to grow angry; to get into a passion.

"He *fired up*, and stood vigorously on his defence."—*Macaulay.*

Fire'-alarm, *n.* A signal of alarm given on the breaking out of a conflagration. — An apparatus for giving alarm of fire.

Fire-annihilator, *n.* A machine for extinguishing fires, invented by Mr. Phillips, and bearing his name. It consists of a case containing water, within which is a smaller case filled with a mixture of chlorate of potash and sugar. Dipping into the latter is a small tube containing sulphuric acid. When this tube is broken, the chlorate of potash and sugar become ignited, throwing off large quantities of mixed gases, which are non-supporters of combustion. The action is maintained by the water in the outer case becoming heated. This contrivance was never of much practical use. Later and much more successful devices will be considered under FIRE EXTINGUISHER (*q. v.*).

Fire'-arm, *n.* An arm or weapon which expels its charge by the explosive charge of gunpowder; usually in the plural). See ARM, ARTILLERY, CANNON, GUN, &c.

Fire'-arrow, *n.* A small arrow or dart of iron,

furnished with a combustible charge for firing the sails, rigging, &c. of ships.

Fire′-ball, *n.* (*Mil.*) A projectile occasionally discharged from guns or mortars, for the purpose either of setting fire to, or merely illuminating some work, against which hostile operations are directed. The usual ingredients are,—mealed powder, 2; saltpetre, 1½; sulphur, 1; rosin, 1; turpentine, 2½; with pitch, tow, naphtha, &c., as circumstances dictate. The use of fire-balls has, however, been in great measure superseded by the introduction of *rockets*, q. v.

(*Meteor.*) See METEOR.

Fire-balloon′, *n.* (*Pyrotech.*) A balloon sent up at night charged with fire-works, &c., which burst out into ignition at a certain height.

Fire′-bar Frame, *n.* (*Mach.*) In locomotive-engines, a frame made to fit the fire-box on which the fire-bars rest; a plan of dropping all the bars at once by a movable frame, acted on by a lever and handle outside the fire-box, has been frequently tried, but the action of the intense heat soon puts it out of working-order.

Fire′-barrel, *n.* (*Naval.*) A hollow cylindrical machine, containing combustible matter, used on board fire-ships.

Fire′-bars, *n. pl.* (*Mach.*) In locomotive engines, wedge-shaped iron bars fitted to the fire-box with the thick side uppermost, to support the fire; the ends rest on a frame; they are inclined inward, with an air space between each, to promote combustion, and are joined at one end, and supported by a rod at the other, so that the rod being withdrawn, the bars fall, and the fire-box is emptied.

Fire′-bavin, *n.* (*Naval.*) A bundle of brushwood used in fire-ships to kindle the enemy's sails, rigging, &c.

Fire′-blast, *n.* A disease of trees, plants, &c., whereby they present an appearance as of having been scorched by fire.

Fire′-board, *n.* A board used to close the orifice of a chimney during summer.

Fire′-bote, *n.* (*Eng. Law.*) A tenant's lawful allowance of fuel.

Fire′-box, *n.* (*Mach.*) In locomotive-engines, the box (usually made of copper) into which the fire is placed. The outside is of iron, separated from the copper fire-box by a space of about 3 inches all around for water.—*Fire-box door*, the door opening into the fire-box, facing the locomotive tender, by which coke is supplied to the fire. — *Fire-box partition*, in large fire-boxes a division is made in the box, into which water is admitted; this division is about the height of the fire-box door, and divides the fire into two parts in a locomotive-engine, thereby increasing the heating surface of the fire-box.—*Fire-box stays*, deep strong iron stays bolted to the top of the copper fire-box, to enable it to resist the pressure of the steam; round copper or iron stays are also used to connect the outside shell to the inside box, in the proportion of about one stay to every 4 square inches of flat surface.

Fire′-brand, *n.* A piece of wood kindled, or on fire. — An incendiary; one who excites factions assemblages to action, or causes mischief, contention, or disorder.

"I have eased my father-in-law's house of a *fire-brand* to set my own house in a flame."—*L'Estrange.*

Fire′-brick, *n.* A brick capable of sustaining, without fusion, the extreme action of fire. They are used for lining furnaces, and for all kinds of brick-work exposed to intense heat which would melt common bricks. They are made from a natural compound of silica and alumina, which, when free from lime and other fluxes, is infusible under the greatest heat to which it can be subjected. Oxide of iron, however, which is present in most clays, renders the clay fusible when the silica and alumina are nearly in equal proportions, and those fire-clays are the best in which the silica is greatly in excess over the alumina. When the alumina is in excess, broken crucibles, glass-house pots, and old *F. B.*, ground to powder, are substituted for the common silicious sand used in the ordinary processes of brick-making, but which, in this case, would be injurious, as having a tendency to render the clay fusible. Fire-clay being an expensive article, it is usual, when making *F. B.* at a distance from mines, to mix with it burnt clay, for the sake of economizing the clay and diminishing its contraction.

Fire′-bridge, *n.* A partitioned space in furnaces, &c., over which the flame passes to the flues.

Fire′-brief, *n.* A circular appeal for help for sufferers by fire.

Fire′-brigade, *n.* A body of men organized to manage an engine, ladders, &c., in the extinguishing of fires.

Fire′-brush, *n.* A brush used for sweeping hearths, &c.

Fire′-bucket, *n.* A bucket belonging to a fire-engine. — A bucket used on shipboard, &c., to carry water for putting out fires.

Fire′-clay, *n.* (*Min.*) A clay capable of bearing great heat without melting or vitrifying. *F. C.* should be nearly pure silicate of alumina, and contain no iron, lime, or magnesia. At Baltimore, fire-bricks are manufactured from the tertiary clays of eastern Maryland. In England a slate clay from the coal series is employed. — See BRICK.

Fire′-cock, *n.* A cock or spout to allow water to escape for putting out a fire.

Fire′-company, *n.* A company of persons employed in the management of a fire-engine.

Fire′-cracker, *n.* (*Pyrotech.*) Same as CRACKER, *q. v.*

Fire′-cross, *n.* See FIERY CROSS.

Fire′-damp, *n.* A miner's term for the explosive mixture of light carburetted hydrogen and air found in coal-mines; named in contradistinction to *choke-damp*, which chokes or extinguishes flame. — See MARSH-GAS.

Fire′-dog, *n.* See ANDIRON.

Fire′-drake, *n.* A fiery dragon or serpent; as, "the rustling of the *fire-drake*." (*Drayton.*) — An ignis fatuus; a meteoric illusion. — A puddler; one who works at a furnace.

Fire′-dress, *n.* A kind of dress or body-covering which enables the wearer to approach with impunity, and even to pass through, a fierce flame, to rescue lives or property, or to extinguish fire.

Fire′-eater, *n.* One who pretends to eat fire; — hence, a cant term for a fighting character, duellist, or desperado.

Fire-engine, *n.* A machine contrived for the purpose of extinguishing fires by throwing water upon them from a jet. Previous to the invention of the modern fire-engine, there were various modes of extinguishing fires. Juvenal and Pliny both mention methods, and Pliny the younger speaks of pipes (siphones) being used to put out fires. Augustus appointed seven bands of firemen at Rome, each of which had the care of two divisions of the city; each band had a captain, and at the head of the whole body was the prefect of the watch. The earliest account, however, of any machine resembling the modern fire-engine is given by a Jesuit named Caspar Schott, in 1657. It was a sort of force-pump, and was worked by 28 men; it threw a stream of water, an inch in diameter, to the height of 80 feet. After that time, the use of fire-engines became more general; but two important parts of the machine were not introduced till a later period; viz., the flexible hose and the air-chamber. The rise of flexible tubes is obvious, and the air-chamber, which depends for its value on the increased elasticity of the air when compressed into less than its usual bulk, gives a steady and uninterrupted stream of water. The use of leathern pipes was first devised by two natives of Holland, named Vanderheide, in 1672. After the invention of the air-chamber, all new improvements were merely in details. The modern engine consists generally of two vertical double-acting (or sometimes 4 single-acting) force-pumps, worked by means of long brakes, that enable many men to assist in using them. The pumps discharge into one common reservoir, the upper part of which contains air that by its elasticity causes the water to flow in a uniform stream through the discharge-pipe. From this pipe the water is conducted any desired distance through the leathern hose, and discharged through a strong tapering metallic pipe, that is held in the hand to direct the stream upon the fire. A suction-pipe is attached to the lower end of the pump when necessary, but it is not required when the stream of water introduced to supply the pumps has sufficient head. The whole machine is placed upon a carriage expressly constructed for it, and furnished with such implements as are likely to be wanted at a fire. In working the *F. E.*, ropes are sometimes made fast to the brakes, and passing through blocks at the bottom of the carriage, are hauled upon by a number of men with each down-stroke. Some engines have the pumps arranged horizontally, and men sit on the top and work as in rowing a boat. Formerly, in the cities of the U. S., the engines were managed by volunteer companies of firemen, who served without pay, but were exempted from military duty. Such companies are now found only in towns and small cities, the larger cities having organized paid fire-departments, whose members are drilled for the work required of them, and are far more efficient in their performance than the older companies. In addition to the fire-engines, there are employed hose carriages, carrying a large supply of hose, and hook and ladder carriages, which transport long ladders, hooks and ropes for use in pulling down walls, &c. Hand engines have been superseded in most of our cities by steam fire-engines, of which those of the U. S. are considered the best examples of their class in the world. The first *F. E.* of this class was made by Mr. Braithwaite, of London, in 1829. Ericsson produced a similar engine, though neither of these met with success. The first steam fire-engines in the U. S. were made in 1840, the great difficulty in the way of their successful use being their weight and the slowness with which they raised steam. Their first successful introduction was in Cincinnati, by Mr. A. B. Latta, whose first engine was built in 1853. This was a ponderous and powerful machine, but very heavy, weighing more than 12 tons and requiring 4 horses to draw it. This, and some that followed it, were constructed to be self-propelling, their steam being used to drive them through the streets; an idea which was soon abandoned as impracticable. Since that date other self-propelling engines have been tried, but until the present time the horse has proved the most practicable means of traction. Attention is, however, being given to electrical motors as a means of propulsion, an engine of this kind having been patented in 1891, and others since experimented with. The manufacture of steam fire-engines has been brought to a great degree of perfection, though improvements are still being made. As for the service of the firemen in the chief American cities, it is unequalled elsewhere for efficiency, promptness and thorough organization. The men are constantly on duty, sleep in the engine houses, and at the first tap of the alarm bell are awake and alert. The horses are loosened by an automatic arrangement when the alarm is given, the harness is so arranged as to fall on their backs, and within a minute from the sounding of the alarm they are harnessed to the engine. The men spring to their places, the doors fly open, and the engine is away in an almost incredibly short of time.

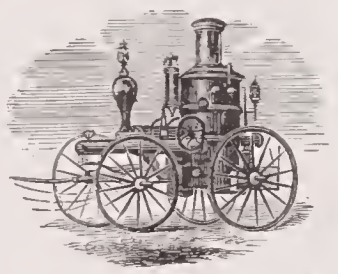


Fig. 1019. — STEAM FIRE-ENGINE.

Fire′-escape, *n.* Any machine or apparatus for the purpose of enabling persons to escape from the upper stories of houses on fire. The many contrivances which have been proposed for accomplishing this desirable object are of two kinds: the first kind comprising those by means of which the escape is effected without external aid, and the second those requiring the assistance of persons without. Of the first kind the most obvious is a rope-ladder, which may be kept in a sleeping-apartment, and used, when needed, by fastening one end of it to a window-sill or bedpost. But unfortunately contrivances of this kind can rarely be of any use; for supposing them at hand when the alarm of danger is given, few persons can command the coolness and attention which are requisite for fixing and adjusting the apparatus; and even then it is only the strong and active who could safely descend by such means from a considerable height. —In escapes of the second kind, the object is to enable persons without to establish speedily a communication with an upper room, so as to afford the inmates the means of safe descent; or to remove them if necessary, as in the case of the feeble or children. Various methods of ladders, ropes, bags, nets, sloping tubes of canvas, &c., have from time to time been devised, and others are constantly being invented. The escape now used in London and Paris (Fig. 1020) is an arrangement of long ladders, mounted on wheels, and capable of being drawn out in the manner of a telescope. The main ladder, 30 to 35 feet high, can be at once raised to windows of ordinary third floors, while a shorter ladder for second floors fits in under the carriage. The ladder for higher elevations folds over the main ladder, and can be easily raised by means of ropes and pulleys. Under the main ladder extends a canvas trough or bagging, made of stout sail cloth, protected by an outer trough of copper wire-net, which leaves room for the canvas to yield during a person's descent. In American cities generally large tenement houses, hotels, manufactories and other buildings of high elevation and containing many inmates, are required to have permanent fire escapes, consisting of light iron balconies at each story, with iron ladders descending from one to another and to the ground.

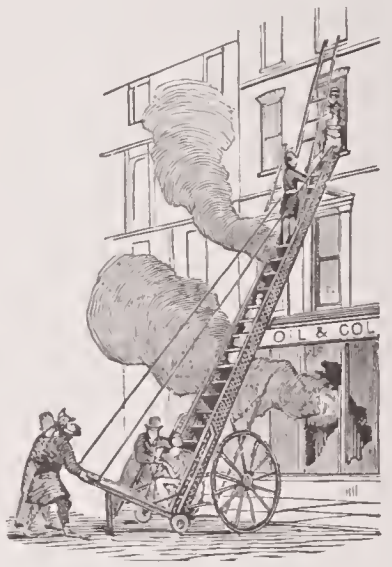


Fig. 1020. — FIRE-ESCAPE.

Fire Extin′guisher, *n.* Various chemical liquids have been employed as flame extinguishers, they mainly depending on the rapid production of carbonic acid gas, which is an enemy to all kinds of combustion. The first of these was invented by MM. Carlier and Vignon, of Paris, in 1862, and many varieties have since been devised, and are now extensively placed in factories, warehouses and public buildings for immediate use in case of a conflagration. The *F. E.* generally used consists of a cylindrical tank, holding 7 or more gallons of water, and so arranged that it can be carried on the back. The carbonic acid is generated at the moment of using the vessel, by the mixture of acid and alkali, previously kept in separate receptacles. The gas produced exerts a pressure on the water of 70 to 100 lbs. per square inch, sufficient to propel a stream to a distance of 50 feet. The water is driven into the flames and evaporated, liberating its dissolved gas. Glass bottles containing the materials may be hung up conveniently in houses or factories, being so arranged that when thrown down gas is generated and acts to smother the flame. Chemical fire-engines are also in use, carrying some 80 gallons of water with carbonate of soda in solution. In a separate tank is sulphuric acid, which is mixed with the water when necessary, producing carbonic acid gas sufficient to give a pressure of 140 lbs. per square inch. Another chemical contrivance discharges hydrochloric acid and ammoniacal gases.

Fire-′fly, *n.* (*Zoöl.*) See LAMPYRIDÆ.

Fire′-guard, *n.* A wire-screen framework placed in front of a fire; a fender.

Fire′-insurance (*in-shūr′-ans*), *n.* See INSURANCE. ℘ *Fire.*

Fire-irous (*fīr′ī-ernz*), *n. pl.* The implements belonging to a fire-place, as the shovel, tongs, poker, &c.

Fire Island, in *New York*, a post-office of Suffolk co.

Fire Island Light House, in *New York*, a light-house on Long Island, on the S. side of Fire Island inlet. It exhibits a revolving light from 18 lamps, 89 ft. above the sea-level.

Fire'-kiln, (*-kil,*) *n.* A kiln or oven for baking or calcining anything.

Fire'less, *a.* Without fire; wanting fire; as, a *fireless* grate.

Fire'lock, *n.* A musket, or other small arm, having a lock for igniting the charge by means of a flint and steel.

"Prime all your *firelocks*, fasten well the stake."—*Gay.*

Fire'man, *n.*; *pl.* FIREMEN. A man whose business is to extinguish fires; a member of a fire-brigade or company.

"The *fireman* sweats beneath his leathern casque."—*Gay.*

—One who tends and feeds the fire in the furnace of a steam-engine.

Fire'-master, *n.* An artillery officer who looks after the preparation of rockets and other pyrotechnic compositions. (R.)

Fire'-new, *a.* Brand-new; fresh from the forge-fire; bright.

"Some excellent jests, *fire-new* from the mint."—*Shaks.*

Fire'-office, *n.* The office where the business of a fire-insurance company is carried on.

Fire'-pan, *n.* A pan for holding or carrying fire; —particularly the priming-hole in a gun or musket.

Fire'place, *n.* (*Arch.*) The name given to the square opening that is left in the wall of a house for the reception of a stove or grate. It is formed in a shallow pier or abutment of masonry, which generally projects from the face of the wall into the apartment, having recesses on either side of it. The upright sides of the opening are called the *jambs*, and the head, which is usually in the form of a cambered arch, is termed the *mantel*. A broad flat stone is fixed immediately under the jambs, which, with another stone of a similar kind that is set directly in front of it, and on which the fender rests, is called the *hearth*; sometimes, however, the stone under the jambs is called the *slab*, while the term hearth is applied to that which lies immediately in front of them. The wide square cavity inside the wall, and just above the fireplace, is gradually contracted in size until it becomes a small passage, which is termed the *chimney*, or *flue*. This contraction is generally called the *gathering*. The width of the fireplace depends on the size of the grate that it is intended to receive, varying in ordinary apartments from 18 inches to 3 feet 6 inches. Its height is never less than 3 feet. It is surrounded by the

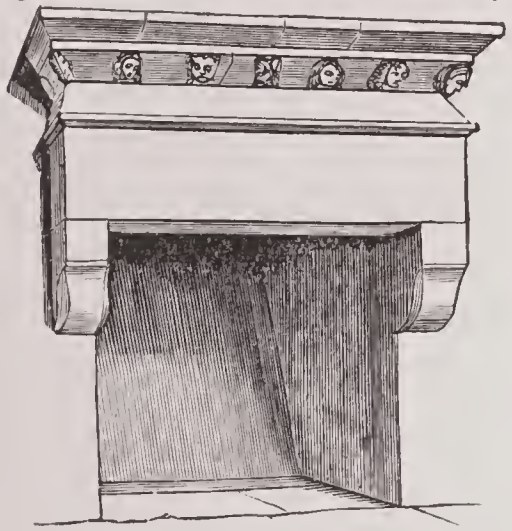


Fig. 1021. — FIREPLACE OF THE 13TH CENTURY.
(From Aydon Castle, Northumberland.)

chimney-piece, consisting of pieces of wood, slate, or marble, fitted together in the form of a frame. The vertical pieces on either side are termed the *jambs*, and the horizontal piece, which the jambs support, is called the *lintel*. The lintel is surmounted by a broad shelf in the same material, called the *mantel-piece*. The chimney-piece, whether in wood or marble, is frequently carved, and may be made a very handsome and effective architectural feature in an apartment. When chimneys were first introduced, the fire was kindled on the hearth, the fuel being supported on *andirons*, or fire-dogs, made of metal, and often elaborately ornamented. The opening above the hearth was long without any chimney-piece or ornamental dressing round it; while a projection, somewhat resembling a pent-house, or porch over a door, was brought forward from the wall of the apartment, directly over the fire-place, to act as a funnel, and to prevent the escape of the smoke into the apartment, to the discomfort of the inmates. But when greater attention was paid to domestic architecture, the chimney-piece was introduced as an embellishment, and in mansions built in the 16th century it consisted of a mass of carving and panels, which was generally carried up as far as the ceiling. The mantel-piece was introduced at a subsequent period, when the practice of adorning the wall above the fireplace with carving was discontinued. It was at first fixed at the height of 5 or 6 feet above the floor of the apartment, and was extremely narrow; in the present day it assumes the form of a broad thick slab, and projects considerably beyond the chimney-piece. Recent domestic architecture displays a revival of the large, ornamental fire-place, and also of the smaller and more practical form of the "low-down" grates, the latter employing coal or gas for fuel.

Fire'-plug, *n.* A plug for drawing water from a pipe or hydrant for extinguishing a fire.

Fire'-policy, *n.* A policy of fire insurance. See INSURANCE.

Fire'-pot, *n.* (*Mil.*) A small earthen pot or jar filled with a combustible composition, to be thrown among an enemy; a stink-pot. (These missiles are extensively used by the Chinese, Japanese, and Malays.)

—The part of a furnace for the reception of fire.

Fire'-proof, *a.* Proof against fire; incombustible; asbestine; as, a *fire-proof* safe or closet, a *fire-proof* building.

Fire'-proofing, *n.* Art or process of making fire-proof; also, the materials used therefor.

Fir'er, *n.* An incendiary; one who sets anything on fire.

Fire'-screen, *n.* A movable screen to obviate the effects of too much light or heat from the fire; a fire-guard.

(*Naut.*) A baize screen placed in the gangway leading to the powder-magazine in a ship of war.

Fire'-set, *n.* A complete set of fire-irons.

Fire'-ship, *n.* (*Naval.*) A vessel filled with combustible matter to be sent against the shipping of an enemy lying at anchor in rivers or roadsteads, after having been set on fire in several places. They were frequently used during the wars of the last two centuries and the commencement of the present one, and often proved formidable engines of destruction. They are not so dangerous now, as one or two well-directed shots from one of the heavy guns now carried by ships of war would soon shatter to atoms any of the small craft that are generally used for the purpose. An attack with *F. S.* was always made on a dark, foggy night, which would allow of their being brought into close proximity to the vessels it was desired to destroy. The wind and current being favorable, the helm of each was set in such a manner as to cause them to drift right against the enemy's ships when at anchor. When they had been brought as closely as possible to the doomed shipping, the crew lighted the fuses attached to the combustible matter on board, and took to their boats to get clear of the approaching explosion and conflagration.

Fire'-shovel, (*-shuv'l,*) *n.* An instrument for shovelling coals on, or removing them from, a fire.

Fire'side, *n.* A place near the fire or hearth; — hence, home; domestic life; the family circle; retirement; as, "Winter talk by the *fireside*."

Fire'-steel, *n.* A steel used for striking fire from a flint.

Fire'-stick, *n.* A lighted stick or brand; as, children playing with *fire-sticks*.

Fire'-stone, *n.* A kind of sandstone which bears a high degree of heat.

Fire'-surface, *n.* See HEATING-SURFACE.

Fire'-telegraph, *n.* A telegraph employed to circulate intelligence of a fire throughout different parts of a city.

Fire'-tubes, *n. pl.* (*Mach.*) Tube-flues through which the fire passes, for obtaining a large heating-surface, fixed longitudinally in the middle compartment of a locomotive-engine, between the fire-box and smoke-box.

Fire'-ward, Fire-ward'en, *n.* An officer who formerly directed operations in the extinguishing of fires.

Fire'-weed, *n.* (*Bot.*) See ERECHTITES.

Fire'-wood, *n.* Wood used for fuel.

Fire'-work, *n.* (Usually in the pl.) See PYROTECHNICS.

Fire'-worker, *n.* An artillery-officer next in rank to the FIRE-MASTER, *q. v.* (R.)

Fire'-worship, *n.* The worship of fire, prevailing chiefly in Persia, and among the Parsees of Hindostan. — See GUEBRES.

Fire'-worshipper, *n.* One who worships fire.

Fir'ing, *n.* Act of one who fires; act of discharging fire-arms; as, heavy *firing* was heard.—Act of canterizing or applying fire to a wound, &c.; as, to *fire* a horse's pastern.

—Fuel; fire-wood; coal; peat.

"They burn the cakes, *firing* being there scarce."—*Mortimer.*

Fir'ing-iron, *n.* (*Farriery.*) An instrument used for canterizing.

Fir'kin, *n.* [A. S. *feower*, four, and dim. *kin.*] An old measure of capacity, being the fourth part of a barrel, or 7½ Imp. gal.; as, "a *firkin* of strong beer." *Arbuthnot.*

—A small cask or keg of indeterminate size; as, a *firkin* of butter.

Fir'lot, *n.* [A. S. *feover*, and Eng. *lot.*] A dry measure formerly used in Scotland, four of which constituted a BOLL, *q. v.*

Firm, *a.* [Fr. *ferme;* O. Ger. *firmôn;* Icel. *fermi*, to confirm, from Lat. *firmus*, steadfast; akin to Gr. *hermo, hermātos*, a prop, support, from *ereidō*, to prop.] Steadfast; steady; stable; fixed; closely compressed; dense; hard; solid; — applied to the substance of bodies; as, *firm* flesh, *firm* muscles, *firm* wood, &c. — Not easily moved; fast; unshaken; constant; resolute; staunch; unswerving in purpose; steady in determination; as, a *firm* friend, a *firm* mind, a *firm* resolve.

"Love's artillery then checks
The breastworks of the *firmest* sex."—*Cleveland.*

—Not giving way; solid; — in contradistinction from *fluid;* as, "the *firm* land to drain."—*Roscommon.*

—Indicative of resolution or firmness; as, a *firm* demeanor, a *firm* hold of anything, a *firm* tread.

—*n.* [Sp. *firma.*] (*Com.*) Originally, a signature which firms or confirms, or gives validity to a writing or deed; whence, a commercial partnership or house of business, or the name or title under which a company transact banking, mercantile, or trading operations; as, the *firm* of Baring Brothers.

—*v. a.* To make firm or fast; to strengthen.

"He on his card and compass *firms* his eye."—*Faërie Queene.*

—To fix; to confirm; to establish; to solidify.

"Proceed, and *firm* those omens thou hast made!"—*Pope.*

Fir'mament, *n.* [Fr., from Lat. *firmamentum* — *firmo, firmatus* — *firmus*, steadfast, strong.] (*Astron.*) A term anciently used to signify the eighth heaven, or sphere in which the fixed stars were placed. It was called the *eighth* heaven because of the seven spheres of the planets which it surrounds. The *firmament* was supposed to have had two motions: one from E. to W., round about the poles of the ecliptic, and another and opposite motion from W. to E. These revolutions it is said to complete in 25,412 years, or, according to Copernicus, in 258,000 years; at the end of which time the fixed stars return to the exact points that they occupied prior to their revolution. In the classics, the period was denominated the *Platonic* or *great year.* — The word *F.* usually designates the expansive arch over our heads, in which all the various phenomena of the stars and planets appear to take place.

Fir'man, *n.*; *pl.* FIRMANS. [Pers. *fermân.*] In Turkey, any decree issued by the Porte and authenticated by the Sultan's own cipher or signet. Each of the ministers and members of the divan has the right of signing firmans relative to the business of his own department, but only the grand vizier is authorized to place at their head the cipher containing the interlaced letters of the sultan's name, which alone gives them force. A decree signed by the sultan's own hand is called *hatti-sherif.* The name *F.* is also applied to a passport issued either by the Porte or a pasha, enjoining the subordinate authorities to grant protection and assistance to the traveller in whose favor it is granted. In India, a written permission to trade is called a firman.

Firm'lier, *adv.* Firm in a greater degree; more firm.

Firm'ly, *adv.* In a firm manner; strongly; steadily; resolutely; constantly; immovably; as, to be *firmly* persuaded of the justice of anything.

Firm'ness, *n.* Quality of being firm; stability; steadfastness; strength; fixedness; constancy; certainty; compactness; hardness; solidity; as, *firmness* of resolution.

First, *a.* [A. S. *fyrst, fierst*, the summit; O. Ger. *first;* Ger. *erste;* Dan. *fyrste.* Root *far*, Goth. *faura.*] Foremost in time, place, or progression; earliest; primary; original.

"Who *first* offends, will *first* complain."—*Prior.*

—Preceding all others in rank, station, excellence, or estimation; chief; highest; most exalted; principal.

"*First* flower of the earth, and *first* gem of the sea."—*Moore.*

—Preceding all others of a series, number, or kind; the ordinal of one; as, *first* comes before second.

—*adv.* Before anything else in the order of time, or in order of proceeding or consideration; before all others in place or progression, or in rank.

"Heav'n has kept this spot of earth uncurst,
To show how all things were created *first*."—*Prior.*

At first, at the first, at the beginning, commencement, or origin; as, *at first* I did not appreciate him.

First or last, at one time or other; at the beginning or end; at the commencement or close.

"All are fools and lovers *first or last*."—*Dryden.*

—*n.* (*Mus.*) The upper part of a duet, trio, quartet, &c., either vocal or instrumental.

First'-born, *a.* First brought forth; eldest; first by priority of birth; as, a *first-born* child. See PRIMOGENITURE.

—*n.* The first in the order of birth; the eldest child; the first in the order of nativity.

"Hail, holy light, offspring of heav'n, *first-born!*"—*Milton.*

First'-class, *a.* Being of the highest class of rank, quality, or consideration; as, a *first-class* passenger, a *first-class* article, &c.

First'-coat, *n.* (*Arch.*) The *laying* the plaster on the laths, or the *rendering*, as it is called, on brick when only two coats are used. When three coats are used, it is called *pricking up* when upon laths, and *roughing in* when upon brick.

First'-day, *n.* Sunday; — a term used by the Society of Friends, as being the *first day* of the week.

First'-floor, *n.* The tier of apartments in a house, immediately above the ground floor; as, a *first-floor* lodger. (Used in Europe.)

—In the U. States, the ground-floor of a building.

First Fork, in *Pennsylvania*, a P. O. of Cameron co.

First'-fruit, *n. sing.* and *pl.* The fruit or produce first matured or collected in any season; first profits of anything; first or earliest effects of anything, in a good or bad sense.

(*Eccl.*) That portion of the fruits of the earth and other natural produce, which, by the usage of the Jews and other ancient nations, was offered to God, as an acknowledgment of His supreme dominion, and a thanksgiving for His bounty. — The mediæval ecclesiastical impost known under the name of *primitiæ*, or first-fruits, and sometimes of *annates* or *annalia*, was the first year's whole profits, first of a bishopric, and afterwards of any benefice, claimed by the Pope. This claim was the subject of many contests in Germany, in France, and in England. Henry VIII. withdrew the right of first fruits from the Pope, in order to transfer it to the king; and he established a special court for the administration of first-fruits, which, however, was soon disused. In the reign of Anne, the revenues arising from this impost in England were vested in a Board, to be applied for the purpose of supplementing the incomes of small benefices. In France this tax was abolished by the *Pragmatic Sanction* enacted at Bourges in 1438, subsequently by the *Concordat* of Leo X. with Francis I. in 1512; and finally in 1789. In Spain, it ceased partially in the reign of Ferdinand and Isabella, and finally under Charles V. In Germany, it formed one of the first among the *Centum Gravamina* presented to the emperor in 1521, and the claim ceased altogether from that period.

First'-hand, *n.* Original possession, or the obtaining of anything by direct transfer from the producer. — *At*

first hand, immediately; from the direct source, without the intervention of agency; as, news *at first hand*.

First'ling, *n.* [*first*, and termin. *ling.*] The first produce or offspring, as of sheep and cattle.

"*Firstlings* of the flock are doomed to die." — *Pope.*

First'ly, *adv.* In the first place; priorily; before anything else. (Improperly used in place of *first.*)

First-mov'er, *n.* The person who, or thiug which, is first in motion.

First'-rate, *a.* Of the highest excellence in point of size, quality, or estimation; predominant; as, a *first-rate* dinner, he 's a *first-rate* fellow.

(*Naut.*) Being of the largest size, or highest class; as, a *first-rate* line-of-battle ship.

Firth, *n.* (*Geog.*) Same as FRITH, *q. v.*

Fir'-tree, *n.* (*Bot.*) See FIR.

Fisc, (*fisk,*) *n.* [Lat. *fiscus*, a basket of wicker-work, a mouey-basket; Fr. *fisc*, exchequer.] (*Law.*) The name giveu among the Romans to the private treasury of the sovereign, in opposition to the ararium, or public treasury; but afterwards, wheu the sovereign power became absolute, the two terms came to be synonymous, aud fiscus was applied generally to the property of the State. In Modern Law, on the contineut of Europe, fiscus is applied to the public treasury, which is entitled to all fines, forfeited goods, goods without an owner, &c.; whence our term *confiscation*. The fiscus was entitled to many extensive privileges in civil as well as in criminal matters, aud the term has come by degrees to be applied generally to the rights of the crown. In most of the German states, and in Spain, there is an officer termed *fiscal*, who represents the government before the courts of justice, corresponding to our attorney-general.

Fis'cal, *a.* Pertaining to the public treasury, or to the revenues of a state; as, *fiscal* measures.

—*n.* A treasury. See Fisc.

Fiseh'erite, *n.* (*Min.*) A hydrated phosphate of alumina, occurring mostly in six-sided prisms of a vitreous lustre, green color, and translucent. *Hardn.* 5; *sp. gr.* 2·46. *Comp.* Alumiua 41·8, phosphoric acid 28·9, water 29·3. Found in veins, in a ferrugiuous sandstone and clay slate, at Nischne Tagilsk.

Fish, *n.* [A. S. *fisc*; O. Ger., O. Sax., O. Fris., Swed., and Dan. *fisk*; Icel. *fiskr*; Ger. *fisch*; Du. *visch*; W. *pysg*; Alban. *pisk*; Sansk. *jhasha*, a fish — *payasyas*, aquatic, *vâsi*, water.] An animal that inhabits the water. (*pl.* FISHES. The singular, however, is often used for fishes in general, or the whole race.)

—The flesh of fish, used as food; — in contradistinction to that of terrestrial animals, which is distinctively denominated *flesh*; as, a dinner of *fish*.

—A counter, used for markiug the score of various games, as at cards.

(*Zoöl.*) The name applied to a class of animals exclusively aquatic, and occupying the fourth and lowest station of the section vertebrata. The head is large, and set upon the neck without the intervention of any distinct neck; the body is usually of a spindle-shape, tapering gradually towards the extremity; and the surface is usually smooth, without any irregularities which might impede the motion of the creature in its native element. In its general form, the body is usually rounded, or slightly compressed at the sides; sometimes this flatteuing proceeds to a much greater exteut, so that the animal presents the appearance of a broad band, or oval disc, of which the edges correspond with the dorsal and ventral surfaces; in other cases, the flattening takes place from above downwards, producing a disc-like body, of which the upper and lower surfaces are dorsal and ventral. A fish may be shortly defined as an animal breathing through the medium of water by means of gills; and in giving it our consideration, this latter apparatus is the most important feature presented. It is situated on each side of the neck, and consists of numerous laminæ fixed on arches. These laminæ are covered with numerous blood-vessels, and are so constructed as to present a considerable surface to the water, so that the blood may receive a sufficient portion of the oxygen contained in that element. As the water in contact with the gills becomes deteriorated, it is necessary that a constant current be caused to flow over them. In most fishes this is effected by their taking water in at the mouth and expelling it at the gill-covers. The blood, which is constantly sent from the gills to the heart, is distributed by means of the arteries to every part of the body, whence it returns to the heart by means of the veins. Animals of this order are for the most part furnished with an air-bladder in the interior of the body, which, as it is often connected with the œsophagus by a tube, must be regarded to a certain extent analogous to the lungs of the air-breathing vertebrata. This sac

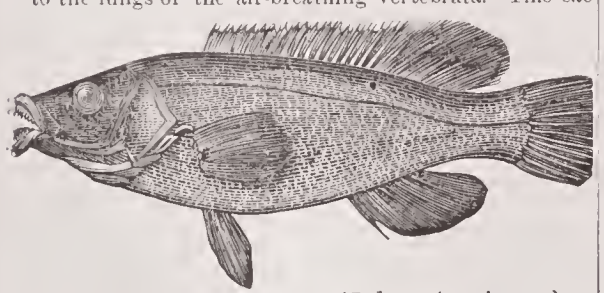


Fig. 1022.—THE BLACK-FISH, (*Labrus Americanus.*)

or air-bladder, however, has nothing to do with respiration; it receives blood from the arteries, and returns it into the veins, and the air which it incloses is probably derived from this fluid. By the dilatation or compression of this sac, the specific gravity of the fish is governed, and, acted on by a curious muscular apparatus, renders its possessor lighter or heavier than the surrounding element. The limbs of the fish are formed into fins; the fore-legs constituting what are termed the pectoral fins, and the posterior extremities, the ventral. Besides these, ordinary fishes are furnished with one or two dorsal fins, an anal fin, and a caudal fin, or tail. In some fishes, the dorsal or median fins are continuous round the whole posterior portion of the body; and this is the condition in which these organs first make their appearance during the development of the embryo in all fishes, the subsequent changes which take place in the arrangement of the parts being due to the unequal development of the bony rays, which support and stretch the membrane of which the fins are composed. The pectoral fin in all fishes consist of the same parts as the interior limbs of any other vertebrate animal. Concealed within the skin, immediately behind the branchial openings, is found a bony circle, composed of several pieces, representing the shoulder-blade, with the coracoid bone and clavicle. This supports the bones of the arm, which are usually very short, and bear a series of carpal bones at their extremity; the latter supporting a number of short cylindrical joints, whence the rays of the fin take their rise. The internal supports of the ventral fins never present such a close resemblance to the pelvis of the higher vertebrata as do those of the pectorals to the scapular arch. When situated in their normal position in the abdomen, they always consist of cartilaginous or bony pieces, lying freely in the muscles, and quite unconnected with the vertebral column; but when the fins are advanced from this position to the neighborhood of the pectorals, their internal supports are attached to the scapular arch of the latter members. The principal organ of motion is the caudal fin, or tail; by this it is propelled. The dorsal and ventral fins serve to balance it, and the pectorals to arrest its progress when required. The bones of fishes are of a less dense and compact nature than in the higher order of animals, and always remain in an isolated state, similar to that of the embryo of the mammalia. The skeleton may be divided into four chief parts, — the vertebral column, the head, the respiratory apparatus, and the limbs. The vertebral column consists of vertebræ which are concave at each end and pierced in the middle; and when joined together, the hollow space between each two is occupied by a gelatinous substance, which passes from one space to the next, through the hole in each bone. This hole is usually very small, but in some of the chondropterygians it is so large that the bodies of the vertebræ are mere rings. To the vertebræ are attached the ribs; in fact, the ribs are the main support of all the other bones. The head varies more in form than in any other class of vertebrate animals. The same bones as those found in other oviparous animals are almost always traceable. The upper jaw consists of maxillary and intermaxillary bones. In the greater number of fishes, the intermaxillary bones constitute the chief portion of the upper jaw, the maxillary bones being placed behind and parallel to them. The lower jaw is composed, generally, of two bones on each side, the dental portion in front, and the articular portion behind. The form of the body is for the most part such as mechanical principles teach to be best adapted for moving with least resistance through a liquid medium. The surface of the body is either smooth and lubricous, or is covered by closely-imbricated scales, rarely defended by bony plates or roughened by hard tubercles, still more rarely armed with spines. The central axis of the nervous system presents but one partial enlargement, and that of comparatively small size, at its interior extremity forming the brain, which consists of a succession of ganglionic masses, most of them exclusively appropriated to the function of a nerve of special sense. The power of touch can be but feebly developed in fishes. The organ of taste is a very inconspicuous one,— the chief function of the framework supporting it, or the hyoidan apparatus, relating to the mechanism of swallowing and breathing. Of the organ of hearing there is no outward sign; but the essential part, the acoustic labyrinth, is present, and the semicircular canal, largely developed within the labyrinth, is without cochlea, and is rarely provided with a special chamber, but is lodged, in common with the brain, in the cranial cavity. The eyes are usually large, but seldom defended by eyelids, and ever destitute of a lachrymal organ. The alimentary canal is commonly short and simple, with its divisions not always clearly marked, the short and wide gullet being hardly distinguishable from the stomach. The pancreas, for the most part, retains its primitive condition of separate cæcal appendages to the duodenum. The heart consists essentially of one auricle and one ventricle, receiving the venous blood and propelling it to the gills; whence the circulation is continued over the entire body in vessels only, which are aided by the contraction of the surrounding muscular fibres. The blood of fishes is red but cold, and is rarely elevated above the temperature of the surrounding element. The sexes of fishes, excepting the sharks and rays, offer no very decided external characters by which they may be distinguished. The respiratory organs, however, occupy more space in the males than in the females, and, on the other hand, the abdomen is larger in the females than in the males. The differences of character in the scales have been made the foundation of a classification of fishes by Agassiz, by whom all fishes are distributed into the four orders of *Cycloid*, *Ctenoid*, *Placoid*, and *Ganoid Fishes* (see these heads), having respectively cycloid, ctenoid, placoid, and ganoid scales; a classification which has been found particularly convenient with reference to fossil fishes, although other systems maintain their ground against it as preferable for recent species. It is not, however, wholly artificial, for a relation can be very generally traced between the character of the scales and the general structure and economy of a fish. But the classification most generally adopted, and followed in this work for the convenience of the general reader, is that of Cuvier, who divides them into OSSEOUS FISHES (having true bones), and CARTILAGINOUS FISHES; and subdivides Osseous fishes into ACANTHOPTERYGIANS, MALACOPTERYGIANS, LAPHOBRANCHIATES, and PLECTOGNATHES, *q. v.*; and Cartilaginous fishes, or Chondropterygians, into STURIONES, SELACHIANES, and CYCLOSTOMES or SUCKERS, *q. v.*

Fish, *n.* (*Naut.*) An apparatus employed to hoist and draw up the flukes of a ship's anchor towards the cat-head, in order to stow it away after it has been catted. (Sometimes termed *fish-block.*) A long piece of timber shaped like a fish, lashed to a lower mast or yard to strengthen it when sprung.

—*v. n.* To endeavor to catch fish; to be employed in catching fish by any means, as by angling, netting, or dredging. —To attempt to gain anything by artifice, or indirectly to seek to draw forth; as, to *fish* for a compliment.

"Others *fish* with craft for great opinion."—*Shaks.*

—*v. a.* To search for, by raking or sweeping.

"He *fish'd* her nether realms for wit."—*Pope.*

—To catch; to draw out or up; — often preceding *up*; as, to *fish up* a sunken person. —To angle; to throw a fly as a bait for fish; as, to *fish* a salmon-pool.

(*Naut.*) To strengthen by splicing with a long piece of timber; as, to *fish* a mast.

(*Civil Engin.*) To splice or fasten; as, to *fish* the joints or rails on the sleepers of a railroad.

Fish'-beam, *n.* (*Mech.*) A beam which bellies out on the under side.

Fish'-bellied, (*-bel'lid,*) *a.* Bulging out at the bottom; as, a *fish-bellied* goblet.

Fish'-carver, *n.* A fish-slice; a silver knife for carving fish at table.

Fish Creek, in *Indiana*, enters the St. Joseph river (branch of the Maumee) from Steuben co.

Fish Creek, in *Michigan*, enters the Maple river from Montcalm co.

Fish Creek, in *New York*, rises in Lewis co., and enters the Oneida lake from Oneida co.

—Enters the Hudson from Saratoga co., about 25 m. above its junction with the Mohawk.

—Enters Wood creek in Oneida co.

Fish Creek, in *Wisconsin*, a post-office of Door co.

Fish Culture. See PISCICULTURE.

Fish'dam, in *North Carolina*, a post-office of Durham county.

Fish'dam, in *South Carolina*, a village of Union co., about 60 m. N.W. of Columbia.

Fish'-day, *n.* A fast-day; a day on which no other flesh than that of fish is eaten. In the Roman Catholic Church, Friday is appointed to be kept as a *fish-day*.

Fish'er, *n.* One who practises the catching of fish; an angler; a trawler; a fisherman; as, a fly-*fisher*.

"A *fisher* now his trembling angle bears."—*Pope.*

(*Zoöl.*) A quadruped of the genus MUSTELLA, *q. v.*

Fish'er, in *Iowa*, a township of Fremont co.

Fish'er, in *Pennsylvania*, a post-office of Clarion co.

Fish'erman, *n.*; *pl.* FISHERMEN. A fisher; one whose occupation is the catching of fish; an angler.

(*Naut.*) A fishing-vessel, especially one employed in the cod- and whale-fisheries.

Fish'erman's Bay, in *California*, a post-village of Sonoma co., abt. 50 m. N.W. of Santa Rosa.

Fish'ers, in *New York*, a post-office of Ontario co.

Fish'ersburg, in *Indiana*, a post-village of Madison co., abt. 28 m. N.E. of Indianapolis.

Fish'er's Ferry, in *Pennsylvania*, a post-office of Northumberland co.

Fish'er's Hill, in *Virginia*, a lofty eminence, about 20 m. S. of Winchester, lying between the Massanutten and North mountains, and with its base washed by a branch of the Shenandoah. This place was the scene of a smart action, Sept. 22, 1864, between a National force under Gen. Sheridan, and one of Confederates commanded by Gen. Early, in which the latter was defeated with the loss of about 1,000 men killed and wounded, over 1,000 prisoners, and 16 guns. Among the killed were Gens. Rhodes and Goodwin. The Union casualties numbered about 3,000.

Fish'er's Island, in *New York*, at the E. end of Long Island.

Fish'er's Landing, in *N. Y.*, a P. O. of Jefferson co.

Fish'er's Landing, in *Washington*, a village of Clarke co., about 8 m. from Vancouver.

Fish'er's Point, in *W. Virginia*, a P. O. of Jackson co.

Fish'er's River, in *North Carolina*, enters the Yadkin from Surry co.

Fish'er's Sound, an arm of the Pacific ocean, in British North America, separating Princess Royal Islands from the Continent; Lat. 52° N., Lon. 130° W.

Fish'ersville, in *Connecticut*, a village of Windham co., on French river, about 40 m. N.N.E. of Norwich.

Fishers'ville, in *N. Hampshire*, formerly a post-village of Merrimac co., now part of Concord and Boscawen.

Fish'ersville, in *Virginia*, a post-village of Augusta co., abt. 7 m. S.E. of Staunton.

Fish'er-town, *n.* A fishing-village; a town or village inhabited by fishermen.

"Lyme in Dorchestershire, a little *fisher-town*."—*Clarendon.*

Fish'erville, in *Kentucky*, a P. O. of Jefferson co.

Fish'erville, in *Pennsylvania*, a P. O. of Dauphin co.

Fish'ery, *n.* The art or business of catching fish; as, the

whale-*fishery*.—A place for catching fish.—See RIVER FISHERIES, SEA FISHERIES.

Fish'-fag, *n.* A fish-woman; a female vender of fish;—the term is also applied to a brawling, noisy-tongued woman.

Fish'-flake, *n.* See FLAKE.

Fish'-garth, *n.* Same as WEIR, *q. v.*

Fish'gig, Fiz'gig, *n.* [*Fish*, D. *vish*, and *gh'ichten*, to whirl or hurl.] (*Naut.*) A kind of pronged dart or harpoon used at sea to hurl at fish as they swim.

Fish'-glue, *n.* Same as ISINGLASS, *q. v.*

Fish'-hawk, *n.* (*Zoöl.*) See OSPREY.

Fish'-hook, *n.* An iron or steel hook, of different sizes, used in catching fish: part of a fish-tackle.

Fish Hook, in *Illinois*, a post-office of Pike co.

Fish House, in *New York*, a village of Fulton co., on the Sacandaga River, abt. 45 m. N.N.W. of Albany.

Fish'ify, *v. a.* To turn into fish.

"O flesh, flesh, how art thou *fishified!*"—*Shaks.*

Fish'iness, *n.* State or quality of being fishy.

Fish'ing, *p. a.* Used or employed in fishing, or by fishermen; as, a *fishing*-rod, *fishing*-tackle, a *fishing*-boat, &c.

—Art or practice of taking fish.

Fish'ing Creek, in *Georgia*, enters the Savannah River from Lincoln co.

Fish'ing Creek, in *Indiana*, enters the E. fork of White River at Lawrenceport.

Fish'ing Creek, in *Maryland*, a P.O. of Dorchester co.

Fish'ing Creek, in *Missouri*, enters the Missouri River from Ray co.

Fish'ing Creek, in *New Jersey*, a post-village of Cape May co.

Fish'ing Creek, in *N. Carolina*, enters the Tar River from Martin dist.

Fish'ing Creek, in *Pennsylvania*, enters the N. branch of the Susquehanna from Columbia.

—A post-township of Columbia co.

Fish'ing Creek, in *S. Carolina*, enters the Catawba River from Chester co.

Fish'ing Creek, in *W. Virginia*, enters the Ohio River from Wetzel co.

Fish'ing-fly, *n.* A fly, natural or artificial, whipped around a hook, and used by anglers as a bait to allure fish.

Fish'ing-frog, *n.* (*Zoöl.*) See LOPHIIDÆ.

Fish'-joint, *n.* (*Railroad-Engineering.*) That joint of wood or iron which connects and holds the ends or extremities of two rails. (Called in England, *chair.*)

Fish'-kettle, *n.* An oblong kettle used for boiling fish whole.

Fish'kill, in *New York*, a post-village and township of Dutchess co., 62 m. N. of New York and 4 m. from Fishkill-on-Hudson.

Fish'kill Creek, in *New York*, enters the Hudson from Dutchess co.

Fish'kill-on-Hudson, in *New York*, a post-village of Dutchess co., on the Hudson river, 58 m. N. of New York city. *Pop.* (1897) about 4,000.

Fish'kill Moun'tains, in *New York*, a name sometimes applied to the Highlands of the Hudson.

Fish'kill Plains, in *New York*, a post-village of Dutchess co.

Fish Lake, in *New York*, in the N. part of Fulton co. It is abt. 4 m. in length, and averages 1 m. in width.

Fish'-like, *a.* After the nature of a fish; partaking of or exhibiting the properties of a fish; as, "A very ancient and *fish-like* smell."—*Shaks.*

Fish'-maw, *n.* The air-bladder of a fish.

Fish'-meal, *n.* Diet on fish; a fish-dinner; abstemious diet.

Fish'-monger, (*-mŭng'gr,*) *n.* A vender or seller of fish; a dealer in fish.

Fish'-pot, *n.* A creel or basket of wicker-work, weighted with lead, and sunk, with a cork buoy attached: used in the catching of lobsters and other crustacea.

Fish Pond, in *South Carolina*, a township of Barnwell county.

Fish Port, in *Illinois*, a village of Rock Island co.

Fish River, (Great,) a river of S. Africa, rising in the Sneeuwsberg, or Snowy Mountains, and emptying into the Indian Ocean, after an estimated course of 260 m., in Lat. 33° 30′ S., Lon. 27° 20′ E.

Fish River, (Great,) in British N. America.—See GREAT FISH RIVER.

Fish'-room, *n.* (*Naut.*) A room on board ship, situate between the spirit-room and the afterhold, and used for the storage of fish, &c.

Fish'-slice, *n.* A fish-knife; a fish-trowel; a broad knife, usually of silver, used for dividing and serving fish at dinner.

Fish'-spear, *n.* A kind of dart or harpoon employed in the taking of fish by spearing them.

Fish Springs, in *Utah*, a post-office of Juab co.

Fish'-tackle, *n.* (*Naut.*) A tackling used for raising a ship's anchor to the cat-head.—The term is applied to fishing-rods, lines, nets, &c., collectively.

Fish'-tail, *a.* Formed like the tail of a fish.

Fish'-tail Burn'er, *n.* A gas-jet or burner, throwing out a flame in the form of a fish's tail.

Fish'-trowel, *n.* Same as FISH-KNIFE and FISH-SLICE (*q. v.*).

Fish'ville, in *Michigan*, a post-office of Montcalm co.

Fish'-wife, Fish-wom'an, *n.* A woman who sells fish; a female peddler of fish; a woman who cries fish for sale; as, her tongue is long as a *fish-woman's*.

Fish'y, *a.* Consisting of fish; inhabited by fish; having the qualities of fish; fish-like; as, a *fishy* flavor.

—Improbable; doubtful, like some stories narrated by fishermen; slippery; hard to get to the bottom of; as, a *fishy* fellow, a *fishy* anecdote.

Fisk, in *Wisconsin*, a post-village of Winnebago co., about 8 m. from Oshkosh.

Fisk'dale, in *Massachusetts*, a P. O. of Worcester co.

Fiskeville (*fisk'vil*), in *Rhode Island*, a post-village of Providence co., on Pawtuxet river, about 12 m. S. W. of Providence.

Fisks'burg, in *Kentucky*, a post-village of Kenton co., about 40 m. N. N. E. of Frankfort.

Fis'herville, in *New Jersey*, a village of Gloucester co., about 22 m. S. of Camden.

Fissile, (*fis'sil,*) *a.* [Lat. *fissilis*—*findo*, *fissus*, to split, or cleave.] That may be split, cleft, riven, or divided in the direction of the grain, or of natural joints.

"This crystal is a pellucid *fissile* stone."—*Newton.*

Fissil'ity, *n.* State or quality of being fissile.

Fission, (*fish'un,*) *n.* [Lat. *fissio.*] A cleaving or dividing into two parts.

Fissip'ara, *n. pl.* [Lat. *findo*, I divide, and *pario*, I bring forth.] (*Zoöl.*) Those animals are so called which propagate by spontaneous fission, or the detachment of a greater or less proportion of the body, having inherent power of self-support and growth. As the animals which manifest this mode of generation differ widely among themselves in their general organization, the term *Fissipara* cannot be applied to designate any natural group; spontaneous fission is limited to the lowest classes of animals, as *Infusories*, *Polyps;* and to certain worms, as the *Naïs*, &e.

Fissip'arism, Fissipar'ity, *n.* (*Physiol.*) Reproduction by spontaneous division.

Fissip'arous, *a.* (*Physiol.*) Applied to an animal or plant which propagates by spontaneous fission.

Fis'siped, *a.* [From Lat. *fissus*—*findere*, and *pes*, *pedis*, foot.] (*Zoöl.*) Having separate toes.

—*n.* (*Zoöl.*) An animal having separate toes, or toes unconnected by a membrane.

Fissiros'tral, *a.* [Lat. *fissus*, cleft, split, and *rostrum*, a bill or beak.] (*Zoöl.*) Having a bill with a very wide gape, as certain birds.

Fissiros'tres, *n. pl.* [Lat. *findo*, I cleave; *rostrum*, a beak.] (*Zoöl.*) A tribe of birds, order *Incessores*, consisting of the Swallows (*Hirundinidæ*), Swifts, and Goat-suckers. They are distinguished by having the bill short, broad, depressed, slightly curved, without any tooth, and so deeply cleft as to give peculiar wideness to the gape—a structure of great use to birds which



Fig. 1023.—THE WHIPPOORWILL.
(Goat-sucker family.)

prey so exclusively on insects taken on the wing. On account of the food on which they subsist, all the fissirostres migrate from northern countries towards the close of autumn, and return again in spring. Like the raptorial order, or birds of prey so called, the fissirostral tribe is capable of a binary division into diurnal and nocturnal species.

Fissure, (*fish'ŭr,*) *n.* [Fr., from Lat. *fissura*—*findo*, to split or cleave.] A cleft; a chink; a crevice; a narrow chasm made by the parting of any substance; a longitudinal opening; a crack; a slit: a deep, narrow groove.

"The gaping *fissures* to receive the rain."—*Thomson.*

(*Anat.*) A fracture in which the bone is cracked, not separated.—A narrow, long, and superficial solution of continuities, around the external openings of the mucous membrane.—A sort of chap observed on the hands, particularly on the callous hands of workmen in certain mechanical employments.

—*v. a.* To cleave; to rend into two; to form a fissure; as, "a *fissured* skull."

Fissurel'la, *n.* [Lat. *findo.*] (*Zoöl.*) A genus of Gasteropodous Molluscs, having a shell shaped like that of a limpet, but with a fissure at the apex of the cone, which opening is associated with a different form and arrangement of the breathing-organs.

Fist, *n.* [A.S. *fyst;* D. *vuist;* Ger. *faust*, allied to *fügen*, to join, unite, and probably allied to Sansk. *mushti*, the fist.] The hand fast closed or clenched; the hand with the fingers doubled into the palm, as if clenched to strike a blow.

"She . . . up with her *fist* and took him on the face."—*Sidney.*

—*v. a.* To strike or pommel with the fist.

"I saw him *fisting* her most unmercifully."—*Dryden.*

Fis'tic, *a.* [See FIST.] Pertaining to boxing, or the art of self-defence; pugilistic; as, *fistic* science. (Used colloquially.)

Fis'ticuffs, *n. pl.* [*Fist* and *cuff.*] Blows or a combat with the fists; a boxing-match; a pugilistic encounter.

"My invention and judgment are perpetually at *fisticuffs*."—*Swift.*

Fis'tinut, *n.* Same as PISTACHIO, *q. v.*

Fis'tuca, *n.* Among the Romans, an instrument used for ramming down pavements and threshing-floors, and the foundations of buildings, &c. (Called, in modern phraseology, a *monkey.*)

Fistula, (*fist'yu-la,*) *n.* [Probably from Gr. *physaō*, to blow, to puff, from *physa*, a pair of bellows,—*phyō*, to bring forth.] A shepherd's pipe; a water-pipe.

(*Zoöl.*) The intermediate subquadrangular pipe, in insects, formed by the union of the two branches of the *anthia*, which conveys the nectar to the *pharynx*.

(*Surg.*) A long and sinuous ulcer, having a narrow opening, sometimes leading to a larger cavity, and which has no disposition to heal. The most common form of this disease is the *fistula in ano*, the sinus extending into the cellular substance about the anus, or into the rectum itself. It is the result of abscesses formed in the cellular tissue around the rectum, and which, having burst or been opened, are prevented from healing by the action and irritation of the sphincter ani. They are divided into two kinds—complete, and incomplete or blind; the former having two openings or outlets, the one externally, the other into the rectum; the latter having only one, and being divided into blind external and blind internal, according as the opening is external or internal. This disease is commonly attended with intense pain, especially when passing the fæces, and there is an irregular discharge of purulent matter, which is sometimes mixed with blood. The treatment consists in making a complete division with the knife of the whole of the parts between the fistula and the bowel, and the edges of the wound are kept apart by lint, in order to allow the cavity to fill up by granulation. A *fistula lacrymalis* is a disease of the lacrymal sac, caused by an obstruction to the flow of tears along the nasal duct. The symptoms of this disease are a watering of the eye, with a dryness of the corresponding nostril, a distention of the lacrymal sac, and a discharge of muco-purulent fluid mixed with tears, from the puncta lacrymalia, when the sac is compressed. In the earlier stage of this disease, when there is only a distended state of the lacrymal sac, a cure may be effected by the application of leeches and fomentations to the eye, with the use of astringent ointment to the edges of the lid. In the more advanced stages, however, where there is inflammation and suppuration of the sac, or where a fistulous opening has been formed in it, by the escape of purulent matter, an operation becomes necessary for its removal. This is effected by making an incision with a sharp-pointed knife into the lacrymal sac, and then passing a probe downwards into the nasal duct, after which a silver instrument called a style is inserted, and allowed to remain until the inflammation which produced or accompanied the abscess has subsided. *Salivary fistula* is a fistulous aperture in one of the salivary ducts, opening externally, and through which the saliva escapes. It is generally caused by a wound, which, if recent, may be cured by merely bringing together and uniting the edges of the wound; but if of some standing, a free canal ought to be formed for the discharge of the saliva into the mouth. In *fistula in perinco*, which is almost always accompanied with a stricture of the urinary passage, the fluid passing out of the external opening of the sinus, an operation is necessary, which will require the aid of a competent surgeon. Fistulas generally require very skilful treatment, and are often extremely difficult to close; and though not in themselves dangerous, they are not unfrequently attended with fatal results, arising out of the constitutional depression, which they occasion by the long-continued wearing pains, and the drain upon the system, in consequence of the protracted discharge. Fistula in ano is often observed in consumptive patients.

Fistular, (*fist'ū-lar,*) *a.* [Lat. *fistularis.*] Hollow, like a pipe or reed.

Fistula'ria, *n.* [From Lat. *fistula.*] (*Zoöl.*) A family of acanthopterygious fishes, of which the genus *Centriscus*, including the Trumpet-fish, may be given as the type.—See CENTRISCUS.

Fist'ulate, *v. n.* [It. *fistolare.*] To become a pipe or fistula.

Fistuli'dan, *n.* [Fom Lat. *fistula.*] (*Zoöl.*) A tribe of animals, class *Echinodermata*, comprehending those which have an elongated cylindrical tube-like body.

Fistu'liform, *a.* [Lat. *fistula*, and *forma*, form.] Having a fistula or tube-like form; pipe-shaped.

Fist'ulose, *a.* Hollow, like a reed.

Fist'ulous, *a.* [Lat. *fistulosus.*] Having the nature of a fistula; as, a *fistulous* ulcer.—Reed-like; fistulose; hollow, like a pipe.

Fit, *n.* [Probably from It. *fitta*, a pricking and intermittent pain, from L. Lat. *ficta*, a sharp prickling pain, from Lat. *figo*, *fixum* or *fictum*, to fix, fasten, drive in. See FIX.] The invasion, increase, or paroxysm of a disease; a sudden and violent attack of disorder, in which the body is often convulsed, and sometimes senseless; a convulsion; as, a *fit* of apoplexy, a *fit* of ague, &c.

"And when the *fit* was on him, I did mark
How he did shake."—*Shaks.*

—Any short return after intermission; a turn; a period or interval; a temporary affection; a transient attack or paroxysm; as, a *fit* of melancholy, a *fit* of the blues, a *fit* of mischievousness.

"A short vicissitude, and *fit* of poverty."—*Dryden.*

—A passing humor or disorder; an impulsive, unrestrained, or irregular action.

"Your husband . . . best knows the *fits* o' th' season."—*Shaks.*

—A sudden effusion or emission; as, "a *fit* of flame."
Coleridge.

(*Lit.*) A canto of a poem. See FYTTE.

By fits and starts. Impulsively; irregularly; without continuous action; with intervals of motion and quiescence.

"'T was sad *by fits, by starts* 't was wild."—*Collins.*

Fit, *a.* [Fr. *fait;* O. Fr. *faict*, from *faire*, to do, to make; Lat. *facere*, *factum*, to make; Goth. *fetjan*, to arrange.] Made so as to suit a particular purpose or thing; adapted; suitable; qualified; competent; convenient; meet; worthy; as, what is he *fit* for?

"The *fittest* help just fortune could afford."—*Cowley.*

—Becoming; suited to the nature and property of things; proper; appropriate; congruous; apt; qualified; competent; adequate; as, a *fit* companion.

"It is *fit* for a man to know his own abilities and weaknesses." *Boyle.*

Fit, *v. a.* To make fit or suitable; to adapt; to accommodate, as a person with any thing; to prepare; to put in order for; to qualify; as, she is *fitted* to please.

"The time is *fitted* for the duty." — *Burke.*

—To bring into a certain form; to adjust; to adapt to a model, or after a fashion; to shape; to make exact or symmetrical; as, to *fit* an engine, to *fit* a coat to the body. — To furnish or supply with something fit or suitable, or that is properly fashioned for use.

"No milliner can so *fit* his customers with gloves." — *Shaks.*

—To be adapted or suitable to; to satisfy the required aim or end; to be rightly shaped, and correspondingly adjusted to; as, a well-*fitting* coat.

To fit out. To furnish; to equip; to supply with necessaries, stores, &c.; as, to *fit out* a ship, to *fit out* an expedition, &c.

To fit up. To furnish with everything needful; to make proper for the use or reception of any one; as, to *fit up* a house.

—*v. n.* To be proper or becoming.

"How evil *fits* it me to have such a son." — *Sidney.*

—To be adapted or suitable; to be suited or adjusted to the necessary or desired form; as, her gloves *fit* well.

Fit, *n.* The close and easy fitting of an article of dress; adjustment of dress to the body; as, his clothes are a good *fit.*

(*Mach.*) The coincident adaptation of conuecting parts.

Fiteh, *n.* [It. *veccia*; Lat. *vicia.*] A chick-pea. — [A contracted form of *fitchet.*] The fur or skin of the pole-cat.

Fiteh, JOHN, an American inventor and mechanic, the pioneer in steam-navigation, B. in Windsor, Conn., Jan. 21, 1743. He was the son of a farmer in good circumstances, and received as liberal an education as the schools of the district would afford. The bent of his mind, from the earliest age, was towards mechanics. In his youth he had some inclination for the sea, of which a few voyages effectually cured him, and he then gave himself up to the business of clock-making. He exchanged this for the trade of a brass-founder. He was a silversmith in Trenton, N. J., when the British army entered that town in 1776. He was convicted of repairing American arms; his shop was therefore destroyed. He joined the army, and was with Washington at Valley Forge. From this district he set off for Kentucky in 1780, having been appointed deputy-surveyor. He returned to Philadelphia in the following year, and on his journey back was made a prisoner by the Indians. Redeemed from captivity through the exertions of a British officer, he assumed the duties of his situation, and while sailing on the great Western waters, he conceived the idea that boats might be propelled through the water, and carriages on land, by force of steam. In August, 1785, having prepared a plan and model of a steamboat driven by paddles, he presented the subject to Congress, and asked for aid to complete his experiments; but the application was rejected. A controversy arose between *F.* and Rumsey, who had also made public a plan for steam-navigation, and ultimately, in the course of the years 1786 and 1787, *F.* obtained Acts of the state legislatures of New Jersey, Pennsylvania, and Delaware, securing to him the exclusive privilege of propelling vessels by steam for 14 years; while a similar privilege was conferred on Rumsey in Virginia, Maryland, and New York. In 1786, *F.* succeeded in establishing a steamboat company. He substituted for paddle-wheels, vertical oars worked by means of cranks, and with these he fitted a small skiff, which was propelled by them; but it is not clear whether in this case a steam-engine was used to move the propellers. His first practical trial of his invention took place in Aug., 1787; this was followed by a second trial in July, 1788, with a vessel which plied for hire during the summer of 1790. A new steamboat of a larger size was now begun; but as the undertaking failed to produce a profit, it was abandoned, and the vessel and machinery sold in 1795. *F.* afterwards visited Europe, but met with no encouragement; and having returned to Kentucky, D. in 1798. A life of *F.* was published in 1857. His inventions are described in Woodcroft's *History of Steam Navigation*, and in the *Abridgments of Specifications relating to Marine Propulsion.*

Fiteh'burgh, in *Massachusetts*, a city, one of the caps. of Worcester co., on a branch of the Nashua river, about 50 miles N.W. of Boston. *Manuf.* Fire-engines, machinery, edge-tools, &c. *Pop.* (1895) 26,409.

Fitchburgh, in *Michigan*, a post-office of Ingham co.

Fitchburgh, in *Wisconsin*, a post-village and township of Dane county, about 10 miles S. of Madison.

Fitched, (*ficht,*) *a.* (*Her.*) Pointed; made sharp to a point.

Fiteh'et, Fitchew, (*fich'ū,*) *n.* [Fr. *fissau*, from Lat. *fœteo, fœtere*, to stink.] A pole-cat; a foumart.

"'Tis such another *fitchew!* marry, a perfumed one."—*Shaks.*

Fiteh'port, in *Kentucky*, a village of Garrard co., abt. 45 m. S. of Frankfort.

Fiteh'ville, in *Ohio*, a post-village and twp. of Huron co., abt. 90 m. N. by E. of Columbus.

Fit'ful, *a.* Full of fits or changes; varied by sudden impulses.

"After life's *fitful* fever, he sleeps well." — *Shaks.*

Fit'fully, *adv.* By fits; at intervals; in a fitful manner.

Fit'ly, *adv.* Suitably; properly; with propriety; commodiously; conveniently; as, his speech was *fitly* to the point.

Fit'ness, *n.* Quality or state of being fit; suitableness; adaptedness; adaptation; propriety; expediency; meetness; justness; reasonableness; preparation; qualification; convenience; as, the *fitness* of certain means to obtain an end.

"'Tis a needful *fitness* that we adjourn this court." — *Shaks.*

Fit'ter, *n.* He or that which fits, or confers fitness.

(*Com.*) In England, a broker who conducts the sales between a coal-owner and a shipper of coals.

(*Mach.*) One who fits or adjusts the different parts of machinery together; as, an engine-*fitter.*

Fit'ter, *n.* [It. *fitta.*] A little piece; a shred; a tatter; as, to cut into *fitters.* (R.)

Fit'ting, *n.* (Generally in the plural.) The necessary appointments, fixtures, appliances, &c., used in fitting up any place or thing; as, gas-*fittings*, the *fittings* of a ball-room.

Fit'ting, *p. a.* Fit or appropriate; suitable.

Fit'tingly, *adv.* Suitably; properly.

Fit'tingness, *n.* State or quality of fitting.

Fit'ting-out, Fit'ting-up, *n.* Equipment; furnishing of necessaries; as, the *fitting-out* of a ship, *fitting-up* of a house, &c.

Fit'-weed, *n.* (*Bot.*) *Eryngium fœtidum*, a plant so called in allusion to its anti-hysterical properties.

Fitz, (*fits,*) *n.* [N. Fr. *fiz, fiuz*; Fr. *fils*, son, from Lat. *filius.*] A son. — It is prefixed to proper names, like the Scotch *Mac*, the Irish *O*, and the Oriental *Ben*, to signify descent; as in the names Fitzwilliam, Fitzwalter, Fitzherbert, *i. e.*, son of William, son of Walter, &c. In England, the term is applied in a similar sense to illegitimate scions of the blood-royal; as, *Fitz*roy (son of the king); *Fitz*clarence; *Fitz*george, &c.

Fitzger'ald, LORD EDWARD, an Irish patriot, B. near Dublin, 1763, was a son of the first duke of Leinster. He distinguished himself for intrepidity as aide-de-camp to Lord Rawdon in the latter part of the American revolutionary war, and was severely wounded in the battle of Eutaw Springs. When the French revolution broke out, he supported its principles, and in 1793 hastened to Paris. Here he married Pamela, the daughter, it is said, of Louis Philippe Joseph, the duke of Orleans, and Madame de Genlis. On his return to Ireland, Fitzgerald was desirous of effecting a separation of that country from England, and induced the French Directory to furnish him with a fleet and troops. A landing was attempted on several occasions, but without success, owing to the vigilance of the English channel fleet; and Fitzgerald was seized, tried, and condemned to death. D. of his wounds before the time fixed for his execution, 1798. His wife, distinguished for her wit and beauty, had been educated with the daughters of the duke of Orleans, by Madame de Genlis, and married a second time, Mr. Pitcairn, the American consul at Hamburg, from whom, however, she separated soon afterwards.

Fitz Henry, in *Pennsylvania*, a post-village of Westmoreland co., abt. 37 m. S.S.E. of Pittsburg.

Fitz'hugh Sound, a strait of British N. America, Lat. 51° 33′ N., Lon. 128° 10′ W. It separates Calverts Island from the mainland.

Fitz'roy Harbor, a village of Upper Canada, co. of Carleton, abt. 32 m. E. of Bytown.

Fitz'watertown, in *Pennsylvania*, a post-office of Montgomery co.

Fitzwil'liam, in *New Hampshire*, a post-village and township of Cheshire co., abt. 60 m. S.W. of Concord; *pop.* of township abt. 1,350.

Fitzwil'liam Depot, in *New Hampshire*, a post-office of Cheshire co.

Fiume, (*fe-ōō'ma,*) a seaport-town of the Austrian empire, on the Gulf of Quarnero, at the N.E. extremity of the Adriatic Sea; Lat. 45° 19′ 39″ N., Lon. 14° 26′ 45″ E. *F.* is one of the chief towns and the seat of govt. of the Littorale, and is the trading outlet of Hungary with the Mediterranean. It has a good harbor, and is situate 38 m. S.W. of Trieste. *Manuf.* Linen, coarse cloths, leather, sugar, and refined petroleum. *P.* 25,000.

Five, *n.* [A.S. *fif*; D. *vyf*; Ger. *fünf*; O. Ger. *finf*; Goth. *fimf*; Lat. *quinque.*] The half of ten; the twentieth of one hundred; a number greater than four, and less than six; the sum of four and one.

"(They) wished him *five* fathom under the Rialto." — *Byron.*

—A symbolic representation of such number; as 5, or V.

—*a.* Four and one added.

Five Cor'ners, in *New York*, a post-village of Cayuga co., abt. 20 m. S. of Auburn.

Five'-finger, *n.* (*Bot.*) *Potentilla reptans*, a species of cinquefoil.

Five'fold, *a.* In fives; consisting of five in one; five times repeated; quintuple.

Five Forks, a locality in *Virginia*, near Dinwiddie Court-House. Here, on April 1, 1865, a severe engagement was fought between the National troops and the Confederates, the former under the command of Gen. Sheridan, and the latter under that of Gen. Lee. After several hours' heavy fighting, the Confederates retreated with a loss of a large number of killed and wounded, 5,000 prisoners, and several guns. The National loss was abt. 1,000 men, including Gen. Winthrop, who was killed.

Five Hum'mocks Point, a promontory of Lower California, Lat. 30° 24′ N., Lon. 115° 40′ W.

Five Hundred, (COUNCIL OF THE.) (*French Hist.*) The National Convention in 1795 vested the legislative power in two councils, that of the Ancients, and that of the Five Hundred. To the latter was intrusted the sole right of originating laws. Its sittings were transferred to St. Cloud, Nov. 9, 1799. This council was dissolved by Napoleon Bonaparte, Nov. 10, 1799.

Five Islands Har'bor, a bay on the W. coast of Antigua, W. Indies.

Five'-leaf, *n.* Cinquefoil; five-finger.

Five Men's Sound, an arm of Frobisher's Strait, in British N. America.

Five Mile, in *Alabama*, a post-office of Halo co.

Five Mile, in *Ohio*, a post-office of Brown co.

Five Mile, in *Texas*, a post-office of Dallas co.

Five Mile Creek, in *New York*, enters the Conhocton river from Steuben co.

Five Mile Creek, in *South Carolina*, enters the Catawba river from Lancaster co.

Five Points, The. (*Eccl.*) The five principal points of controversy between the Calviuists and Arminians. See CALVINIST.

FivePoints, in *Alabama*, a post-office of Chambers co.

Fives, *n.* [L. Ger. *rivel*; Fr. *avives.*] (*Parriery.*) See VIVES.

"His horse, past cure of the *fives*." — *Shaks.*

Fives, *n. pl.* (*Games.*) A kind of ball-play resembling tennis, in which three *fives*, or fifteen, are counted to the game.

Fives'-court, *n.* A building in which fives are played.

Fix, *n.* A predicament; a dilemma; a state of embarrassment; a position of doubt or difficulty.

"He is in an almighty *fix*." — *De Quincey.*

Fix, *v. a.* [Fr. *fixer*; Lat. *figere, fixus*; allied to Gr. *pēgnūmi*, to make fast; Sansk. *pac*, to tie.] To make fast, firm, stable, or solid; to establish; to settle; to determine; to define; to appoint; to set; to institute. — To establish immovably; to set, settle, or direct steadily or intently; to deprive of volatility; to withhold from motion; as, to *fix* one's attention upon anything.

"*Fix'd* like a plant on his peculiar spot." — *Pope.*

—To transfix; to pierce.

"A bow of steel shall *fix* his trembling thighs." — *Sandys.*

—To arrange, or put in order; to adjust; to settle; to manage; to set to rights; to place in a suitable manner or condition; as, to *fix* one's dress, to *fix* any matter of work or business. (This definition is not according to English usage, and is purely an Americanism.)

—*v. n.* To rest; to settle or remain permanently; to cease from wandering; as, he *fixed* his abode in the U. States.

"Resolved to *fix* forever here." — *Waller.*

—To become firm, so as to resist volatilizing action; to cease to flow; to become fluid; to congeal; to become concrete, hard, and malleable, as a metallic body.

To fix on, to determine on; to conclude to settle the resolution on; as, we *fixed on* him as the umpire.

Fix'able, *a.* That may be fixed.

Fixation, (*fiks-a'shun,*) *n.* [Fr.] Act of fixing. — State of being fixed; stability; firmness; steadiness; state of being established; as, "*fixation* in matters of religion." *King Charles I.*

—Act or process of changing from fluidity to firmness.

"Salt dissolved upon a *fixation* returns to its affected tubes." *Glanville.*

—State of a body which resists evaporation or volatilization by heat, as certain metals.

"They need rather a degree of *fixation* than any condensation." *Bacon.*

—Act of forming chemical union with a solid body or substance; — applied to gaseous elements.

Fix'ative, *n.* A mordant; that which tends or serves to fix colors.

Fixed, (*fikst,*) *p. a.* Settled; established; firm; fast; stable; intently directed; directed or destitute of volatility; as, a *fixed* color.

Fixed air. (*Chem.*) The old name for carbonic acid, from its existence in a fixed state in limestone.

Fixed ammunition. (*Mil.*) See CARTRIDGE.

Fixed bodies. (*Chem.*) A term applied to substances that remain fixed or are not volatilized at a moderately high temperature.

Fix'edly, *adv.* Firmly; in a settled or established manner; steadfastly; as, to look *fixedly* at any person.

Fix'edness, *n.* A state of being fixed; firmness; stability; steadfastness.

"A *fixedness* in religion will not give any conscience leave to consent to innovations."—*King Charles I.*

—Solidity; firm coherence of parts. — State of a body which resists evaporation or volatilization by heat; as, "the *fixedness* of cold." — *Locke.*

Fixed Oils, *n. pl.* (*Chem.*) The common greasy oils are so called from the high temperature they sustain before decomposing and giving off vapor. — See FAT.

Fixed Star. (*Astron.*) The common name for any one of the stars in the heavens, with the exception of the planets. They are so called because they appear to us to be stationary in the broad field of the heavens, having no apparent motion, and always preserving the same relative position with regard to each other. They are supposed to be the centres or suns of the systems similar to our own. Sirius, the dog-star, in the constellation Canis Major, which is the brightest of all the stars, is one of the stars nearest the earth, but is nearly three times as far off as *a Centauri*, whose distance is computed to be not less than nineteen millions of millions of miles. The fixed stars have been grouped into separate clusters, called constellations, and divided into six classes according to their respective apparent magnitudes; the largest and brightest being called stars of the first magnitude, those that are next in size and lustre stars of the second magnitude, and so on. Stars of the sixth magnitude are the smallest that are visible without the aid of a telescope.

Fix'ing, *n.* (Usually in the pl.) That which is, or ought to be, fixed, settled, or arranged; also the acces-

sories to anything, as embellishments, trimmings, &c.; as, chicken-*fixings*. (U. S. Vulgar.)

(*Phot.*) The cleansing of photographs from the sensitive layer not acted on by the light. The principal fixing agents are hyposulphate of soda, which may be used either for glass or paper pictures, and cyanide of potassium, which can only be used for the former.

Fix'ity, *n.* [Fr. *fixité.*] Coherence of parts; fixedness; that property of bodies by which they resist dissipation by heat.

Fixture, (*fikst'yūr,*) *n.* That which is fixed, or made fast; that which is permanently attached to something as an appendage; as, the *fixtures* of a shop.

—Fixedness; fixity; as, "the firm *fixture* of thy foot." *Shaks.*

(*Law.*) *F.* are things annexed to houses or lands, which become, immediately on annexation, part of the realty itself, and are governed by the same laws as apply to heritable property. The question as to what are or what are not fixtures is of some importance, as determining the rights of landlord and tenant, heirs and executors, &c. Fixtures in general are personal chattels let into the earth, or cemented or otherwise fixed to some erection previously attached to the ground, and are thus legally immovable. If they be entirely clear of the soil, they are not fixtures, and may be carried off at pleasure. Hence a tenant may construct erections—even barns, sheds, and the like—upon blocks, rollers, pillars, or plates, so that they shall not be deemed fixtures, but remain movable chattels. The general rule is, that whenever a tenant has affixed anything to the premises during his term, he cannot again sever it without the landlord's consent. To this rule, however, various exceptions have been made in favor of what are termed trade fixtures. A tenant may safely remove such things as he has fixed to the freehold for purposes of trade or manufacture, provided the removal cause no material injury to the estate. Another exception to the general rule is in favor of such fixtures as are put up for ornament or domestic use, as hangings, stoves, &c.; but not such as have become part of the tenement, and constitute permanent improvements. The distinction, however, is often very nice, and it is difficult to define it in general terms.

Fiz'gig, *n.* (*Naut.*) See Fishgig. — (*Pyrotech.*) A firework, so called from its *fizzing* noise when exploded.

Fizz, *n.* A hissing, sibilant sound; as, the *fizz* of effervescing champagne.

Fizz, Fizzle, (*fiz'zl,*) *v. n.* [From the sound.] To make a hissing sound; to sibilate; as, the *fizzing* of a Seidlitz draught.

—To make a mess of anything; to bungle; to fail in any performance.

To fizzle out, to burn with a splattering sound, and then go out suddenly, like damp gunpowder; —hence, by implication, to make a bold beginning ending in complete failure.

Fiz'zle, *n.* An abortive effort; a failure; a collapse; as, the entire thing ended in a *fizzle.*

Flab'bily, *adv.* In a flabby, placid manner.

Flab'biness, *n.* State or quality of being flabby; flaccidity.

Flab'by, *a.* [From *flap*, and allied to *flaccid*; W. *llib*, flaccid, soft, limber, pliant.] Soft; yielding to the touch; easily bent; easily shaking; hanging loose by its own weight; flaccid; as, *flabby* flesh.

Flabel'late, *a.* [Lat. *flabellatus.*] (*Bot.*) Flabelliform.

Flabella'tion, *n.* (*Surg.*) The act of fanning, or cooling by use of the fan.

Flabel'liform, *n.* [Lat. *flabellum*, and *forma*, form.] (*Bot.*) Fan-shaped; flabellate.

Fla'bile, *a.* [Lat. *flabilis.*] Liable to be blown about by the wind.

Flaccid, (*flak'sid,*) *a.* [Lat. *flaccidus—flaccus*, flabby.] Flabby; soft and weak; limber; lax; hanging down by its own weight; yielding to pressure; as, *flaccid* muscles.

Flaccid'ity, *n.* [Fr. *flaccidité.*] Want of firmness; flaccidness.

Flac'cidly, *adv.* In a weak, lax, or limber manner.

Flac'cidness, *n.* Laxity; limberness; want of tension or firmness; lack of stiffness; flaccidity.

Flac'cus, Caius Valerius, a Roman poet of the 1st century, who lived at Padua, and died young. He wrote an epic poem, entitled *Argonautica*, of which seven books, and part of the eighth, were completed. In subject and in plan this poem is an imitation of the work of Apollonius Rhodius.

Flack'er, *v. n.* To flutter, as a bird. (Loc. Eng.)

Flack'et, *n.* [A. S. *flaxe*, a flask; Ger. *flasche*, a bottle.] A bottle made in the shape of a barrel.

Flack'ie, *n.* A truss made of straw to protect the back of a pack-animal from the creel or hamper which he carries.

Flack'ville, in *New York*, a P. O. of St. Lawrence co.

Flad'strand, in Denmark. See Frederikshavn.

Flag, *v. n.* [Ger. *flacken*, to become slow or languid; Sp. *flaquear*, to droop; Lat. *flaccere*, from *flaccus*, flabby. Cf. W. *llacan*, to slacken.] To hang loose, without stiffness or tension; as, the sails *flag.* — To grow feeble; to lose vigor; to droop; to decline; to languish; as, "his wits *flag.*"

Flag, *v. a.* To let fall into feebleness; to suffer to droop; to enervate, as, "nothing so *flags* the spirits." *Echard.*

—To lay with broad stones. See Flag, *n.*

Flag, *n.* [Icel. *flagan*; W. *ffag*; A. S. *fleogan*, to fly, because it is moved by any wind.] (*Bot.*) See Iris.

Flag, *n.* [W. *llec*, that which lies flat; Icel. *flake*, anything level or flat.] A broad, flat stone used for making city pavements.

—A pavement of broad, flat stones

—A turf cut for burning.

Flag, *n.* [D. *vlag*, Dan. *flag*; the root is found in A. S. *fleogan*, Ger. *fliegen*, to float in the air.] The name of a piece of some kind of material of such texture that, when attached by its edge to a pole or halyard, will float in the air; used to denote some fact, want, or sentiment. From earliest times standards, or banners, of various kinds were used as symbols of the common sentiment, especially for military purposes; but they were mostly of rigid material, and represented human faces, sacred animals and other significant objects. Except perhaps in China, it was not until the Middle Ages that drapery came to be generally used as the material for military and other ensigns. In modern times different cloths—especially bunting—silk, &c., are employed for flags according to the uses to which they are to be put and the expense admissible; they are of various shapes and colors, and either plain or marked with significant emblems. A device in a *F.*, emblematic of union, occupying generally the upper inner corner, is called the *union*; the rectangular part containing the union is called the *canton*; the rest of the *F.* being denominated the *fly.* The canton, with the union used by itself without the fly, is called the *jack*, or the *union jack.* A square *F.* with a triangular piece cut out of the end farthest from the halyard, with the point toward the center, is called a *cornet*; a short triangular *F.*, a *burgee*; a longer *F.* of the same shape, a *signal pennant*; and a very long narrow *F.*, resembling a strip of ribbon tapering to a point, is called a *pennant.* A white *F.* is recognized among all nations as a token of peace; in battle it is called a *F.* of truce, and when displayed or carried toward an enemy's line betokens a desire for a temporary cessation of hostilities or a conference; a black *F.* is the emblem of piracy, of no quarter, or of death. A red *F.* is associated with blood or danger; it was formerly used as a challenge for battle, and is the recognized symbol of extreme revolutionary ideas, and the standard of the advocates of violence and anarchism; a yellow *F.* indicates sickness of a dangerous character, requiring quarantine; a blue flag with a white square is called the *blue-peter*, and is hoisted, when a vessel is about to sail, as a signal of departure. A *F.* at half-mast is a sign of mourning; when hoisted upside down, or "union down," it is a signal of distress. Lowering the *F.* and immediately hoisting it again is called "dipping the *F.*" and is the form for a salute or a manifestation of courtesy. But the special and predominating object of a *F.* is to indicate nationality. Every nation has its own standard, bearing some device of historical significance and appealing to patriotic pride. Such a *F.* is often called an *ensign.* A reference to the accompanying plate will show the flags of the principal nations of the world.—The history of the Stars and Stripes, the national *F.* of the United States, shows a gradual development. As early as 1774 a *F.* with 13 stripes is said to have been used by Capt. Markoe, of the Philadelphia Light Horse. In the latter part of 1775, Dr. Franklin and Messrs. Lynch and Harrison were a committee to consider the subject of a national *F.* They recommended a *F.* with a field of 13 stripes, alternate red and white, emblematic of the union of the 13 colonies, yet retaining the canton of the British *F.* Such a *F.*, made by a Mrs. Reid, was for the first time hoisted by Washington, Jan. 2, 1774, over his camp at Cambridge. Several other devices were employed in the early part of the revolutionary struggle, one being the pine-tree *F.*, used in New England, another the rattlesnake *F.* One of the latter kind contained a representation of a rattlesnake cut into 13 pieces with the initial of a colony on each, and the words: "Join or die." The established national ensign was that adopted by Congress, June 14, 1777, which may very properly be called the birthday of the United States (or American) *F.* Congress resolved that the *F.* should contain 13 stripes of alternate red and white—7 red and 6 white—representing the 13 original colonies—with a union of 13 stars in a canton of blue, emblematic of the new constellation of 13 original States. A committee of Congress, accompanied by Gen. Washington, visited the upholstery store of Mrs. Betsey Ross, on Arch street, Philadelphia, and engaged her to make a model flag, Washington himself with his pencil producing a rough draft for her to follow. This was the first official U. S. *F.* On the 13th of Jan., 1794, Congress ordered that after May 1, 1795 (two other States—Vermont and Kentucky—having been admitted into the Union) the flag should have 15 stripes and 15 stars; but in 1818, by the act of April 4, Congress reëstablished the original design of 13 stripes and added 5 more stars, for as many States, and decreed that for every State thereafter admitted a new star should be added on the 4th of July next following the admission. The official garrison *F.* of the U. S. is 36 ft. in length and 20 ft. in width. The flags other than the national ensign, of various shapes, sizes and colors used in the service, can be clearly understood from the plate.—The national ensign of Great Britain, the union jack, is a combination of the separate flags of England, Scotland and Ireland. The red cross of St. George was combined with the cross of St. Andrew, a white saltire on a blue field; and later the cross of St. Patrick, a red saltire, was joined with the others. The royal standard of England, which was hoisted on the tower of London, Jan. 1, 1801, floats over the royal residence, and is displayed at the main when the queen or a member of the royal family is on shipboard. But the flag that stirs the popular heart of Britain is the "meteor flag of England"—the union jack, with its red, white and blue—a flag that is loved like the similarly colored "flag of the Union," the "star-spangled banner" of the United States.

Flag'ellant, *n.; pl.* Flag'ellants. [It. *flagellante*; Fr. *flagellant*, from Lat. *flagellare*, to whip, *flagellum*, a scourge.] (*Hist.*) A sect of religious fanatics that sprang up in Italy about the year 1260. They were so called from the flagellations or whippings which they administered to themselves, the leading doctrine of their creed being that by mortifying the flesh in every conceivable manner they propitiated the wrath and gained the favor of the Deity. Sects, or bodies of persons holding this doctrine, and practising whipping and other mortifications of the flesh, had appeared at various times in the earlier history of the Church; but this was the first occasion on which they made a prominent figure. People were no longer satisfied to perform these acts in private, but took to practising them in public, by way of greater humiliation. They formed themselves into large bands or companies, and went about from place to place, carrying banners and crosses, singing penitential hymns, and whipping themselves until the blood flowed. In 1261 they passed into Germany, and there made many converts; but on account of their irregularities and disorderly proceedings a general outcry was raised against them, and they were at length put down. The second great outbreak of this mania took place after 1349, when that terrible scourge, the black death, had swept over Europe and carried off so many persons. The imaginations of the people, already excited by the pestilence, were ready to seize upon this superstition, which spread rapidly through Germany, Switzerland, Holland, Sweden, and even England. The scenes of the previous century were reënacted with even greater excesses than before. Men and women indiscriminately now appeared in public half-naked, and underwent these self-inflicted scourgings. They held that flagellation was of equal virtue with baptism and the Lord's Supper, that forgiveness of sins was to be procured by it without the blood of Christ, that the law of Christ was soon to be abolished, and that a new law, enjoining a baptism of blood, to be administered by whipping, was to take its place. They were condemned by a bull of Clement VI., and other severities were practised against them, until at length they disappeared. Again, in the year 1414, a new troop of these fanatics made their appearance in Germany, under the leadership of one Conrad Schmidt. They were even more wild in their extravagances than their predecessors, rejecting all forms of worship, and holding that faith and flagellation were alone necessary to salvation. They were everywhere persecuted, and many of them were burnt as heretics, among whom was their leader Schmidt; but it was with difficulty that their system was at length suppressed.

Flag'ellate, *v. a.* [Lat. *flagello, flagellatus—flagellum, flagrum*, a whip or scourge; akin to Eng. *flog*, and Gr. *plēgē*, a blow, from *plēssō*, to strike; root *pleg, plag.*] To whip; to scourge; to flog.

Flag'ellate, *a.* (*Bot.*) Flagelliform.

Flagella'tion, *n.* [L. Lat. *flagellatio.*] A flogging; a whipping; the discipline of the scourge.

"By Bridewell all descend,
As morning-pray'r and *flagellation* end."—*Garth.*

Flagel'liform, *a.* [Lat. *flagellum*, and *forma*, form.] (*Bot.*) Resembling the thong of a whip: flagellate.

Flagel'lum, *n.; pl.* Flagel'la. [Lat., a whip.] (*Bot.*) A trailing shoot, such as that of the vine.

(*Zoöl.*) An appendage to the legs of crustacea, resembling a whip.

Flageolet, (*flăj'o-let.*) *n.* [Fr.] (*Mus.*) A small instrument of the flute kind, played on by means of a mouthpiece at the upper end. It is generally made of box, ebony, or other hard wood, but sometimes of ivory, and has a clear and shrill tone. Its compass extends from F, the first space in the treble-clef, to F in a tissimo. In the *quadrille F.* it is a little less extensive, while in the *patent F.* the scale is an octave higher. There are also *double F.*, consisting of two tubes united by one mouth-piece. This instrument is now very seldom used, it being almost superseded by the *flauto-piccolo*, or octave-flute.

Flag'-feather, *n.* A feather of a bird's wing nearest the body.

Flagg, in *Illinois*, a township of Ogle co.

Flag'giness, *n.* Laxity; limberness; want of tension; state or condition of being flaggy.

Flag'ging, *n.* Flagstones used for pavements, — in a collective sense.

Flag'gou Bayou, in *Louisiana*, enters Catahoula Lake in Rapides parish.

Flagg Town, in *New Jersey*, a post-village of Somerset co., abt. 6 m. S.W. of Somerville.

Flag'gy, *a.* Weak; flexible; limber; wanting tension; not stiff; as, "*flaggy* pinions."—*Dryden.*

—Abounding with the plant termed *flag.*

—Insipid; flavorless; weak, and poor in taste; as, "a great *flaggy* apple."—*Bacon.*

Flagitious, (*fla-jish'us,*) *a.* [Lat. *flagitiosus—flagitium*, heat of passion—*flagito*, to demand fiercely, from the root *flag*, whence *flagro*, to burn.] Infamous: deeply criminal; grossly wicked; atrocious; heinous; villanous; scandalous; as, a *flagitious* action. — Guilty of flagrant crimes; corrupt.

"He dies *flagitious*, yet not great."—*Pope.*

—Having the characterization of infamous crimes or vices.

"Perjury is a crime of so *flagitious* a nature."—*Addison.*

Flagitiously, (*fla-jish'us-le.*) *adv.* With extreme wickedness; atrociously.

Flagi'tiousness, *n.* State or quality of being flagitious; villany.

Flag'-officer, *n.* (*Naval.*) The commander of a fleet or squadron.



GREAT BRITAIN, ROYAL STANDARD.



GREAT BRITAIN, UNION JACK.



GREAT BRITAIN, NAVAL RESERVE.



GREAT BRITAIN, MAN-OF-WAR.



GREAT BRITAIN, MERCHANT.



ARGENTINE REPUBLIC, WAR. †



ALGIERS.



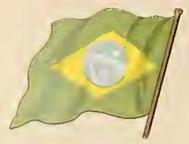
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BELGIUM, ROYAL STANDARD.*



AUSTRIA-HUNGARY, IMP. STAN.



BRAZIL, MERCHANT.



AUSTRIA-HUNGARY, WAR.



BOLIVIA, ENSIGN.*



AUSTRIA-HUNGARY, MERCHANT.



CHILI, NATIONAL STANDARD.*



GERMANY, MAN-OF-WAR.



GERMANY, MERCHANT.



GERMANY, IMPERIAL STANDARD.



CHINA, IMPERIAL STANDARD.



CHINA, MERCHANT.



COCHIN-CHINA, MERCHANT.



MALTA.



COREA, ENSIGN.



COSTA RICA, MAN-OF-WAR.*



ECUADOR, ENSIGN.



EGYPT (AND TURKEY), ENSIGN.



DENMARK, ROYAL STANDARD.



DENMARK, MERCHANT.



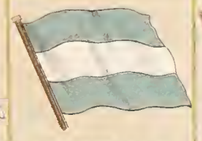
GREECE, MAN-OF-WAR. ‡



GUATEMALA, ENSIGN.*



NEW ZEALAND, ENSIGN.



NICARAGUA, ENSIGN.



PARAGUAY, MAN-OF-WAR.



PARAGUAY, MERCHANT.



HAWAII, ENSIGN.



SWITZERLAND, ENSIGN.



SAMOA, MERCHANT.



SPAIN, MAN-OF-WAR.



FLAGS OF THE COMMERCIAL CODE OF SIGNALS.



UNITED STATES, UNION JACK.

UNITED STATES, PRESIDENT.

UNITED STATES, REAR ADMIRAL.

UNITED STATES, SEC. OF NAVY.

UNITED STATES, YACHT.

UNITED STATES, ENSIGN.

UNITED STATES, LONG PENNANT.

UNITED STATES, REVENUE.

UNITED STATES, QUARANTINE.

U.S. COMMODORE'S PENNANT.

PERSIA, ENSIGN.

PERU, MAN-OF-WAR.*

PORTUGAL, ROYAL STANDARD.

PORTUGAL, ENSIGN.*

SPAIN, MERCHANT.

SWEDEN, ROYAL STANDARD.

SWEDEN, MERCHANT.

TRIPOLI, ENSIGN.

CODE AND ANSWERING PENNANT.

FLAGS OF THE COMMERCIAL CODE OF SIGNALS.

HAYTI, MAN-OF-WAR.*

HONDURAS, ENSIGN.

ITALY, ROYAL STANDARD.

URUGUAY, ENSIGN.

ITALY, MAN-OF-WAR. ‡

JAPAN, JACK.

LIBERIA, ENSIGN.

MEXICO, MAN-OF-WAR.*

MOROCCO, MERCHANT.

NETHERLANDS, ROYAL.*

NORWAY, ROYAL.

NORWAY, MERCHANT.

SAN DOMINGO, MAN-OF-WAR.*

SAN SALVADOR, MERCHANT.

SIAM, ENSIGN.

SOCIETY ISLANDS, ENSIGN.

TUNIS, MAN-OF-WAR.*

U. S. OF COLOMBIA, ENSIGN.

MONTENEGRO, STATE.

MONTENEGRO, MARINE.

FRANCE, ENSIGN

VENEZUELA, WAR.*

BULGARIA, MERCHANT.

RED CROSS SOCIETY.

BURMAH.

CANADA.

ZANZIBAR.

IRELAND.

SCOTLAND.

ORANGE FREE STATE.

SOUTH AFRICAN REPUBLIC.

ROUMANIA.

ARABIA.

CONGO.

MADAGASCAR.

RUSSIA, MAN-OF-WAR.

RUSSIA, MERCHANT.

RUSSIA, IMPERIAL STANDARD.

* MERCHANT, SAME WITHOUT COAT OF ARMS. † MERCHANT, SAME WITHOUT SUN. ‡ MERCHANT, SAME WITHOUT CROWN.

FLAGS OF ALL NATIONS.

COMPILED FROM OFFICIAL SOURCES.

Flag'-man, *n.; pl.* FLAG'-MEN. One who is employed to make signals by meaus of flags.

Flag'on, *n.* [Fr. *flaçon;* Lat. *lagēna*, from Gr. *lagēnos*, probably allied to *lagōn*, the hollow of a cup.] A vessel with a narrow mouth, used for holdiug aud conveying liquors; as, a *flagon* of ale.

"His trusty *flagon*, full of potent juice."—*Roscommon.*

Fla'grance, Fla'grancy, *n.* Quality of being flagrant; notoriousness: excess; enormity; heinousness.

Fla'grant, *a.* [Lat. *flagrans—flagro*, to flare, to flame, to buru.] Flaming; burning; blazing; glowing; ardent; as, *flagrant* desires.

"The beadle's lash still *flagrant* on their back."—*Prior.*

—Flaming in notice; glaring; notorious; enormous; as, a *flagrant* crime. — Raging; actively in preparation or exocution; as, a war was *flagrant.*

Fla'grantly, *adv.* In a flagrant manuer; glaringly; notoriously.

Flag'-ship, *n.* (*Naval.*) Tho ship of a fleet or squadron, which carries the admiral's or commodore's flag, or broad pennant; as, Nelson's *flag-ship*, the "Victory."

Flag'-staff, *n.* The staff or pole on which a flag is hoisted.

Flag'staff, in *Arizona*, a post-village, cap. of Coconino co., 85 mi. N. E. of Prescott. *Pop.* (1897) about 1,400.

Flag'staff, in *Maine*, a post-office of Somerset co.

Flag'stone, *n.* (*Min.*) Sandstoncs, calcareous sandstones, argillaceous limestones or hornblende slates of considerable hardness and toughness, flatty bedded and more or less fissile, splitting into large thick slabs, useful for paving, are called *F.* Granite is also used extensively for the same purpose.

Flag'-worm, *n.* A worm found in flaggy and sedgy ground.

Flail, *n.* [Ger. *flegel;* Fr. *fléau*, from Lat. *flagellum*, a whip or scourge. See FLAGELLATE.] A wooden instrument for threshing or beating grain from the ear by hand.

(*Antiq.*) A military weapon, used in ancient times, consisting of an instrument resembling the ordinary *F.*, but with the striking part armed with bosses or spikes.

Flake, *n.* [A. S. *flacca*, flakes of snow; Ger. *flocke*, down; Icel. *flóki*, a thick lock of wool; akin to Lat. *floccus*, a lock of wool. See FLOCK.] A layer or stratum of snowy particles; a small scale-like collection of snow, as it falls from the clouds or from the air; a little bunch or cluster of snowy crystals; any scaly matter in layers; any mass cleaving off in scales: as, a *flake* of metal.—A sort of carnation, bi-colored, with large striped leaves. — A platform of hurdles, or small sticks made fast or interwoven, supported by stanchions, for drying codfish, aud other things.

(*Naut.*) A frame-work, or stage of boards, suspended over a ship's side for caulkers, &c., to stand on.

—*v. a.* To form into flakes or bodies loosely connected.

"Mould the rouud hail, or *flake* the fleecy snow."—*Pope.*

—*v. n.* To break into laminæ, or layers; to peel or scale off.

Flake'-white, *n.* (*Painting.*) A pigment, consisting of a preparatiou of carbonate of lead. It is much used in painting in body-colors, being a substance with which transparent colors derived from vegetable matter may be mixed and rendered opaque, so that they may be laid on vellum or paper in the form of an even coating, possessing some degree of thickness and consistency. It is also used for putting in the high lights in drawings in water-colors, and crayon-drawings in two or three tints; but it is apt to become brown and discolored in course of time. Chinese-white, or marine-white, both of which are preparations of carbonate of zinc, are far better for this purpose and as a vehicle for preparing body-colors from simple water-colors, as they afford a white pigment of the purest nature, which will always retain its brilliancy unimpaired and untarnished by exposure to the atmosphere.

Flak'iness, *n.* The state of being flaky.

Flak'y, *a.* Consisting of flakes, locks, or layers; cleaving off in scales; lying in flakes.

"And *flaky* darkness breaks within the East." — *Shaks.*

Flamboy'ant, *n.* [Fr., from Lat. *flamma*, a flame.] (*Arch.*) The name given to a French ecclesiastical architecture of the 15th century, derived from the beautifully carved tracery of the windows, which appears to run in waving lines somewhat resembling the various directions taken by lambent flames of fire. This style of French-Gothic architecture is also known as *Ogival Tertiaire;* it corresponds in a great measure with the Perpendicular English or third Pointed style; but it is characterized by far more elaborate ornamentation; and objects of rectilinear form and outline, which constitute such a marked feature of the latter style, are not so frequently introduced.

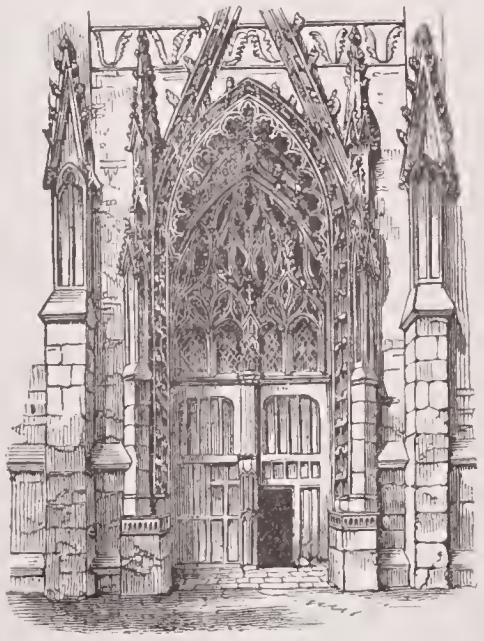


Fig. 1025. — HARFLEUR, NORMANDY, (FRANCE.)

Flambeau, (*flam'bō,*) *n.* [Fr., from Lat. *flamma*, a blaze, a blazing fire.] A flaming torch; a light or luminary made of thick wicks covered with wax, and used as a torch.

"The king seized a *flambeau* with zeal to destroy."—*Dryden.*

Flam'borough Head, a bold promontory of England, on the Yorkshire coast, projecting a considerable distance into the sea; Lat. 54° 7′ N., Lon. 0° 5′ W. This is at once the most striking and most celebrated headland on the E. coast of tho kingdom, rising 450 ft. sheer above the sea, having on its summit a light-house, 214 feet high, showing a revolving light. Vast caverns, haunted by myriads of sea-fowl, penetrate deeply through this headland.

Battle of. See JONES (PAUL).

Flame, *n.* [Fr. *flamme;* Lat. *flamma*, *flagma*, from the root *flag*, whence *flagro*, to flame, to blaze, to burn; Gr. *phlēgō*, to burn; Sansk. *bhrāj*, to shine.] Light emitted from fire; a blaze; a blazing fire; burning vapor; inflammable gas in combustion; fire in general; combustion. — Heat of passion; tumult; violent contention; ardor of temper or imagination; brightness of fancy; vigor of thought; glowing fervor or enthusiasm.

"Great are their faults, but glorious is their *flame*."—*Waller.*

—Fervor of inclination; ardent love; warmth of affection; as, the *flame* of passion.

"We . . . met congenial, mingling *flame* with *flame*."—*Pope.*

—A sweetheart; one to whom affection is plighted; a person beloved. (Used colloquially.)

(*Chem.*) *F.* may be defined as a shell of incandescent matter surrounding a mass of combustible vapor. To prodnce flame it is therefore necessary that the burning body should be capable of volatilization just below the temperaturo at which it undergoes combustion. Charcoal or iron will burn with a steady glow, more or less luminous according to the medium in which they are burnt, neither of these substances being susceptible of volatilization at the temperature at which combustion takes place. A piece of wood or paper, on the contrary, burns with a large luminous flame, in consequence of the combustible matter of which it is composed rising in vapor or becoming converted into mixed gases at the temperature required for kindling the substance. Flame is, in fact, produced whenever a continuous supply of inflammable vapor or gas is made to combino with a supporter of combustion, such as the atmosphere, at a sufficiently elevated temperature to cause ignition. That flame is hollow may be easily proved by several simple experiments. If a little spirits of wine or other inflammable liquid be ignited on a watch-glass, and a straw held across the flame, it will be found that the straw is charred only at the edges of the flame, the intermediate portion remaining uninjured. A still more instructive proof is afforded by placing a piece of glass tube or tobacco pipe nearly upright in the middle of the flame of a candle, when the vapor and gaseous matter rising through the wick from the melted tallow will ascend through the pipe, passing out at the upper orifice of the tube, where they may be kindled. The heating power of a flame is in direct proportion to the energy of the chemical action that takes place, those flames being hottest and least luminous which proceed from gases containing no solid particles, as in the case of a mixture of oxygen and hydrogen in the proportion necessary to form water, which is one of the hottest flames we have at our command. The most luminous flames are from gases which contain just sufficient solid matter to give the maximum of incandescence without any of its particles passing away unburnt. Olefiant gas and the ordinary coal-gas are good examples of this as compared with the oxyhydrogen flame, which contains no solid matter on the one hand, and the flame of pitch or turpentine on the other, which contains too much carbon, the excess passing off in the form of smoke. The flames used for illuminating purposes are all produced by the combustion of compounds containing carbon and hydrogen. Besides the proper proportions of gaseous and solid matter contained in illuminating substances, care must be taken to regulate the supply of air. By paying proper attention to this, many substances are greatly improved in their illuminating properties, while others are made to give an intense light, which could not otherwise be burnt. The Argand burner (*q. v.*) aud chimney, as applied to gas and camphene, are examples of this. Flame has 3 distinct parts: the central or non-luminous part, where there is no combustion, but where the carbon begins to separate from the hydrogen; the 2d or luminous part, where the carbon is for a moment free and heated to a white heat; aud the exterior part, which is the hottest, and where the combustion is complete. It is easy now to understand of what importance is tho form of the burner, and how it may be modified accordingly as we desire light or heat. If we wish light, the carbon must be protected for some seconds from contact with the air; but not long enough to allow it to pass off uncousumed. If, on the contrary, heat is desired, the carbon must be burned as quickly as possible. The German chemist Bunsen constructed a gas burner after this theory (Fig. 1026), which is perfectly adapted to the production of heat. In this burner the ordinary illuminating gas is conveyed into a wide tube, at the base of which is a great number of small holes for the admission of air. The air is thus intimately mixed with the gas; aud it is this mixture, of which the proportions are regulated by the dimensions of the openings, that is ignited at the top of the tube. The flame obtained is very pale, but intensely hot. If we shut the small holes that allow tho admission of air, the flame becomes brilliant, but is not so hot. Every mixture of gases requires a certain temperature to inflame it; and if the temperature be not reached, the mixture does not take fire; we may thus cool down a flame so much that it goes out by placing over it a small coil of cold copper wire, whereas if the coil be previously heated, the flame will continue to burn. If a piece of wire gauze be held close over a jet of gas aud the gas lit, the gauze may be removed several inches above the jet, and yet the inflammable gas below will not take fire, the flame burning only above the gauze (Fig. 1028). If the gauze be pressed down upon the flame, its hollow structure may be shown, also the fact that while inflammable gases pass through the gauze, there is not sufficient heat above it to ignite them (Fig. 1028). In both these cases the gauze conducts away the heat so quickly that the temperature of the gas on the side opposite tho flame does not rise to the point of ignition. This is tho principle made use of by Sir H. Davy in his safety-lamp for mines.—See DAVY'S SAFETY-LAMP.

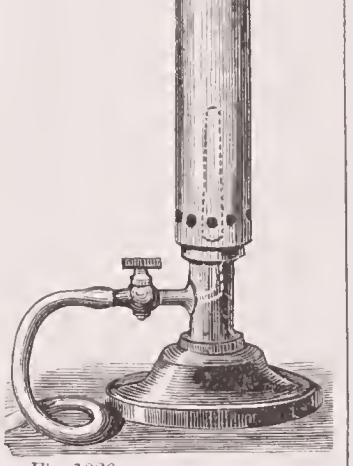


Fig. 1026. — BUNSEN BURNER.



Fig. 1027.
CANDLE-FLAME.

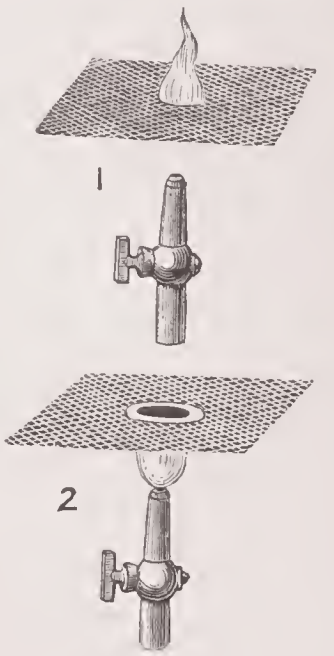


Fig. 1028.
PROPERTY OF WIRE GAUZE.

—*v. n.* To blaze; to burn in vapor, or in a current; to shine like ignited gas.

"Hell all around as one great furnace *flam'd*."—*Milton.*

—To break out in violence of passion; to be kindled with zeal or ardor; to rage; as, hers is a *flaming* temper.

—*v. a.* To inflame; to kindle; to rouse; to excite; as, "*flam'd* with zeal of vengeance."—*Spenser.*

Flame'-color, *n.* (*Painting.*) Pale yellow or orange color, resembling that of flame.

Flame'-colored, (*-kŭl'urd,*) *a.* Of a color resembling flame; of bright-yellow in color; as, "*flame-colored* stockings."—*Shaks.*

Flame'less, *a.* Without flame.

Flame'let, *n.* A small flame.

Fla'men, *n.; pl.* Eng. FLAMENS; Lat. *pl.* FLAMINES.] [Lat.] (*Rom. Antiq.*) The name given to any Roman who was devoted to the service of one particular god. Each flamen received a distinguishing epithet from the name of the deity to whom he ministered. The most dignified were those of Jupiter, Mars, and Quirinus, and were called respectively *Flamen Dialis, Flamen Martialis.*

Flamin'eous, *a.* Pertaiuing or relating to a flamen, or the flamines.

Flam'ingly, *adv.* With great show or vehemence; most brightly.

Flamin'go, *n.* [Sp. *flamenco*, from Lat. *flamma.*] (*Zoöl.*) The common name of the gen. of birds *Phœnicopterus*, order *Grallatores*. The *F.* is one of the most remarkable of all the aquatic birds for its size, beauty, and, as some say, also for the delicacy of its flesh. Its body is smaller than that of the Stork; but owing to the great length of neck and legs, it stands nearly five feet high, and measures six feet from the point of the beak to the tip of the claws. The head is small and round, and furnished with a bill nearly seven inches long, which is higher than it is wide, light and hollow, having a membrane at the base, and suddenly curved downwards from the middle. The long legs and thighs of this bird are extremely slender and delicate, as is also the neck. The plumage is not less remarkable than its figure, being of a bright scarlet. Flamingoes inhabit the warm climates of Asia, Africa, and America; they live and migrate in large flocks, frequently desert sea-coasts and salt marshes. They are extremely shy and watchful; while feeding, they keep together, drawn up artificially in lines, which at a distance resemble those of an army; and, like many other gregarious birds, they employ some to act as sentinels, for the security of the rest. On the approach of danger, these give warning by a loud sound, like that of a trumpet, which is the signal for the flock to take wing; and when flying they form a triangle. Their food appears to be molluscous animals, spawn, and insects, which they fish up by means of their long neck, turning their head in such a manner as to take advantage of the crook in their beak. Their nest is of singular construction; it is formed of mud in the shape of a hillock, with a cavity at the top, and of such a height as to admit of the bird's sitting on it, or rather standing, her long legs being placed one on each side at full length; thus situated, the female generally lays two or three white eggs somewhat larger than those of a goose. In some parts these birds are tamed, principally for the sake of their skins, which are covered with a very fine down, and applicable to all purposes. There are two species: 1. *Phœnicopterus antiquorum*, which is of a rose color, with red wings, the quills being black; these inhabit the warm regions of Asia, migrating in summer to southern, and sometimes to central Europe; these beautiful birds were much esteemed by the Romans, who often used them in their grand sacrifices and sumptuous entertainments; and such of the luxurious emperors as wished to indulge in the very excess of epicurism, were wont to gratify their guests with a dish of Flamingoes' tongues! 2. *Phœnicopterus ruber* (Fig. 1029); deep red; with black quills; which are peculiar to tropical America, migrating in the summer to the Southern, but rarely to the Middle States.



Fig. 1029. — FLAMINGO.
(*Phœnicopterus ruber.*)

Flamin'ia Via. (*Antiq.*) A celebrated road, which led from Rome to Arsinum and Aquilea. It received its name from the consul Flaminius, who built it.

Flamin'ius, or **Flamini'nus,** T. QUINTIUS, a distinguished Roman general, made consul B. C. 198. He was sent to Macedonia, and had the honor of terminating the Macedonian war by the defeat of Philip at Cynoscephalæ, B. C. 197. At the Isthmian Games of the following year he had formal proclamation made of the restoration of Greece to independence. He remained in Greece till 194, to organize the new administration of the cities, and by his wisdom, forbearance, and humanity won the general esteem and gratitude of the people. Before he returned to Rome he made war on Nabis, tyrant of Sparta, and compelled him to make peace with the Romans. *F.* had a triumph of three days on his return, was sent again to Greece in 192, and in 183 he went as ambassador to Prusias, king of Bithynia, to demand the surrender of Hannibal, who had taken refuge at his court. D. about 175.

Flammiferous, *a.* [Lat. *flammifer* — *flamma*, flame, and *ferre*, to bear] Tending to produce flame; emitting flame.

Flammiv'omous, *a.* [From Lat. *flamma*, and *vomere*, to vomit.] Vomiting out flame, as a volcano.

Flam'y, *a.* Blazing; flaming; having the nature or color of flame.

Flanch, *n.* (*Her.*) An ordinary formed on each side of the shield by the segment of a circle.

Flanconade', *n.* (*Fencing.*) A thrust made in the side.

Flan'ders, the name of a very interesting and early civilized portion of Europe, forming two contiguous provs. of Belgium, termed EAST FLANDERS and WEST FLANDERS, respectively. Lat. between 50° 40′ and 51° 23′ N., Lon. 2° 37′ and 4° 23′ E. It is bounded on the N.W. by the N. Sea, and inclosed on its other sides by the provs. of Antwerp, Zealand, S. Brabant, Hainault, and the French dep. Nord. — EAST FLANDERS is separated from W. Flanders by a line running almost due S. from Sluys, a small town nearly opposite Flushing. *Area*, 1,154 sq. m. *Surface*, level in the N. part, while to the S. it consists of undulating plains. *Soil*, heavy loam, and highly fertile. *Cap.* Gheut. *Pop.* 855,504. — WEST FLANDERS has a considerable coast-line, in the central part of which is the port of Ostend. This side faces the N., but the W. boundary of the province adjoins the French territory. *Area*, 1,243 sq. m. *Surface*, generally level, excepting the *dunes*, or sand-hills, on the coast. *Soil*, fertile, and agriculture good. *Cap.* Bruges. — For productions, manufactures, &c., and history, see BELGIUM.

Flan'ders, in *New Jersey*, a post-village of Morris co., about 55 m. N.E. of Trenton.

Flanders, in *New York*, a post-village of Suffolk co., on Long Island, about 225 m. S.S.E. of Albany.

Flanders Var'nish, *n.* (*Paint.*) A varnish prepared by the dissolution of grain mastic in alcohol.

Flan'dreau, in *South Dakota*, a post-village, cap. of Moody co., 39 m. N. of Sioux Falls. *Pop.* (1895) 764.

Flan'drin, JEAN HIPPOLYTE, a French painter, B. at Lyons, 1809; D. 1864. Among his chief works are *Dante and Virgil, Saint Louis dictant ses Etablissements*, for the Chamber of Peers; *Mater Dolorosa, Saint Louis taking the Cross the second time*, and the fine series of frescos in the churches of St. Germain-des-Prés and St. Vincent de Paul, which are reckoned among the masterpieces of modern painting.

Flange, (*flanj,*) *n.* [Probably from O. Fr. *flanchere*, a flanker, a side-piece, or flanked piece of timber in building, from *flance*, a flank.] (*Mech.*) A projecting rim or rib. The metal rim bent over in gas-pipes, water-pipes, &c., in order to join on to other lengths of the same. The term is also applied to the projecting outside circumference of a railway-carriage-wheel, by which the wheel is prevented from running off the rails.

—*v. a.* (*Mach.*) To make a flange on.

—*v. n.* To take the form and quality of a flange; to be curved into a flange.

Flanged, *a.* Having a flange; connected together by means of flangcs; as, a *flanged* wheel.

Flank, (*flangk,*) *n.* [Fr. *flanc;* It. *fianco;* Sp. *flanco;* Ger. *flanke.*] One of the two parts of the body which enable it to bend; the part of the side of an animal between the ribs and the hip.

(*Mil.*) Either side of a body of troops; the extremities of a body of soldiers in line, or the sides of a column, being termed the right and left flanks respectively. — In any defensive work, it is applied to that part from which a fire may be directed against the side or flank of an attacking party. Thus, the flanks of a bastion (see Fig. 745) are those parts of the rampart and parapet which connect its faces with the extremities of the curtains of the enceinte on either side of it. On reference to the diagram of a front of fortification given in the article on that science (see FORTIFICATION), it will be seen that a fire from the flanks is effective in preventing an attacking party from effecting a lodgment at the foot of the curtain that lies between them, which might be done with comparative ease and security if these portions of the work did not exist. A fire from the flanks of any bastion enfilades the ditch at the foot of the curtain.

(*Arch.*) The side of any building.

(*Mach.*) The straight part of the tooth of a wheel which receives the impulse.

—*pl.* (*Farriery.*) A wrench, strain, or other injury received by a horse in the back.

—*v. a.* [Fr. *flanquer.*] To stand at the side or border of.

"Stately colonnades are *flank'd* with trees."—*Pitt.*

(*Mil.*) To attack, as the side or flank of a body of troops; to place, as troops, so as to attack or command the flank; to post so as to overlook or command on the side; to secure or guard on the side; to turn, as the flank; to pass round the side of.

"On the left they stand, and *flank* the passage."—*Dryden.*

—*v. n.* To border; to touch. — To be posted on the side; as, our brigade was *flanked* by the light division.

Flank'ard, *n.* (*Venery.*) One of the nuts in the flanks of a deer.

Flank'er, *n.* He who, or that which, flanks; as, to throw out *flankers.*

—*v. a.* To defend by lateral fortifications.

(*Mil.*) To attack by the flank, or sideways.

Flan'nel, *n.* [Fr. *flanelle*, allied to Lat. *lana*, wool; Ger. *flanell;* Du. *flanel;* Dan. *flonel;* Ir. *plainin.*] (*Manuf.*) A soft, nappy, woollen stuff, of loose texture. See WOOL.

Flannelled, (*flan'eld,*) *a.* Wrapped in flannel; as, a *flannelled* gouty foot.

Flan'ning, *n.* (*Arch.*) The internal splay of a window-jamb.

Flap, *n.* [Du.; Ger. *lappen*, and *klappen*, allied to *tap*, *clap*, and *slap*, and probably formed from the sound of a blow from a limber, broad, flat surface.] Anything broad and limber that hangs loose, and is easily set in motion, or is attached to one side only; as, the *flap* of a hat.

—The motion of anything broad and loose, or a stroke with it: as, the *flap* of an eagle's wing. — The loose part of a coat behind from the hip downward.

—*pl.* (*Farriery.*) A disease in horses, occurring in the lips.

—*v. a.* To beat or strike with a flap.

"Yet let me *flap* this bug with gilded wings."—*Pope.*

—To move, as something broad; to let fall, as the brim of a hat.

"The raven *flapp'd* his wing."—*Tickell.*

—*v. n.* To move and sound, as wings, or as something broad and loose; as, the *flapping* of a duck. — To fall, as the brim of a hat or other broad thing.

"The powdered footman's care
Beneath his *flapping* hat secures his hair."—*Gay.*

Flap'-dragon, *n.* See SNAP-DRAGON.

Flap'-eared, *a.* Having broad, loose, limp ears.

"A beetle-headed, *flap-eared* knave."—*Shaks.*

Flap'jack, *n.* A sort of broad pancake; also, an apple-puff.

Flap'-mouthed, *a.* Having loose, hanging lips.

Flap'per, *n.* The person or thing which flaps.

Flare, *v. n.* [Probably a corruption of GLARE, *q. v.*] To burn with a wavering, unsteady, or fluttering light; as, a *flaring* candle. — To flutter with splendid show; to glitter with transient lustre, or with painful splendor; as, "the sun's *flaring* beams." (*Milton.*)

—To be exposed to too much light.

"I cannot stay
Flaring in sunshine all the day."—*Prior.*

—To open externally; to spread outward.

To flare up, to get excited, or into a rage; as, how he *flared up!*

—*n.* A broad, unsteady, glaring light. — A leaf of lard.

Flare'up, *n.* An outbreak of passion; an altercation; an uproar; a row; a shindy.

"There was a pretty *flare-up* at the Wiggenses last night."*Jerrold.*

Flar'ing, *a.* (*Ship-building.*) Over-hanging, as in the top side forward.

Flar'ingly, *adv.* In a flaring manner.

Flash, *n.* [Fr. *flèche;* Sansk. *ush*, to burn, to shine; second pret. *uvesh.*] A sudden burst of flame or light; a flood of light of instantaneous appearance and disappearance; as, a *flash* of lightning. — A sudden burst, as of wit or merriment; as, "the *flash* and outbreak of a fiery mind." (*Shaks.*) — A short, brief period; a momentary or transient state.

"The Persians and Macedonians had it for a *flash*."—*Bacon.*

—A reservoir letting off its surplus waters by a sluice-way; a body of water violently breaking forth. — In some parts of England, a pool; as, a mill *flash.* — A preparation for coloring rum, brandy, &c.

—Slang language; a vulgar tongue; the cant in vogue among the most disreputable members of society, as thieves, prostitutes, &c.

—*a.* Low; vulgar; vile; as, *flash* language, a *flash* cove, &c.

—*v. n.* To break forth, as a sudden flood of flame and light; to burst or open instantly on the sight; to show a transient brilliancy; as, "The object is made to *flash* on the eye of the mind." — *Matt. Arnold.*

—To break out, as a sudden expression of wit, merriment, or bright fancy.

"They *flash* out sometimes into an irregular greatness of thought."
Felton.

—To break out into a sudden and momentary flame.

"Why *flash* those sparks of fury from your eyes?" — *O'Hara.*

—*v. a.* To strike or to throw like a burst of light; to convey by a quick and startling motion; as, to *flash* a message along the wires.

Flash'er, *n.* A man of more appearance of wit than reality.

Flash'-house, Flash'-ken, *n.* A house which forms a rendezvous for thieves; a receptacle for stolen goods, &c.

Flash'ily, *adv.* With empty show; with a sudden, momentary glare; without solidity of wit or thought; gaudily and emptily; as, a *flashily* dressed person.

Flash'ing, *n.* Act of blazing; a sudden burst of light.

—The formation of an artificial flood, by the letting in of a body of water.

(*Arch.*) A piece of lead, or other metal, let into the joints of a wall so as to lap over the gutters or other conduit pieces, and prevent the splashing of rain from injuring the internal work.

Flash'y, *a.* Dazzling momentarily; not solid; with a sudden glare of transient brilliance; as, "a *flashy* pleasure." (*Barrow.*) — Showy, but empty; gaudy; gay; florid in style or color; as, a *flashy* costume, a *flashy* wit. — Insipid; vapid; inert; without taste, force, or spirit; inconstant; as, "lean, *flashy* songs." — *Milton.*

Flask, *n.* [A. S. *flaxe;* Dan. *flaske;* Ger *flasche;* L. Lat. *flasca, flaco.* Same as FLAGON, *q. v.*] A vessel with a long narrow neck for containing fluids; as, a *flask* of oil or wine, a spirit *flask*, &c.

"With champagne fill each man his *flask*." — *King.*

—A powder-horn; portable receptacle for gunpowder.

"Powder in a skilless soldier's *flask* is set on fire."— *Shaks.*

(*Founding.*) A shallow frame of wood or of iron used for holding the sand employed in moulding.

Flask'et, *n.* [W. *fflasged*, a wicker vessel.] A vessel in which viands are served up at table.

"The silver stands with golden *flaskets* graced."— *Pope.*

—An oblong basket of shallow capacity.

Flat, *a.* [Dan. *flad;* Swed. *platt* and *flat;* L. Sax. and Ger. *platt;* Fr. *plat;* Icel. *flak.*] Having an even extended surface, without risings or indentures, hills or valleys; horizontal; level, or with a moderate inclination; without marked prominences; plain; as, a *flat* country.

—Prostrate; lying the whole length on the ground; not elevated or erect; level with the ground; fallen; laid low; as, to fall *flat* down.

"What ruins kingdoms, and lays cities *flat?*" — *Milton.*

—Tasteless; stale; vapid; insipid; monotonous; dull; frigid; wanting relief or variety; as, conversation became *flat.*

"Pleasing to sight,
But to the tongue inelegant and *flat.*" — *Philips.*

—Lifeless; depressed; inert; low; spiritless; dejected; lacking life and animation; as, the market is *flat.*

"I feel my genial spirits droop, my hopes all *flat.*" — *Milton.*

—Peremptory; absolnte; positive; downright; as, a *flat* refnsal, a *flat* contradiction, &c.

"I'll **not** march thro' Coventry with them, that's *flat*."— *Shaks.*

(*Mus.*) Not acute; not sharp; — lower by a semitone; as, B *flat*; — below true pitch.

(*Pron.*) Uttered with voice instead of breath; vocal; souant.

Flat, *n.* A level; a level or extended plain; a low, even tract of surface; as, "the glooming *flats*." — *Tennyson.*

—A level ground lying at a small depth under the surface of water; a shallow; a shoal; a strand; as, "these *flats* are taken by the tidc." — *Shaks.*

—The broad side of a blade; as, the *flat* of a sword.

(*Naut.*) A flat-bottomed boat; a kind of barge having a broad beam; a lighter; as, a coal *flat*.

(*Arch.*) In Scotland, a floor or story in a building; as, he lives on the third *flat*.

—A numskull; a fool; a thickhead; a simpleton. (Vulgar.)

"You cannot make a speech, because you are a *flat*." — *Holmes.*

(*Mach.*) A railroad platform-car.

(*Mus.*) A character of the form ♭, which depresses the note before which it is placed a chromatic semitone. Thus D♭ signifies a semitone below D natural (♮). On keyed instruments the short keys are the representatives of these flats and sharps. — *An accidental flat* is one which, although not occurring at the commencement of the staff, is inserted in any other part of it, and only affects the bar in which it is placed. — A *flat fifth* is an interval of a fifth depressed by a flat.

Flat, *v. a.* To make flat, even, or level; to flatten; as, a newsboy *flattens* his nose against an eating-house window.

—To depress; to make dull, vapid, inert, or spiritless.

—To lower in pitch or tone, as a note in music.

—*v. n.* To grow flat; to flatten; to sink; to fall to an even surface; — opposed to *swell*.

(*Mus.*) To break down from the pitch. — *To flat out*, to bring to a lame and impotent conclusion.

Flat'brook, in *New York*, a post-office of Columbia co.

Flat'brookville, in *New Jersey*, a post-village of Sussex co., on the Delaware river, about 18 m. W. of Norton.

Flat'bush, in *New York*, formerly a post-village and township of Kings co.; annexed to Brooklyn in 1894, and now (1897) a part of Greater New York. Near this village the American army was defeated during the Revolution in 1776.

Flat Creek, in *Alabama*, enters the Alabama River from Monroe co.

Flat Creek, in *Georgia*, enters the Ocmulgee River from Twigg's co.

Flat Creek, in *Missouri*, a post-office of Barry co.

Flat Creek, in *New York*, a P. O. of Montgomery co.

Flat Creek, in *Tennessee*, a post-office of Bedford co.

Flat Creek, in *Virginia*, enters the Appomattox River from Amelia co.

Flat'-fish, *n.* (*Zoöl.*) See PLEURONECTES.

Flat'-footed, *a.* Firm-footed; determined.

Flat Fork, in *W. Virginia*, a post-office of Roane co.

Flat Head, in *Montana*, a post-office of Missoula co.

Flat'head In'dians, also called SALISH or SELISH, a tribe of Americau Indians who formerly inhabited a territory betweeu Lat. 48° and 50° N. and Lon. 117° and 121° W., now part of Washington. Having become semi-civilized, this tribe was removed (1871) to the Joko Valley, Montana, and now uumbers about 1,000. So called on account of a practice formerly prevaleut among them of flattening the heads of their infants by artificial means. They are short of statnre and badly formed, with wide mouth, thick nose and lips, and large nostrils. The flattening of the head was accomplished by subjecting the skull of the infant to severe mechanical pressure dnring the first six or eight months of its life. The operation did not appear to diminish the crauial capacity or whole volume of the brain.

Flat'-iron, *n.* An instrument for smoothing cloth; a sad-iron.

Flat'kill Creek, in *New Jersey*, enters the Delaware River bet. Sussex and Warren cos.

Flat'lands, in *New York*, a post-village and township of King's co., abt. 7 m. S.S.E. of the city of Brooklyn.

Flat Lick, in *Kentucky*, a post-office of Knox co.

Flat'ling, *adv.* With the flat side; flatlong.

Flat'lings, *adv.* Not edgewise; flatlong. (R.)

Flat'long, *adv.* With the flat side downwards; not edgewise.

"What a blow was there given? As it had fallen *flatlong*." *Shaks.*

Flat'ly, *adv.* Horizontally; evenly; without spirit; frigidly; positively; downright.

"He in these wars had *flatly* refused his aid." — *Sidney.*

Flat'ness, *n.* State or quality of being flat. — Evenness or levelness of surface; want of relief or prominence; as, the *flatness* of a country, the *flatness* of a figure.

—Deadness; dulness; insipidity; vapidness; as, *flatness* of cider. — Dejection; depression; lack of spirit or vivacity; mental prostratiou. — Lack of variety; insipidity: dulness.

(*Mus.*) Gravity of pitch; as, *flatness* of sound. (Used in contradistinction to *sharpness*.)

Flat River, in *Michigan*, enters Grand R. in Kent co.

Flat River, in *Missouri*, a P. O. of St. Francois co.

Flat River, in *N. Carolina*, enters the Neuse River from Wake co.

—A post-office of Durham co.

Flat Rock, in *Georgia*, a post-office of Muscogee co., about 10 m. N. E. of Columbus.

Flat Rock, in *Illinois*, a post-office of Crawford co.

Flat Rock, in *Indiana*, a township of Bartholomew county.

—A post-village of Shelby co., about 12 m. S. by W. of Shelbyville.

Flat Rock, in *Kentucky*, a post-office of Pulaski co.

Flat Rock, in *Michigan*, a post-village of Wayne co., ou Hnron river, about 25 m. S.W. of Detroit.

Flat Rock, in *Missouri*, a village of Cape Girardeau co., about 180 m. E. S. E. of Jefferson City.

Flat Rock, in *North Carolina*, a post-office of Henderson county.

Flat Rock, in *Ohio*, a flourishing township of Henry county.

—A post-office of Seneca co.

Flat Rock, in *South Carolina*, a P. O. of Kershaw co.

Flat Rock Creek, (Ind. *Puck-up-kah,*) in *Indiana*, rises in Henry co., and flowing generally S.W. through Rush, Decatur, and Shelby cos., enters the E. or Driftwood Fork of White River at Columbus in Bartholomew co.; length abt. 100 m.

Flat Rock Creek, in *S. Carolina*, enters the Wateree River abt. 8 m. N.W. of Camden.

Flat Shoal Creek, in *Georgia*, enters the Chattahoochee River in Harris co.

Flat Shoals, or FLAT SHOAL FACTORY, in *Georgia*, a post-village of Meriwether co., ou Fliut River, about 95 m. W. of Milledgeville.

Flatten, (*flat'n,*) *v. a.* To make flat; to reducc to an equal, level, or even surface; to level. — To beat down; to lay flat; — hence, to deject; to dispirit; to depress. To make vapid or insipid.

(*Mus.*) To lower or let fall the pitch.

To flatten a sail. (*Naut.*) To spread a sail lengthwise of a ship, occasioning a lateral effect only.

—*v. n.* To grow or become flat or even on the surfacc; to becomc dead, stale, vapid, or tasteless; to become dull, inert, or spiritless; to become, as a sound, less sharp or acute.

Flat'ter, *n.* He who or that which makes flat. — Among blacksmiths, a flat swage.

Flat'ter, *v. a.* [Fr.; probably from L. *flatāre*, freq. from *flo, flatum*, to blow; Icel. *fladra*, to deceive by blandishments.] To inflate with blandishments or exaggerated praises; to deceivc with fair words; to cajole; to wheedle; to coax; to attempt to win by artful compliments. — To soothe or gratify by praise or obsequiousness; to please a person by applause or favorable notice; to compliment. — To praise falsely; to encourage by favorable but insincere notice, representations, or indications; to raise false hopes in.

"Mother... lay not that *flattering* unction to your soul." *Shaks.*

Flat'terblind, *v. a.* To blind with flattery or false praise. (R.)

Flat'terer, *n.* One who flatters; a wheedler; a fawner; a lick-spittle; one who eudeavors to gain favor by pleasing but undue praise.

"The most abject *flatterers* degenerate into the greatest tyrants." *Addison.*

Flat'teringly, *adv.* In a flattering manner.

Flat'tery, *n.* [Fr. *flatterie.*] Act of one who flatters; false praise; adulation; obsequiousness; wheedling; sycophancy; just commendation which gratifies self-love.

"*Flattery's* the food of fools." — *Swift.*

Flat'ting, *n.* In house-painting, a mode of painting in which the surface is left, when finished, without gloss. The material is prepared with a mixture of oil of turpentine, which secures the colors, and, when used in the finishing, leaves the paint quite dead. — A mode of keeping gilding in a dead or unburnished state, by slightly sizing it. — Rolling out of metal, as iron, &c., into sheets, by the process of cylindric pressure.

Flat'tish, *a.* Tending to flatness; somewhat flat.

Flat'ulence, Flat'uleney, *n.* [Lat. *flatus*, a blast.] (*Med.*) A morbid collection of gases in the stomach and bowels, commonly arisiug from indigestion, or from indulgence in certain kinds of vegetable food. When, from any weakness in the digestive powers, food remains in the stomach in an undigested state, fermentation takes place, and gases are formed. *F.* is usually symptomatic of other diseases — indigestion, colic, cholera, hysteria, or nervous debility. For its cure, carminatives, tonics, and aperients are resorted to; and strict attention to diet is necessary, taking only such food as is light and easy of digestion, and avoiding all oleraceous vegetables, peas, beans, and flatulent fruits. Weak brandy and water, as a beverage at dinner, is also very beneficial. When the pain is excessive, hot applications to the stomach aud frictions will frequently afford considerable relief.

Flat'ulent, *a.* [L. Lat. *flatulentus*, from *flo, flatus*, to blow.] Windy; affected with air generated in the stomach and intestines. — Turgid with air; as, a *flatulent* tumor. (*Quincy.*) — Generating, or apt to generate wind in the stomach; as, "peas are *flatulent*." (*Arbuthnot.*) — Empty; vain; puffy; pretentious without substance; as, "a *flatulent* writer." — *Dryden.*

Flat'ulently, *adv.* In a flatulent manner.

Fla'tus, *n.* [Lat., from *flare*, to blow.] Flatulence; an accumulation of generated air in the cavities of the stomach.

—A puff of wind; a breath of air.

Flat'wise, *a.* or *adv.* [*Flat* and *wise.*] With the flat side downward, or next to another object; — opposed to *edgewise*.

Flat'woods, in *Pennsylvania*, a P. O. of Fayette co.

Flat Woods, in *W. Virginia*, a P. O. of Braxton co.

Flaunt, (*flânt,*) *v. a.* [Probably from Ger. *flattern*, to flit, to move about, to flutter.] To flutter; to show or spread out; to display one's self ostentatiously; as, "useless ornament aud *flaunting* show." (*Dryden.*) — To carry a pert or saucy appearauce; as, a *flaunting* jade.

—*n.* Anything displayed for show.

Flaunt'ingly, *adv.* In a flaunting way or manner.

Flau'tist, *n.* [From It. *flauto*, a flute.] A flute-player: a flutist.

Flaves'eent, *a.* [Lat. *flavescens*, from *flavus*, yellow.] Yellowish.

Flavie'ounous, *a.* [From Lat. *flavus*, and *coma*, hair.] Yellow-haired.

Fla'vius, the name of a plebeian family of Rome, from which came the emperors Vespasiau, Titus, and Domitian.

Flavor, Flavour, (*flā'vér,*) *n.* [Fr. *flairer*, to smell, to sniff, to scent.] Quality of that which affects the sense of smell; odor; fragrance; as, the *flavor* of a bouquet of flowers. — Quality of anything which affects or gratifies the taste or palate; relish; savor; gusto; as, sherry of a nutty *flavor*. — The quality of a substance which affects the smell or taste in any manner.

—*v. a.* To communicate some quality to a thing that may affect the smell or taste.

Flavored, Flavoured, (*flā'vérd,*) *p. a.* Possessing flavor; having an agreeable taste; as, high-*flavored* game.

Fla'vorless, *a.* Wanting flavor; insipid; tasteless.

Fla'vorous, *a.* Agreeable to the taste or smell; imparting flavor.

Flaw, *n.* [W. *flaw*, a splinter, from *fla*, a parting off or from; Gr. *phlaō*, to crush, to bruise in pieces; Sansk. *bal*, to cut off.] A breach; a crack, a gap or fissure; a defect made by breaking or splitting; as, a *flaw* in a table. — A blemish; a defect; a fault; an imperfection; as, a *flaw* in a woman's reputation, a *flaw* in a will, &c. — A tumult; an uproar; a suddeu burst of disorder; a row.

"Calm the fury of this mad-brained *flaw*." — *Shaks.*

(*Naut.*) A snddon burst of wind; a sudden gust or blast of short duration.

"Snow and hail, and stormy gust and *flaw*." — *Milton.*

—*v. a.* To break; to crack; to make a fissure in; to violate; to make unequal.

"The cup was *flaw'd* with a multitude of little cracks." — *Boyle.*

Flaw'less, *a.* Free from flaw; without defect or blemish; as, a *flawless* star.

Flaw'y, *a.* Full of flaws or cracks; defective; faulty; broken.

—Subject to sudden gusts of wind.

Flax, *n.* [A.S. *fleax*; Fris. *flax*; D. *vlas*; Ger. *flachs*. Allied to Lat. *plico*, Gr. *plĕkō*, to wear.] (*Bot.*) The common name of the genus of plants LINUM, *q. v.*

(*Manuf.*) The fibre of the *Linum usitatissimum*, separated from the woody portion of the plant, and ridded of any impurities, after which it is spun into thread, from which state it is woven into LINEN, *q. v.* It is supposed to be the fruit of Egyptian discovery, as the coverings of the mummies fouud in the pyramids all attest to their being composed of what is generally termed flax. The flax-plant is of slender form, and of annual growth. It reaches generally the height of from 2 to 3 feet, and has small lanceolate leaves, which terminate at the extremities in delicate blue flowers, which are afterwards replaced by seed-vessels, containing each ten seeds. The plant itself grows over the whole extent of Europe, Asia, and America. The time for gathering the flax is when the leaves begin to drop off, and when the stalk has a yellow appearance. The stalks are then stripped, and the seed-bolls carefully gathered, and stored up for the next year's supply. The first process in the preparation of the flax is to steep the stalks in water until decomposition and fermentation take place; that causes the glutinous matter which binds the woody and fibrous parts together, to become separated. The duration of this process is from six to twenty days, according to the quality of the water employed, and the state of the flax-plant. After the first process, the stalks are dried, and in this state they may be kept in sheaves for years. After the flax has been *retted* (as the first operation is called) and dried, it is broken, repeatedly beaten with a flat piece of wood, and also *scutched*, in order to remove all woody particles from the fibre. The last operation is termed *heckling*, which consists in combining the flax through and through, in order to separate the different threads; after which it is prepared for the spinner's hands. This process is required as much to straighten the fibre, as to lessen any knots or irregularities in the filaments. The action of the heckles divides the scutched flax into two portions, — the long ones, which remain straight after the operation, being termed *lines*, and the woolly mass *tow*. Both of these are spun; but the line affording better *yarn*, is, of course, the more valuable of



Fig. 1030. — FLAX. (*Linum usitatissimum.*)

the two. The great object in heckling is to produce the greatest possible amount of line, and the least possible amount of tow. — See SPINNING, LINEN.

Flax-comb, (*flăks'kōm,*) *n.* A hatchet, or toothed instrument resembling a comb, used in dressing flax.

Flax'-dresser, *n.* One who combs and prepares flax for the spinner.

Flax'-dressing, *n.* The process of breaking and swingling flax.

Flaxen, (*flaks'n,*) *a.* Made of flax; as, *flaxen* thread. — Resembling flax; of the color of flax; fair; as, *flaxen* hair, a *flaxen* wig.

Flax'man, JOHN, a celebrated English sculptor, B. at York, 1755. His father was a figure-moulder. The son, from his earliest years, exhibited and cultivated his talent for designing, and was also attracted by the picturesque conceptions of Greek mythology. He began to study at the Royal Academy in 1770, earning for some time a living by making designs for Wedgwood the potter, and other persons. He went to Italy in 1787, and during the seven years he spent there, his wife accompanying him, he acquired the highest reputation by three series of designs, the illustrations to Homer, Æschylus, and Dante. He was chosen A.R.A. in 1797, and professor of sculpture in 1810. The monument to Lord Mansfield in Westminster Abbey, the group of *Cephalus and Aurora*, *Psyche*, the group of the *Archangel Michael and Satan*, are among his best works. He executed many exquisite bassi-relievi, compositions from Scripture subjects, and marked by some special religious sentiment. The monuments to Nelson, Howe, and Reynolds in St. Paul's are by his hand. One of his latest and finest productions is the *Shield of Achilles*. D. 1826. The sculptures and sketches of Flaxman are now deposited and exhibited in a Gallery, called the "Flaxman Hall," at University College, London. His *Lectures on Sculpture* passed through a new edition in 1866.

Flax'seed, *n.* The seed of the flax-plant; linseed.

Flax'weed, *n.* (*Bot.*) See LINARIA.

Flax'-wench, *n.* A female employed in spinning.

Flax'y, *a.* Like flax; flaxen; of a light color; fair.

Flay, *v. a.* [A.S. *flean;* Gr. *phloizō*, to peel, from *phloios*, rind, peel, from *phlĕō*, to overflow; the bark or rind bursting when the tree overflows with sap.] To take the skin or rind off; to skin; to strip off; as, to *flay* an ox, to be *flayed* alive.

Flay'er, *n.* One who flays; one who strips off the hide or skin.

Flea, *n.* [A.S. *flea;* D. *vloo;* Icel. *flŏ;* Ger. *floh.* The root is found in A. S. *flogan*, *fleogan*, to flee, to escape.] (*Zoöl.*) The proper position of this insect in entomological classification has been the subject of much dispute. By many authorities, including the distinguished names of Latreille, Kirby, and Spence, the Fleas (which form the Linnæan genus *Pulex*) are considered to form a distinct order; the former naturalist treating of them under the order *Siphonaptera*, and the latter, the order *Aphaniptera*. By others they have been arranged with the order *Diptera*, but with little reason, for in certain important characteristics they widely differ from them. Although, to all appearance, apterous, the flea possesses the rudiments of wings, which are four in number, in the form of horny plates, on the sides of the meto- and meta-thoracic segments, the hindmost pair being somewhat larger than the other. This distinctive character has been the basis of the classification of Spence, that we have adopted See APHANIPTERA.

Flea'bane, *n.* (*Bot.*) A name given to various plants of the genus *Erigeron*, from their supposed efficacy in driving away fleas. The leaves of *Pyrethrum carneum* and roseum of Europe and Asia are largely used in the preparation of *Persian powder*, used to destroy insects.

Flea'-bite, *n.* The sting or bite of a flea; the red spot caused by such sting or bite. — Any small hurt or pain like that caused by the sting of a flea.

Flea'-bitten, *a.* Stung by fleas. — Mean; worthless;

Fleak, *n.* [Lat. *floccus*, a twist of straw.] A small thread, lock, or twist. — Anything made of parts transversely laid.

Fleak'ing, *n.* A preparatory covering of reeds, over which the final covering is laid, in thatching a house.

Fleam, *n.* [Gr. *phlebotomon*, from *phlebs*, a vein, and *temnein*, to cut.] A sharp instrument used by farriers to bleed horses and cattle. It consists of a small, pointed blade, thrust from a sheath by means of a spring.

Flear, *n.* & *v.* See FLEER.

Flea'-wort, *n.* (*Bot.*) Same as fleabane. See ERIGERON.

Flèche, (*flaishe,*) *n.* [Fr. *flèche*, an arrow.] (*Fort.*) A small work, so called because its outline resembles the shape of a broad arrow. It consists of two faces meeting in a point, and forming a salient angle. This defensive outwork is sometimes thrown up during a siege, to enable the besieged to pour an enfilading fire along some of the trenches of the enemy; or it is constructed in connection with the main works of any fortified place, to command any small valley or glen that might otherwise be made available by the enemy as a means of approach to the fortifications.

Flèche, (**La,**) a town of France. See LA FLÈCHE.

Flĕchier, ESPRIT, (*flai'she-ai,*) a French pulpit orator and prelate, B. at Pernes, 1632, county of Avignon. He was greatly admired as a preacher at Paris, and his funeral orations set him on a level with Bossuet. In 1673 he was received at the French Academy, and in 1685 he was made bishop of Lavaur. Shortly after he was promoted to the see of Nismes; and died in 1710. His entire works were published after his death, in 10 vols. 8vo.

Fleck, *v. a.* [A.S. *flikken;* Ger. *flecken*, a spot.] To variegate with divers colors; to spot; to dapple; to mottle.

Fleck'er, *v. a.* To spot; to mark with strokes or touches of different colors; to fleck.

Flec'tion, *n.* [Lat. *flectio*, from *flectere*, to bend.] The act or power of bending.

(*Gram.*) The variation of words by declension, comparison, or conjugation.

Flec'tor, Flexor, *n.* (*Anat.*) The name of several muscles, the office of which is to bend parts into which they are inserted.

Fledge, *v. a.* [A.S. *fleogan*, to fly; Ger. *flügeln*, to supply with wings.] To furnish with feathers, or wings; to supply with the feathers for flight.

—*a.* Full-feathered; able to fly; qualified to leave the nest.

Fledg'ling, *n.* A young bird recently fledged.

Flee, *v. n.* (*imp.* and *pp.* FLED; *ppr.* FLEEING.) [A. S. *fleom;* D. *vlieden;* Icel. *flya;* Ger. *fliehen;* Lat. *fugio;* Gr. *pheugō*, to flee. The distinction between *flee* and *fly* ought to be carefully observed.] To run away: to run with rapidity, as from danger; to attempt to escape; to hasten from danger or expected evil; to hasten away; sometimes preceding *from*.

—*v. a.* To shun; to run from; to escape; to avoid; to keep at a distance from.

Fleece, *n.* [A.S. *flys, fles;* Ger. *fliess;* Lat. *vellus.*] The coat of wool shorn from a sheep at one time. See WOOL.

—*v. a.* To clip the fleece of a sheep. — To strip of money or property; to pull off; to plunder; as, to *fleece* the public. — To spread over; to cover, as with wool.

Fleece, (Order of the Golden.) [Fr. *toison d'or.*] One of the most distinguished among European orders of knighthood. It was founded by Philip III, duke of Burgundy, in 1430; and as by its foundation his successors were declared to be hereditary grand-masters, that title passed, with the Burgundian inheritance, to the house of Austria; thence, after the death of Charles V., to the Spanish line of that house: but when the monarchy of Spain passed to the Bourbons, and the Spanish Netherlands to Austria, the archdukes of Austria claimed the grand-mastership; and claims are made on it at present both by the emperor of Austria and king of Spain. The order is consequently conferred both at Vienna and Madrid, and is, in both courts, the highest in point of rank. — See Fig. 570.

Fleece'less, *a.* Having no fleece.

Flee'cer, *n.* One who strips, or takes by severe exactions.

Flee'cy, *a.* Woolly; covered with wool; as, *fleecy* flocks. —Soft; resembling wool; as, the *fleecy* cast.

Fleer, *v. n.* [A.S. *fleardian*, to trifle; Icel. *flyra*, to laugh, to grin.] To mock; to jest; to gibe with insolence and contempt; as, "to *fleer* and scorn at our solemnity." (*Shaks.*) — To leer; to grin with an air of civility.

Fleer, *v. a.* To mock; to flout.

Fleer, *n.* Mockery expressed either by words or looks. — A deceitful grin of civility.

Fleer'er, *n.* One who jests insultingly; a mocker.

Fleer'ingly, *adv.* In a mocking or derisive manner.

Fleet, a celebrated London prison, situated in the *Fleet*, a tributary of the Thames, now covered over; it existed as early as the 13th cent. Pulled down in 1845. Noted for its *Fleet marriages*, clandestinely performed by clergymen imprisoned for debt; forbidden by statute, 1754.

Fleet, *n.* [A. S. *flota, fliet*, a ship, from *fleotan*, to float; Du. *vloot;* Fr. and Ger. *flotte;* Swed. and It. *flotta;* Dan. *flaade.* Root, Sansk. *plu*, to swim.] This term applies to the different detachments, or squadrons, which form the navy of any country, which are stationed in various parts of the world, for defence, aggression, or intimidation. In the more extended interpretation of the term, it is also applied to any company of vessels united together, and sailing with one object, either mercantile or warlike.

Fleet, *n.* [A. S. *fleot;* Du. *vliet.*] A creek; an inlet; an æstuary; a river; a broad ditch.

Fleet, *a.* [Icel. *fliotr*, quick, swift, nimble.] Swift of pace; nimble; light and quick in motion, or moving with lightness and celerity; moving with velocity, as the wind; as, a *fleet* horse, a *fleet* runner.

—Light; superficially fruitful; thin; as, a *fleet* soil. (Eng. prov.)

Fleet, *v. n.* [Icel. *flyta*, to hasten. See FLIT.] To hasten; to flit as a light substance; to be in a transient state.

"This world is all a *fleeting* show."—*Moore.*

(*Naut.*) To slip down the barrel of a capstan; as, to *fleet* a cable.

—*v. a.* To skim, or pass rapidly over the surface of.

"In frail wood on Adrian gulf doth *fleet*."—*Faërie Queene.*

—To cause to pass over lightly or hastily; to consume in pleasure or merriment; as, "to *fleet* the time carelessly." — *Shaks.*

—[A. S. *flêt*, cream.] To skim cream from the surface of.

(*Naut.*) To draw asunder the blocks of; as, to *fleet* a tackle. — To make to slip down the barrel of a windlass, as a chain.

Fleet'-foot, Fleet'-footed, *a.* Swift of foot; running rapidly.

Fleet'ing, *p. a.* Passing rapidly; not durable; transient; momentary; transitory; evanescent; as, *fleeting* joys.

Fleet'ly, *adv.* Swiftly; nimbly; with swift pace.

Fleet'ness, *n.* Swiftness; rapidity; velocity; celerity, speed; quickness; nimbleness.

Fleet'ville, in *Pennsylvania*, a post-village of Lackawanna co., about 150 m. N. E. of Harrisburg.

Fleet'-winged, *a.* Flying rapidly.

Fleet'wood, a sea-port and bathing-resort of England, co. Lancaster, at the entrance of Morecambe Bay, 18 m. N.W. of Preston; *pop.* 4,726.

Flegm, *n.* See PHLEGM.

Flem, *n.* See FLEAM.

Flem'ing, *n.* An inhabitant or native of Flanders.

Flem'ing, in *Kentucky*, a N. E. co.; *area*, about 340 sq. m. *Rivers.* Licking river, and Fleming, Fox, and Triple creeks. *Surface*, diversified; *soil*, fertile. *Min.* Iron and limestone. *Capital*, Flemingsburgh. *Pop.* (1890) 16,078.

Fleming, in *Michigan*, a post-office of Livingston co.

Fleming, in *New York*, a post-town and township of Cayuga co., on Owasco lake, 5 m. S. W. of Auburn.

Fleming, in *Ohio*, a village of Licking co., about 10 m. E. by N. of Newark.

—A post-office of Washington county.

Fleming, in *Pennsylvania*, the post-office of Unionville, Centre county.

Flemings, in *Indiana*, a vill. of Shelby co., about 5 m. S. by W. of Shelbyville.

Flem'ingsburgh, in *Kentucky*, a post-village, cap. of Fleming county, about 75 miles E. by N. of Frankfort.

Flem'ingsville, in *New York*, a post-village of Tioga co., about 5 m. N. E. of Oswego.

Flem'ington, in *Florida*, a post-office of Marion co.

Flemington, in *North Carolina*, a vill. of Wake co., about 15 m. N.W. of Raleigh.

Flemington, in *New Jersey*, a post-village, cap. of Hunterdon county, about 30 miles N.N.W. of Trenton.

Flemington, in *Pennsylvania*, a post-village of Clinton co.

Flemington, in *W. Virginia*, a post-village of Taylor co., about 10 m. S.W. of Grafton.

Flem'ingville, in *Iowa*, a post-office of Linn co.

Flem'ish, *a.* Of or belonging to Flanders.

Flemish Bricks, *n. pl.* Bricks of a yellowish color, used for pavements. They are harder than the ordinary brick, and 72 of them will pave a square yard.

Flem'ish-horse, *n.* (*Naut.*) An extra foot-rope at the extremities of the topsail-yards.

Flemish Language and Literature. The *F.* is the vernacular language of the Flemings, an ancient people who inhabit certain parts of Belgium and Holland, and who number upwards of 2,000,000. It is a form of the Low German, and the Dutch of the present day is a modern offshoot of it. It is more palatal and nasal than the language of Holland, which, on the other hand, is more guttural; but the differences are not essential. So little change has taken place in this language, that the earliest monument of its literature, an ordinance of Duke Henry I. of Brabant (1229), is perfectly intelligible at the present day. Among the more remarkable of the earliest works in this language are, the *Rymbybel*, or "Bible in Rhyme," and the *Spiegel Historicel*, the "Historical Mirror," of J. Van Maerlant (born in 1235); the "Civic Laws of Antwerp" (1300); the "Chronicle of J. Van Clere," and many others; a translation of Boethius, by Jacob Velt, of Bruges, of the 15th century, and the "Hive of the Catholic Church," by Philip Van Warnix (1569). Many French forms of speech were introduced during the Burgundian reign, and also many Dutch during the sway of the Hapsburgs: so that the old Flemish lost much of its purity and terseness. Hooft, Vondel, and Cats are the three men whose names figure most prominently among the writers of the 17th century; but the 18th furnishes scarcely any name of note. Under Napoleon, every effort was made to suppress the use of this language and introduce the French; and it is only since the revolution of 1830 that the Flemish has again come to occupy its former position. Since that time numerous societies and unions have been formed, newspapers and periodicals published, and other means adopted, with a view to diffusing a knowledge and a taste for the cultivation of this language. Among the names of those who have most exerted themselves with this object are: Willems, Blommaert, Van Ryswick, Conscience, Van de Voorde, Delecourt, Dautzenberg, Van Duyse, Snellaert, De Laet, Dedecker, David, and Bormann. The government was at first opposed to, or at least looked with coldness upon, this movement; but latterly it has come to recognize it, and give it countenance. On the occasion of a linguistic congress at Ghent, in 1841, the members of the government, for the first time, publicly addressed the people in the *F.* language.

Flem'ish School. (*Painting.*) The school formed in Flanders, originally established by the brothers Van Eyck, at Ghent and Bruges, at the commencement of the 15th century. It seems to have been allied to the old School of Cologne in its method of execution; but the Van Eycks exchanged the *tempera* vehicle for varnish. Memling, Roger Vander Weyden, Quinten Matsys, Mabuse, and Antonij Moro were the great masters of the earlier period. Rubens and Vandyck were the great masters of the second period, after it became the fashion to study in Italy. Snyders, Jordaens, Gaspar de Crayer, and the younger Teniers were also great masters. The works of this school are distinguished by the most perfect display of chiaroscuro, high finishing without dryness, by an admirable union of colors well blended and contrasted, and by a flowing, luxurious pencil. But the Flemish painters, like the Dutch, represented nature as they found her, and not as she should be. Rubens and Vandyck, though men of the greatest genius, were not free from this defect.

Flench, *v. a.* To strip off the blubber of a whale, layer by layer.

Flench'-gut, *n.* The blubber of a whale, when cut up in strips.

Flench'ing, *n.* The operation of cutting the blubber from a whale.

Flense, *v. a.* Same as FLENCH, *q. v.*
Flens'ing, *n.* Same as FLENCHING, *q. v.*
Flens'borg, or FLENS'BURG, a seaport-town of North Germany, on the E. coast of Schleswig-Holstein, at the bottom of a deep fiord of the Baltic, 19 m. N.N.W. of Schleswig, with a good harbor. *Manuf.* Sugar, spirits, cloth, paper, tobacco, and chiefly tiles, which are largely exported; ship-building is actively engaged in. *Pop.* 21,650.
Flens'burg, in *Illinois*, a village of Effingham co., abt. 100 m. S.E. of Springfield.
Flers, a town of France, dep. Orne, 35 m. W.N.W. of Alençon; *pop.* 6,000.
Flesh, *n.* [A. S. *flæsc*; Ger. *fleisch.*] The muscular part of an animal, or the softer solids, as distinguished from the bones and the fluids. As a general appellation it may be taken to include the blood-vessels, nerves, cellular tissue, &c. — See MUSCLE. TISSUE, &c.
—Animal food, in distinction from vegetable; the body of beasts and birds used as food.—The body, as distinguished from the soul.—Animal nature.—Animals of all kinds. —Men in general; mankind.—Human nature: carnality; corporeal appetites; a state of unrenewed nature; corrupt nature.—Kindred; stock; family.—The soft, pulpy substance of a fruit; that part of a root, fruit, &c., which is fit to be eaten.
(*Chem.*) The *F.* of animals consists of fibrine in a coagulated form, permeated by at least three times its weight of water and fluid, consisting partly of blood and partly of substances secreted from it. The soluble matters consist chiefly of albumen, the soluble salts of the blood, two animal principles called kreatine and inosite, and phosphoric, lactic, butyric, acetic, and formic acids. The salts consist of the phosphate of potash, magnesia, and lime, and a small quantity of chloride of sodium.
Flesh, *v. a.* To initiate; — from the sportsman's practice of feeding his hawks and dogs with the first game that they take, or training them to pursuit by giving them the flesh of animals.
"Hast thou *fleshi* thy maiden sword?"—*Shaks.*
—To harden; to establish in any practice, as dogs by often feeding on anything.
"A woman *fleshed* in malice."—*Sidney.*
—To glut; to satiate.
"He *fleshes* his will in the spoil of her honour."—*Shaks.*
Flesh'-broth, *n.* Broth made by decocting flesh.
Flesh'-brush, *n.* A brush for exciting action in the skin by friction.
Flesh'-clogged, *a.* Encumbered with flesh.
Flesh'-color, *n.* A pale-white with a blush of pink.
Flesh'-colored, *a.* Having the color of flesh.
Flesh'-diet, *n.* Food consisting of flesh.
Fleshed, *a.* Corpulent; fat; having abundance of flesh. —Used; accustomed; inured; hardened.
Flesh'er, *n.* A butcher. (The term is peculiar to Scotl.)
Flesh'-fly, *n.* See MUSCA.
Flesh'-fork, *n.* A fork for trying meat and taking it from the caldron.
Flesh'-hook, *n.* A hook to draw meat from the boiler.
Flesh'iness, *n.* The quality of being fleshy; plumpness; fulness: grossness; corpulence.
Flesh'less, *a.* Destitute of flesh; lean.
Flesh'liness, *n.* The quality of being fleshly; the carnal passions and appetites.
Flesh'ly, *a.* Corporeal; carnal; worldly; lascivious; voluptuous.—Consisting of flesh; animal; not vegetable. — Human; not celestial; not spiritual or divine.
Flesh'ly-mind'ed, *a.* Given over to sensual delights.
Flesh'-meat, *n.* Animal food.
Flesh'ment, *n.* The act of initiation; the excitement attendant upon initiation.
Flesh'-monger, *n.* One who deals in flesh; a pimp.
Flesh'-pot, *n.* A vessel in which flesh is cooked.
Flesh'y, *a.* Plump; fat; corpulent; gross.
—Pulpous and succulent, as fruit.
Fleteh'er, *n.* A maker of bows and arrows.
Fleteh'er, JOHN, an English dramatic poet, B. 1576, who wrote several plays in conjunction with Beaumont. In this dramatic partnership, it is said that Fletcher found fancy and Beaumont judgment. He D. 1625. The principal piece of his own writing is a dramatic pastoral entitled *The Faithful Shepherdess*; and there is no doubt that it suggested the idea of Milton's *Comus*. Edward Phillips, the nephew of Milton, classes Fletcher with Shakspeare and Ben Jouson, as one of the "happy triumvirate" of the age.
Fletch'er, in *Ohio*, a post-village of Miami co., abt. 80 m. N. of Cincinnati; *pop.* abt. 500.
Fleteh'er, in *Vermont*, a post-township of Franklin co.; *pop.* abt. 950.
Fletiferous, *a.* [Lat. *fletus*, a weeping, and *ferre*, to bear.] Causing weeping or lamentation.
Flet'-milk, *n.* [*Flet*, pp. of *fleet*, q. v.] Skimmed milk.
Fleur-de-lis, (*flūr'de-lee,*) *n.* [Fr., flower of the lily.] (*Her.*) The flower of the water-lily or yellow flag, which constituted the principal feature in the armorial bearings of the monarchs of France prior to the execution of Louis XVI., and under the Restoration. It was introduced into the arms of France about the year 1140, being first borne by Louis VII. This monarch, who had exercised regal power during the lifetime of his father, had probably adopted and worn it even prior to this date as his badge or cognizance, as the Plantagenets distinguished themselves by bearing a sprig of broom; and from this circumstance its present name may be derived.



Fig. 1031.
FLEUR-DE-LIS.

Fleurus, (*flur'ōōs,*) a town of Belgium, prov. Hainault, near the Sambre, 7 m. N.E. of Charleroi; *pop.* 2,397. This place is noted for four important battles having taken place in its vicinity. The first took place on Aug. 30, 1622, between the Spaniards under Gonsalvo of Cordova, the general of the Catholic League, and the troops of the Protestant Union commanded by the Bastard of Mansfeld and the dukes of Brunswick and Saxe-Weimar. Both sides claimed the advantage. The second was fought July 1, 1690, Montmorency, duke of Luxembourg, defeating the Prince of Waldeck, one of the most able of the generals of the Augsburg League. The third was that in which General Jourdain defeated the Imperialists under the Prince of Coburg, June 26, 1794. The fourth, more commonly known as the battle of *Ligny*, took place on the 16th of June, 1815. On that day Blücher was defeated by Napoleon.
Fleur'y, ANDRÉ, HERCULE DE, a cardinal and prime minister of France, under Louis XV., was born at Lodève, in Languedoc, in 1653. Coming to court, he won general favor by his pleasing person and fine understanding; became bishop of Fréjus; and, through the interest of Madame Maintenon, was appointed instructor to Louis XV. In 1726 he was made cardinal, placed at the head of the ministry, and from his 73d to his 90th year he administered the affairs of his country with great success. Died 1743.
Fleury, CLAUDE, a French historian, author of an *Ecclesiastical History* in 20 vols., *Manners of the Israelites*, &c.; B. 1640; D. 1723.
Flew, *imp.* of FLY, *q. v.*
—*n.* The large chaps of a deep-mouthed hound.
Flex, *v. a.* [Lat. *flexus*, from *flectere*, to turn.] To bend.
Flexan'imous, *a.* [Lat. *flectere*, to turn, and *animus*, the mind.] Of a pliant disposition.
Flexibil'ity, *n.* [Fr., from Lat. *flexibilitas*; from *flectere*, to turn.] Pliancy; pliability; readiness to bend; as, *flexibility* of fibres.
(*Phys.*) The property which all bodies possess to a greater or less degree, which is evinced in their disposition to yield or change their form in a direction at right angles to their length, through their own weight or by means of any pressure or strain applied to them. Pieces of the same material differ from each other in the degree of flexibility they exhibit, in proportion to their length and thickness. Thus it is evident that a cylindrical bar of iron an inch in diameter and twenty feet in length will exhibit a far greater degree of flexibility than another which is only half the length, and has a diameter of two inches. This may be seen by resting the extremities of each on supports of equal height, when the long would become curved in form through its own weight, its centre being considerable below a chord drawn from one end of it to the other; while the thicker bar would be scarcely bent out of the straight line. Materials also exhibit a greater degree of flexibility in one condition than in another; metals, for instance, yielding far more readily to pressure when heated than when cold. A wrought-iron beam which would sustain a great weight without perceptive deflection when cold, would bend considerably under the same weight when red-hot. The great flexibility of ropes of hemp and metal renders it quite impossible to stretch them horizontally in a straight line, as may be seen in the case of a rope stretched for the performance of a tight-rope dancer. There is no material that will not exhibit flexibility in some degree, because there is no substance in nature that is perfectly rigid and inflexible; but the degree of flexibility possessed by any material is denoted by the extent to which it will bend, or by the weight which it will support without breaking. This property must not be confounded with that of elasticity: elastic bodies will return to their former shape when they have been bent or altered by pressure in any way; but bodies which possess flexibility without elasticity do not return to their original form in all cases. A straight bar of iron, though bent by its own weight only, will not exactly resume its original shape, although a rope will do so. The consideration of the deflection or flexibility of beams of wood and iron bars and girders, as well as of ropes and chains, and other materials, is an important point in the construction of buildings, bridges, and engineering works of various kinds. — See MATERIALS, STRENGTH OF.
Flex'ible, (*fleks'i-bl,*) *a.* [Fr., from Lat. *flexibilis.*] That may be bent; readily bending without breaking; pliant: pliable; supple; not stiff or rigid; yielding to pressure; as, a *flexible* stalk, *flexible* steel. — Capable of yielding to entreaties, arguments, or other moral force; tractable; easily managed or turned; not firm; accommodating; inconstant; wavering; ductile.
"Women are soft, mild, pitiful, and *flexible.*"—*Shaks.*
—That may be accommodated or suited to various forms and purposes.
"This was a principle more *flexible* to their purpose."—*Rogers.*
Flex'ibleness, *n.* Easiness or readiness to be bent; pliability.
Flex'ibly, *adv.* In a pliant manner.
Flexicos'tate, *a.* [Lat. *flexus*, bent, and *costa*, a rib.] Having the ribs bent.
Flex'ile, *a.* [Lat. *flexilis*, from *flexus*, pp. of *flectere*, to bend.] That may be bent; easily bent; pliant; pliable; as, *flexile* osiers.
Flex'ion, *n.* [Lat. *flexio.*] A bend; a part bent; a fold.
Flex'or, *n.* [Lat.] (*Anat.*) The name of certain muscles whose office it is to bend the parts into which they are inserted. The antagonistic muscles are termed *extensors.*
Flex'uous, Flex'uose, *a.* [Lat. *flexuosus*, from *flexus*, a bend or fold.] (*Bot.*) Applied to bodies which have a zigzag or wavy direction, *i. e.*, gently bending alternately in opposite directions, as in the case of some stems, the ribs of leaves, &c.
Flex'ure, *n.* [Lat. *flexura*, from *flexus*, pp. of *flectere*, to bend.] The act of bending. — The joint; the part bent. — The form into which a thing is bent. — An obsequious or servile cringe.
(*Math.*) *The flexure of a curve* is its bend toward or from a straight line.
Fli'bustier, *n.* [Fr.] See FILIBUSTER.
Flic'flac, *n.* A repeated noise made by blows.
Flick, *n.* Same as FLITCH, *q. v.*
Flick'er, *v. n.* [A.S. *flicerian*, to move the wings; Dut. *flikkeren*, to twinkle.] To flap the wings without flying. — To waver; to fluctuate, or twinkle, as an unsteady flame.
Flick'ering, *p. a.* Wavering; fluctuating; having a fluttering motion.
—*n.* A fluttering; short and irregular movements.
Flick'eringly, *adv.* In an unsteady manner.
Flicks'ville, in *Pennsylvania*, a post-village of Northampton co., abt. 120 m. N.E. of Harrisburg.
Fli'er, *n.* One who flees or flies; a runaway.
(*Mach.*) The fly of a machine. — See FLY.
—*n. pl.* Stairs that do not wind: (sometimes written *flyers.*)
Flight, (*flit,*) *n.* [A.S. *fliht*, from *fleogan*, to flee, to fly. See FLY.] Act of fleeing, or of running away, to escape danger, peril, or anticipated evil; hasty exit or departure.
"The maid pursued her *flight*; her *flight* increased his fire." *Pope.*
—Act of flying, or of passing through the air by means of wings; manner of flying; removal from place to place by flying; volitation; as, a pigeon's *flight.*
—A flock of birds, or a number of beings, passing through the air in company; a number of things flying together; a volley, as of arrows; a periodical flying of birds in flocks; the birds produced in the same season; as, a *flight* of swallows.
"*Flights* of angels wing thee to thy rest." — *Shaks.*
—A mounting; a soaring; lofty elevation and excursion; as, *flight* of fancy, a *flight* of ambition; — in a bad sense, an extravagant sally; excursion; escapade; as, a *flight* of folly.
"Above the vulgar *flight* of common souls." — *Murphy.*
—A series of steps or stairs from one floor to another.
—The husk or envelope of oats.
To put to flight, to rout, compel to run away, or make a hasty retreat.
Flighted, (*flīt'ed,*) *a.* Taking wing or flight; flying.
Flight'ily, *adv.* In a flighty or airy manner.
Flight'iness, *n.* State or quality of being flighty or volatile; levity; giddiness; volatility; as, *flightiness* of manner.
Flight'-shot, *n.* The distance traversed by an arrow shot from the bow.
"The May-pole . . . half a *flight-shot* from the king's oak."—*Scott.*
Flighty, (*flīt'i,*) *a.* Fleeting; swift; momentary; transient; as, a *flighty* purpose. — Wild; full of flights; indulging the sallies of imagination; unsettled; volatile; giddy; somewhat delirious, or disordered in mind; as, "a *flighty* enthusiast." — *Harford.*
Flim'sily, *adv.* In a flimsy or shallow manner.
Flim'siness, *n.* State or quality of being flimsy; thin; weak texture of body; weakness; lack of substance or solidity; as, the *flimsiness* of bank-paper.
Flimsy, (*flim'zi,*) *a.* [From the root of FILM, *q. v.*] Filmy; thin; slight; weak; feeble; without solid substance; without strength, spirit, or force; superficial; shallow; as, a *flimsy* pretext, a *flimsy* argument, a *flimsy* excuse.
"Proud of a vast extent of *flimsy* lines." — *Pope.*
—*n.* Thin paper; cap-paper; transfer-paper. — A cant term, applied in England to a bank-note.
Flinch, (*flinsh,*) *v. n.* [O. Ger. *wenkjan*, *wankôn*, to waver, to shrink, allied to Lat. *vacillo*, to sway to and fro; Sansk. *vakh*, to move one's self.] To shrink; to withdraw from; to fail of proceeding, or of performing anything; to wince; as, to bear pain without *flinching.*
"Oh, ingratitude, that John Bull should *flinch* at last, and pretend that he can disburse no more money." — *Arbuthnot.*
Flinch'er, *n.* One who flinches, fails, or shrinks from.
Flinch'ingly, *adv.* In a flinching or wincing manner.
Flin'der-mouse, *n.* A bat.
Flin'ders, *n. pl.* [Scot. *flenders.*] Splinters; chips; fragments.
Fling, *v. a.* (*imp.* and *pp.* FLUNG, *pp.* FLINGING.) [Causative of *fly*; A. S. *fligan*, to cause to fly, causative of *fleogan*, to fly or flee.] To cause to fly from the hand; to hurl; to dart; to cast with violence from; as, to *fling* a stone.
"'Tis fate that *flings* the dice; and, as she *flings*,
Of kings makes peasants, and of peasants kings." — *Dryden.*
—To send forth; to emit; to scatter.
"The sun begins to *fling* his flaring beams." — *Milton.*
—To throw to the ground; to prostrate; hence, by implication, to frustrate; to baffle; to overthrow; to defeat; as, the horse *flung* him, to *fling* an adversary.
To fling away, to discard; to reject; to dismiss; as, "*fling away* ambition." (*Shaks.*) — *To fling down*, to hurl or throw to the ground; to demolish; to ruin. — *To fling in*, to throw in; as, to *fling* a stone *in* water. — *To fling off*, to baffle in the chase; to defeat of prey; as, "men too well acquainted with the chase to be *flung off* by any false steps or doubles." (*Addison.*) — To rid one's self of; to discard; to give the cold shoulder to; as, to *fling off* a mistress. — *To fling open*, to throw open, or wide open; to open with haste or violence; as, to *fling open* a gate or door. — *To fling out*, to utter harshly or abruptly; as, to *fling out* a sarcasm, she *flung out*

abusive words. — *To fling up*, to abandon; to cease following; to relinquish; as, he *flung up* his place in disgust.

Fling, *v. n.* To flounce; to wince; to throw; to break into violent and irregular motions.

"The angry beast began to kick, and *fling*, and wince." *Hudibras.*

—To cast in the teeth; to upbraid; to utter harsh language; to sneer.

"Thus back I *fling* the lie." — *Davies.*

—To rush away angrily; to throw one's self in a hasty, passionate, or violent manner; — omitting *self;* as, she *flung* out of the room in a pet.

To fling out, to become unruly or outrageous; as, "Duncan's horses . . . *flung out*." — *Shaks.*

Fling, *n.* A throw; a jerk; a cast from the hand; a flounce.

—A gibe; a sneer; a sarcasm; a severe or contemptuous remark.

—A kind of dance.

Fling'er, *n.* One who casts or flings; a giber.

Flink'ing-comb, *n.* [O. Ger. *flinken*, to make ready.] A dressing-table comb for the hair.

Flint, *n.* [A. S. *flint;* Ger. *flintenstein.*] (*Min.*) A variety of quartz, allied to *Chalcedony*, q. v., but more opaque and of dull colors, usually gray, smoky brown, and brownish-black. It breaks with sharp cutting edges and a conchoidal surface. *F.* is nearly pure silica. It often occurs in layers of irregular nodules and sometimes in flat tabular bands. These nodules consist largely of the remains of infusoria, sponges, and other marine productions. The coloring-matter of the common *F.* is mostly carbonaceous matter, and it usually contains also about one per cent. of alumina and peroxide of iron, with one or two of water. After being calcined and ground, *F.* is often used in the manufacture of glass, earthenware, and porcelain.

Flint-glass, *n.* See GLASS.

Flint'-heart, Flint'-hearted, *a.* Having a hard heart; obdurate; cruel.

Flint Im'plements. (*Geol.*) The name given to stony materials imperfectly sculptured, supposed to be the relics of the primitive inhabitants of Europe, which have been discovered from time to time, by being accidentally turned up whilst ploughing in fields, or by the zealous search of some indefatigable antiquaries. Those which have already been discovered do not differ in the slightest respect from the rude weapons constructed of flint which are used even in the present day by the savages inhabiting portions of Asia, America, Africa, and the islands in the Indian Archipelago and the South seas. Arrow-heads and hatchets are the forms in which the weapons are mostly discovered, and there is an unlimited variety in the shape and construction of even these. The precise nature of these implements, the fact that they must have been of human manufacture, and the clear proof of their position in situ with bones and other remains of animals contemporaneous with the savages who made the implements, are the points of chief interest. They are principally composed of flint, but include granite, jade, serpentine, jasper, basalt, and other stones. Of these implements there are two well marked types, some being shaped by chipping alone, others finished by grinding and polishing. The first type is assigned to the earlier part of the stone age, and classified as palæolithic implements: the second to the later part, and classed as neolithic implements. The palæolithic implements comprise three classes, the best-finished being an oval, sharp-edged form, the second long and pointed, the third tongue-shaped. The neolithic are more varied in form, being often carefully shaped and finely finished, some far surpassing anything produced by modern savages or barbarians. So large a number of these interesting objects have been found in certain spots as to lead to the supposition that they have been intentionally buried, or that a manufactory of them existed there. The chief localities for these objects, at first, were two or three gravel-beds on the banks of the Somme, near Amiens and Abbeville, in France. Many caverns and some gravel-beds in the southern and western parts of England have since yielded them. They have been found also in Belgium, Germany, and Italy, always with the same associations. The evidence of their being of the age of the gravel-deposit is varied and fragmentary, but on the whole satisfactory. In the first place, the gravel is undisturbed, and it is clear that all parts of the deposit must have been placed where we find them at some one time, and have since been covered up by a natural accumulation of subsoil and soil. The flints are found not at the top, nor always near the top, but occupying a definite place in the mass either with or below the bones of extinct quadrupeds, such as elephants and rhinoceroses. The naturally broken and rolled flints are weathered generally in a particular way, and these sculptured flints are weathered in the same way and to the same extent. The gravel occupies a position so much above any water-level in the neighborhood, that the general level of the whole land must have changed since the deposit, to account for its accumulation. In the case of the caverns, the implements are found sealed up with extinct bones, by a natural incrustation of limestone, and then, after being thus sealed up, deposits of more recent date have been heaped upon them. In some cases the implements have been found under the bones of animals that have either died on the spot or been dragged into the cave while undecomposed. Among such animals are bears, hyæuas, rhinoceroses, elephants, and hippopotamuses, of extinct species. Horns of reindeer, on which are etched recognizable figures of the reindeer, have been found with implements and human bones in the south of France. As a general result of this curious inquiry, it would seem that there must have been human inhabitants — savages like those of Australia, or half-civilized men like the Indians of North America — for a period so enormously more distant than the most ancient historic event, that the imagination shrinks from the consideration of the question.

Flint, or FLINTSHIRE, a maritime co. of England, in N. of Wales, consisting of two separate portions, the largest and most important of which is bounded on the N. by the Irish Sea, on the E. by the æstuary of the Dee, and the river Dee itself, and on the S. and W. by Denbighshire; the other and smaller portion lies along the S. bank of the Dee between the cos. of Chester and Salop. *Area*, 289 sq. m., being the smallest of the Welsh counties. *Surface*, diversified, a range of high hills separating it on the W. from Denbighshire. *Soil.* Highly fertile and productive, consisting, in a great part, of the celebrated Vale of Clwyd. *Rivers.* Dee, Clwyd, and Alyn, *Prod.* Wheat, barley, rye, and excellent dairy produce. *Min.* This county possesses the richest lead-mines in the kingdom; copper, coal, limestone, &c., are also largely mined. *Manuf.* Cottons; the larger portion of the industry of this co., after agriculture, is however devoted to lead and copper smelting. *Chief Towns.* Flint (the



Fig. 1032.—FLINT CASTLE.

cap.), Holywell, Mold, and Overton. *Pop.* (1891) 77,189.

FLINT, a borough and seaport, and cap. of above co., on the estuary of the Dee, 11 m. N.W. of Chester, and 185 N.W. of London. It has the remains of a noble castle (Fig. 1032), built by Edward I., and memorable in history as the scene of the imprisonment of Richard II., by Bolingbroke, afterward Henry IV., (Shaks. *Richard II.*, act. iii.) *Ind.* Lead and copper smelting. *Pop.* (1896) about 5,400.

Flint, in *Illinois*, a township of Pike co., on the Illinois river, about 9 miles N.E. of Pittsfield.

Flint, in *Indiana*, a post office of Steuben co.

Flint, in *Iowa*, a post-office of Mahaska co.

Flint, in *Kentucky*, a post-office of Callaway co.

Flint, in *Michigan*, a thriving city, cap. of Genesee co., 34 miles S.E. of Saginaw; has extensive manufactories and a large trade in lumber, implements, and cigars. *Pop.* (1897) about 12,000.

Flint, in *New York*, a post-village of Ontario co.

Flint, in *Ohio*, a post-office of Franklin co.

Flint Creek, in *Illinois*, enters the Mississippi river from Des Moines co.

—A village of Lake co., about 35 miles N.W. of Chicago.

Flint Creek, in *Indiana*, enters the Wabash river from Fountain co.

Flint Creek, in *New York*, enters the Canandaigua Lake from Ontario co.

Flint Hill, in *Missouri*, a post-village of St. Charles co., about 50 miles W.N.W. of St. Louis.

Flint Hill, in *Virginia*, a post-village of Rappahannock co., about 35 miles S. of Winchester.

Flint'iness, *n.* The quality of being hard, obdurate, or cruel.

Flint'kalk, *n.* [Ger.] (*Min.*) Same as DOLOMITE.

Flint'-lock, *n.* The lock of a musket, having a steel fixed in the hammer, for striking on the steel-pan.

Flint's Mill, in *Ohio*, a post-office of Washington co.

Flint River, in *Alabama*, enters the Tennessee river from Morgan co.

Flint River, in *Georgia*, rises in Clayton co., and flowing in a general S. course, enters the Chattahoochee river from Decatur co. Length about 300 miles. Indian name, *Thronasteeska.*

Flint River, in *Iowa*, a township of Morris co.

Flint River, in *Michigan*, rises in Lapeer co., and flowing in a tortuous S.W., then N.W. course through Genesee co., joins the Shiawassee river in Saginaw co., to form the Saginaw river.

Flint Spring, in *Kentucky*, a post-office of Ohio co.

Flint'-stone, *n.* Same as FLINT (*q. v.*)

Flint'stone, in *Maryland*, a post-village of Alleghany co., about 12 miles E. of Cumberland.

Flint'ville, in *Tennessee*, a post-village of Lincoln co., 11 miles S.E. of Fayetteville.

Flint'y, *a.* Made of, or resembling flint; excessively hard; as, a *flinty* rock, a *flinty* heart. — Hard of heart: cruel; savage; inexorable. — Full of flints; as, *flinty* ground.

Flint'y-hearted, *a.* Having a hard, unfeeling heart.

Flint'y Slate, *n.* (*Min.*) An impure quartz, having a slaty structure. It contains about 75 per cent. of silica, with some lime, magnesia, oxide of iron, &c. Its fracture is splintery rather than conchoidal, and it is more or less translucent. It passes gradually into clay slate, with which it is often found in intimate geological connection.

Flip, *n.* A drink made of spirits, beer, and sugar, and heated by a hot iron; as, egg-*flip.* (Called in the U. S. *egg-nog.*)

Flip'dog, *n.* The iron used for heating flip.

Flip'-flap, *a.* Noting the repeated noise or stroke of something flat and loose.

Flip'-flap, *n.* The repeated noise or stroke of something flat and loose.

Flip'pancy, *n.* Pertness; heedless volubility.

Flip'pant, *a.* [Probably from *flip-flap. Johnson.*] Of smooth, fluent, and rapid speech; speaking rapidly and with ease; having a voluble tongue; talkative; as, a *flippant* tongue.

—Pert; petulant; waggish; voluble and thoughtless; as, "away with *flippant* epilogues." — *Thomson.*

Flip'pantly, *adv.* In a flippant manner.

Flip'pantness, *n.* The quality of being flippant.

Flip'per, *n.* The paddle of a sea-turtle; the arm of a seal.

—The broad fin of a fish.

—The hand; as, "Messmate, give us your *flipper.*" — *Marryat.* (Colloq.)

Flip'pin, in *Kentucky*, a post-office of Monroe co.

Flippin, in *Tennessee*, a post-office of Lauderdale co.

Flirt, *v. a.* [Probably formed from *fleer. Flirt* unites the meanings of *fleer* and its root, *leer.* See FLEER and LEER.] To throw with a jerk, or sudden effort or exertion; to fling suddenly; as, to *flirt* a glove.

"The scavenger
Flirts from his cart the mud in Walpole's face." — *Swift.*

—To toss or throw about; to wave or move quickly and playfully; as, "permit me to *flirt* your fan." — *Earl of Dorset.*

—To jeer at; to deride; to banter; to treat contemptuously.

"I am ashamed; I am scorned; I am *flirted.*" — *Beaum. and Fl.*

—*v. n.* To throw out bantering or jeering words; to gibe; to deride; to utter disdainful language.

—To run about perpetually; to act with giddiness, or from a desire to attract observation and attention; to act with levity; to play at coquetry or courtship; to coquet; to be fluttering, unsteady, and inconstant; as, that girl *flirts* with half the garrison.

—*n.* A quick throw or cast; a sudden jerk; a darting motion.

"One *flirt* of the spread fan, and all the vision flies." — *Pope.*

—A young girl who acts with giddiness, or plays at courtship; a woman who flirts; a coquette; a forward, pert, and empty-hearted girl; as, a ball-room *flirt*, "a young *flirt* about town." — *Addison.*

Flirta'tion, *n.* A flirting; a quick, jerky motion.

—Coquetry; playing at courtship; interchange of tender looks and soft nothings; serio-comic love-making; as, the heroine of a hundred *flirtations.*

"I assisted at the birth of that most significant word *flirtation.*" *Lord Chesterfield.*

Flirt'ing, *p. a.* Throwing; jerking; tossing; darting about.

—Giddy; coquettish.

Flirt'ingly, *adv.* In a flirting manner.

Flisk, a small river in Ireland, flowing into the Lake of Killarney.

Flisk, *n.* A large tooth-comb.

Flit, *v. n.* [Dan. *flytte*, to move, to remove; *flytning*, a moving, a removal; Icel. *flyt*, to carry; Swed. & Goth. *flyttia*, to remove.] To fly away with a rapid flight; to dart through the air with celerity; to move along with velocity; as, a *flitting* cloud.

"A shadow *flits* before me." — *Tennyson.*

—To flutter; to rove on the wing.

"Changed to a bird, and sent to *flit* in air." — *Pope.*

—To pass or move with haste from place to place, as a light substance; to remove; to migrate.

"It became a received opinion that the souls, departing this life, did *flit* out of one body into another." — *Hooker.*

—To remove from one habitation or place of residence to another. — To be unstable; to be easily or often moved, agitated, or perturbed; as, "*flitting* air." — *Dryden.*

Flitch, *n.* [A. S. *flicce;* Dan. *flekke;* Ger. *fleck*, a cleft, a slice.] The side of a hog, salted and cured; as, a *flitch* of bacon.

Flite, *v. n.* [A. S. *flitan*, to quarrel.] To wrangle; to quarrel; to make a row or rumpus. (Prov. Eng.)

Flit'ter, *n.* [Ger. *flittern*, to glitter.] A tag; a rag; a batter; a fragment.

Flit'ter-mouse, *n.* Same as FLINDER-MOUSE, *q. v.*

Flit'ting, *p. a.* Moving by starts; fluttering.

—*n.* A flying with celerity; a fluttering.

Flit'tingly, *adv.* In a flitting manner.

Flix, *n.* Same as FLUX, *q. v.*

Flix'-weed, *n.* (*Bot.*) See SISYMBRIUM.

Float, (*flōt,*) *n.* [A. S. *flota.* See the verb.] That which swims or is borne on water; a floating mass; a raft; anything that floats on the surface of a fluid; as, "a *float* of weeds and rushes." (*L'Estrange.*)—A cork or quill connecting with an angling-line, and resting on the surface of the water, in order to afford indication of the bite of a fish.

(*Mach.*) A flat piece of stone or other material attached to a valve in the feed-pipe of the boiler of a steam-engine, and supported upon the surface of the water by a counter-weight; used either for showing the height of the water, or regulating the supply from the cistern.

—The float-board of the wheel of a steamboat. See PADDLE-BOARD.

—A floor, or level space of earth, 18 feet square and 1 deep. (*Mortimer.*) — A sort of smoothing-file. — An instrument for plastering, used by masons. — A low cart used for the carriage of heavy loads. (Eng.)

—*v. n.* [A. S. *fleótan, flotian;* L. Ger. *floten, vloten;* O. Ger. *fluizan;* Lat. *fluito*, to float, freq. of *fluo*, to flow; O. Icel. *flut*, to flow. Root Sansk. *plu*, to swim.] To be borne or sustained on the surface of a fluid; to be buoyed up; to swim; not to sink; not to be aground.

"The swans on still St. Mary's Lake
Float double, swan and shadow!" — *Wordsworth.*

—To move or be conveyed on water; to be buoyed up and moved or conveyed in a fluid, as in air; to move with a light, irregular course.

"There seems a *floating* whisper on the hills." — *Byron.*

Floating debt, capital, &c., that part of the debt of a State which is not stable, and is to be paid at demand or at short term.

Float, *v. a.* To cause to float or pass by something; to cause to be conveyed on water; as, the vessel *floated* off with the tide.

—To flood; to inundate; to submerge; to overflow.

"Venice looks, at a distance, like a great town half *floated* by a deluge." — *Addison.*

(*Plastering.*) To damp and level the surface of a wall, &c., with a float frequently wetted.

Floated work, plastering smoothed and levelled by means of a float.

Float'able, *a.* That may be floated; as, *floatable* wood.

Floatage, (*flōt'aj,*) *n.* Anything floating on water.

Float'-board, *n.* A board of an undershot water-wheel, on which the water strikes, giving motion to the wheel.

(*Naut.*) See PADDLE-BOARD.

Float'-case, *n.* A contrivance for elevating bodies by the upward pressure of water under an air-tight metallic case, moving in a well or shaft.

Float'er, *n.* One who floats or swims on the surface of water.

Float'ing, *p. a.* Swimming on the surface of water or other fluid. Circulating; passing; not fixed; as, the *floating* population, a *floating* capital.

Float'ing, *n.* The act of swimming on the surface of water.

—The watering or overflowing of meadow-lands.

Float'ing-bat'tery, *n.* (*Mar.*) A term applied to a hulk which has been cut down and rendered as strong and shot-proof as possible, and in which are placed heavy cannon and mortars, for the purpose of defending or attacking harbors and other maritime strongholds. This species of war-vessel was first used at the siege of Gibraltar, in the years 1779–1783; and it was again brought into use during the Crimean war. On account of their clumsiness, and the difficulty of navigating them, floating-batteries are, however, not much in request at the present day.

Float'ing-bridge, *n.* A bridge formed of beams of timber and planks lying on the surface of a river or piece of water.

—A flat-bottomed ferry-boat running on chains laid across the bottom of a water-course.

(*Mil.*) A kind of double bridge, the upper one projecting beyond the lower one, and capable of being moved forward by pulleys; — used for carrying troops over narrow moats in attacking the outworks of a fort.

Floating Islands, Gardens, and Houses. Gardens and islands, formed of patches of wood and weeds, covered with grass, flowers, and other vegetable productions, supported on the surface of the water. In this country on the Mississippi, and in India on the Ganges, such islands, detached from the banks by the force of the currents, are often seen carried down to the sea, with tall trees standing erect upon them. In ancient mythology, the island of Delos, one of the Cyclades, was supposed to be endowed with floating powers, and to be capable of sinking below the surface of the deep, and rising again at various intervals, in some new spot. In northern India, and on the borders of Thibet and Persia, *floating gardens* are often erected by the natives, for the purpose of raising melons, cucumbers, and other similar vegetables and plants, which require a very aqueous soil for their cultivation. These gardens, however, are of a very fragile nature, and rarely exceed a foot in depth of soil, their prime structure being composed of wicker-work, interlaced with reeds and wadlings, and covered with matting, over which the earth is placed. *Floating houses* are built by the inhabitants of *Bangkok*, the capital of Siam, from motives of comfort and safety. These houses form whole streets, being anchored in rows, and are capable of being moved from one position to another at pleasure. From the depth of water, large vessels of from 200 and 300 tons burden can sail up this picturesque town, and pass alongside the houses of the inhabitants. These floating houses are made of bamboo-stems, wicker-work, and palms, with a veranda in front; and they are built on large rafts. Sir John Bowring gives a capital account of them in his sketch of Siam.

Float'ing-light, *n.* (*Naut.*) A hollow vessel of tinned-iron plate made in the form of a boat, with a reflector and lantern, used for rescuing persons who have fallen overboard in the night.—Also a light attached to a boat or the hull of a vessel moored over a rock or a shoal, to serve the purpose of a warning to mariners.

Float'ing-pier, *n.* A pier that rises and falls with the tide.

Float'sam, *n.* Same as FLOTSAM, *q. v.*

Float'-stone, *n.* (*Min.*) A variety of quartz, consisting of fibres or filaments aggregated in a spongy form, and so light as to float on water until the air in its numerous cavities is displaced; found in the chalk-formations of Menilmontant, near Paris.

Float'y, *a.* Swimming on the surface; buoyant.

Flo'becy, a town of Belgium, prov. Hainault, 20 m. N.E. of Tournai. *Manuf.* Linens, &c. *Pop.* 5,814.

Floccila'tion, Floccita'tion, *n.* (*Med.*) Same as CARPHOLOGY, *q. v.*

Floccose', *a.* [Lat. *floccus*, a tuft.] (*Bot.*) Bearing or closed with locks of soft hair or wool.

Floccose'ly, *adv.* In a tufted manner.

Floc'culate, *a.* (*Zoöl.*) Applied to the first joint of the hind legs, when distinguished by a curling lock of hair.

Floc'culence, *n.* The state of being in tufts or locks.

Floc'culent, *a.* Having many tufts or locks.

Floc'culus, *n.*; *pl.* FLOC'CI. [Lat.] (*Zoöl.*) The tuft of flaccid hairs which terminates the tail of the mammalia.

(*Bot.*) A woolly filament often found mixed with the sporules of certain fungi.

Flock, *n.* [Icel. *flokki*, a close lock of wool; Lat. *floccus*; akin to Gr. *plokē*, a turning or twining.] A lock of wool.

—A kind of woolly paper.

Flock, *n.* [A. S. *flocc*, a company; Dan. *flok*; Icel. *flockr*; akin to Gr. *ochlos*, a crowd.] A collection of birds, sheep, goats, or of small four-footed animals. It is frequently limited to sheep, in order to distinguish them from a *drove* of larger animals.

—A Christian congregation in relation to their spiritual pastor; as, each Sunday he expatiates to his *flock*.

Flock, *v. n.* To gather in crowds; to collect or assemble in multitudes; to crowd together.

—To move in crowds.

Flock'-bed, *n.* A bed filled with locks of wool.

Flock'-paper, *n.* A kind of wall-paper, having raised figures made of finely pulverized and dyed wool, laid on the surface and attached by size.

Flock'y, *a.* Having tufts, as wool.

Flod'den, a village of England, co. Northumberland, near the Scottish border, 5 m. S.E. of Coldstream; memorable as being the scene of the *Battle of Flodden-Field*, one of the most sanguinary conflicts recorded in British history. James IV., king of Scotland, having invaded England with a large force, was encountered here, 9th Sept., 1513, by an English army under the Earl of Surrey. James, who was destitute of every martial quality except bravery, was killed, and his army totally defeated. The loss on the part of the Scots was extremely great. Besides the king himself, no fewer than 12 earls, 13 barons, and 5 eldest sons of peers, with a vast number of knights and persons of distinction, and probably about 10,000 common soldiers, were left dead on the field. The English loss was about 7,000. This is by far the most calamitous defeat recorded in Scottish annals; and as there was scarcely a family of distinction in the kingdom who did not lose one or more members in it, the whole nation was involved in mourning and despair. Archibald Douglas, the great Earl of Angus, for instance, was killed, together with his six sons and 200 knights and gentlemen of the name of Douglas. Sir W. Scott has given a vivid and generally correct account of this great battle in his *Marmion*.

Floe, *n.* [A. S. *fleotan*, to float.] A body of floating ice.

—A mass of ice driven upon the shore.

Floetz, *n.* (*Min.* and *Geol.*) Same as FLETZ, *q. v.*

Flog, *v. a.* [O. Ger. *flogarôn*, to inflame with passion; Lat. *flagello*, to whip, to lash—*flagrum*, a scourge; akin to Gr. *plēgē*, a blow, from *plēssō*, to strike.] To whip; to lash; to scourge; to beat or strike with a rod or whip; to flagellate; to chastise with a succession of blows; as, to *flog* a sailor with a cat-o'-nine-tails.

Flog'ger, *n.* One who beats with a rod or lash.

Flog'ging, *n.* The act of one who flogs; a whipping.

Flood, *n.* [A. S., Dan., Swed., Icel. *flod*; Ger. *fluth*; allied to Lat. *fluctus*; root Sansk. *plu*, to swim.] A great flow of water; a body of moving water; a body of water rising, swelling, and overflowing land not usually covered by water; an inundation; a deluge.—The general deluge in the days of Noah. (See DELUGE.)—Flow; flux;—opposed to *ebb*.—A river; a great body or stream of any fluid substance.

"What need the bridge much broader than the *flood*?"—*Shaks.*

—A great quantity; an overflowing; abundance; superabundance; as, a *flood* of legal tenders.

(*Med.*) The menstrual discharge; menses.

Flood, *v. a.* To overflow; to inundate; to deluge; to overwhelm; as, to *flood* the rice-fields.

Flood'er, *n.* One who floods or irrigates.

Flood'-gate, *n.* A door or gate placed at the point of discharge of a large land-drain or sewer into a river, for the purpose of allowing the escape of the inland waters, during the intervals of the tides, or of the high waters in the rivers. Generally speaking, they are made with the hinges upon the upper side, and they open outwards; but they are occasionally made with vertical hinges, so hung that when the pressure of the inside waters exceeds that of the outside, the gates shall open.

—Avenue; passage; vent; opening; as, *flood-gates* of sorrow.

Flood'ing, *n.* Any overflowing;—especially an excessive discharge of blood from the uterus.

Flood'mark, *n.* The mark or line to which the tide rises; high-water mark.

Flook, *n.* Same as FLUKE, *q. v.*

Flook'ing, *n.* (*Mining.*) An interruption or shifting of a lode or vein of ore by cross grain or fissure; cross-flookan; flookan.

Flook'y, *a.* See FLUKY.

Floor, (*flōre,*) *n.* [A. S. *flor*; Ger. *flur*; Gael. *lár*, the ground; W. *llawr*, a level surface.] (*Arch.*) Any one of the stages or platforms which separate the successive stories of a building from which the stories themselves are generally named in their order; as ground-floor, first-floor, second-floor, &c. The entire platform which separates any room from another, above or below it, consists of three distinct portions,—the *joists*, the *flooring* of the room above, and the *ceiling* of the room below. The joists are narrow beams of timber about 2½ inches in thickness, and varying in depth according to the extent of span from wall to wall. As the walls of the successive stories are raised to the proper height, the joists are laid across about 15 or 18 inches apart, and the ends are imbedded in the masonry. In building a row of houses, care should be taken to keep seven inches at least of masonry between the ends of the joists bridging the space from party-wall to party-wall, to prevent them from communicating the flames from one house to another by reason of their contiguity, should a fire break out in any one of them. To give greater stiffness and steadiness to the joists, they are often connected by short cross-stuts of timber nailed transversely to the joists and across each other in the form of the letter X, at intervals of two or three feet. The ceiling is made by nailing laths across the bottom of the joists and covering them with two or three coatings of plaster. (See PLASTERING.) The flooring consists of red or yellow deal planks about nine or eleven inches in width. The boards are laid transversely on the joists, and secured to them by long floor-brads, after having been pressed tightly together by the action of a screw that can be attached to the joists in the position required, and at any part, like a vice, during the process of laying down and nailing the boards. When a very close floor is required, the planks must be jointed together by means of a groove and tongue. (See JOINERY.) The thickness of the boards varies from one to 1½ inches. After the planks have been nailed to the joists, the brads are driven below the surface with a punch, and the edges of the boards are planed, that any inequalities may be removed and the whole extent of flooring rendered perfectly level. The kind of floor that has just been described is a single-joisted floor, and is that which is usually found in buildings of an ordinary character, where the span from wall to wall does not exceed twenty-four or twenty-five feet. In small houses, the joists over a span of this extent are often rendered more steady by allowing them to bear on the framed partition between rooms below them, on the semi-partitions on either side of folding-doors. When the span exceeds this length, and the platforms are intended to support any great weight, as in a concert-room, assembly rooms, or warehouses, framed doors are adopted, in which girders are introduced, which are generally of wrought iron, on account of the flexibility and elasticity of this material, and by which the great strain of the weight above is divided and sustained. These girders are connected by binding-joists, and bridging-joists are attached to them above, on which the flooring is laid, and ceiling-joists below, to carry the ceiling of the room or rooms beneath. Fire-proof floors may be made by filling a framework, peculiarly constructed for the purpose, with concrete or cement, on which tiles may be laid to form the flooring, or joists of timber, on which planks may be laid down and nailed in the ordinary way.

—A flat, hard surface made of loam, lime, &c., used in some kinds of business, as in malting.

(*Naut.*) The horizontal portion of a vessel's bottom on each side of the keelson.

To get the floor. To get an opportunity of taking part in a debate.

Floor, *v. a.* To cover with a floor; to furnish with a floor.—To strike down; to prostrate.—To silence by some decisive argument.

Floor'-cloth, *n.* (*Manuf.*) Strong canvas woven from yarns made of hemp and flax combined, the surface of which is coated with paint, in order to render it a stout, solid, and durable covering for the floors of passages, entrance-halls, staircases, &c. The canvas used for this purpose is made in pieces about 100 yards long, and varying from 18 to 24 feet in width. This is done to obviate the necessity of joining narrow slips of canvas to form wider pieces, in which the seams would produce an unsightly appearance, and be attended with inconvenience when laid down, on account of the extra thickness of the floor-cloth in those parts where the lengths had been sewn together. For narrow floor-cloths for stairs and passages, the broad webs are cut to the width required. The following is the process used in the manufacture of this material: The canvas is first cut into pieces of the required length and breadth, and the edges are fastened to the four sides of a large frame, which are then drawn apart by machinery, to stretch the canvas as tightly as possible, somewhat in the manner adopted in straining canvas for Berlin-wool work. The position of the frame is vertical, the height being equal to the width of the canvas; when this exceeds 6 or 8 feet, the upper part is reached by means of light scaffolds or stages, which the workmen can move from one end of the piece to the other throughout the entire length, whenever occasion may require it during the process of painting. The canvas is then in a proper condition for the reception of the size and paint, which is laid on to render it fit to undergo the final process of printing. It is first coated with strong size on both sides, and while this is still damp, the canvas is rubbed all over with pumice-stone, to render it smooth and even. When the size is dry, the canvas receives two coats of paint on each side. The first coat is very thick, being more like mortar than paint; it is laid on in lumps and patches, and smoothed all over the web with a broad flat trowel, in a manner resembling that in which plaster is laid on a wall. When this is thoroughly dry, the surface is again rubbed with pumice-stone, and a second coat of thinner paint is laid on with a brush. The under side of the canvas requires nothing more to be done to it after this, but the upper side receives two or three more coats of thin paint, being rubbed with pumice-stone after each coat has been laid on, in order to produce a smooth surface to receive the printed pattern. The canvas is now removed from the frame and wound round a roller, from which it is allowed to pass over a flat table, to receive the impression of the blocks. Formerly the patterns were stencilled, as the walls of rooms were before paper-hangings were introduced; that is to say, they were produced by putting coloring-matter on the surface, through holes and lines punched in a sheet of tin or pasteboard, so as

to form the design required; but now the printing is effected by blocks, a separate block being required for every color introduced into the pattern. The blocks are abont 15 inches square, and are made of deal faced with wood of a fine close grain, with a handle at the back; that part of the pattern which each block is required to imprint on the canvas is left on its surface in relief, the remaining part being cut away, as in a wood-engraving. The surface of the projecting portion of each block is further cut into small squares, technically called teeth, by narrow grooves crossing each other at right angles. This is done to effect an equal distribntion of the paint, for if the surface of the projecting part of the blocks were left smooth and even, it would take up the coloring-matter unevenly, and transfer it to the floor-cloth in irregular patches. The impression is effected by applying the surface of the block to a pad or cushion charged with tho color required; after which it is transferred to the floor-cloth by means of the handlo at the back, and pressed forcibly upon it. It is then removed, charged again with color, and pressed on the canvas close by the side of tho first impression, points being placed at the corners of the blocks to insure the regularity of the joining of the pattern. This process is repeated until the whole of the floor-cloth has been covered with that part of the pattern which is imprinted by the first block that is used, after which the blocks intended to convey the remaining colors to its surface are used in a similar manner, until tho pattern is eomplete. It must then be allowed to dry, care being taken to give the coloring-matter sufficient time to harden thoroughly before the floor-cloth is taken into use. The borders along the sides of narrow pieces of floor-cloth intended for passages, are produced in the same manner, by blocks of the necessary width, similarly prepared for the purpose. It should be stated that worn-out Brussels carpets afford a good foundation for floor-cloth, and may be converted into that material at any floor-cloth manufactory. A cheap and durable covering may be made at home for passages, and even for rooms, by a method suggested by Mr. Loudon, in his *Encyclopædia of Cotlage and Villa Architecture*. For the former, a single length of strong unbleached calico will be required for the ground-work or foundation of the material; but for the latter, the lengths of calico must be joined together, until a piece has been produced of sufficient breadth to cover the room for which it is required. New calico, however, is not absolutely requisite, as any pieces of calico or linen that are useless for any other purpose will do quite as well for the basis of the floor-cloth, after they have been neatly joined together. The calico must first be stretched on the floor by tacks, or by pasting down the edges to the boards, after which it must be covered with two or three coats of stout waste paper or newspaper, pasted together with a strong paste, to which a little alum has been added while boiling. Over this a layer of paper used for the walls of rooms must be pasted, which may be laid on in lengths, or formed of separate pieces put together, to furnish a design suggested by the tasto of the maker. When dry, the floor-cloth must be first painted over with a coat of strong size, next with two coats of boiled linseed-oil, and lastly with copal varnish. Floor-cloths made in this manner are strong and inexpensive, and may be washed as well as thoso that have been made in the ordinary way. A cheap kind of floor-cloth has beeu lately introduced for the protection of carpets and stair-carpets, somewhat similar to oil-baize, or oil-cloth for table-covers. It is made on a foundation of thin calico, and thinly coated with paint on one side only, after whieh the pattern is imprinted in the usual way, or by rollers.

Floor'ing, *n.* A platform; a pavement; the bottom of a room or building. — The act of laying a floor. — Materials for floors. See FLOOR.

Floor'less, *a.* Having no floor.

Floor'-timbers, *n. pl.* Those timbers of a vessel which are placed across the keel.

Flop, *v. n.* Same as FLAP, *q. v.*

Flo'ra. (*Myth.*) The goddess of flowers and gardens among the Romans, as Chloris was among the Greeks. She was worshipped among the Sabines long before the foundation of Rome, and Tatius was the first who raised her a temple in the city of Rome. It is said that sho married Zephyrus, and received from him the privilege of presiding over flowers, and of enjoyiug perpetual youth. She was represented as crowned with flowers, and holding in her hand the horn of plenty.

(*Astron.*) A small planet belonging to the group between Mars and Jupiter.

(*Bot.*) A collective name for plants; it is used with regard to the vegetable kingdom in the same way as the term *Fauna* with regard to the animal. It is common to speak of the Flora of a country or district; and a work devoted to the botany of a country or district is often entitled a Flora of that region.

Flo'ra, in *Illinois*, a city of Clay co., on B. & O. So. West. R.R., 108 m. S.S.E. of Springfield. Is trade center of a good farming region and has some manuf. *Pop.* (1897) abt. 2,100.

Flora, in *Kentucky*, a P. O. of Hancock co.

Flo'ra Dale, in *Pennsylvania*, a P. O. of Adams co.

Flo'ral, *a.* [Lat. *floralis*, from *flos, floris*, a flower.] Pertaining to Flora, or to flowers; as, *floral* games.

(*Bot.*) Relating to the blossoms.

Floral envelope, a term applied to the calyx and corolla if both are present, or to the calyx when there is only one. These parts envelop or protect the more essential organs, stamens, and pistil.

Flo'ral College, in *N. Carolina*, a village of Robeson co., abt. 95 m. S.W. of Raleigh.

Flo'ran, *n.* (*Mining.*) Fine-grained tin.

Flo'rascope, *n.* [Lat. *Flora*, the goddess of flowers, and Gr. *skopeia*, to view.] An optical instrument for inspecting flowers.

Flo'raville, in *Illinois*, a post-office of St Clair co.

Flor'ence, (It. *Firenze*, anc. *Florentia Tuscorum*,) a famous walled city of Central Italy, and late cap. of that kiugdom, situate ou both sides of the Arno, 63 m. S. by W. of Bologna, 68 E.N.E. of Leghorn, and 187 N.W. of Rome. It stands in a richly wooded, well cultivated, and beautiful valley, encircled by the Apennines, and is well built and agreeable. Its shape is nearly a square, the sides of which almost correspond with the cardinal points; the Arno intersects it from S.E. to N.W., three of the quarters into which it is divided being situated on the right, and the fourth on the left bank of the river. The communication between the opposite sides of the river is maiutained by means of 7 bridges. *F.*



Fig. 1033. — FLORENCE, (from San Miniato.)

eontains a great number of magnificent edifices and squares, generally adorned with statues, columns, or fountains: there are no fewer than 170 churches, 89 convents, 2 royal, and many other palaces, 12 hospitals, and 8 theatres great and small. Each angle of a street presents an architectural view, fit to be drawn for a scene in a theatre. Many of tho houses are palaces; and a palace in this city means a magnificent pile, venerable from its antiquity, of a square and bulky form, with a plain front, extending from 200 to 300 ft., built of huge dark-gray stones, in a massive, gloomy, and impressive manner. Tho roof is flat, with a deep cornice, and bold projected soffits, which gives a grand, square, and magnificent appearance to the whole. The chimneys are grouped into stacks, the tops of which, increasing in bulk as they rise in height, resemble a crown. Many of these palaces are fitted up with great magnificence, and some of them contain valuable galleries of pictures, that are mostly open to the public. The streets, though in parts narrow, winding, and angular, are mostly wide and straight; and they are admirably paved, after the manner of the old Roman roads, with angular blocks of trap, or sandstone. The houses generally are substantial, more so, apparently, than those of Rome. The *Piazza Reale* is the largest square; it has a fine marble fountain, and an equestrian statue in bronze of Duke Cosmo I. by John of Bologna. The *Piazza del Mercato Vecchio*, exactly in the centre of the city, has a marble column from which *F.* radiates for one mile on each side. The Arno is decidedly superior to the Tiber at Rome. The bridge *Santa Trinita*, built of marble in 1559 by Ammanati, is designed in a style of elegance and simplicity unrivalled by the most successful efforts of modern artists. The bridges, and the handsome though not spacious quays by which the river is bordered, afford fine views of the river, *F.* being in this respect much superior to the "Eternal City." The *Duomo*, or cathedral, a vast edifice, coated with marble, about 500 ft. in length, and 384 ft. in height to the top of the cross, stands in a spacious square. It was begun by Arnnlfo di Lapo in 1296, and finished by Brunelleschi in 1426; its cupola is said to havo suggested to Michael Angelo the first idea of that of St. Peter's. It is built of brick, and veneered, as it were, with parti-colored marble slabs, arranged in narrow strips or panels. The interior is very striking but spoiled by a circular screen of Grecian columns round the altar.



Fig. 1034. — PIAZZA DEL PALAZZO VECCHIO.

The *Campanile*, or belfry (Fig. 491) adjoining the Duomo, but detached from it, is a fine tower 288 ft. in height. Charles V. so admired it that he used to say it should be kept in a glass case. The church of Santa Croce, called the *Pantheon* of *F.*, is interesting from its containing the remains and tombs of four of the greatest men of modern Italy, or indeed of modern times — Michael Angelo, Galileo, Machiavelli, and Alfieri. Among tho palaces are the *Palazzo Vecchio*, or Old Palace (Fig. 1034), inhabited by the Medici when citizens of Florence, which was begun in 1298, and finished in 1550. It is in a massive, severe, and gloomy style, with a tower 268 feet high, and is now occupied by tho principal public offices. Adjoining it is the *Piazza del Palazzo Vecchio*, a square containing a fine collection of statues, and a noble arcade, the *Loggia di Lanzi*, under the porticoes of which are magnificent groups of sculpture. The *Palazzo Pitti*, erected in 1440, the ordinary residence of the king of Italy, is a vast and heavy structure; it is furnished in the most costly manner, and is enriched with a great number of the choicest works of art and *vertú*, and an excellent library. Attached to this palace are the Boboli Gardens, laid out by Cosmo I. in 1550, in the classical style. Connected with these gardens is the botanical garden, a museum of natural history, the Fontana anatomical collection in wax, &c. Another fine palace, the *Riccardi* (built in 1440), has a noble gallery with a ceiling painted by Luca Giordano, and a library of 40,000 volumes, open to the public. But the crowning glory of *F.* is its Grand Gallery, occupying the upper floor of the *Uffizi*, a building erected after a design of Vasari, by Cosmo I., consisting of two parallel corridors or galleries, each 448 feet in length, and 72 feet apart, united at one end by a third corridor. This contains some *chefs-d'œuvre* of statuary, as the world-renowned *Venus de Medici*, the *Knife-Grinder*, the *Fawn, Niobe and her Children*, &c. The collection of pictures comprises superb examples of all the best schools, and is said to surpass even that of the Vatican. A splendid apartment, known as the *Tribuna*, contains the rarest treasures of the collection, and is in itself a wonder of art, with its cupola inlaid with mother-of-pearl, and its rich marble pavement. Besides the Riccardi and Laurentian libraries, the *Magliabecchi* library, containing a rare, extensive, and valuable collection of books, is also open to the public. *F.* is subject to fogs in the winter; but in spring and autumn it is a delightful residence, well provided with everything that can gratify the man of taste and science, or the voluptuary. The literary and educational institutions are both numerous and important. At the head of these is the famous *Academia della Crusca* (see CRUSCA). The charitable institutions are numerous, extensive, and well conducted. The common people of *F.* are well-clothed and have a comfortable appearance; and there are, as compared with most other Italian towns, few beggars, priests, and monks. The citizens are friendly, cheerful, and hospitable. The encouragement given under the late as well as the present government, to artistic and scientific studies, has conferred advantages on Florence unknown in most other parts of Italy. All sorts of foreign publications are met with here; and the facilities it affords for gratifying a taste for the fine arts, the beauty and security of the city and environs, and its salubrity and cheapness, make it, on the whole, a more desirable residence even than Rome. — *Manuf.* Silks, straw hats, articles of vertú, as intaglios, &c., jewelry, porcelain, perfumery, &c. *F.* has produced more celebrated men than any other place in Italy, or, perhaps, of Europe; among others may be specified Dante, Petrarch, Boccaccio, Villani, Cosmo, and Lorenzo de Medici; Galileo, Michael Angelo, Leonardo da Vinci, Benvenuto Cellini, Alberti, Lapo Brunellesehi, Giotto, Andrea del Sarto, Machiavelli; Popes Leo X. and XI., Clement VII., VIII., and XII. — *Hist.* The origin of this city is not clearly ascertained; but it owed its first distinction to Sylla, who planted in it a Roman colony. In the reign of Tiberius it was one of the principal cities of Italy, and was distinguished by its writers and orators. In 541 it was almost wholly destroyed by Totila, king of the Goths. About 250 years afterwards it was restored by Charlemagne. It then became the chief city of a famous republic; and was for a lengthened period in Italy what Athens had been in Greece in the days of Xenophon and Thucydides. At length, in 1537, the Medici, from being the first of her citizens, became sovereign dukes of *F.* The city afterwards became the capital of the *ci-devant* grand-duchy of Tuscany. It was decreed to be the cap. of the new kingdom of Italy, Dec. 11, 1864. In July, 1871, the seat of government was tranferred to Rome. *Pop.* (1891) 191,453.

Flor'ence, in *Alabama*, a city, cap. of Lauderdale co., on the Tennessee river and 2 railroad lines, about 250 m. N. W. of Montgomery. *Pop.* (1897) abt. 6,700.

Florence, in *Arizona*, a post-village, cap. of Pinal co.

Florence, in *Georgia*, a post-village of Stewart co., about 175 m. S.W. of Milledgeville.

Florence, or FLORENCE CITY, in *Idaho*, a post-village of Idaho co., about 120 m. N. of Idaho City.

Florence, in *Illinois*, a post-village of Pike co., on the Illinois river, about 10 m. E. of Pittsfield.

—A township of Stephenson co.

—A township of Will co.

Florence, in *Indiana*, a post-village of Switzerland co., on the Ohio river, about 10 m. above Vevay.

Florence, in *Iowa*, a village and township of Benton co., abt. 15 m. W. of Cedar Rapids. The P. O. is NORWAY.

—A village of Louisa co., on the Iowa river, about 50 m. S.S.E. of Iowa City. Noted as having been once the residence of the famous Indian chief, Black Hawk.

Florence, in *Kentucky*, a post-village of Boone co., about 10 m. S.W. of Cincinnati, Ohio.

Florence, in *Massachusetts*, a P. O. of Hampshire co.

Flor'ence, in *Michigan*, a post-township of St. Joseph co., about 10 miles S.W. of Lansing.
Florence, in *Minnesota*, a post-office of Lyon co.
—A village and township of Goodhue co., on Lake Pepin, about 10 miles below Red Wing.
Florence, in *Missouri*, a village of Montgomery co., about 75 miles W. by N. of St. Louis.
—A post-village of Morgan co., about 55 miles W. of Jefferson City.
Florence, in *Nebraska*, a post-village of Douglas co., on the Missouri river, about 10 miles N. of Omaha.
Florence, in *North Carolina*, a village of Guilford co., about 100 miles W. by N. of Raleigh.
Florence, in *New Jersey*, a post-township of Burlington co., on the Delaware river, about 20 miles above Philadelphia, Pa.
Florence, in *New York*, a post-village and township of Oneida co., about 35 miles N. W. of the city of Utica.
Florence, in *Ohio*, a post-village and township of Erie co., about 110 miles N.N.E. of the city of Columbus.
—A village of Madison co., about 30 miles W.S.W. of Columbus.
—Or West Florence, a post-village of Preble co., about 10 miles E.S.E. of Richmond, Indiana.
—A township of Williams co.
Florence, in *Pennsylvania*, a post-village of Washington co., about 25 miles W. of Pittsburg.
Florence, in *South Carolina*, a post-village, cap. of Florence co., 21 miles W. of Marion.
Flor'ence, in *Texas*, a post-village of Williamson co., abt. 45 m. N. by W. of Austin City.
Flor'ence, *n.* [From the city *Florence.*] A gold coin of the reign of Edward III., equal in value to 6 shillings sterling ($1.45). — A kind of cloth.—A sort of sweet wine.
Flor'ence-oil, *n.* Olive-oil sold in flasks.
Flor'ence Station, in *Illinois*, a post-office of Stephenson co.
Flor'ence Station, in *Kentucky*, a post-office of McCracken co.
Flor'entine, *n.* [Lat. *florentinus*, from *Florentia.*] A native of Florence, Italy. — A species of silk, so called from the place of its manufacture.
—*a.* Of, or pertaining to, Florence; as, the *Florentine* school of art.
Florentine School of Painting. (*Fine Arts.*) This school is remarkable for greatness; for attitudes seemingly in motion; for a certain dark severity; for an expression of strength by which grace is perhaps excluded; and for a character of design approaching to the gigantic. The productions of this school may be considered as over-charged; but it cannot be denied that they possess an ideal majesty which elevates human nature above mortality. The Tuscan artists, satisfied with commanding the admiration, seem to have considered the art of pleasing as beneath their notice. This school has an indisputable title to the veneration of all the lovers of the arts, as the first in Italy which cultivated them.
Flor'es, one of the Azores or Western Islands; Lat. 39° 30′ N., Lon. 31° 12′ W. Its extent is abt. 30 m. long, with a breadth of abt. 8. *Desc.* Mountainous, but fertile. *Prod.* Wheat, rye, yams, fruits, and cedar-wood. *Manuf.* Woollen cloths. *Chief town.* Santa Cruz. *Pop.* abt. 10,000.
Flor'es, an island of the E. or Malay Archipelago; Lat. 8° 50′ S., Lon. 119° 54′ E. *Ext.* 200 m. in length, with a mean breadth of 35. *Desc.* Hilly and volcanic, producing cotton, sandal-wood, and bees-wax. *Pop.* Unknown.
Flor'es, an island of S. America, belonging to Uruguay, in the æstuary of La Plata, 15 m. long, by a mean breadth of 4. Lat. 49° 20′ N., Lon. 125° 45′ W.
Flor'es, a town of Brazil, prov. Goyas, near Parana; *pop.* abt. 3,000.
Flor'es, an island of British N. America, in the N. Pacific Ocean, W. of Vancouvers Island; Lat. 49° 20′ N., Lon. 125° 45′ W.
Flores'cence, *n.* [Lat. *florescens*, from *florescere*, inceptive of *florere*, to bloom, from *flos*, a flower.] (*Bot.*) A putting forth of flowers or blossoms; the season when plants expand their flowers.
Flo'ret, *n.* [Fr. *fleurette*, from *fleur*, a flower; Lat. *flos.*] (*Bot.*) A floweret; the partial or separate little flower of an aggregate flower.
Flo'ret, *n.* [Fr. *floret.*] A foil.
Floric'omous, *a.* [Lat. *flos*, a flower, and *coma*, the hair.] Having the head or top ornamented with flowers.
Floricult'ural, *a.* Relating to the cultivation of flowers.
Floriculture, (*flor-e-cult'yur,*) *n.* [Lat. *flos*, a flower, and *cultura*, cultivation, from *colere*, to till.] The cultivation of flowers, or flowering plants. See Horticulture.
Floricult'urist, *n.* One skilled in the cultivation of flowers.
Flor'id, *a.* [Lat. *floridus*, from *flos*, a flower.] Covered with flowers; productive of flowers; as, a *florid* garden. — Bright in color; flushed with red; as, a *florid* countenance. — Embellished; ornate; splendid; brilliant with decorations.
Flor'ida, in *Indiana*, a post-office of Madison co.
—A township of Parke co.
Flor'ida, in *Massachusetts*, a post-township of Berkshire co., abt. 115 m. W. by N. of Boston; *pop.* abt. 900.
Flor'ida, in *Missouri*, a post-village of Monroe co., on Salt River, abt. 13 m. E. of Paris.
Flor'ida, in *Ohio*, a post-village of Henry co., abt. 10 m. E. by N. of Defiance.
Flor'ida, in *New York*, a township of Montgomery co.
—A post-village of Orange co., abt. 110 m. S.S.W. of Albany. It is the birthplace of Wm. H. Seward.
Flor'ida, ("land of flowers,") the most S. State of the American Union, reaching nearly to the tropic of Cancer, and whose major portion forms an extensive peninsula between the Atlantic and the Gulf of Mexico, having an extent in length of abt. 385 m., by a breadth of, in the lower part of the State, abt. 50 m., expanding in the upper portion to abt. 250, and giving an average width of abt. 84 m. Coast-line is 1,146 m. *F.* lies between Lat. 25° and 31° N., and Lon. 80° and 87° 35′ W.; having N. Alabama and Georgia, E. the Atlantic, S. the Strait of Florida, and W. the Gulf of Mexico and a small portion of Alabama. *Area*, 54,240 sq. m. of land, or 34,713,600 acres. *Gen. Desc.* The entire peninsula of *F.* is of diluvial origin, the Gulf Stream, which sets from the Gulf of Mexico round the S. and S.E. coasts, having in the course of ages worn away the land, and formed the low sandy islands generally known by the name of the *Florida Keys*, or "Martyrs," separated from the mainland by a navigable channel which, however, is both difficult and dangerous. There are a few good harbors, the best of which are those of Pensacola and Tampa on the W., and of St. Augustine and St. Mary's on the E. coast. *F.* is naturally divided into two different zones, about the 28th degree of Lat. The surface of the portion N. of this parallel is more elevated, broken, and wooded, than that on its S. side, which is generally level and marshy, and may be termed the true palm-tree section of the U. States. The centre rises into hills of no great elevation, which slope gradually towards the Gulf of Mexico and the Atlantic, and N.W. towards the body of the continent; but proceeding toward the S., the entire surface becomes a dead flat, and, in great part, indurated plain, terminating at the extreme point of the peninsula in heaps of sharp rocks, partially covered with shrubby pines. *Rivers, Lakes, &c.* The chief rivers of *F.* are the St. John's, Apalachicola, Escambia, Suwanee, Choctawatchee, St. Mark's, Perdido, and Conecuh. The first (falling into the Atlantic) partakes more of the character of an inlet or sound than of a river, from the number of lakes formed by its enlargements. Its chief affluent, the Ocklawaha, rises in the centre of the peninsula, and flows N.W. for abt. 80 m., when it unites with the St. John's proper (which has its source within a few miles of the ocean), and the embodied stream, after a tortuous course of 130 m., falls into the Atlantic, near the N.E. extremity of the State. It is a curious fact, that, though a fresh-water stream at its mouth, it is often rendered brackish toward its head from the waters of the Gulf of Mexico being driven by the winds into the lagoons and marshes among which it has its sources. Both branches of this river are navigable for some distance above their junction, and have an increasing trade. The Apalachicola has its æstuary in that portion of the State W. of the Peninsula. It has a course of abt 100 m. N. to S., but does not possess a depth of water proportionate to its magnitude. This river is considered to form the boundary between E. and W. Florida. There are many lakes, the principal of which are those of Okechobee, Apopka, Kissimee, in the middle of the peninsula and Lake George, an enlargement of St. John's River The S. part of *F.* is covered with a surface of swamp, called the *Everglades*, of immense extent, and covered with thousands of islands, varying in size from one-fourth of an acre to hundreds in their area; these lakes (if lakes they can be called) have a depth of from 1 foot to 6 ft. *Soil, Vegetation, &c.* The whole peninsula of *F.* appears to rest upon a base of shell-limestone of comparatively recent formation and different degrees of hardness. The soil on the banks is often very fertile; but the proportion of good and cultivable land is, notwithstanding, believed to be but small. In the N. part of the E., and in the W. of the State, there are many finely variegated and fertile tracts, and the country is often richly wooded. One of the most valuable is a tract of abt. 150 m. long by 30 broad in W. Florida, nearly in the centre of which is Tallahassee, the capital of the State. There are some very extensive swamps and savannas, particularly the swamp of Okefonoco, half in this State and half in Georgia; and there are also some very extensive marshes. The lands of *F.* have been distinguished as *high hummock*, *low hummock*, *swamp*, *savanna*, and *pine land*. High hummock is timbered with live and other oaks, magnolia, and laurel, and is the best land for general purposes. Low hummock, with the same kinds of timber, is liable to overflow; when properly drained, however, it is the best land for sugar-cane. Savannas are the river alluvions, usually very rich, but requiring drainage in all ordinary years. The soil, taken on the whole, may be said to be sandy, except in the hummocks. The best lands of the State are unavailable for want of drainage. A large area is very well suited to grazing and stock-raising. *Veget. Prod., &c.* The forest-trees of this State comprise the live-oak (especially adapted to ship-building), with other varieties of the quercine genus, swamp-cypress,



Fig. 1035. — SEAL OF THE STATE.

pine, hickory, laurel, the dogwood, magnolia, &c The *palma christi*, or castor-oil bean, attains to the growth of a tree, while, on the Keys and small islands fringing



Fig. 1036. — CASTOR-OIL BEAN, OR PALMA CHRISTI. (*Ricinus communis.*)

the coast, satin-wood, mastic, lignum-vitæ, and boxwood flourish in the wildest luxuriance. *F.* is preëminently the land of fruits and flowers. Owing to its mediary climatic position, the fruits of both zones — temperate and torrid — find a luxuriant development here. The orange is largely and most successfully cultivated; it and the lemon are produced to a degree of perfection surpassing the qualities of its congeners in the S. of Europe; the lime, olive, citron, shaddock, loquat (or Japan plum), pineapple, papaw (or bread-fruit), custard-apple, guava, pomegranate, banana, date-palm, &c., flourish and fructify, side by side, with the grape, nectarine, plum, peach, apple, melon, &c., of colder latitudes. The cultivation of the cranberry, too, is spoken of as likely to be highly successful. *Zöol.* The deer, wildcat, raccoon, opossum, squirrel, armadillo, &c., and a variety of the serpent tribe, have their habitat in this State. Birds are numerous, and present a great variety. The rivers and creeks abound with fish, turtles, &c., and at the same time many are infested with alligators. *Climate.* The climate of *F.* is one of elevated general temperature; it is, however, much softened by the breezes from the sea, by which the State, especially that portion toward the peninsula, is almost surrounded. The winters are so mild, that *F.* is a great resort for invalids, especially those affected with pulmonary symptoms. Indeed, as a winter resort, there is no climate in Southern Europe that can be compared to it, if there be any in the world. In winter, rains are seldom, frosts rare, and the condition of a genial, bright sky, and delicious breezes prevail. In S. Florida, the mercury seldom falls below 30° Fahr., and seldom rises above 94° in the shade. Malarial fevers prevail in some parts, and the seaport towns have occasionally, as in 1889, had severe epidemics of yellow fever. The summer heat is nowhere extreme, the range between mean summer and winter temperature being but 20°. The soil, though much of it a sterile sand, is aided in fertility by the abundant moisture, the rainfall being about 54 inches annually. Wide tracts are of unsurpassed fertility.—*Min.* *F.* is not rich in minerals, it having, however, some iron ore and coal, with peat, limestone, coral, ochre, amethyst, topaz, carnelian, &c. Coquina, a conglomerate of sea-shells, yields an excellent stone for building purposes. Mineral springs are numerous. Of its mineral products far the most important are extensive deposits of phosphate rock, discovered in 1888, and now actively mined as a fertilizing material.—*Ind.* The agricultural products of *F.* consist chiefly of maize, oats, tobacco, cotton, sugar-cane, &c. Of these maize far surpasses the other cereals in its production. The valuable sea-island cotton, elsewhere limited in its growth to a few islands, is here produced far inland, and forms an important item in the annual product. The annual yield averages about 60,000 bales. The raising of early vegetables and fruits, including strawberries, for the northern market, is a large and profitable industry. Large herds of cattle are raised, and dairy products are an item of some importance in the marketable produce of N. Florida. Among the industries of the State is a large business in the production of pine lumber, and live oak timber for shipbuilding, while the preparation of naval stores, turpentine, tar,

pitch, and rosin is actively pursued in the pine forests of the State. Valuable fisheries abound along the coast, including those for corals and sponges, and the inland waters are well stocked with fish. Oysters are abundant in many localities. Manufactures have not been greatly developed, the principal products being cigars, which are made in large numbers. Other products embrace salt, obtained by evaporation of sea water, cotton-seed oil and meal, fertilizers produced from phosphate rock, and textile goods from palmetto fibre.—*Political Divisions, &c.* The State is divided into 45 counties, as follows:

Alachua,	De Soto,	Jackson,	Manatee,	St. John's,
Baker,	Duval,	Jefferson,	Marion,	Santa Rosa,
Bradford,	Escambia,	Lafayette.	Monroe,	Sumter,
Brevard,	Franklin,	Lake,	Nassau,	Suwanee,
Calhoun,	Gadsden,	Lee,	Orange,	Taylor,
Citrus,	Hamilton,	Leon,	Osceola,	Volusia,
Clay,	Hernando,	Levy,	Pasco,	Wakulla,
Columbia,	Hillsborough,	Liberty,	Polk,	Walton,
Dade,	Holmes,	Madison,	Putnam,	Washington.

The chief towns are Tallahassee (the capital), Jacksonville, Key West, Tampa, De Land, Pensacola, St, Augustine, Orlando, Gainesville, Fernandino, Sanford, Palatka, and Ocala. *F.*, owing to its abundant facilities for water communication, has not had great need of railroad extension, but it possessed, in 1896, 3,060 miles. Regular steamship communication exists with New York, Havana, and other ports.—*Government.* The new Constitution, ratified in 1886, makes some sweeping changes in the State government. The patronage of the governor, hitherto unusually large, is much reduced. The judges of the circuit court, and the State attorneys are still appointed by the governor. Supreme court judges are elected by popular vote. The homestead law remains the same, giving the widow, however, certain benefits not clear in the former constitution, as interpreted by the Supreme Court; the public schools are liberally provided for, and provision is also made for necessary amendments by the people.—*Lands.* The State owns large portions of the public lands, which are held for sale at from 80 cents to $1.25 per acre; much of it, however, is swamp land, of which a large section has been drained within the recent period, and a considerable area of highly fertile soil added to the agricultural lands of the State This drainage has been done by a canal, and the reclaiming of much larger areas in this manner is hoped for.—*History.* Florida was discovered by Juan Ponce de Leon, on Easter Sunday (called in Spanish *Pascua Florida*), 1513—whence its name. The Spaniards failed in an attempt to colonize it in 1521; it was explored in 1539, and the French Calvinists sent an expedition thither in 1562. The new settlers were attacked and defeated by a Spanish force in 1565. It remained in Spanish possession until 1763, when it was ceded to the British, soon after which it was divided into E. and W. Florida. The Spaniards retook it in 1781, and they were guaranteed in the possession of the same by the peace of Versailles in 1783. By a treaty concluded between Spain and the U. S. in 1819, *F.* passed over to the American people, and became a part of the Union as a territory, under the general government. A constitution was adopted in 1833, and it was admitted into the Union as an independent State, March 3, 1845. When discovered, *F.* was inhabited by a number of wild tribes, included in two families, the Timucuas, who dwelt on the lower St. John's, and the Chahta-Muskokis, who possessed the rest of the country. Subsequently, the latter were displaced by others of the same stock, known as Seminoles, (*isti semoli*, wild men, or strangers). In 1835, a deadly war broke out between the settlers and this fierce and warlike tribe. This war, which suspended what progress had hitherto been effected, and cost the nation upward of $30,000,000, is known as the Seminole War. It continued until 1842, and was attended by many fierce engagements and much loss of life. Eventually the Seminoles surrendered, and were removed to a reservation in the Indian Territory, with the exception of some 360 who remained in the Everglades, where their descendants still reside. An act of secession from the U. S. was passed by a convention, January 10, 1861, and Fort Pickens, at Pensacola, held by Union troops, sustained a severe bombardment from the Confederate forces. Jacksonville was several times occupied and evacuated by the contending forces, but St. Augustine, taken by a Union force early in the war, was held until its end. The only engagement of importance within the State was at Olustee, near Ocean Pond, on February 20, 1864, in which the Union forces were defeated with considerable loss. *F.* was readmitted to the Union, July 4, 1868, having accepted the 14th amendment to the constitution.

Flor'ida Keys, or Reefs, in *Florida*, a chain of small islands, keys or reefs, and sand-banks, extending S.W. from Cape Florida, abt. 220 m. They are very considerable in number, but only a few are of any importance. Among these may be mentioned Cayo Largo, Indian Key, Long Island, Old and New Matacombs, Cayo de Boca, and Thompson's Island or Key West, upon which the town of Key West is built.

Florid Gothic, *n.* (*Arch.*) See Perpendicular Style.

Florid'ity, *n.* Freshness of color; floridness.

—Embellishment with flowers of rhetoric.

Flor'idly, *adv.* In a florid manner.

Flor'iduess, *n.* Brightness, or freshness of color, or complexion.

—Embellishment; brilliancy of ornament, applied to *style*.

Flori'do, (Rio.) a village of Mexico, in the State of Durango, abt. 180 m. N. by W. of the town of Durango; *pop.* abt. 2,000.

Floriferous, *a.* [Lat. *flos*, a flower, and *ferre*, to bear.] Producing flowers.

Florifica'tion, *n.* [Lat. *flos*, and *facere*, to make.] The act, time, or process of flowering.

Flor'iforu, *a.* [Fr. *floriforme.*] Having the form of a flower.

Flor'ilege, *n.* [Lat. *florilegium.*] A gathering of flowers.

Flor'iu, *n.* [Fr., from It. *fiorino;* L. Lat. *florenus;* Ger. *floren.*] (*Coins.*) The name of a gold coin first struck in Florence in the 13th century. It was the size of a ducat, and had on one side a lily, and on the other the head of John the Baptist. Some derive the name from the city, and others from the flower. These coins were soon imitated all over Europe. It was out of them that the German gold guldens of the Middle Ages and the modern guldens arose. These last are still marked by the letters *Fl.* At present the English two-shilling silver piece, first coined in 1849, bears the official name of florin. It has nearly the value of the Austrian new silver florin, a unit of account, worth 48·6 cents of our money.

Florin'ians, *n. pl.* (*Eccl. Hist.*) A sect of Gnostics of the 2d century, who were so called after a priest, Florinus, and who inclined to the views of the Valentinians. They maintained that light and darkness were two eternal principles, from which respectively all the good and evil in the universe had proceeded. See Gnosticism.

Flo'ris, Francis, a Flemish historical painter, b. at Antwerp, 1520, and surnamed the "Flemish Raphael." He was held in high estimation by Charles V. and Philip II. of Spain, and amassed a very large fortune. Among his best works are the *Twelve Labors of Hercules*, and a *Last Judgment.* D. 1570.

Flor'is, in *Iowa*, a post-village of Davis co., abt. 75 m. S.W. of Iowa City.

Flor'issant, in *Missouri*, a post-village of St. Louis co., abt. 18 m. N.W. of St. Louis.

Flo'rist, *n.* [Fr. *fleuriste.*] One skilled in flowers.—One who writes a flora, or an account of plants.

Flo'roon, *n.* [Fr. *fleuron.*] A border wrought with flowers.

Flos'cular, *a.* Same as Flosculose, *q. v.*

Flos'cule, *n.* [Lat. *flosculus*, dim. of *flos*, a flower.] (*Bot.*) A partial or lesser floret of an aggregate flower.

Flos'culose, Flosculous, *a.* [See Floscule.] (*Bot.*) Applied to flowers which consist of many tubular monopetalous flowers.

Flos-fer'ri, *n.* [Lat., flower of iron.] (*Min.*) A coralloidal variety of Aragouite (*q. v.*) or carbonate of lime, found in iron-ore beds. It resembles a loosely intertwined or tangled white cord. It occurs at Lockport and Edenville, N. Y., in Chester co., Pa., and in great perfection in the Styrian mines.

Floss, *n.* [Icel. *flos*, the nap of cloth; Ger. *floss*, a float.] Untwisted filaments of the finest silk, used in embroidery upon satin, &c.

(*Metallurgy.*) A fluid glass floating upon the iron produced by the vitrification of the oxides and earths in a puddling furnace.

(*Bot.*) A downy substance found in some plants, as maize.

Floss'-hole, *n.* The hole for the removal of the slag in a puddling furnace.

Flossifica'tion, *n.* [Lat. *flos*, a flower, and *facio*, to make.] A flowering or expansion of flowers.

Floss'-silk, *n.* The portion of ravelled silk broken off in the filature of the cocoons, and used for coarser fabrics.

Flo'ta, *n.* [Sp.] A fleet; specifically the Spanish fleet which used to sail annually from Cadiz to Mexico, to bring home the productions of the latter country.

Flot'age, *n.* [Fr. *flottage.*] Act of floating; that which floats on the water.

Flot'ant, *n.* (*Her.*) Applied to an object which is flying in the air; as, a banner-*floatant.*

Flota'tion, *n.* [From Float, *q. v.*] The act of floating; the doctrine of floating bodies.

Plane line of flotation. The line or plane in which the horizontal surface of a fluid cuts a body floating in it.

Flotil'la, *n.* [Sp. dim. of *flota*, a fleet.] (*Naut.*) This term is applied to any fleet, how numerous soever, composed of small vessels; as, the gun-boat *flotilla.*

Flot'sam, *n.* [A.S. *flotan*, to float.] (*Law.*) See Wreck.

Flounce, *v. n.* [Sw. *flunsa;* D. *ploussen*, to plunge. See Plunge.] To flounder; to throw the limbs and body one way and the other; to spring, turn, or twist with sudden effort or violence; to struggle, as a horse in the mire; to move with jerks and agitation; to be uneasy.

"You neither fume, nor fret, nor *flounce*." — *Swift.*

Flounce, *v. a.* To deck or trim with a flounce or flounces, as a dress.

Flounce, *n.* A sudden jerk or spring of the body; a quick, irregular, and violent motion.

—A frill or ruffle sewed to the skirt of a dress, with the lower border loose, spreading, and waving; as, "a muslin *flounce*, made very full, would be agreeable."—*Pope.*

Floun'der, *n.* [Ger. *flünder*; Sw. *flundra.*] (*Zoöl.*) See Pleuronectidæ.

—*v. n.* To fling the limbs and body, as in making efforts to progress; to struggle with violent and irregular motion, as a horse in the mire; to roll, toss, and tumble; as, "he deeper sank by *floundering* in the mud." – *Pope.*

Floun'der-man, *n.* One who deals in flounders, or other fish.

Flour, *n.* [Fr. *fleur de farine*, from Lat. *flos, floris.*] (*Chem.*) The finely-ground meal of wheat, and of any other corn or *cerealia* which has been reduced to powder in a mill. The component parts of *F.* are starch, gluten, sugar, gum, bran, and water, the prime element being starch. No substance is more adulterated than wheat-flour; and there are several modes of detection, the best of which is the specific-gravity test, as a vessel which contains one pound of wheat-flour will contain nearly a pound and a half of any other. Some chemical tests are also extremely good. Firstly, nitric acid, which has the effect of coloring wheat-flour of a fine orange-yellow, while it does not affect the color of fecula or starch; 2dly, muriatic acid colors *bona fide* wheat-flour of a deep violet, but dissolves fecula and starch into a light viscous fluid, which is decomposable by the admixture of any alkali. Another test is the amount of ash left after the sample being burnt. Wheat-flour yields, on the average, 0·8 per cent.; rye-flour, 1·0; bean and pea-meal, 3; and linseed-meal, 10 per cent of ash, by which means adulteration can be detected.

Flour, *v. a.* To convert into flour.

—To sprinkle with flour.

Flour'-barrel, *n.* A barrel made to hold flour.

Flour'-box, Flour-dredge, *n.* A box to hold or sprinkle flour; a dredging-box.

Flourens, Marie Jean Pierre, a French physiologist, b. at Maureilhan, 1794, known as one of the most distinguished modern savans, and as the author of many most learned works in physiological science. He was Professor of Comparative Physiology in the Museum of Natural History in Paris, Perpetual Secretary of the Academy of Sciences in the same city, a member of the English Royal Society, and of the academies of Edinburgh, Stockholm, Munich, Madrid, Turin, and of almost every other capital in Christendom. In 1837 he sat as deputy for the arrondissement of Bezières, but took no active part in politics; in 1840, was elected member of the Académie Française; in 1846, was made a peer of France, and in 1855, Professor in the College of France. Neither honors nor revolutions, however, interrupted his studies and researches as a physiologist. One of his best-known works is *Duration of Human Life, and the Quantity of Life on the Globe*, published in 1854. *F.* considers that he has discovered the physical law of the duration of life, which is a multiple of five in respect to the time of the growth of the animal. Thus, if the horse attains his full growth at the age of five — by full growth meaning when once the bones and epiphyses are united—he should live to the age of twenty-five; and if man attains his full growth at the age of twenty, he ought to live a hundred years; but that, in man, in order to have any chance of attaining the limit of the allotted period, it is necessary, above all, to lead a "sober life;" by which he means "good conduct, an existence always occupied, labor, study, moderation, sobriety in all things." He was promoted Grand Officer of the Legion of Honor, April 24, 1845, and made member of the municipal Council of Paris in 1864. Among his most important works, besides the above-quoted, we may mention his *Recherches Expérimentales sur les Propriétés et les Fonctions du Système Nerveux dans les Animaux Vertébrés* (1824); with a supplementary volume, entitled, *Expériences sur le Système Nerveux* (1825); *Recherches sur le Développement des Os et des Dents* (1842); *Anatomie Générale de la Peau et des Membranes Muqueuses* (1843) — a work tending to demonstrate the unity of the human race, by showing that there are no essential differences between the structure of the skin in the negro and the European; and his *Théorie Expérimentale de la Formation des Os* (1847), perhaps the most celebrated of his works. Among his smaller and popular works are his *Analyse Raisonnée des Travaux de Georges Cuvier* (1841); *Buffon, Histoire de ses Idées et de ses Travaux* (1844); *De l'Instinct et de l'Intelligence des Animaux* (1841); *Examen de la Phrénologie* (1842); *Histoire de la Découverte de la Circulation du Sang* (1854); *Examen du livre de M. Darien sur l'Origine des Espèces* (1864); and his *Eloges Historiques* — a beautifully written series of scientific biographies. D. 1867.

Flour'ing, *n.* The business of converting grain into flour.

Flour'ish, *v. n.* [Fr. *fleurir;* Lat. *florere*, from *flos*, a flower.] To come out in blossom; to thrive; to grow luxuriantly; to increase and enlarge, as a plant. — To be in a prosperous or successful condition. — To use florid language; to make a display of figures and lofty expressions; to be copious and flowery.

"Cicero dilates, *flourishes*, and gives example instead of rule." *Baker.*

—To make bold or ornamental strokes in writing. — To vaunt; to boast; to use braggadocio.

—*v. a.* To adorn with beautiful figures; to ornament with anything showy. — To set off with florid expressions; to embellish; as, "*flourished* with much fabulous matter." *Bacon.*

—To cause to move in circles or vibrations; to brandish, as a sword.

—*n.* Grace; beauty; ornament; as, "the vain *flourish* of fortune." — Parade of words and figures; ambitious ornament or amplification; ostentatious embellishment; as, "a rhetorical *flourish*." — Figures formed by bold, irregular lines, or fanciful strokes of the pen or graver; as, the "*flourishes* about a capital letter." — A brandishing, as of a sword.

(*Mus.*) To indulge in loose or showy passages, for the purpose of ornament or prelude.

Flour'isher, *n.* One who flourishes.

Flour'ishing, *p. a.* Thriving; prosperous; increasing; making a show.

Flour'ishingly, *adv.* With flourishes; prosperously; ostentatiously.

Flour, (St.,) a town of France, dep. Cantal, 42 m E.N.E. of Aurillac; *pop.* 5,811.

Flour'y, *a.* Resembling flour.

Flout, *v. a.* [A.S. *flitan*, to strive; Goth. *flautan*, to act

[Florida.]

MAP SHOWING PARTS OF LAKE, ORANGE AND VOLUSIA COUNTIES. Enlarged Scale. ALK OF MILES.

SOUTHERN PORTION OF FLORIDA. ON SAME SCALE AS MAIN MAP.

SCALES.

Statute Miles, 69.16 = 1 Degree.

Kilometres, 111.307 = 1 Degree.

Rand, McNally & Co.'s 11 x 14 Map of Florida.

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FLORIDA

Land area, 54,240 sq. m.
Water area, 4,440 sq. m.
Pop. '95 ...464,639
Pop. '90 ...391,422
Male 201,947
Female .189,475
Native ..368,490
Foreign . 22,932
White ..224,949
African .166,180
Chinese 108
Japanese 14
Indian 171

COUNTIES.

Alachua. . .C 11
Baker .....B 11
Bradford....C 11
Brevard.....F 14
Calhoun.....B 5
Citrus. .....E 11
Clay.....B 12
Columbia ...B 10
Dade.....I 14
De Soto.....H 12
Duval .....B 12
Escambia ...A 1
Franklin ....C 6
Gadsden ....A 6
Hamilton ...B 9
Heruando...E 11
Hillsboro ...G 11
Holmes .... A 1
Jackson ....A 5
Jefferson ...B 8
Lafayette ...C 9
Lake .....E 12
Lee .....J 13
Leon .....B 7
Levy .....D 10
Liberty .....B 6
Madison ....B 9
Manatee ....H 11
Marion.....D 11
Monroe .....H 4
Nassau.....A 12
Orange.....E 13
Osceola .....G 13
Pasco .....F 11
Polk .....G 12
Putnam .....C 12
Santa Rosa..A 2
St. John.....C 13
Sumter.....E 11
Suwanuee...B 9
Taylor .....B 8
Volusia .....D 13
Wakulla ....B 7
Walton .....A 3
Washingtou B 4

CHIEF CITIES.

Pop.—Thousands.

25 Jacksonville B 12
17 Key West J 3
16 Tampa ...G 10
11 Pensacola B 1
5 Ocala .....D 11
4 St. Augustiue C 13
4 Tallahassee B 7
3 GainesvilleC 11
3 Apalachicola C 5
3 Orlando ...E 13
3 Palatka ...C 12
3 Fernandina A 13
2 Lake City..B 10
2 Bartow ...G 12
2 Milton ....A 1
2 La Villa Junction..B 12
2 Deland....D 13
2 Sanford...E 13
1 Daytoua ..D 14
1 Warrington B 1
1 Jasper ....B 10
1 Quincy....A 6
1 KissimmceF 12
1 W. Palmbeach I 15
1 Carrabelle C 6
1 Monticello B 8

Pop.—Hundreds.

9 Marianna ..A 5
9 Greencove Springs..C 12
8 S. Lake Weir..E 11
8 Titusville ..E 14
8 Liveoak...B 9
8 Leesburg ..E 12
8 Punta Gorda H 11
8 Madison ..B 9
7 Starke.....C 11
7 Sumterville E 11
7 Ellaville ..B 9
7 De Funiak Springs..A 3
6 Brooksville E 11
6 Mandarin ..E 12
6 Micanopy..D 11
6 Waldo ....C 11
6 Myers.....I 12
6 Longwood E 13

Florida—cont'd.

Pop.— Hundreds.

6 Philips ....B 12
6 Eustis.....E 12
6 Tarpon Springs..F 10
6 Chipley ...A 5
6 Lakeland ..F 12
5 White Springs B 10
5 Arcadia...H 12
5 Bagdad ...A 2
5 Norwalk..D 12
5 New Smyrna D 14
5 Dunnellon D 10
5 Apopka ...E 12
5 Crescent City D 13
5 Fort WhiteC 10
5 New Augustine..C 13
5 Ormond ..D 14
4 Minneola ..E 12
4 Lake Weir D 11
4 River Junction A 6
4 Lake Worth I 15
4 Muscogee..A 1
4 Waukeenah B 7
4 Lake Maitland E 13
4 Avonpark G 12
4 Cedar Keys D 9
4 Inverness..E 11
4 Palmetto ..G 10
4 Chattahoochee A 6
4 Citra .....D 11
4 S. Jacksonville..B 12
4 St. Andrews Bay..B 4
4 San Matco..C 13
4 Port Orange D 14
4 Lloyd .....B 7
4 Arredonda C 10
4 St. Nicholas B 12
4 Fort Meade G 12
3 Plant City..F 11
3 Orange City E 13
3 Hawthorn D 11
3 Branford..C 10
3 Macclenny B 11
3 Dade City..F 11
3 Cocoa .....F 14
3 St. Petersburg G 10
3 Ocoee .....F 12
3 Baldwin...B 11
3 Bristol ....B 6
3 Olustee ...B 11
3 Reddick ..D 11
3 Alafia .....G 11
3 Lake Como D 13
3 Pine Barreu A 1
3 Zellwood ..E 12
3 Bethel ....A 3
3 Caryville..A 4
3 Higley ....E 12
3 Molino ....A 1
3 Ponce de Leon..A 4
3 Sorrento ..E 12
3 Windsor ..C 11
3 Iamonia ..A 7
3 Brent.....B 1
3 Callahan ..B 12
3 Cerro Gordo A 4
3 Clearwater Harbour..G 10
3 Cottondale A 5
3 Floral CityE 11
3 Greenville B 8
3 Sanderson B 11
3 Orangepark B 12
3 Fort Reed E 13
3 Anthony..D 11
3 Mayport ..B 13
3 Brouson ..D 10
3 Manatee ..H 11
3 Port Tampa G 10
3 Winter Park E 13
3 Melrose ...C 11
3 Kings Ferry A 12
3 Highland ..B 12
3 Pablo Beach B 13
3 Orange Bend E 12
3 Wildwood E 11
3 Caupville..C 11
3 Haines City F 12
3 San Antonio F 11
3 Welshton ..D 12
3 Lawtey....B 11
3 BloomfieldE 12
3 Bowling Green..G 12
3 Fairbanks C 11
3 Florence..C 12
3 Georgetown D 12
3 Hilliard...A 12

Florida—cont'd.

Pop.—Hundreds.

2 De Leon Springs..D 13
2 Seville ....D 13
2 Hague.....C 11
2 New Troy..C 9
2 Montclair E 12
2 Altamont ..E 13
2 Middleburg B 12
2 Aucilla....B 8
2 Sparr .....D 11
2 Crystal River E 10
2 Interlachen C 12
2 Sylvan Lake E 13
2 Oak Hill...E 14
2 Old Town..C 9
2 Point Washington..B 3
2 Rockledge F 14
2 Lake Butler B 11
2 Panasoffkee E 11
2 Pinecastle F 13
2 Pinclevel ..H 11
2 Portland ..B 3
2 Umatilla ..E 12
2 Alamo ....B 6
2 Astor .....D 13
2 Mount Dora E 2
2 Kingsley ..C 12
2 Neals Landing..A 5
2 Pinemount B 9
2 Stanton ...E 12
2 St. ThomasF 11
2 Braidentown H 10
2 Crawfordville B 7
2 Federal Point..C 13
2 Fort McCoy D 11
2 Freeport..B 3
2 W.Apopka E 12
2 Providence C 10
2 New Berlin B 12
2 Flemington D 11
2 Hollister ..C 12
2 Obrine Station B 10
2 Marion....B 10
2 Paola .....E 13
2 Orangedale C 13
2 McRae ....C 12
2 Oxford....E 11
2 Rosehill...E 11
2 Hampton ..C 11
2 Lakeville ..E 13
2 Newnansville..C 10
2 Orange Springs..D 12
2 Pemberton E 11
2 Bonifay...A 4
2 Bay View..G 10
2 Eucheeanna A 3

wrongly, to boast.] To mock; to insult; to treat with contempt; as, "you *flout* my insufficiency." — *Shaks.*

Flout, *v. n.* To practise mockery; to behave with contempt; to sneer; as, "to *flout* at fortune." — *Shaks.*

—*n.* An insult; a mock; a word or act of contempt.

Flout'er, *n.* One who jeers or derides.

Flow, *v. n.* [A. S. *fleovan;* Ger. *fliessen;* Icel. *fliota;* Rus. *plyva,* to flow. Cf. Lat. *pluere,* to rain; Sansk. *plu,* to swim; causative, to wash, to lave.] To run, as water from its spring or source; to move along with a constant change of place among the particles or parts, as waters, tears, or other fluids. — To melt; to become liquid.

"The mountains *flow* down at thy presence."—*Isaiah* lxiv. 1.

—To proceed; to issue; to emanate; to abound; to be in abundance; as, "the knowledge which *flows* from speculation." (*South.*) — To glide along smoothly, without harshness or asperity; to be smooth, as composition or utteraunce. — To rise; — opposed to *ebb.*

"This river hath thrice *flowed,* no ebb between."—*Shaks.*

—To circulate, as the blood in the veins. — To abound; to be full; as, "the *flowing* bowl."

—To hang loose and waving; as, "a *flowing* mantle of silk."—*Addison.*

—To move in a stream, as air.

—*v. a.* To cover with water; to overflow; to deluge; to inundate; as, "to *flow* the ground."

Flow, *n.* A stream of water or other fluid; a current of water with a swell or rise.

—The rise of water as opposed to the ebb. — Fulness; abundance; copiousness; a stream or abundance of anything; as, "a *flow* of words."

"The feast of reason, and the *flow* of soul."—*Pope.*

Flow'age, *n.* The act of flowing; the state of being overflowed.

Flow'er, *n.* [Fr. *fleur;* Lat. *flos.*] (*Bot.*) That portion of a plant which is formed by the union of all the organs which contribute to the formation of the seed. In common language, the word is used to convey the idea of the portion in which the gayest colors are found. A complete flower consists of the essential organs of reproduction, inclosed in two particular envelopes which protect them. These essential organs are called the *pistil* and *stamens.* The floral envelopes are termed *calyx* and *corolla.* The extremity of the peduncle, or pedicel, upon which the parts of the flower are placed, is called the *thalamus* or *receptacle.* (See the italicized words.)

—The early part of life, or rather of manhood; the prime; youthful vigor; youth; as, "in *flower* of age."—*Pope.*

—The best, primest, or most valuable part of anything; as, "the *flower* of the nation is consumed in its wars."
Addison.

—A figure, or ornamental expression; as, *flowers* of rhetoric.

—*pl.* (*Med.*) Menses.
(*Chem.*) A name formerly applied to different solid and volatile substances obtained by sublimation; as, *Flowers of Benjamin, Flowers of Sulphur,* &c.

Flow'er, *v. n.* To be in blossom; to bloom; to put forth flowers; as, "the *flowering* fields," "a *flowering* garland."—To flourish; to be in prime; to be youthful, fresh, and vigorous; as, "all my *flowering* youth." (*Shaks.*) —To froth; to ferment; to mantle, as new-bottled beer.

—*v. a.* To adorn with imitated flowers. — To cause to blossom.

Flow'erage, *n.* Abundance of flowers.

Flow'er-bearing, *a.* Producing flowers.

Flow'er-bud, *n.* A flower as yet unopened.

Flow'er-crowned, *a.* Garlanded or crowned with flowers.

Flow'er-de-luce, *n.* See IRIS.

Flow'ered, *p. a.* Embellished with figures of flowers.

Flow'eret, *n.* Same as FLORET, *q. v.*

Flow'er-fence, *n.* (*Bot.*) *Pointiana pulcherrima,* a plant of the order *Fabaceæ,* so called from being used for edges.

Flow'erfield, in *Michigan,* a post-village and township of St. Joseph co.

Flow'erful, *a.* Abounding in flowers.

Flow'er-garden, *n.* A portion of ground set apart for the cultivation of flowers.

Flow'er-gentle, *n.* (*Bot.*) *Amaranthus spinosus,* a species of amaranth.

Flow'er-head, *n.* (*Bot.*) The capitulum, or that mode of inflorescence in which all the flowers are sessile upon a broad plate, called the receptacle, as in the Daisy.

Flow'eriness, *n.* The quality of being flowery; floridity.

Flow'ering, *p. a.* Putting forth flowers; blossoming; blooming; expanding the petals, as plants. — Adorning with artificial flowers, or figures of blossoms.

Flow'ering, *n.* The season when plants blossom; the act of adorning with flowers.

Flow'ering-bush, *n.* (*Bot.*) *Butomus umbellatus,* a beautiful species of the genus *Butomus,* q. v.

Flow'ering-plants, *n. pl.* (*Bot.*) See PHÆNOGAMIA.

Flow'er-inwov'en, *a.* Decked, or adorned with flowers

Flow'erless, *a.* Destitute of flowers.

Flow'erlessness, *n.* The state or quality of being destitute of flowers.

Flow'erless-plants, *n. pl.* (*Bot.*) See CRYPTOGAMIA.

Flow'er-maker, *n.* One who manufactures artificial flowers.

Flow'er-piece, *n.* A picture or painting representing flowers.

Flow'er-pot, *n.* A fictile vessel for a flowering-plant.

Flow'ers, (Artificial.) See ARTIFICIAL FLOWERS.

Flow'er-stalk, *n.* The stem of a flower.

Flow'ertown, in *Pennsylvania,* a village of Montgomery co., abt. 8 m. E. by S. of Norristown.

Flow'er-work, *n.* Imitation of flowers by art.

Flow'ery, *a.* Abounding in flowers or blossoms.

—Adorned with real or artificial flowers; as, "the *flowery*-kirtled Naiades." (*Milton.*) — Ornate; florid; figurative; highly embellished with figurative language; as, "a *flowery* and ornate style."

Flow'ery, in *Nevada,* a village of Storey co., abt. 5 m. from Virginia City.

Flow'ing, *p. a.* Running, as a fluid; issuing; proceeding.

—Fluent; smooth, as of style.

Flow'ing, *n.* Rise or great abundance of water; an overflow; the act of moving, as a fluid.

Flow'ingly, *adv.* With volubility; with abundance and smoothness.

Flow'ingness, *n.* The quality of being fluent or smooth in discourse or composition; as, "the *flowingness* of easy eloquence."—*Nichols.*

Flowk, *n.* Same as FLUKE, *q. v.*

Flown, *pp.* of FLY, *q. v.*

—*a.* Flushed; inflated; as, "*flown* with insolence and wine."—*Pope.*

Floyd, in *Georgia,* a W.N.W. co., bordering on Alabama; *area,* about 540 sq. m. *Rivers.* Coosa, Etowah, and Oostenaula rivers, and Cedar and other creeks. *Surface,* much diversified; *soil,* generally fertile. *Min.* Iron, plumbago, galena, slate, satin spar, and agate. Previous to its organization into a co. in 1833, it was in the possession of the Cherokee Indians. *Cap.* Rome. *Pop.* (1890) 28,391.

—A village of Camden co., on the Sautilla river, about 35 m. S. of Darien.

Floyd, in *Illinois,* a township of Warren co.

Floyd, in *Indiana,* a S. co., bordering on Kentucky; *area,* about 140 sq. m. *Rivers.* Ohio river, and Silver and Indian creeks. *Surface,* diversified; *soil,* in some parts fertile. *Min.* Iron ore, limestone, sandstone, and slate. Considerable manufacturing is carried on in this county, and at the capital, New Albany, are extensive glass works. *Pop.* (1890) 29,458.

—A township of Putnam co.

Floyd, in *Iowa,* a N.N.E. co.; *area,* about 504 sq. m. *Rivers.* Cedar river, and Lime and Shellrock creeks. *Surface,* undulating; *soil,* fertile. *Cap.* Charles City. *Pop.* (1897) about 18,000.

—A post-village and township of Floyd co., on the Red Cedar river, about 6 m. S.W. of Charles City.

Floyd, in *Kentucky,* an E. co.; *area,* about 410 sq. m. *Rivers.* W. Fork of Big Sandy river, and the headwaters of the Licking river. *Surface,* broken; *soil,* not very fertile. *Min.* Stone coal. *Cap.* Prestonburgh. *Pop.* (1890) 11,256.

Floyd, in *Louisiana,* a post-village, cap. of Carroll parish, about 190 m. N. of Baton Rouge.

Floyd, in *New York,* a post-town and township of Oneida county, about 6 miles east of Rome.

Floyd, in *Virginia,* a S.S.W. co.; *area,* about 444 sq. m. *Rivers.* Little river, an affluent of the Kanawha or New river. *Surface,* elevated and mountainous, lying between two parallel ranges of the Blue Ridge; *soil,* not fertile. *Min.* Copper and iron. *Cap.* Floyd. *Pop.* (1890) 14,405.

Floyd, or JACKSONVILLE, in *Virginia,* a post-village, capital of Floyd county, about 180 miles W.S.W. of Richmond. *Pop.* (1897) about 500.

Floyds'burg, in *Kentucky,* a village of Oldham co., about 35 m. W.N.W. of Frankfort.

Floyd's River, in *Iowa,* rises in O'Brien co., and flowing S.W., enters the Missouri River from Woodbury co.

Flu'ate, *n.* (*Chem.*) A compound of a metallic oxide, earth, or alkali, with fluoric acid.

Flu'cerine, *n.* (*Min.*) Same as FLUOCERITE, *q. v.*

Fluctis'onous, *a.* [Lat. *fluctus,* a wave, and *sonare,* to sound.] Having a sound similar to that of the waves.

Fluct'uant, *a.* [Lat. *fluctuans,* p. of *fluctuare,* to move like a wave.] Moving after the fashion of a wave; wavering; wanting resolution.

Fluct'uate, *v. n.* [Fr. *fluctuer;* Lat. *fluctuare,* from *fluctus,* a wave, from *fluere,* to flow.] To move hither and thither; to float backwards and forwards, as on waves; as, "the *fluctuating* fluids of liquid air." (*Blackmore.*) — To be wavering and unsteady; to rise and fall; to feel sudden vicissitudes; as, "the stocks *fluctuate.*" — To be irresolute or undetermined; as, "the man *fluctuates* between contending influences."

—*v. a.* To cause to move in the manner of a wave.

Fluctua'tion, *n.* [Fr., from Lat. *fluctuatio.*] A motion hither and thither like that of waves; — the state of being wavering or irresolute; a sudden rise or fall; as, the *fluctuations* of the gold market.

(*Surg.*) A term indicative of suppuration or a collection of fluid matter. When an examination is made to discover the nature of a swelling, and that a proper pressure is established, if pus or water is present, the motion felt under the fingers is a *F.;* but when air or wind, the sensation is of a crackling nature, called *crepitus.*

Flue, (*flu,*) *n.* [Perhaps from Lat. *flumen,* or from Icel. *flug;* Ger. *flucht,* flight, escape.] (*Build.*) An air-passage; more especially a narrow passage in the wall of a house, running from the bottom to the top, and constructed to carry off the smoke that arises from burning any kind of fuel in a grate or stove. The expression may be considered as being almost synonymous with the term CHIMNEY, *q. v.*, although it is more particularly applied to that part of the passage which is between the gathering or funnel of the chimney (see FIREPLACE), at the base, and the upper extremity of the chimney-shaft. The part in which a junction is formed between the gathering and the flue is called the *throat* of the latter. When a number of flues are built close together in a party-wall between two houses, or in the gable-ends of a single house, the wall itself is called a *stack,* or *chimney-stack,* and that part of it which rises above the roof is called the *chimney-shaft.* The walls which separate flues built side by side in a stack are called *withs,* the walls which form their front and back being named the *breast* and *back* respectively. The horizontal section of a flue is generally oval or circular in form when the wall is built of stone, and rectangular when it is of brick. When flues are built side by side in the party-wall of two houses consisting of three or more stories, that which rises from each fireplace is constructed to pass upwards through the wall on one side of the flue, which is connected with the fireplace in the room immediately above. Chimneys in party-walls, consequently, assume a winding form, but all turns in a chimney should be gradually curved, care being taken to avoid angles, which afford convenient places for the accumulation of soot, and impede the free passage of the sweeping-machine through the flues. In addition to this, angular turnings in flues frequently lessen the free draught of air that is necessary to carry off the smoke of the burning fuel below, and thus offer an obstruction to its ascent which cannot be readily removed. The cause of the ascent of smoke in a chimney is simply this: the fire burning in the grate heats the air in the flue, and causes it to become much lighter than the cooler air that fills the apartment with which the chimney communicates; the cooler air being heavier than the heated air which has been rarefied and expanded by the warmth of the fire, rushes into the fireplace and forces it upwards; this becomes heated in its turn, and is displaced by a rush of cooler air; and this process being continually and rapidly repeated, an upward current of air is produced, which carries off the smoke and vapor arising from the combustion of the fuel below. To prevent a chimney from smoking, it is necessary to let the flue be as high and as straight as it possibly can be, since the draught will be greater in proportion to the height of the chimney and the absence of all interior obstructions in the shape of elbows or angular turnings. In the next place, the opening of the fireplace and the throat of the chimney should be as small as they conveniently can be, that the greater part of the ascending air may pass through the fire prior to its ascent, and that the contraction of the chimney may cause it to rush through the narrow vent formed for its escape with greater force. The expediency of reducing the opening of the fireplace as far as suitableness will admit, may be shown by holding a newspaper before the orifice above the cavity which contains the fire. This will cause the fire to "draw up" instantaneously, and break into a blaze, — an effect which is produced solely by lessening the opening by which air is admitted into the chimney, and thereby causing the air itself to pass through the fire before it makes its way into the flue. If a chimney be constructed under the conditions above mentioned, it will very rarely be found to smoke; and even smoky chimneys may be cured by having recourse to these precautions, and by removing any obstacle that may exist in the interior to the free passage of the air and smoke. To prevent the entrance of sudden gusts and eddies of wind, the chimney-pots, which are almost always placed on the chimney-shafts to contract the space through which the smoke escapes into the open air, are generally surmounted with a revolving cap or cowl made of metal, which is constructed in such a manner that it is turned by the wind like a vane, and constantly presents the orifice through which the smoke issues to that quarter which happens to be exactly opposite to the point from which the wind is blowing. A more recent invention for producing the same result is obtained by placing a horizontal wheel, similar to the propeller of a steamship, over the top of the chimney, turned by means of the wind, thus creating a current of air up the flue.

(*Engineering.*) A passage surrounded by water, for the gaseous products of combustion in a steam-boiler, — in distinction from *tubes,* which hold water, and are surrounded by fire. Small flues are called *flue-tubes.*

Flue, *n.* [Ger. *flaum,* from *fliegen,* to fly. Cf. Lat. *pluma,* down, from the root *pluere, fluere,* to flow.] Light down, such as rises from beds, cotton, &c.; soft down, fur, or hair.

Flu'ellite, *n.* (*Min.*) Native fluoride of aluminium. Crystals, acute rhombic octohedrons with truncated apex; lustre vitreous; color white; transparent; rare.

Flu'ency, *n.* [L. Lat. *fluentia,* from *fluens.* See FLUENT.] Smoothness; freedom from harshness, applied to language; as, *fluency* of numbers. (*Garth.*) — Readiness of utterance; facility of words; volubility.

Flu'ent, *a.* [Lat. *fluens,* ppr. of *fluere,* to flow.] Flowing; liquid; passing; gliding; moving smoothly.

—Ready in the use of words; copious; having words at command and uttering them with facility or smoothness; voluble; as, "a *fluent* speaker," "a *fluent* utterance."

Flu'ent, or FLOWING, Quantity. (*Math.*) In Analysis, the variable quantity, considered as increasing or diminishing. The term denotes the same thing as *integral,* which is now universally used in its stead, the differential and integral calculus having superseded the methods of fluxions and fluents. — See FLUXION, INTEGRAL.

Flu'ently, *adv.* With ready flow; volubly; without hesitation or obstruction.

Flu'entness, *n.* The quality of being facile, voluble, and smooth of utterance; fluency.

Fluff, *n.* Fine; fine nap; soft down.

Fluff'y, *a.* Soft; downy; resembling fine or nap; as, a *fluffy* carpet.

Flu'gelman, *n.* [Ger., file leader, from *flügel,* a wing, and *mann,* a man.] A well-drilled soldier, who is ad-

vanced in front to give the time in the manual and platoon exercise; fugleman.

Flu'id, *a.* [Fr. *fluide;* Lat. *fluidus,* from *fluere,* to flow.] Having parts that easily move and change their relative position without separation, and which easily yield to pressure; not solid; liquid, as water, spirit, air.

—*n.* (*Physics.*) A body whose parts yield to the smallest pressure, and are moved among each other without any apparent sensible resistance. Some writers on scientific subjects distinguish between fluids and liquids. All liquids are fluids; but it does not necessarily follow that all fluids are liquids; for air, ether, mercury, water, and alcohol are all fluids; but water and alcohol are also liquids, because they wet, or create moisture on bodies, which mercury and air do not. Fluids are of two distinctive kinds — elastic and non-elastic; the former are comprised under the general term *Pneumatics,* and include all airs and gases; while the latter, which only include water and other aqueous fluids, are comprised under the general head of *Hydrostatics* and *Hydraulics.* The terms *elastic* and *non-elastic* are only used here in a relative sense, and not absolutely, as all fluids are elastic more or less, water being compressible, although offering resistance.

Fluid'ity, *n.* [Fr. *fluidité;* Lat. *fluiditas.*] That state of a substance in which its constituent particles are so slightly cohesive that they yield to the smallest impressions. The term is usually confined to express the condition of the so-called non-elastic fluids; and hence it denotes one of the three states in which matter exists: namely, the solid, the fluid or liquid, and the gaseous. The state of fluidity is best defined as that in which bodies tend to form *drops,* as this disposition does not belong either to bodies in a gaseous form, or to solid bodies reduced to fine powder. The formation of drops arises from this — that the molecules of fluid bodies adhere to each other with a certain force, while at the same time they glide over one another without any sensible resistance. It is incorrect to say that the molecules of bodies in a state of fluidity offer no resistance to separation; for, on bringing a flat disc of glass or metal into contact with the surface of a liquid, a very sensible degree of force is required to separate them. That adhesion exists among the molecules of fluid bodies is also proved by various other phenomena. Water or mercury on a flat plate of metal collects in globules, and when slowly poured into a wineglass will remain heaped up as it were above the level of the edge.

Flu'idize, *v. a.* To render fluid.

Flu'idness, *n.* Fluidity.

Flu'kan, *n.* (*Mining.*) The softest rock in metallic veins.

Fluke, *n.* [Ger. *flügel,* a wing.] (*Naut.*) The portion of an anchor which fastens into the ground. (See Fig. 121.)

—Either half of the tail of a whale; so called from their general similarity in shape to the flukes of an anchor.

(*Mining.*) The head of a charge; an instrument used for cleansing the hole previous to blasting.

Fluke, or **Fluke'-worm,** *n.* (*Zoöl.*) See DISTOMA.

Flukes, in *Virginia,* a post-office of Botetourt co.

Fluk'y, *a.* Shaped like a fluke; having a fluke.

Flume, *n.* [A. S. *flum,* a stream; allied to Lat. *fluere.*] A channel for the water that drives a mill-wheel.

—An artificial channel that conveys water for gold-washing.

Flu'minous, *a.* [Lat. *flumen,* a river.] Pertaining to, or abounding in, rivers.

Flum'mery, *n.* [W. *llymru,* sour; from *llym,* sharp.] (*Cooking.*) A kind of porridge, or hasty-pudding, made either of oatmeal or flour. When prepared of the former, the finest oatmeal is to be steeped for two or three days in cold water, this first water is then to be poured away, more water added, the whole well stirred together, then strained, and the fluid eventually boiled, with a little salt, till it thickens; it is then eaten like porridge, either with milk, milk and cream, sugar, or butter: in whichever way taken, flummery is a very excellent food, at once light and nutritious.

—Anything insipid or nothing to the purpose; flattery.

Flung, *imp.* and *pp.* of FLING.

Flunk, *v. n.* To fail through dread; to withdraw from any proposed undertaking from fear. (U. S.)

Flunk, *n.* A failure; withdrawing or backing out. (U. S.)

Flunk'y, *n.* [Probably allied to FLANK, *q. v.*] A servant in livery. — A mean, cringing, sycophautic, or obsequious man. — A man who undertakes to deal in stocks without experience.

Flunk'ydom, *n.* The collective body of flunkies.

Flunk'yism, *n.* The quality or character of a flunky.

Fluobo'rate, *n.* [Fr.] (*Chem.*) A combination of fluoboric acid with a base.

Fluobo'ric Acid, *n.* (*Chem.*) See BOROFLUORIC ACID.

Fluoc'erine, *n.* (*Min.*) A var. of FLUOCERITE, *q. v.*

Fluoc'erite, *n.* (*Min.*) Native fluoride of cerium, occurring near Fahlun in Swedeu, in hexagonal prisms and plates. Lustre, weak; color, bright-yellow or reddish-yellow.

Flu'ochlore, *n.* (*Min.*) A variety of BYROCHLORE, *q. v.*

Fluophos'phate, *n.* (*Chem.*) A combination of fluoric and phosphoric acids with a base.

Flu'or, Flu'or-spar, Flu'orite, *n.* (*Min.*) Fluoride of calcium. A common mineral product, frequently constituting a large part of the contents of metalliferous lodes and of veins of clay slate. It is found massive, rarely columnar. It generally crystallizes in cubes, but the primary form is a regular octohedron. Lustre, vitreous, sometimes splendent. It is of various colors, wine, yellow, greenish, and violet-blue being the most common: white, green, sky-blue, and brown specimens are found, and rarely red ones. Sp. gr. 3·01–3·25. *Comp.* Fluorine 48·7, calcium, 51·3. The finely colored fluors have been called, according to their colors, *false* ruby, topaz, emerald, amethyst, &c. The kind affording a green phosphorescent light is called chlorophane (Gr. *chloros,* green, and *phaino,* I appear), or *pyro-emerald.* It is abundant in Derbyshire, Eng., and is often called Derbyshire spar. Some of the varieties found there are beautifully banded, and are much prized for the manufacture of vases. It is also used for beads, brooch-stones, and other ornamental articles, but is difficult to work on account of its brittleness. Fluor-spar is used as a flux to promote the fusion of certain refractory minerals,— whence the name, from the Lat. *fluo,* to flow. It occurs in many places in this country. Fluoride of calcium exists in the enamel of the teeth and bones, in some other organic products, and in certain mineral waters. *Form.* CaF_2.

Flu'or-al'bus, *n.* [Lat., white flower.] (*Med.*) A mucous discharge from the vagina and uterus; the whites. In general, this is an affection the result of weakness, general and local, and should be treated by cold bathing, the douche, friction with the flesh-brush, tonics, wine, and an astringent lotion used as an injection.

Flu'or-ap'atite, *n.* (*Min.*) A variety of phosphate of lime containing fluorine.

Fluores'cence, *n.* The peculiar self-luminous appearance presented by certain substances on being viewed by reflected light. From being first observed in a particular kind of fluor-spar, it has received the name of *F.* Decoction of horse-chestnut bark and solutions of sulphate of quinine possess it in a remarkable degree.

Fluores'cent, *a.* Pertaining to fluorescence.

Fluorescent Rays. (*Optics.*) Certain rays that exist beyond the violet end of the spectrum, invisible under ordinary circumstances. If the prismatic spectrum be interrupted by a bath of esculin or sulphate of quinine, it will appear elongated at the violet end. The fluorescent rays are those that have the greatest actinic influence.

Fluor'ic Acid, *n.* (*Chem.*) See HYDROFLUORIC ACID.

Flu'orine, *n.* (*Chem.*) The hypothetical base of the fluorides and hydrofluoric acid properties have never been satisfactorily determined. Its components so closely resemble those of chlorine that but little doubt is entertained of its being very similar to that body in its leading characteristics. Symbol F; equivalent 19. Compounds containing *F.* can be easily decomposed and the element transferred from one body to another, but the extraordinary energy with which it combines with the metals and with silicon, a constituent of glass, have defeated attempts to obtain it in a pure state. Its principal compounds are *fluor* or *fluor-spar,* and *hydrofluoric acid* (*q. v.*). It also combines with most of the metals; also with boron, silicon, sulphur, selenium and phosphorous. No combination of *F.* and oxigen is known to exist. It is found somewhat sparingly in the mineral kingdom, in fluor-spar, topaz, some varieties of apatite and a few other minerals. It also exists in the ashes of sea-plants, sea-water, blood, milk and the human teeth. With boron and silicon it forms two compounds, which are absorbed by water, giving rise respectively to borofluoric and hydrofluoric acids (*q. v.*). In June, 1897, it was liquefied by Prof. Dewar at −185°C. The result was a yellow, mobile liquid, which had lost chemical activity.

Flu'orous, *a.* Pertaining to, or obtained from fluor.

Fluosil'icate, *n.* [Fr., from Lat. *fluor,* and *silicon,* q. v.] (*Chem.*) A compound of fluosilicic acid and a base.

Fluosilic'ic, *a.* [Fr. *fluosilicique.*] (*Chem.*) Containing fluoric acid with silex.

Fluosilic'ic Acid, *n.* (*Chem.*) See HYDROFLUOSILICIC ACID.

Flur'ry, *n.* [Probably a corruption of FLUTTER, *q. v.*] A sudden blast or gust of wind; a light, temporary breeze.

"The boat was overset by a sudden *flurry* from the north." *Swift.*

—Violent agitation; bustle; hurry: commotion; as, "this news threw her into a *flurry.*" — *Swift.*

—*v. a.* To put in agitation; to excite or alarm.

Flush, *v. n.* [A. S. *fleotan,* to float; Ger. *fliessen,* to flow, akin to Lat. *fluere.*] To flow and spread suddenly; to rush; as, the blood *flushes* into the face. — To come in haste; to start. (*B. Jonson.*) — To become suffused; to turn red; to blush.

—*v. a.* To cause the blood to flow or rise suddenly into the face; to put to the blush; as, "to *flush* the cheek with shame." — To redden suddenly; to cause to glow. — To elate; to elevate; to raise the spirits of; to animate with joy; as, "*flushed* with great victories and successes." — To cause to start; as, to *flush* a covey of birds.

To flush up joints. (*Masonry.*) To fill the interstices in, level, or flush with the rest of the work.

Flush, *n.* A sudden flow of blood to the face; or more generally, the redness resulting from such an afflux of blood; a blush; a bloom. — Sudden impulse, glow, or excitement. — A stream of water suddenly thrown on, for cleansing. — A hand of cards in which all are of the same suit.

—*a.* Flowing; affluent; abounding; well furnished; as, *flush* of money.

—Fresh; full of vigor; glowing.

—Consisting of cards of the same suit throughout.

(*Arch.*) The continuance in the same plane of the surfaces of two contiguous bodies is expressed by saying that they are *flush;* this is irrespective of the direction of the fibres or grain.

(*Naut.*) Applied to the deck of a ship, when it extends without break from stem to stern, as in a frigate.

Flush, *adv.* In a manner so as to be even or level with.

Flushed', *p. a.* Elated; excited; animated; — tinged with a red color, from the flow of blood to the face.

Flush'er, *n.* (*Zoöl.*) A bird of the genus *Collyrio,* the Lesser-butcher bird, or Red-backed Shrike, *Lanius collyrio.*

Flush'ing, *n.* A glow of red in the face from sudden flow of blood.

Flushing, a fortified seaport town of the Netherlands, prov. Zeeland, on the W. Scheldt, near the S. extremity of the island of Walcheren, 4 m. S.S.W. of Middleburg; Lat. 51° 26′ 42″ N., Lon. 3° 34′ 57″ E. The port is extensive, safe, and has deep water. It has an extensive trade with both E. and W. Indies, and was the birthplace of Admiral De Ruyter. *Pop.* (1895) 8,890.

Flush'ing, in *Michigan,* a post-township of Genesee county.

Flushing, in *New York,* the former name of a post-village and township of Queens co., bordering on Long Island sound. Now part of Greater New York.

Flushing, in *Ohio,* a post-village and township of Belmont co., about 10 miles N.W. of St. Clairsville; in a farming and coal region. *Pop.* (1897) about 1,000.

Flushing, in *Pennsylvania,* a village of Bucks co., on Neshaminy Creek, about 20 miles N.E. of Philadelphia.

Flush'ingly, *adv.* In a flushing manner.

Flush'ness, *n.* Freshness.

Flus'ter, *v. a.* [Icel. *flaustra,* to hasten imprudently; from *flaustr,* undue haste. Cf. Lat. *flustrum,* a swell of the sea, and Eng. *bluster.*] To precipitate; to hurry on; hence, to agitate; to confuse.

—*v. n.* To be in an undue hurry, bustle, or heat; to be agitated.

—*n.* Hurry; bustle; agitation; confusion; disorder.

Flus'ter, *v. a.* [Eng. *flush.*] To make hot or rosy with drink; to make half drunk.

—*n.* Heat or glow from drinking liquor.

Flustera'tion, Flustra'tion, *n.* State of being in a hurry, bustle, or confusion; undue agitation. (Colloq.)

Flus'tra, *n.* [A. S. *flustrian,* to weave.] (*Zoöl.*) A gen. of Zoöphytes, family *Alcyonidæ,* so called from the matlike structure of the polypidoms, which in this gen. are extremely plant-like, and by unscientific observers are generally regarded as belonging to the vegetable, and not to the animal kingdom. In some species, the polypidom assumes the appearance of a branching frond, with polype cells either on one side only, or on both sides; in others, it extends as an incrustation on rocks, shells, seaweeds, &c. The polype cells are arranged quincuncially, and are in juxtaposition, more or less quadrangular, flat, and with a distinct border, which is sometimes furnished with teeth or short spines. The polypes have the power of moving either the whole head at once, or the tentacles separately, and show no little activity, so that a living *F.* seen through a magnifying-glass, is a most beautiful and interesting object. One of the most common species is *F. foliacea,* which grows on hard ground in a few fathoms water, and is continually to be found torn up by the waves, and scattered on the shore.



Fig. 1037.
LEAF-LIKE SEA-MAT.
(*Flustra foliacea.*)

Flute, *n.* [Fr. *flûte;* Ger. *flöte;* Lat. *flare,* to blow.] (*Mus.*) A popular instrument, the use of which, under various forms, may be traced to the most remote ages. Of its origin no direct account can be given. By the ancient poets its invention was ascribed to gods and goddesses. Lucretius tells us that it derived its origin "from the breathing of the western winds over certain reeds." The sounds thus produced, he imagined, gave rise to the rural pipe, which, after undergoing many changes, has, by the ingenuity of later ages, been developed into one of the most elegant and fascinating instruments of which musical science can boast. In its primitive state the flute was played like the modern flageolet, with a mouth-piece at the upper end; and from the shape of this mouth-piece, which resembled the beak of a bird, it received the name of *flute à bec.* In this form, with slight alterations, it continued until the beginning of the last century, when it was gradually superseded by the *flauto traverso,* or transverse flute, so called from its being blown at the side, and consequently held in a horizontal position. At its introduction this instrument was about eighteen inches in length, and had but one key. Even in this state it was a great improvement on the old *flute à bec.* Shortly after, a movable head-joint was invented, its length being increased, and more keys added, some flutes at the present time having more than a dozen keys, and few less than six. By means of these they are enabled to execute any music, however chromatic, if within their compass, which extends from C below the treble to C in altissimo. Some few will go four notes lower, and an experienced player will reach E-flat in altissimo. In December, 1832, a flute of an entirely new construction was invented by Mr. Boehm, of Munich. It however remained in obscurity until 1837, when it was adopted and introduced to the French professors by Mr. Cadmus; but they considered its adoption would be attended with too much trouble, in consequence of its having an *open* G-sharp key. This, however, was soon after remedied by Mr. Dorus, who put a *shut* G-sharp key in its place. It now became universally adopted; and having in its altered state received the approval of the Royal Academy of Fine Arts in Paris, has been thoroughly established in France ever since.



Fig. 1038.
FLUTED COLUMN.
(Canterbury Cath.)

(*Arch.*) An upright channel on the shaft of a column, usually ending hemispherically at the top and bottom (Fig. 1038). Their plane or horizontal section is sometimes semicircular, or segmental, or elliptical, as in some examples of Grecian architecture. The Doric column has twenty flutes round its circumference; the Ionic, Corinthian, and Composite have respectively twenty-four.

Flute, *v. n.* To play upon the flute.

—*v. a.* To sing or play in a soft tone, similar to that of a flute.—To form flutes or channels, as in a column.—To form or shape, as corresponding channels in the muslin of a lady's ruffle.

Flut'ed, *p. a.* Channelled; furrowed; as, *fluted* columns.—Thin, fine, flute-like, as musical notes.

Flut'er, *n.* One who plays upon the flute.—One who makes channelled work on columns.

Flut'ing, *n.* A channel or furrow in a column, or in the muslin of a lady's ruffle; fluted work.

Flut'ist, *n.* A performer on the flute.

Flut'ter, *v. n.* [A. S. *floteran;* D. *flodderen*, to flap, to waver; Ger. *flattern*, to move about with quick vibrations; allied to *flit.*] To move or flap the wings rapidly, without flying, or taking but short flights; to hover.

"They fed, and *flutt'ring* by degrees withdrew."—*Dryden.*

—To move about quickly and irregularly, or with great bustle and show, without consequence; as, the fops who *flutter* in the ball-room.—To be in agitation; to be in a state of uncertainty; to waver; to fluctuate.

"We *fluttered* upon the wings of doubtful success."—*Howell.*

—*v. a.* To hurry the mind of; to agitate; to disorder; to throw into confusion.

Flut'ter, *n.* Vibration; undulation; quick and irregular motion; as, "the *flutter* of a fan."

—Hurry; tumult; agitation of mind; confusion; disorder; irregularity of position.

Flut'terer, *n.* One who flutters.

Flut'teringly, *adv.* In a fluttering manner.

Flut'y, *a.* Having the sound of a flute.

Fluvau'ua, in *New York*, a post-village of Chautauqua co., abt. 135 m. W. by S. of Albany.

Fluvau'na, in *Virginia*, a S.E. central co.; *area*, abt. 170 sq. m. *Rivers.* James and Rivanna rivers. *Surface*, diversified; *soil*, in some parts fertile. *Min.* Gold. *Cap.* Palmyra.

Flu'vial, Fluviat'ic, *a.* [Lat. *fluvialis, fluviaticus*, from *fluvius*, a river, from *fluere*, to flow.] Belonging to rivers; growing or living in streams or ponds; as, *fluviatic* plants, *fluvial* deposits.

Flu'viales, *n. pl.* (*Bot.*) Same as NAIADACEÆ, *q. v.*

Flu'vialist, *n.* A person who undertakes to explain the geographical or geological phenomena of a region or country by the action of existing streams.

Flu'viatile, *a.* [Fr., from Lat. *fluviatilis.* See FLUVIAL.] Belonging to rivers; formed by, or existing in, rivers.

Flu'vio-marine', *a.* [Lat. *fluvius*, a river, and *marinus*, from *mare*, the sea.] (*Geol.*) Noting such formations as have been deposited, by the agency of rivers, at the bottom of the sea, at a greater or less distance from their mouths.

Flux, *n.* [Fr., from Lat. *fluxus*, a flowing, from *fluere*, to flow.] The motion or passing of a fluid; as, a *flux* of water.—The moving or passing of anything in rapid succession.

"Languages are in a perpetual *flux.*"—*Felton.*

—Concourse; confluence; as, "the *flux* of company." *Shaks.*

—The flow of the tide,—opposed to *reflux.*

(*Med.*) Any preternatural fluid evacuation from the body, but more especially those that proceed from the bowels. It is frequently applied to diarrhœa; and dysentery was long known as the bloody-flux.—See DIARRHŒA, DYSENTERY.

(*Chem.*) One of those compounds which are used by the chemist either as aids to the fusion of bodies, or as reducing or oxidizing agents. Fluxes may be divided into four classes—*reducing, oxidizing, double decomposing*, and *simple fluxes.* The most important reducing fluxes are the carbonates of soda and potash (used alone or mixed with charcoal), cyanide of potassium, and black flux (a compound formed by throwing into a red-hot crucible a mixture of two parts of cream of tartar, and one of water); the nitrates of potash and soda are the principal oxidizing fluxes; and a mixture of three parts carbonate of soda and four of carbonate of potash forms an excellent double-decomposing flux. The simple fluxes act as purifying agents, removing and dissolving any mechanical impurity contained in the substance acted upon. Borax, microcosmic salt, and powdered glass are used as simple fluxes. The limestone used in iron-smelting is a good example of a flux.

Flux, *v. a.* To melt; to fuse; to make liquid.

Fluxa'tion, *n.* The act of melting, fusing, or making liquid.

Fluxibil'ity, *n.* [Lat. *fluxibilitas*, from *fluere*, to flow.] The quality of being fluxible.

Flux'ible, *a.* [Fr., from Lat. *fluxibilis.* See FLUX.] Capable of being melted or fused, as a mineral.

Flux'ibleness, *n.* Same as FLUXIBILITY, *q. v.*

Flux'ile, *a.* Same as FLUXIBLE, *q. v.*

Flux'ion, *n.* [Fr., from Lat. *fluxio*, from *fluere*, to flow.] The act of flowing, or moving as a fluid.—The matter that flows.—Fusion, as of metals.

(*Med.*) A flow of blood or other humor toward any organ with greater force than natural.

(*Math.*) The analysis of infinitely small variable quantities, invented by Newton in 1665. Newton considered a curve as generated by the uniform motion of a point, and decomposed at every instant by the constant velocity of this point into two others, one parallel to the axis of the abscissa, and the other parallel to the axis of the ordinates. These velocities are what he called the *fluxions* of the co-ordinates; while the arbitrary velocity of the point which describes the curve is the fluxion of the arc. Reciprocally, the arc described is called the *fluent* of the velocity with which it is described by the moving point; the corresponding abscis is the fluent of the velocity estimated in the direction of the abscis, and the ordinate the fluent of the velocity of the point estimated in the direction of the ordinate. The same considerations may be extended to the areas bounded by curve lines, to surfaces and the volumes which they determine, to forces which give rise to motion in bodies, and to the effects which they produce. In fact, the theory is applicable to everything which forms the object of the mathematical or physico-mathematical sciences.—The methods of integral and differential calculus, which are less complex and more trustworthy, have superseded the fluxions, although they are still employed in working out some problems.—See DIFFERENTIAL CALCULUS, INTEGRAL CALCULUS.

Flux'ional, Flux'ionary, *a.* Pertaining to, or solved by, fluxions.—Temporary; inconstant; variable.

Flux'ionist, *n.* One skilled in fluxions.

Fly, *v. n.* (*imp.* FLEW; *pp.* FLOWN.) [A. S. *fleogan;* Ger. *fliegen*, to move in the air.] To move or sail through the air by the aid of wings, as a bird.—To float or move in the air; to pass through the air. "Sparks *fly* upward." (*Job* v.)—To move or pass with velocity or celerity, either on land or water; to move rapidly in any manner.—To break or part suddenly; to burst; to spring by an elastic force.—To run away; to escape; to attempt to escape. "The *flying prey.*"—*Spenser.*

To fly at, to spring with violence upon; to fall on suddenly.—*To fly in the face of*, to insult; to assail; to attack violently; to act in defiance of; as, "*to fly in* nature's *face.*" (*Dryden.*)—*To fly off*, to depart suddenly; to revolt.—*To fly out*, to burst into passion; to break out into license; to start violently in any direction.—*To let fly*, to discharge; as, *to let fly* a volley.—(*Naut.*) To let go suddenly; as, *to let fly* the jib-sheets.—*To come off with flying colors*, to be successful.

—*v. a.* To quit by flight; to shun; to avoid; to decline association with; as, "sleep *flies* the wretch." *Dryden.*

—To cause to fly or float; to attack by a bird of prey; as, to *fly* a flag. "To *fly* other ravening fowl with a falcon."—*Bacon.*

Fly, *n.* (*Zoöl.*) A name applied almost indiscriminately to all insects possessing wings; being often extended to all insects of the sub-order DIPTERA, *q. v.*, and often also restricted to the family MUSCIDÆ, *q. v.* The fly is characterized as possessing a pair of veined and membranous wings, with two movable bodies called balancers (*halteres*), placed a little behind them. The mouth is formed of between two and six setaceous pieces of scaly tex-



Fig. 1039.—HOUSE-FLY; (magnified.)

ture, and these pieces are either inclosed in a proboscis-like sheath, or covered by one or two laminæ, which form it. The head is globular or hemispherical. The mouth is only formed for transmitting fluids, and is consequently very delicate in structure. The sucker performs the part of a lancet, and pierces the envelope of vegetable or animal fluids, in order to allow of the fluid itself being transmitted up into the mouth of the insect. The antennæ are united in front, and are approximated at the base. Above the true wings of the insect, and a little behind them, are the balancers or *halteres*; these are almost membranous, and are furnished with two little knobs at their extremities, which are capable of dilatation. The legs of this class of insects are long and slender; and the feet it is well known are furnished with skinny palms, to enable them to stick on glass and other smooth bodies by means of the pressure of the atmosphere.

(*Mach.*) That part of a machine which, being put in motion, regulates the rest.

(*Naut.*) That part of a compass on which the 32 points are drawn, and to which the needle is attached underneath; the compass-card.

(*Printing.*) That part of the machinery of a printing-press, which withdraws the sheet, and lays it aside after the impression is made.

Fly'bane, *n.* (*Bot.*) See SILENE.

Fly'-bitten, *a.* Marked from the bites of flies.

Fly'blow, *v. a.* [Prov. Eng. *blot*, the egg of a maggot.] To deposit an egg in anything, as a fly.—To taint, as with the eggs that produce maggots.

—*n.* The egg of a fly.

Fly'boat, *n.* [Fr. *flibot;* Dut. *vlieboot.*] A light, swift kind of boat used on canals.—A flat-bottomed vessel, peculiar to Holland, used mostly in the coasting-trade.

Fly'-book, *n.* A case in the form of a book used by anglers to contain artificial flies.

Fly'-catcher, *n.* One who catches flies.

(*Zoöl.*) The *Muscicapidæ*, an extensive family of birds, order *Insessores*, represented in N. America by abt. 30 species. As their name implies, the fly-catchers prey on insects, which they seize in mid-air. They have the beak horizontally depressed, and armed with bristles at its base, with the point more or less decurved and emarginated. The value of the insectivorous family of birds to man is incalculable. As Buffon truly says: "Vain would be the efforts of man to destroy or banish the clouds of flying insects by which he would be assailed. Man and quadrupeds cannot defend themselves against them. They attack with their stings; they oppose the progress of cultivation, and devour the useful productions of the earth. They infect with their excrement, or their eggs, all the provisions which are necessary to be preserved. Thus we find that the beneficent birds are not even sufficiently numerous in such climates, where, nevertheless, their species are by far the most multiplied." One of the best types of fly-catchers is that presented by the Tyrant Fly-catcher, King-bird or Bee-martin, *Muscicapa Tyrannus*, or *Tyrannus Carolinensis.* This bird is peculiar to America east of the Rocky Mountains. It is 8 inches in length, and 14 in extent of wing. The general color of the upper parts is a dark bluish-gray, inclining to dull slate-black, on the head of which the central feathers along the crown form a gorgeous orange patch. It builds its nest on branches of trees; it is a rather bulky structure, composed of twigs and wool, or tow and cotton, and is very thick and snug. It scarcely deserves its ugly appellation, as it is only at those periods when its mate is attached to the nest by care for



Fig. 1040.—THE KING BIRD.

her little brood, that this fly-catcher is more fierce or tyrannical than any other. At such times, however, it cannot be denied that his conduct is rather outrageous. No matter the species of bird, no matter its size or strength, it is sufficient that it approaches any way near the tyrant's nest to excite his jealous rage, and out he sallies bent on instant satisfaction. It is said that eagles and hawks may not with impunity approach this bird's nest, made sacred by his fledglings, and that, darting up into the air, it will launch down on to the back of its enemy, and there anchor in such a way as to make it a difficult matter to dislodge him. The European species, *Muscicapa grisola*, the Beam-bird or Bee-bird, is distinguished from any other by having much more slender bills, with shorter bristles at the gape.

Fly Creek, in *New York*, a post-office of Otsego co.

Fly'er, *n.* See FLIER.

Fly'-fish, *v. n.* To use flies for bait in angling.

Fly'-fishing, *n.* The act or practice of using natural or artificial flies for bait in angling.

Fly'-flap, *n.* A fan or flapper for driving away flies.

Fly'-flapper, *n.* One stationed at or near a table for the purpose of driving away the flies; one who wields the fly-flap.

Fly-honeysuckle, *n.* (*Bot.*) See LONICERA.

Fly'ing, *n.* The power which many animals possess of raising themselves in the air, and in moving through it in various directions, supported by the atmosphere alone. See WING.

Fly'ing, (Artificial,) a species of propulsion through the air by means of mechanical or artificial contrivances, often attempted by man. The art of flying, if it can be called an art, has been often attempted; even among the ancients it was tried, and we are informed, succeeded to some slight extent. Friar Bacon affirms, in his writings, that this art is not only possible, but he also informs us that he himself knew how to construct a machine in which a man, in a sitting position, might be able to transport himself through the air like one of the feathered tribe. This secret of Friar Bacon consisted of a very simple mechanical contrivance: it was a pair of globes made of hollow copper, exhausted of air, on which a chair could be supported, by which means a man could float in the atmosphere above the earth, and could buoy himself along. Another friar asserts the truth of this invention, or, at least, of one similar. Father Francisco Lana declares that a round vessel of plate-brass, 14 feet in diameter, weighing three ounces per square foot, will only weigh 1,848 oz.; whereas a quantity of common air of the same bulk will weigh 2,155⅔ oz.; consequently he deduces the fact that the globe will not only be sustained in the air, but that it will be capable of supporting a weight of 373⅔ oz.: and also, that a globe of the same weight, but greater in capacity, would support a man. This, however, is a fallacy; for, from the fact of

the great force of atmospheric pressure, such a globe would be crushed if exhausted of air. At various periods this subject was revived by theorists, particularly in the reign of Charles II., and the assertion has been made that by the march of improvement man will, at no distant period, become as able to fly in the air as to walk upon the earth. While this is not probable, flight in some form may yet be accomplished. See AERONAUTICS.

Fly'ing-artil'lery, *n.* (*Mil.*) Horse artillery.

Fly'ing-bridge, *n* (*Mil.*) A contrivance for crossing rivers in rapid movements; a temporary bridge; a bridge of pontoons, &c.

Fly'ing-buttress, *n.* (*Arch.*) See BUTTRESS.

Fly'ing-camp, *n.* (*Mil.*) A camp or body of troops kept constantly in the field to cover its own garrisons, and annoy the enemy.

Fly'ing-fish, *n.* (*Zoöl.*) See EXOCETUS.

Fly'ing-fox, *n.* (*Zoöl.*) The Kalong, an animal of the Bat family, of which it is the largest species. It derives its common name of flying-fox from a fancied resemblance of its head to that of a fox. It is found in the islands of the E. Archipelago, where it occurs in great numbers. These animals are vegetarians in their diet, and commit great ravages in the gardens and plantations in the countries in which they abound. That they may occasionally live on animal food, is inferred from the fact that, when in confinement, they have been known to devour the flesh of birds with great avidity. Like the rest of the bats, they are nocturnal in their habits, and during the day they remain suspended from the trunks of trees, usually affecting those of the fig genus for this purpose. So quietly do they keep in this clinging attitude, that any one not acquainted with the habits of the flying-fox might readily mistake them for part of the tree itself, and only be undeceived when, disturbed by his presence, the seemingly long, pendent fruit suddenly assumed animal life, and fluttered in masses round and round their roost.

Fly'ing-le'mur, *n.* (*Zoöl.*) The *Galeopithecus volans*, called also Colugo, an animal closely allied to the Bats, which possesses the power of flying or leaping considerable distances, by means of a membrane connecting its limbs with each other. The *F.-L.* forms the connecting link between the *Quadrumana* and the *Cheiroptera;* to the latter, indeed, it has a great resemblance, insomuch as many naturalists of eminence have placed it in that order. It differs, however, from the bats in many respects, not the least important deviation of which is the absence of opposable thumbs on all the feet, which are composed of five fingers united by a membrane. Notwithstanding this, it certainly bears in its appearance and habits a remarkable similarity to the flying-fox. In its diet, it is both carnivorous and frugivorous: feeding on birds and their eggs, insects, and fruits. It is found in the Indian Archipelago, living in the forests; seeking by night for its food, and remaining in a dormant state during the day, as already related of the flying-fox. The natives occasionally eat this animal; but fastidious judges pronounce its flesh as being extremely unwholesome.



Fig. 1041. — FLYING-LEMUR. (*Galeopithecus volans.*)

Fly'ing-party, *n.* A party of scouts.

Fly'ing-pin'ion, *n.* The fly of a clock.

Fly'ing-squirrel, *n.* (*Zoöl.*) See PTEROMYS.

Fly'-leaf, *n.* An unprinted or blank leaf, at the beginning or end of a book.

Fly'-man, *n.*; *pl.* FLY'-MEN. The driver of a fly, or light public vehicle.

Fly Mountain, in *New York*, a p.-vill. of Ulster co.

Flynn, in *North Carolina*, a P. O. of Moore co.

Fly'-poison, *n.* (*Bot.*) See AMIANTHUM.

Fly'-powder, *n.* An imperfect oxide of arsenic, which, mixed with sugar and water, is used to kill flies.

Fly'-rail, *n.* The part of a table turned out at right angles therewith, to support the leaf.

Fly'-speck, *n.* The stain left by the excrement of any insect, especially of the common fly.

Fly'-trap, *n.* (*Bot.*) See DIONÆA.

Fly'-wheel, *n.* (*Mech.*) A wheel with a heavy rim, placed on the shaft of any machinery put in motion by any irregular and intermitting force, for the purpose of rendering the motion equal and regular by means of its momentum. The rim of a fly-wheel, after a few revolutions, acquires a momentum sufficient to cause it to revolve with a velocity depending upon the resistance of the machinery. In all cases where a rotary motion is to be obtained from a reciprocating one by means of a crank, a fly-wheel is necessary to continue the motion at those two points of the revolution in which the crank lies in the direction in which the moving force acts. The momentum acquired by the fly-wheel urges the crank forward in the direction in which it was previously moving, and continues the rotation, thus making the motion equal and uniform.

F. M., abbreviation of FIELD-MARSHAL, *q. v.*

Fo, the name given by the Chinese to Buddha. Originally, the name Buddha was expressed in the Chinese language with sufficient exactness by the term Fô-thau, pronounced Fôu-dah; but, as is usual in China with proper names, the last syllable was subsequently dropped. According to the Chinese historians, the religion of Buddha was introduced into China in the reign of Ming-ti of the dynasty of the Hans, about the sixty-fourth year of the Christian æra; but there is good reason to believe that the doctrines of the Indian reformer had been carried thither before that period, and that it is only to their official recognition by the government that this latter date refers. In China the same principles are adopted as in all countries where Buddhism is professed, with the exception of a few trifling deviations which the various translations of the Buddhist writings from their original Sanskrit have naturally generated. — See BUDDHISM.

Foal, *n.* [A. S. *fola;* Ger. *füllen;* Fr. *poulain;* Lat. *pullus;* Gr. *pōlos.*] The young of the equine genus of quadrupeds; a colt, or filly.

Foal, *v. a.* To bring forth, spoken of a mare, or she-ass. —*v. n.* To bring forth young, as a mare and other beasts of the equine genus.

Foal'ing, *n.* The act of bringing forth a colt or filly.

Foal-foot, *n.* (*Bot.*) See TUSSILAGO.

Foam, *n.* [A. S. *fâm;* allied to Lat. *spuma*, or *puma.*] The white substance which agitation or fermentation gathers on the top of liquors; froth; spume.

—*v. n.* To froth; to gather foam; as, a *foaming* horse, the *foaming* bowl. — To be in a rage; to be violently agitated.

"He *foameth* and gnasheth with his teeth." — *Mark* ix. 11.

—*v. a.* To cause to froth. — To throw out with rage or violence.

Foam'ily, *adv.* Frothily.

Foam'less, *a.* Destitute of foam.

Foam'y, *a.* Covered with froth or spume.

Foa'ty, or **Fo'ta,** an island of Ireland, in Cork Harbor, abt. 6 m. N. of Queenstown.

Fob, *n.* [Ger. *fuppe.*] A little pocket for a watch.

—*v. a.* To cheat; to trick; to defraud; to impose upon.

To fob off, to shift off; to put aside by an artifice; to delude by a trick; as, "I determined not to be *fobbed off* with a garter." — *Addison.*

Fo'cal, *a.* [Fr., from Lat. *focus.* See *infra.*] Belonging to or concerning a focus; as, a *focal* point, the *focal* distance of a lens, or ellipse.

Fo'calize, *v. a.* To bring to a focus; to concentrate, as light or sound.

Focile, (*fo'sil,*) *n.* (*Anat.*) The greater bone of the arm or the leg, the latter being termed *focile minus.*

Focim'eter, *n.* [Lat. *focus*, and Gr. *metron*, a measure.] An instrument for bringing to a focus or concentrating.

Fo'cus, *n.*; *pl.* FO'CUSES or FO'CI. [Lat. *focus*, a hearth, or point of greatest heat; allied to *fovere*, to warm.] A central point; a point of concentration or convergence.

(*Optics.*) When light is reflected from regular curved concave surfaces so that all the rays converge to one point, that point is called the focus. The same term is applied to that point towards which rays of light converge after passing through a refractory medium, such as a lens. A telescope, or other optical instrument, is said to be in focus when the arrangement of lenses is such that the object examined falls clearly and distinctly upon the retina of the observer. In the reflection of heat, the point to which the rays converge is also called the focus.

(*Geom.*) A term applied to certain points in the parabola, ellipsis, and hyperbola, where the rays reflected from all these curves converge and meet.

Fo'cus, *v. a.* To cause to concentrate, or converge; to bring to a focus; to bring the focus to bear upon; as, to *focus* a camera.

Fod'der, *n.* [A. S. *fodder, foder*, from *fedan*, to feed; Ger. *futter.*] (*Agric.*) The food given to animals, such as the stems and leaves of plants. In fact, whatever is given as ordinary food is termed *fodder*, whilst corn, oats, beans, &c., are termed solid food. In some parts, hay and straw, mingled together, is particularly denominated *fodder.*

Fod'der, *v. a.* To feed with dry food or cut grass, &c.; to furnish with hay, straw, oats, &c.

Fod'derer, *n.* One who fodders cattle.

Foe, *n.* [A. S. *fâh*, from *fian*, to hate; Ger. *feind.*] An enemy in war; an adversary; an opposing army or nation at war; as, "he fought great battles with his savage *foe.*" — *Spenser.*

—An enemy; a persecutor; one who entertains personal enmity, grudge, hatred, or malice against another. — An opponent; an ill-wisher; one who opposes anything in principle; as, "a *foe* to received doctrines." — *Watts.*

Foe'man, *n.*; *pl.* FOEMEN. An enemy in war; as, "a *foeman* worthy of his steel." — *Scott.*

Fœnic'ulum, *n.* [Lat. *fœnus.*] (*Bot.*) The Fennel, a genus of plants, order *Apiaceæ*, distinguished by the cylindrical, strongly ribbed fruit. The flowers are yellow. All the species are aromatic, and have much divided leaves with thread-like segments. The best known is the common fennel, *F. vulgare*, a native of the south of Europe. It is a biennial, three or four feet high, and is cultivated in gardens chiefly for the sake of its leaves, which are boiled, and served with mackerel, with salmon, and occasionally with other kinds of fish, or are employed to form a sauce for them.

Fœnum Græcum, *n.* [Lat., gray hay.] (*Bot.*) The Fenngreek, a genus of plants, order *Apiaceæ.* The leaves have three obovate leaflets and scythe-shaped stipules. The flowers generally have the *keel* very small, so that the *wings* and *standard* present the appearance of a tripetalous corolla. The common *F.* is a native of the south of Europe, and of some parts of Asia; it is much cultivated in India as a fodder-plant.

Fœ'tal, *a.* Same as FETAL, *q. v.*

Fœ'ticide, *n.* Same as FETICIDE, *q. v.*

Fœ'tor, *n.* Same as FETOR, *q. v.*

Fœ'tus, *n.* Same as FETUS, *q. v.*

Fog, *n.* [Icel. *fok, fiuk;* Dan. *fog*, driving snow.] A dense, *watery* vapor near the surface of the land or water; a dense, *moist* vapor rising from the earth or generated near it. — See MIST.

—A cloud of smoke or dust.

Fog, *n.* [W. *ffwg;* L. Lat. *fogagium*, dry grass.] Aftergrass; grass grown in autumn, after the hay has been mown.

Fog, *v. a.* To envelop as with fog; to darken; to overcast. — To pasture cattle on the aftergrass.

Fogar'as, a town of Hungary in Transylvania, on the Alovta, 55 m. E. of Hermanstadt; *pop.* 6,227.

Fog'-bank, *n.* An appearance at sea, in thick or hazy weather, sometimes resembling a land-fall, but which gradually disappears on approach.

Fo'gey, *n.* Same as FOGY, *q. v.*

Fog'gage, FOG'GE, *n.* [L. Lat. *fogagium.*] Rank, or coarse grass, not mowed or eaten down in summer or autumn.

Foggia, (*fōj'a,*) a city of S. Italy, cap of prov. of same name, in the centre of the great Apulian plain, 46 m. E. by S. of Campo Basso. It is well built, most of the houses being reconstructed since an earthquake, which happened in 1732. It has large storehouses for keeping corn, and is the place where the flocks that feed on the great plain of Apulia are registered. *Pop.* 25,000.

Fog'gily, *adv.* Mistily; darkly; cloudily.

Fog'giness, *n.* A state of the atmosphere, when filled with watery exhalations; cloudiness; mistiness.

Fog'gy, *a.* Misty; cloudy; full of moist vapors or watery exhalations; as, a *foggy* atmosphere, a *foggy* climate.

—Cloudy in intellect; darkened; dull; as, *foggy* ideas.

Fo'gie, *n.* Same as FOGY, *q. v.*

Fog'less, *a.* Free from fog.

Fog'lesville, in *Pennsylvania*, a post-village of Lehigh co., about 9 m. W. by S. of Allentown.

Fo'go, an island of British N. America, in the Atlantic Ocean, off the N.E. coast of Newfoundland; Lat. 49° 40′ N., Lon. 54° W.

Fo'go, Fue'go, or ST. PHILIP, one of the Cape de Verd islands, in the Atlantic Ocean, and the highest of the group, being 9,760 feet above sea-level, and presenting the appearance of one single mountain, though, on the sides, there are deep valleys; Lat. 14° 53′ N., Lon. 24° 30′ W. *Area*, 40 m. in circumference. It has no rivers; and a scarcity of fresh water prevails, yet it is one of the most fertile islands of the archipelago, producing excellent maize and fruits. *Chief town.* Nossa Senhora da Luz.

Fog'-ring, *n.* A bank of fog in the shape of a circle.

Fo'gy, FO'GEY, FO'GIE, *n.* [Ger. *vogt*, a bailiff, a guard; derivation uncertain.] An eccentric old man; a stupid or dull man; a clown.

Fo'gyism, *n.* The principles or conduct of a fogy.

Foh, (*fō,*) *interj.* [A. S. *fian*, to hate.] An exclamation of abhorrence or contempt; the same as *poh* and *fee.*

Fohi, (*fo'he,*) the first Chinese emperor and legislator. He is said to have founded this kingdom 2207 years B. C. Nothing certain is known of his reign; but there are attributed to him the institution of marriage, the invention of fishing, hunting, music, and writing. He acknowledged and worshipped a supreme deity. He is supposed to be the Noah of the Bible.

Foh-kien (*fō'keen,*) a maritime prov. of China, bounded S.E. by the China Sea, and inclosed on all other sides by the provs. Tech-kiang, Kiang-se, and Kwang-tung. Lat. between 24° and 28° N., Lon. between 116° and 121° E. *Area*, 53,480 Eng. sq. m. *Desc.* Mountainous; the river Min intersecting its surface, and emptying into the sea below Foo-choo-foo, the capital. *Prod.* Black tea, sugar, camphor, tobacco, and indigo. *Min.* Iron and alum. *Exp.* Tea, porcelain, umbrellas, and other manufactures. *Pop.* (1891) 14,777,400.

Fohr (*fōr*), an island of Prussia, on the W. coast of Schleswig, in the N. Sea; Lat. 54° 43′ N., Lon. 8° 30′ W. *Area*, 25 sq. m. Part of the island belongs to Jütland, and part to Schleswig. Oysters are largely obtained here.

Foi'ble, *n.* [O. Fr. *foible*, weak.] A weak point in character; a particular moral weakness; a predominant failing; a frailty; a defect; as, "he knew the *foibles* of human nature." — *Friend.*

Foil, *v. a.* [Fr. *affoler*, from *fou, fol*, a fool.] To ruin; to undo; to wound or bruise with blows; to frustrate; to defeat, as an adversary. — To render vain or nugatory, as an effort or attempt; to baffle; to balk; as, to *foil* an adversary.

—*n.* Defeat; miscarriage; the failure of success when on the point of being secured; frustration.

"Nor e'er was fate so near a *foil*." — *Dryden.*

Foil, *n.* [O. Fr. *refoulé*, dulled, blunted.] A blunt sword, or one that has at its end a button covered with leather, used in acquiring or practising the art of fencing.

Foil, *n.* [Fr. *feuille;* Lat. *folium*, a leaf.] A leaf or thin sheet of metal placed beneath transparent jewels to heighten their color and improve their brilliancy; also to those sheets of tin amalgam placed behind mirrors to make them reflect perfect images. They are made of copper, tin, and silvered copper, and are much used in imitations of precious stones. Colored foils are made by coating the white with any varnish of the required tint. The sheet lead which is used for the lining of tea-chests is a species of foil, and the Chinese purchase about 4,000 tons of lead annually from England for this purpose.

—Anything of another color, or of different qualities, which serves to adorn or set off a thing to advantage.

"As she a black silk cap on him begun
To set, for *foil* of his milk-white to serve."—*Sidney.*

(*Arch.*) The span between the cusps of feathering in Gothic architecture. Most usually the curves of the feathering spring from some one of the mouldings of an arch, &c., but there are numerous instances in which the whole suite of mouldings follow the same form; the arch is then said to be *foiled*. Feathering was first introduced towards the close of the Early Style, and continued universally prevalent until the revival of classic architecture. When a *trefoil*, *quatrefoil*, or *cinquefoil* are spoken of, it generally means an opening pierced with three, four, or five foils respectively.

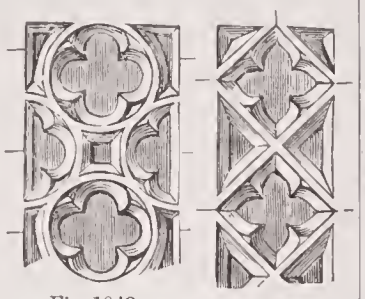


Fig. 1042. — QUATREFOILS.

Foil'er, *n.* One who frustrates another and gains an advantage to himself.

Foil'ing, *n.* [Fr. *foulées.*] The mark or trace left on the grass by a deer that has recently passed.

(*Arch.*) Same as FOIL, *q. v.*

Foin'ingly, *adv.* [Fr. *fouine*, an eel-spear.] In a pushing manner.

Foist, *v. a.* [Fr. *fausser;* L. Lat. *falsare*, to falsify, from *fallere*, to deceive.] To introduce fallaciously; to insert wrongfully, surreptitiously, or without warrant; to interpolate; to pass off as true.

"Forge law and *foist* it into some by-place of some old rotten roll."—*Dryden.*

Foist'er, *n.* A falsifier; a sharper; a deceiver.

Foix, (*fwaw,*) a town of France, chief town of dep. of same name, on the Ariège, 44 m. S. of Toulonse, formerly cap. of the old principality of Foix, part of the inheritance of Henry IV., and now forming the dep. Ariège. *Manuf.* Leather, iron, &c. Gaston de Foix (*q. v.*) was B. here. *Pop.* 5,272.

Foix, GASTON DE, the nephew of Louis XII. of France, was born in 1489. He had the command of the army of Italy, and on account of the daring exploits was denominated the *Thunderbolt of Italy*. After performing prodigies of valor, he was killed at the battle of Ravenna, in 1512.

Foix, GASTON III., COUNT DE, and Viscount de Béarn, was born in 1331, and acquired the surname of *Phœbus*. He was handsome, accomplished, and brave, and spent his life in war and the chase. His first service in arms was against the English in 1345. During the revolt known as *la Jacquerie* he contributed to the rescue of the Dauphin at Meaux. He made war on the count of Armagnac, and took him prisoner; was for a short time governor of Languedoc; and in 1390 magnificently entertained Charles VI. at his château of Mazères. Gaston was of excessively violent temper, and probably was guilty of the murder of his own son. He wrote a book on the pleasures of the chase, of which several editions were published. Died 1390.

Fok'shany, a frontier-town of Moldavia and Wallachia, 92 m. N.E of Bucharest, divided by the river Milcow into two parts, of which the smallest belongs to Wallachia.

Fold *n.* [A. S. *fald;* L. Lat. *falda*, an enclosure, a fence.] A pen or enclosure for sheep; a place where a flock of sheep is kept, whether in the field or under shelter. — A flock of sheep; — hence, figuratively, the Church; as, Christ's *fold*.

—*v. a.* To shut up, or confine, as sheep in a fold.

Fold, *n.* [A. S. *feald;* Ger. *falte*, a plait.] The doubling of any flexible substance, as cloth; a plait or plication; a part of such substance, turned, bent, or laid upon another.

"Mummies shrouded in *folds* of linen, besmeared with gums." *Bacon.*

—That which enfolds, envelops, or embraces.

—From the former signification is derived the use of *fold*, in composition, chiefly with numerals, when it denotes multiplication or increase in a geometrical ratio; as, *fourfold*, i. e., multiplied by four; increasing in a quadruple ratio.

Fold, *v. a.* To flap, or lay in plaits; to double and insert one part in another, as a letter; to lay one part over another; to double, as a piece of cloth. — To double, or lay together, as the arms or hands. — To envelop; to infold; as, "a face *folded* in sorrow."

—*v. n.* To close over another of the same kind; as, "the leaves of the shutters *fold*."

Fold'age, *n.* Same as FALDAGE, *q. v.*

Fold'er, *n.* One who folds; that which folds, especially a flat instrument, similar to a knife, used in folding paper.

Fold'ing, *p. a.* Doubling; that may close over another, or that consists of leaves which may close one over another; as, *folding* doors.

—*n.* A doubling; a plication. — The keeping of sheep in enclosures.

Fold'less, *a.* Having no fold.

Fold'var, (anc. *Sussuinum,*) a walled town of Hungary, co. Tolna, on the slope and summit of a hill, on the right bank of the Danube, 49 m. S. of Buda.

Fo'ley, JOHN HENRY, an eminent Irish sculptor, B. at Dublin, 1818. The most popular of his imaginative works are *Ino and Bacchus*, the *Houseless Wanderer*, *Comus*, &c. His statue of Selden was placed in the new palace of Westminster in 1855, near that of Hampden, considered his masterpiece. In 1856 he completed, in bronze, *Lord Hardinge and Charger*, for Calcutta, a group so much admired that a requisition, signed by 150 of the first names in art and literature, was presented to its author, expressing a desire to see its duplicate erected in London, in proof of the capabilities of an English sculptor. One of his last works is *Asia*, a group of five figures, commissioned by Queen Victoria for the Prince-Consort National Memorial in Hyde Park. D. 1874.

Folia'ceous, *a.* [Fr. *foliacée;* Lat. *foliaceus*, from *folium*, a leaf.] (*Bot.*) Leaf-like, *i. e.*, thin, membranous, and green, or bearing leaves.

(*Min.*) Consisting of laminæ or leaves.

Fo'liage, *n.* [Fr. *feuillage*, from *feuille*, Lat. *folium*, a leaf.] Leaves in general; a collection of leaves as arranged in nature; as, a tree of splendid *foliage*. — A cluster of leaves, flowers, and branches.

(*Arch.* and *Sculp.*) A group of plants and flowers so arranged as to form architectural or sculptural ornaments; as in friezes, panels, architraves, &c., and also in the capitals of the Corinthian and Composite orders, in Gothic capitals, finials, crockets, &c.

Fo'liage, *v. a.* To form into the representation of leaves; to furnish with, or work in imitation of leaves.

Fo'liar, *a.* (*Bot.*) Consisting of, or pertaining to leaves; as, *foliar* appendages.

Fo'liate, *v. a.* To cover with a thin coating of tin and quicksilver; as, to *foliate* a mirror.

Fo'liate, *a.* [Lat. *foliatus*, leaved, leafy, from *folium*, a leaf.] (*Bot.*) Furnished with leaves; leafy; as, a *foliate* skin.

Fo'liated, *p. a.* (*Bot.*) Furnished with leaves; leafy. —Having projections similar to leaves; as, a *foliated* shell. —Spread, or covered with a thin plate, or foil. — Consisting of plates, or thin layers; lamellar; being in laminæ or leaves.

(*Zoöl.* and *Min.*) Furnished with leaves; leaved.

(*Arch.*) Adorned with trefoils, cinquefoils, &c.

Fo'liating, *n.* The act of covering the backs of looking-glasses with a thin coat of tin and quicksilver; foliation.

Folia'tion, *n.* [L. Lat. *foliatio*, from *folium.*] (*Bot.*) The leafing of plants; vernation; the disposition of the nascent leaves within the leaf-bud.

—The act of beating a metal into a thin plate, leaf, or foil. The spreading of tin and quicksilver over the back side of a mirror.

(*Geol.*) One of those structural phenomena of rocks, the origin of which is obscure, but which are so large, and range so widely, that they must belong to the action of some important law. Gneiss, hornblendic schist, mica schist, and even porphyries and basalt, are often thus foliated, separating into plates of definite thickness.

Fo'liature, *n.* The state or condition of being beaten into foil.

Fo'lier, *n.* Gold-beater's leaf.

Folif'erous, *a.* [Lat. *folium*, a leaf, and *ferre*, to bear.] Producing leaves.

Foligno, (*fo-leen'yo,*) a walled town of Central Italy, prov. Perugia, in the Val Spoletano, and on the Flaminian Way, 20 miles S.E. of Perugia, and 14 N. by W. of Spoleto. *Manf.* Woollens, silks, parchment, wax, &c. *Pop.* 11,657.

Fo'lio, *n.* [Abl. of *folium*, a leaf.] A leaf of a book. — A whole sheet of paper folded into two leaves. — A book of the largest size, formed by sheets of paper once doubled. A page, or rather both the right- and left-hand pages of an account-book, expressed by the same figure.

(*Law.*) A certain number of words specified by statute as a *folio*, without reference to the paper on which they are written. In N. York they are fixed at one hundred.

—*a.* Pertaining to, or formed of, sheets of paper folded but once; of the largest size; as, a book made of sheets but once folded is called a *folio* volume.

Fo'liolate, *a.* (*Bot.*) Of, or belonging to, leaflets.

Fo'liole, *n.* [Fr., dim. of Lat. *folium*, a leaf.] (*Bot.*) One of the single leaves, which, taken together, make up a compound leaf; a leaflet.

Fo'liolum, *n.* [Lat.] A leaflet borne upon the axis of a leaf.

Fo'lio-mort, *a.* [Fr. *feuille-morte;* Lat. *folium mortuum*, a dead leaf.] Of the color of a faded leaf; of a dark-yellow color.

Fo'liose, *a.* (*Bot.*) Abounding in leaves; leafy.

Folios'ity, *n.* The ponderousness or size of a volume; voluminousness.

"He does not shoot into German *foliosity*."—*De Quincey.*

Fo'lious, *a.* (*Bot.*) Same as FOLIOSE, *q. v.*

—Like a leaf; thin; unsubstantial.

Folk, (*fōke,*) *n.* [A.S. *folc;* Ger. *volk*; allied to Lat. *vulgus*, Gr. *ochlos*, a crowd.] People in general, or any part of them, without distinction; persons; certain people discriminated from others; as "old *folks* and young *folks*." — Generally used in the plural.

Folk'-lore, *n.* [Ger. *volk*, people, and *lehre*, instruction.] Legends; rural tales; superstitions. This term was first employed by W. J. Thomas, in 1846, to designate what was then becoming a subject of wide interest, that of ancient customs, superstitions, beliefs, traditions, and popular song and fiction, as handed down verbally through many generations by the common people. Folk-lore, indeed, had been gathered by writers at intervals from ancient Greece downward, and various collections of it had been made in the 18th and early 19th century, the study of it gradually becoming widely extended, and embracing the popular lore of peoples in all parts of the earth. First in importance among the earlier collections is that made by the brothers Grimm, the *Kinder und Haus Märchen* (1812–14), which swept the field of German household tales. Grimm's *Deutsche Mythologie* appeared in 1835, and gave the inspiration to numbers of investigators of the prolific field of Teutonic popular lore. Others pursued similar courses of study in all the countries of Europe, gradually accumulating a vast store of material, and research has since been extended to cover the local fiction, customs, and beliefs of all parts of the earth, including those of savage and barbarous peoples. This study has given rise to an extended literature, to folk-lore journals, and to societies, of which we may name here the "American Folk-lore Society," founded at Cambridge, Mass., in 1888, its purpose being to collect the fast vanishing remains of folk-lore in America. Similar societies exist elsewhere, and an immense addition has been made to our knowledge of the primitive ideas of mankind.

Folk, in *Ohio*, a P. O. of Harrison county.

Folkestone (*fōk'ston*), a fortified seaport town of England, co. Kent, in hundred of same name, 62 m. S. E. by E. of London, and 7 W. by S. of Dover. It possesses a spacious harbor and noble pier whence the tidal steamers sail twice a day to Boulogne on the French coast. *Pop.* (1895) 23,750.

Fol'licle, *n.* [Lat. *follículus*, dim. of *follis*, a leathern sack.] (*Anat.*) A minute gland, consisting merely of a hollow vascular membrane and an excretory duct; hence the term mucous and sebaceous follicles.

(*Bot.*) A superior one-celled, one- or many-seeded fruit, dehiscing by the ventral suture only; and consequently one-valved. By the latter character it is known at once from the legume, which opens by two sutures, and is two-valved; in other respects the two fruits are alike. Examples occur in the marsh-marigold.

Follic'ular, *a.* Like, pertaining to, or consisting of follicles.

Follic'ulated, *a.* Having follicles; follicular.

Follic'ulous, *a.* [Fr. *folliculeux;* Lat. *folliculosus.*] Having or producing follicles.

Fol'low, *v. a.* [A.S. *folgian, fyligan;* Ger. *folgen.*] To go, or come after, or behind; to walk, ride, or move behind, but in the same direction; to pursue; as,

"What could I do,
But *follow* straight, invisibly thus led?" — *Milton.*

—To pursue, as an enemy; to go in chase of; to chase. — To accompany; to be of the same company; to attend for any purpose. — To succeed in order of time; to come after; to result from, as an effect from a cause, or as an inference or deduction. — To pursue with the eye; to imitate; to copy. — To embrace; to adopt and maintain; to obey; to observe; to practise. — To seek or pursue after; to endeavor to obtain; to use; to be occupied with; to make the chief business; as, "*follow* peace with all men." (*Heb.* xii. 14.) — To adhere to; to side with; to honor; to worship; to serve; to be led or guided by; as, "*follow* what I approve." (*Milton.*) — To keep the mind fixed upon, as an argument, speech, or piece of music. — To attend upon closely, as a profession or trade.

—*v. n.* To come after another; to attend; to accompany; to be posterior in time; to be consequential, as effect to cause; to ensue; to result, as an inference. "Great mischiefs cannot but *follow*."

Fol'low-board, *n.* Same as MOULDING-BOARD, *q. v.*

Fol'lower, *n.* One who comes, goes, or moves after another in the same course: an imitator; a copier; one who obeys and worships: one who embraces the same system; an adherent; a disciple; an attendant; a retainer; a lover.

—A sheet of parchment added to another sheet, as in an indenture, &c. (A term used by law-stationers.)

(*Mach.*) A part of a machine that receives motion from another.

Fol'lowing, *p. a.* Being next after; succeeding; subsequent.

Fol'lowing, *n.* A company or crowd of retainers, adherents, or dependants.

Fol'ly, *n.* [Fr. *folie*, from *fou, fol*, foolish, mad.] Weakness of intellect; imbecility of mind; want of understanding. — Sin; scandalous crime; criminal weakness; depravity of mind. "When majesty to *folly* falls."—*Shaks.*

—A weak or absurd act not highly criminal; an imprudent course of conduct.

Fol'som, in *California*, a post-village of Sacramento co., on the American river, about 22 m. E. N. E. of Sacramento. Also called FOLSOM CITY.

Fol'somdale, in *N. York*, a post-vill. of Wyoming co.

Fo'mal-haut, *n.* (*Astron.*) A star of the first magnitude, in Piscis Australis.

Foment', *v. a.* [Fr. *fomenter;* L. Lat. *fomentare;* from *fomentum, fovimentum*, a warm application, from *fovere*, to warm.] To apply warm lotions to; to bathe with warm, medicated liquors. — To encourage; to abet; to cherish and promote by excitements (in a bad sense); as, "to *foment* ill humors."

Fomenta'tion, *n.* [L. Lat. *fomentatio.*] Excitation; instigation; encouragement.

(*Med.*) Act of applying warm or medicated liquors to any part of the body by means of flannels. — The lotion applied, or to be applied to a diseased part.

Foment'er, *n.* One who encourages or instigates.

Fond, *a.* [O. Eng. *fonne*, to be silly, stupid, or foolish; Icel. *fana*, to play the fool.] Foolishly tender and loving; doting; weakly indulgent; as, "I 'm a foolish *fond* wife." (*Addison.*) — Much pleased; loving ardently; delighted with; relishing highly; as, "Cicero was perhaps too *fond* of fame." — *Dryden.*

Fon'da, in *New York*, a post-village, cap. of Montgomery co., on the Mohawk River, abt. 40 m. W.N.W. of Albany.

Fond du Lac, in *Minnesota*, a post-village and township of St. Louis co., on the St. Louis River, abt. 13 m. S.W. of Du Luth.

Fon'di, (anc. *Fundi,*) a town of Italy, prov. Caserta, on the Appian Way, 11 m. N.E. of Terracina, and an equal distance N.W. of Gaëta. Its wine anciently bore, and indeed still possesses, a high repute.

Fond du Lac, in *Wisconsin*, a S.E. central co.; *area*, about 720 sq. m. *Rivers.* Milwaukee, Rock and Fond du Lac rivers. A part of Lake Winnebago extends into the N. part. *Surface*, generally level; *soil*, fertile. *Cap.* Fond du Lac. *Pop.* (1895) 47,436.

—A thriving city, cap. of the above co., at the S. extremity of Winnebago lake, about 70 m. N.N.W. of Milwaukee. It has an important trade in grain, provisions and timber. *Pop.* (1895) 13,051.

Fon'dle, *v. a.* [From *fond.*] To dote on; to treat with great indulgence or tenderness; to caress.

Fon'dler, *n.* One who fondles or caresses.

Fond'ling, *n.* A person or thing fondled or caressed; as, "*fondlings* are in danger of being made fools."

Fond'ly, *adv.* Weakly; imprudently; with indiscreet affection; with great or extreme tenderness.

Fond'ness, *n.* Weakness; want of sense or judgment; foolishness. — Tender interest; attachment; affection; love; strong inclination, or propensity; strong appetite, or relish.

Fondus, (*fon'du,*) *n.* [Fr. *fondu*, pp. of *fondre*, to soften or blend, from Lat. *fundere*, to cast, to fond.] (*Manuf.*) A term applied to that kind of printing of calico, paper-hangings, &c., in which the colors are blended into each other.

Font, *n.* [Lat. *fons*, a fountain; Fr. *font*. See FOUNT.] A fountain; a source; a spring.

—A large basin or stone vessel, in which water is contained for baptizing children or adults at the church: as, "the presenting of children at the holy *font* is by their godfathers."

(*Eccl. Hist.*) A stone vessel in the form of a large bowl or basin, resting on a pedestal, and used for the reception of water required in the administration of the sacrament of baptism. The pedestal is perforated to receive a pipe, by which the consecrated water may be carried off at the conclusion of the ceremony. The proper position for the font is at the west end of the church, opposite the principal porch or entrance, which is to be found most frequently on the south side of the nave in parish churches, though in some instances it is situated on the north. Baptism was administered in the early churches in a part that was separated from the nave for that special purpose by a party-wall or screen, or in a building that was entirely distinct from the church itself. These were called baptisteries (see BAPTISTERY), and contained a marble basin of great size in the centre, in which the candidate for baptism was subjected to total immersion. Subsequently, when this practice, which must have been attended with considerable danger in cold climates, particularly to infants, was abandoned for that of sprinkling those who were brought to be baptized with a few drops of water only, the font was introduced to take the place of the large laver of the baptistery, although it was still sufficiently large to admit of the total immersion of an infant, should this be desired by its parents. It was not then so necessary to have a distinct building in which the font might be placed, or to have a portion of the church separated from the rest for its reception; and it was therefore put in the body of the building, at the lower end of the nave. Examples occur, however, in some of the cathedrals and old churches, in which the font is placed in a baptistery divided from the body of the building; and in many of the modern ecclesiastical structures it has been placed in an inclosure formed by low walls, or in a chamber especially designed and constructed for it in the basement of the belfry tower. The fonts that were placed in churches built in the early Norman style were generally circular or square, supported on a short but massive pedestal, cylindrical in form. In some examples of square fonts, the lower corners of the block are cut away in such a manner that the faces of the sides assume the form of a semicircle. The bowl itself, and sometimes the stem, was often adorned with sculptured figures, scroll-work, or interlaced fret-work. The fonts of the three periods of Gothic architecture are more frequently octagonal in form, and more richly carved with figures and emblems placed in sunken panels or niches, and the angles of the pedestal are adorned with buttresses. They are also generally raised on a platform, formed of two or three steps. Those of the Perpendicular, or third Pointed style, were generally surmounted by a lofty octagonal canopy in the form of a spire (Fig. 1043), which was formed of wood, and magnificently carved and embellished with crockets at the angles, and a rich finial at the summit.



Fig. 1043. — FONT. (From Canterbury.)

This custom of covering fonts originated about 1250, in an order that was issued to the clergy to provide covers for these vessels, which were to be kept locked. In a few churches the fonts are made of leads cast in a mould; many of these are covered with figures in bas-relief. They are supposed to have been executed by workmen of no ordinary skill about the beginning of the 12th century.

Font, *n.* [Fr. *fonte*, from *fondre;* Lat. *fundere*, to pour, melt, or cast.] (*Print.*) A complete assortment of printing-types, including points, accents, &c., of one size, consisting usually of 100,000 characters.

Fon'taine, JEAN DE LA. See LA FONTAINE.

Fontainebleau, (*fon'tain-blō,*) a town of France, dep. Seine-et-Marne, cap. arrond., near the Seine, in the forest of the same name, 32 m. S.S.E. of Paris, and 8 S. by E. of Melun. *Manuf.* Porcelain. *F.* owes its celebrity, and indeed origin, to its palace, or *château*, a favorite residence of the French monarchs. This is a vast and superb pile, in fact, rather a collection of palaces of different architectural periods, than a single edifice. Saracenic, Tuscan, and Greek orders are intermixed and interspersed with that of the Renaissance, and with the most bizarre and dissimilar ornamentation; yet, upon the whole, the structure has a striking air of grandeur and majesty. It is surrounded by magnificent gardens, and lies in the Forest of Fontainebleau, a finely-wooded tract of 34,200 acres, intersected by the Seine, and presenting a very varied and picturesque surface. The château of *F.* has been the scene of many historical events: Philip IV., Henry III., and Louis XIII. were born in it; and the first-named monarch died there. It was visited by Peter the Great; Louis XV. espoused the daughter of Stanislaus, king of Poland, in this palace; Pope Pius VII. was confined within its walls for 18 months; and it is intimately connected with the history of Napoleon. It was comparatively neglected by Louis XVIII. and Charles X.; but Louis Philippe restored it to somewhat of its ancient grandeur. In 1837 the nuptials of the Duc d'Orleans were celebrated here with great pomp. Under Napoleon III. the palace has been still more enlarged and embellished, and become the scene of luxurious autumnal fêtes, rivalling those of the days of Louis XIV. *Pop.* 13,123.

Fon'tal, *a.* Pertaining to a fountain, source, or origin.

Fonta'na, DOMENICO, an eminent architect and mechanic, B. at Milan, 1543, who constructed the Lateran Palace, and raised the Roman obelisk from the dust in front of St. Peter's, a work then deemed impracticable. D. at Naples, 1607.

Fon'tanel, *n.* [Fr. *fontanelle*, a meeting of the seams of the skull; dimin. of *fontaine*, a fountain. L. Lat. *fontanella*, an issue in some part of the body, from Lat. *fons*, a fountain.] (*Anat.*) The interstice or *mould*, as it is often called, which exists at birth between the frontal and parietal bones: it is closed by bony matter about the end of the third year.

Fontanelle', in *Iowa*, a post-village of Adair co., abt. 50 miles W.S.W. of Des Moines.

Fontenelle', in *Nebraska*, a post-village of Washington co., on the Elkhorn river, about 35 miles N.W. of Omaha.

Fontara'bia, (properly *Fuenterrabia,*) a fortified frontier- and seaport-town of Spain, in Biscay, prov. Guipuzcoa, on a small neck of land, on the left bank of the Bidassoa, at its mouth, 20 m. W. by S. of Bayonne. The town used to be reckoned one of the keys of the kingdom, but its walls were levelled by the British troops in 1813. *Ind.* Fisheries. *F.* was taken, in 1521, by Francis I. of France; in 1719, by the Duke of Berwick. *Pop.* 8,370.

Fon'tenay, or FONTENAY-LE-COMTE, a town of France, dep. La Vendée, cap. arrond. on the Vendée, 42 m. S.E. of Napoleon-Vendée. *Manuf.* Linen and woollen cloths, leather, &c. *Pop.* 8,768.

Fontenelle', BERNARD LE BOVIER DE, a French author of great and varied talents, B. at Rouen, 1657, was a nephew of Corneille. He studied the law at the request of his father, who was an advocate; but soon devoted himself exclusively to literature. At the outset of his career he met with little encouragement in his poems and dramas, but on the appearance of his *Dialogues of the Dead*, and his *Conversations on the Plurality of Worlds*, his fame was at once fully established. In 1699 he was made secretary of the Academy of Sciences, which post he held forty-two years, and of the proceedings of which body he published a volume annually. He continued to write on general subjects, agreeably combining a taste for the belles-lettres with more abstruse studies, with little intermission, till he had almost reached the patriarchal age of 100. He died in 1757.

Fon'tenoy, a village of Belgium, prov. Hainault, 6 m. S.E. of Tournay, celebrated for the victorious battle fought there, April 30th, 1745, between the allied English, Dutch, and Hanoverians, commanded by the Duke of Cumberland, and the French under the Marshal de Saxe, in which the allies were defeated.

Fontevrault, (*fon'te-vrol.*) (*Eccl. Hist.*) A religious order connected with the Benedictines, which arose in the 12th century, and was named after its first monastery. Its founder was Robert d'Arbrissel, and it comprised both monks and nuns; but had this peculiarity, that the latter had the preëminence, and the whole were subjected to an abbess, in imitation, as was said, of the founder of Christ's commendation of the apostle John to the matronage of the Virgin. This order had several houses in England, and at the time of the French revolution they had about sixty houses in France.

Foo'-choo-foo, FOO-CHOW-FOO, or FOU-TCHEOU, a city of China, cap. of prov. Foh-kien: Lat. 26° 12′ 24″ N., Lon. 119° 30′ E. It is one of the 5 ports opened for commerce on the Min River, 25 m. from its mouth. It is encompassed by hills, and is the residence of a viceroy, and several foreign consuls. It is handsome and well-built, and ships large exports of tea to foreign ports. *Manuf.* Cotton goods, porcelain, &c. *Pop.* Estim. at 1,000,000.

Food, *n.* [A.S. *foda*, from *fedan*, to feed; Ger. *futter.*] That which is fed upon; whatever is eaten by animals for nourishment; whatever supplies nutriment to plants; aliment; nutriment; sustenance; victuals; provisions; meat. — Anything that augments, sustains, supports, keeps up, or nourishes.

"Music, manly *food*." — *Shaks.*

Food and Drink. (*Physiol.*) Those solid and liquid substances which are used either for sustaining animal life or for the purpose of reproducing the ever-wasting tissues and fluids of animal bodies. Of the elementary bodies, only a small proportion enters into the constitution of animals; and the substances included in this small proportion are the only ones required to be present in food and drink. Out of about sixty elements, only oxygen, hydrogen, nitrogen, carbon, sulphur, chlorine, phosphorus, sodium, potassium, calcium, magnesium, iron, and fluorine are absolutely necessary. Albumen, fibrine, and caseine, which occur both in animals and vegetables, together with vegetable gluten, furnish oxygen, hydrogen, nitrogen, and carbon. Animal flesh, eggs, milk, corn, and various other vegetable productions contain one or more of these principles. Food containing a large proportion either of sugar, starch, or organic acids, introduces carbon, hydrogen, and oxygen largely into the system. Oleaginous alimentary substances contain carbon, with a little oxygen and hydrogen. This class of substances includes fat, suet, butter, oily seeds, such as nuts, and fatty foods, such as liver, &c. Flesh, blood, and bones used as food supply phosphorus to the system; the flesh of fishes is particularly rich in phosphorus, and in the shape of phosphates it exists in the juices of many edible vegetables. Sulphur is introduced into the system from the fibrine of flesh, from albumen, from the caseine of milk, gluten, &c. Chlorine and sodium exist in nearly every variety of animal food, and, in the shape of common salt, are taken separately with nearly all kinds of food. Potassium is found in various kinds of food, both animal and vegetable, in milk, in the juice of flesh, and in nearly all inland plants. Calcium is not only obtained from animal and vegetable food, but also from drinking-water, which usually contains sulphate and carbonate of lime in solution. Magnesium is generally found along with calcium; and traces of fluorine have been observed in milk, blood, &c. These simple bodies, however, are not capable of being directly assimilated and converted into tissue; they must be previously in combination; and their assimilation depends upon certain chemical decompositions and physiological processes. The number of elementary substances in combination differs: thus, water contains two elements — oxygen and hydrogen; sugar, starch, fat, &c. contain three; caseine of milk contains five; and albumen and fibrine contain six. Baron Liebig, who has given much attention to this subject, has divided all kinds of food into two classes — those substances which do contain nitrogen, and those which do not. The first class, which is sometimes called *nitrogenous* or *albuminous*, is useful in forming blood, flesh, &c.; it is, in fact, nutritious food. The second, or *non-nitrogenous* class, assists the respiratory organs. Thus, in very cold climates, where more exercise is required in order to sustain the vital heat, more oxygen is respired, and consequently more carbon is required in the food. Hence, it will be observed that in such countries as Siberia, Lapland, &c., large quantities of non-nitrogenous substances, such as fat, oil, &c., are used by the inhabitants as food; in the temperate zone a moderate mixture of nitrogenous and non-nitrogenous food is used while in the tropics, and also in countries classed as semi-tropical, fruits and vegetables form the principal food. Although the theories of Liebig have not remained undisputed, his works on the subject are considered of very high value. (See Liebig's *Researches on the Chemistry of Food.*) In the preparation of food for eating, much depends upon the way in which it is cooked. As all the nutritious juices of meat are soluble in cold water, it is necessary, when preparing boiled food, to place the meat in boiling water in the first place. This coagulates the albumen on the surface, thus forming a crust or shell, which prevents the escape of the nutritious juices. If, however, the object is to make soup, the meat should be put into cold water, and gradually raised to the boiling-point. In roasting and broiling meat, the first application of heat should be vigorous and rapid, in order to coagulate the albumen and form a crust, and so retain the juices, as in boiling. In the process of roasting, the cellular tissue is converted into soluble gelatine, and the fat is melted out of its component cells. Baked meat is less digestible than either roast or boiled, as it contains more empyreumatic oil. Frying is the most unwholesome form of cooking, as it is mostly performed with the assistance of heated oil or fat, which is decomposed during the operation. Smoking, pickling, and salting meat not only harden the animal textures, but, in the case of salting, the food is rendered less nutritious, as a large quantity of albumen, soluble phosphates, lactic acid, potash, creatine, and creatinine are abstracted in the brine. Very few vegetables are roasted; they are, as a general rule, boiled. Those which contain saccharine matter, such as carrots, beet-roots, parsnips, &c., are best cooked by steam, as boiling water dissolves out a large quantity of their nutritious ingredients. Vegetables, however, which contain much starch, as potatoes, should be boiled. By boiling, the granules of the starch are

ruptured and partially dissolved, and any volatile oils which may be present are expelled. All kinds of flesh are not equal with regard to their nutritive value. Veal, for iustance, is totally different from beef. It contains a smaller quantity of the alkalies, and there is 15 per cent. more phosphoric acid than is necessary for the formation of salts; it contains, also, a little of the fibrine of flesh, and proportionately more of the fibrine of blood, which is less digestible than the former. Veal is rich in gelatine, which is not nutritious, and seldom contains any quantity of fat; it also contains very little iron. In all these points it is the reverse of beef. Hard-boiled eggs have little or no nutritive power; and the same may be said of boiled fish, the soup of which is generally thrown away. In order to make up the necessary deficiency of nutritive matter in veal, eggs, and fish, vegetables should be taken with them. Celery contains 18 per cent., salad 24 per cent., and cabbage-sprouts 10 per cent. of their dry weight of salts, alkalies, and alkaline earths. Vegetable food in general contains a large proportion of iron. In the human body iron is present in the blood, the bile, and other constituents. The presence of iron determines the color of the hair; and persons of a sanguine temperament have more iron in their bodies than those of a lymphatic nature. When the blood is deficient in iron, the physician prescribes either iron, steel, or chalybeate waters. The presence of this metal is therefore necessary in food. Prolonged absence from fruits and succulent vegetables brings on scurvy. The absence of the acids which they contain produces this effect; thus lime-juice is used by sailors with good effect on long voyages. Among the condiments used for flavoring food are mustard, cayenne pepper, black pepper, and various spices. They owe their action to the presence of a volatile oil. The volatile oils of fennel, thyme, parsley, anise, caraway, horse-radish, mustard, water-cress, &c. stimulate the system, but do not incorporate themselves. Condiments and sauces (which are usually fluid mixtures of condiments), in time generally weaken the organs which they at first stimulate. The only exceptions are salt and vinegar. — Drinks. for the most part, are simply liquid food. (See DRINK.) They may be divided into the following classes: — 1. Mucilaginous, farinaceous, or saccharine drinks, such as barley-water, *eau sucrée*, &c. They are a little more nutritive than drinking-water. 2. Aromatic or astringent drinks, such as tea, coffee, chocolate, cocoa, &c. They all contain principles which act with a slightly exhilarating action upon the nervous system; chocolate and cocoa contain oil and starch. 3. Acidulous drinks, such as lemonade, ginger-beer, raspberry-vinegar, &c. They allay thirst, and form cooling antiscorbutic drinks. 4. Drinks containing gelatine and ozmazome, including broths and soups. These, when properly made, ought to contain all the soluble constituents of the substance from which they are prepared. 5. Emulsive or milky drinks, such as animal milk, cocoa-nut-milk, almond-milk, &c. Animal milk contains the essential ingredients of food; the others are slightly nutritive. 6. Alcoholic and other intoxicating drinks, including malt liquor or beer, wines and spirits.—See ADULTERATION.

Table showing the average quantity of nutritive matter in 1,000 *parts of several varieties of animal and vegetable food.*

Blood	215	Carrots	98
Beef	260	Turnips	42
Veal	250	Cabbage	73
Mutton	290	Beetroot	148
Pork	240	Strawberries	100
Brain	200	Pears	160
Chicken	270	Apples	170
Cod	210	Gooseberries	190
Haddock	180	Cherries	250
Sole	210	Plums	290
Bones	510	Apricots	260
Milk	72	Peaches	200
White of egg	140	Grapes	270
Wheat	950	Melon	30
Rice	880	Cucumber	25
Barley	920	Tamarinds	340
Rye	792	Almonds	650
Oats	742	Morels	896
Potatoes	260		

Food'ful, *a.* Fruitful; full of food; plenteous; as, "the *foodful* earth." — *Dryden.*

Food'less, *a.* Destitute of provision; barren.

Fool, *n.* [Fr. *fou, fol;* W. *ffwl*, foolish.] One destitnte of reason or the common powers of understanding; an idiot.

"He thanks his stars he was not born a *fool*." — *Pope.*

—A person somewhat deficient in intellect; one who acts absurdly; a simpleton; a silly person; a dolt; a dunce.

"Experience keeps a dear school; but *fools* will learn in no other." — *Franklin.*

—A wicked or depraved person.

"The *fool* hath said in his heart, there is no God." — *Ps.* xvi. 10.

—A term of indignity and reproach.

"You must first put the *fool* upon all mankind." — *Dryden.*

—One who counterfeits folly; a buffoon; a king's fool; a jester. — See JESTER.

To make a fool of, to disappoint; to defeat; to cause to appear ridiculous.

A fool's errand, an absurd quest or search after what cannot be found; the undertaking what is impossible.

Fool, *v. n.* To trifle; to toy; to spend time in idleness or mirth.

"Is this the time for *fooling*?" — *Dryden.*

—*v. a.* To infatuate; to treat with contempt; to disappoint; to defeat; to frustrate.

"That you are *fooled*, discarded, and shook off." — *Shaks.*

—To deceive; to impose upon; to cheat; as, to *fool* one out of his money.

Fool, *n.* [Fr. *fouler*, to press or crush. See FOIL.] A compound of gooseberries scalded and crushed, with cream; — commonly called *gooseberry-fool.*

Fool'ery, *n.* Habitual folly; attention to trifles; absurdity; as, "*foolery*, sir, doth walk about the orb like the sun." (*Shaks.*) — An act of folly or weakness; an object of folly; as, "it is mere *foolery*, to multiply distinct particulars." (*Watts.*) "To believe in *fooleries*." *Raleigh.*

Fool'hardihood, *n.* Same as foolhardiness.

Fool'hardily, *adv.* With foolhardiness.

Fool'hardiness, *n.* Mad rashness; courage without sense.

Fool'hardy, *a.* Daring without judgment; madly rash and bold; foolishly adventurous; precipitate; headlong.

Fool'ing, *n.* The act of playing the fool.

Fool'ish, *a.* Void of understanding or sound judgment; weak in intellect; unwise; imprudent; acting without discretion in particular things.

"Thou *foolish* woman, seest thou not our mourning?" — *Esdras* iv. 11.

—Proceeding from or marked by folly; silly; vain; trifling; ridiculous; despicable; as, "to make a *foolish* figure." (*Prior.*) — Wicked; proceeding from depravity; sinful.

Fool'ishly, *adv.* Unwisely; weakly; absurdly; wickedly.

Fool'ishness, *n.* Folly; lack of wisdom, understanding, or good judgment. — A foolish practice; a deviation from the right.

"*Foolishness* is properly a man's deviation from right reason." *South.*

Fools'-cap, *n.* The pointed cap worn anciently by professional jesters, and now by the clown in a circus. —A kind of paper next to, and larger than post. (So called from the water-mark of a *fool's cap* used anciently by paper-makers.)

Fools, (Feast of.) (*Hist.*) The name of a festival regularly celebrated, with the most absurd ceremonies, both by clergy and laity in several countries in Europe, from the 5th down to the 16th century. It is said to have been introduced in imitation of the Roman *Saturnalia*, and its celebration took place about the same time, the great day being New-Year's day; but the ceremonies were often continued from Christmas to the last Sunday of Epiphany. At first only the boys of the choir and young sacristans played the principal part in them; but afterwards all the inferior servants of the church, and even laymen, engaged in them; while the bishops and other clergy formed part of the audience. A Bishop of Unreason was appointed, the forms and ceremonies of the church were travestied, indecent songs were sung, dancing was carried on, and all manner of fooleries enacted. The ass often played an important part in the proceedings, being sometimes led towards the altar and having hymns sung in its honor. The Feast of Fools was condemned by several popes and bishops in the 15th century, and the Council of Basle, in 1435, expressed its detestation of this and several other festivals; but it continued to be observed in many places down to the time of the Reformation.

Fool's Parsley, *n.* (*Bot.*) *Æthusia cynapium*, the only species of the genus *Æthusia*, order *Apiaceæ*, grows wild in some places in the N. States. It somewhat resembles parsley in its foliage and general appearance, so that serious accidents may occur, as is frequently the case in Europe, from its being mistaken for that herb, it being a poisonous plant, similar to hemlock in its properties. When in flower, it is readily known from every other plant by its umbels wanting general involucre, and having partial involucres of three slender leaves hanging down on one side.

Foot, *n.; pl.* FEET. [A. S. *fot*, pl. *fet;* Ger. *fuss;* allied to Lat. *pes*, Gr. *pous*.] (*Anat.*) That part of the lower extremity below the leg upon which we stand and walk. It is composed of three series or groups of bones: — the *tarsal*, or hindermost; the *metatarsal*, which occupy the middle portion; and the *phalanges*, which go to form the toes. The tarsal bones are seven in number. Above, they are connected with the tibia and fibula bones of the leg, and below form the heel and the hinder part of the instep. They are (Fig. 1044), the *astragalus*, which articulates with the tibia and fibula; the *os calcis*, or bone of the heel; the *os naviculare*, or scaphoid bone, on the inner side of the foot, articulating with the astragalus; the *os cuboides*, on the outer side of the foot, articulating with the *os calcis*, the three cuneiform or wedge-shaped bones (the internal, middle, and external,) in front of the scaphoid bone, near the middle of the foot. The metatarsal bones are five in number, and belong to the class of long bones. They are connected posteriorly with the tarsal, and anteriorly with the phalangeal bones. One is attached to each of the cuneiform bones, and two to the os cuboides; and they diverge slightly outwards as they proceed forward. Their anterior ends form the balls of the toes. The first metatarsal bone is the shortest and strongest, while the second is the largest, — the others all decreasing in length according to their distance from it. These bones form the anterior portion of the instep. The phalanges, or bones of the toes, are fourteen in number, three to each toe, except the great one, which has only two. The upper ones, which are the longest and largest, are named the *metatarsal;* the next, the *middle;* and the most anterior, the *ungual* phalanges. The bones of the foot, more particularly those that compose the tarsus and metatarsus, are firmly connected together, so that they are not liable to be displaced; and those parts where they articulate with one another being covered with a tolerably thick layer of highly elastic cartilage, they possess a considerable degree of elasticity. They are bound together in various directions, by a number of ligaments, one of the principal of which is the plantar ligament, which is of great strength, and passes through the under surface of the heel-bone near its extremity, forward to the ends of the metatarsal bones. The movements of the foot, which are permitted by the connecting ligaments, are effected by a variety of muscles. The principal movements are, (1) that at the ankle, formed by the tibia and fibula with the astragalus, by which the foot is bent and straightened; (2) between the astragalus and os calcis, by which the foot is rolled inwards and outwards; (3) between the first and second range of tarsal bones, admitting of a very slight motion, by which the arch of the foot may be somewhat increased or diminished. Besides these there are the less complicated movements of the metatarsal and phalangeal bones. The foot, naturally a beautiful structure, is usually so much interfered with in civilized life as to be deprived of much of its beauty, and even of its utility. Its movements are impeded by its being confined in tight-fitting boots; while, in place of the boots being conformed to the shape of the feet, the feet are made to conform to the shape of the boots. The consequences of which are corns, bunions, cold feet, and a number of other evils, from which so many suffer in the present day. Attention has been, some years ago, called to this subject by Professor Meyer, of Zurich, who published a pamphlet, entitled *Why the shoe pinches; a contribution to applied Anatomy*, which has been translated into English, and is well worth a perusal.

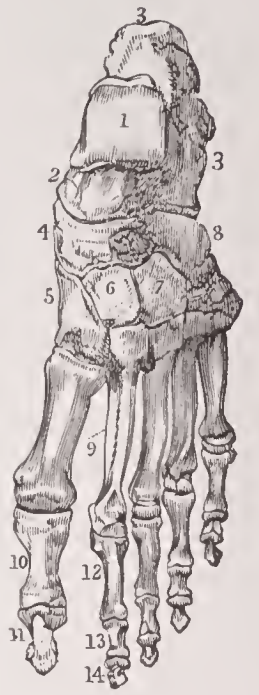


Fig. 1044.—THE DORSAL SURFACE OF THE LEFT FOOT.

1, the astragalus, its upper articular surface; 2, its anterior extremity, which articulates with (4) the scaphoid bone; 3, the os calcis, or heel-bone; 4, the scaphoid bone; 5, the internal cuneiform bone; 6, the middle cuneiform bone; 7, the external cuneiform bone; 8, the cuboid bone; 9, the metatarsal bones of the first and second toes; 10, 11, the first and second phalanges of the great toe; 12, 13, 14, the first, second, and third phalanges of the second toe.

(*Pros.*) In Greek and Latin poetry, a metre, or measure, composed of a certain number of long and short syllables. Some are dissyllabic, consisting of two feet, as the spondee, iambus, trochee; and some trisyllabic, as the dactyl, anapest, tribrach. These are what are called *simple feet*. There are others, consisting of four, five, or six syllables, which are reckoned double or compound feet, but which are commonly resolved into single feet. A verse is frequently named from the number of feet which it contains, or from the foot which prevails in it; as, *hexameter*, containing six feet; *pentameter*, containing five; *dactyllic*, from the dactyl being the prevailing foot; *iambic*, the iambus.

(*Arith.*) A measure of length, consisting of 12 inches, or 36 barleycorns laid end to end. It also expresses surface and solidity. A square foot is the same measure both in length and breadth, containing $12 \times 12 = 144$ square or superficial inches. A cubic or solid foot is the same measure in all directions, or 12 inches long, broad and deep, containing $12 \times 12 = 144 \times 12 = 1728$ cubic inches to the solid or cubic foot. — As this term is employed in almost all languages as a linear measure, it has doubtless been derived from the length of the human foot. Though the denomination is the same, the measure itself varies considerably in different countries.

(*Mus.*) A term made use of in the same way as in poetry, denoting a short melodic figure of notes with only one accent. Foot is also now beginning to be used in speaking of the pitch of sounds. The Germans have always used the word *Fusston* in representing the pitch of the different stops of an organ, such as *Principal* 16 *F.*, 8 *F.*, or 4 *F.*, &c., which practice is now being introduced into English organs, and is found very useful to organists. The pitch of the stop is fixed according to the length of the lowest C pipe.

(*Mil.*) Soldiers who march and fight on foot; infantry; as, horse and *foot*. In this sense it has no plural.

—Anything bearing some resemblance to the foot of an animal in shape or office; as, the *foot* of a stocking.

—The lower end of anything; the bottom; the base; the foundation; the end; as, the *foot* of a mountain, the *foot* of a class, the *foot* of an account.

—Condition; state; footing.

"We are not on the same *foot* with our fellow-subjects of England." — *Swift.*

On foot, walking: pedal locomotion. — *To set on foot*, to start; to originate. — *A cubic foot*, a volume equal to that of a cube having its edges 12 inches in length. — *A square foot*, an area equal to that of a square having sides 12 inches in length.

Foot, *v. n.* To tread; to dance to measure or music; to skip. — To walk.

"Have open eye, for thieves do *foot* by night." — *Shaks*

—*v. a.* To spurn; to kick.—To tread.

"They featly *foot* the green."—*Tickell.*

—To add or make a foot; as, to *foot* a boot or stocking.—To sum up, as the items of an account.

Foot'-ball, *n.* (*Games.*) See SECTION II.

Foot'-band, *n.* A small body of infantry.

Foot'-bath, *n.* A bathing of the feet; also, the vessel used for the purpose.

Foot'-board, *n.* A support for the feet; the board at the foot of a bedstead.

(*Steam Engine.*) Same as FOOT-PLATE (*q. v.*).

Foot'-boy, *n.* A menial; an attendant in livery.

Foot'-cloth, *n.* A cloth or carpet spread on the ground upon a ceremonious occasion.

—A housing or caparison for a horse.

Foot'ed, *p. a.* Furnished with a foot, as a stocking.—Shaped in the foot; as, "*Footed* like a goat."—*Grew.*

Foote'ville, or FOOT'VILLE, in *Wisconsin*, a post-village of Rock co., about 32 m. S. by E. of Madison.

Foot'fall, *n.* A footstep; a tread of the foot.—A trip or stumble.

Foot'-halt, *n.* A disease of the trotters incident to sheep.

Foot'-hill, *n.* A low hill lying in toward the base of a mountain range.

Foot'hold, *n.* Space for the feet to stand upon; space on which one may tread securely.

Foot'-hot, *adv.* Immediately; directly.

Foot'ing, *n.* Ground for the foot; that which sustains; firm foundation to stand upon.

"Every step gained is a *footing*, and help to the next." *Holder.*

—Support; firm position; root; basis; foundation; place; stable position; permanent settlement.—Tread; step; walk; as, "I hear the *footing* of a man." (*Shaks.*)—State; condition; settlement; as, to be on equal *footing.*—The total sum of a column of figures; the act of adding up such column.—The act of adding, or that which is added as a foot to anything; as, the *footing* of a stocking.

—*pl.* (*Arch.*) The spreading courses at the base or foundation of a wall, by which the weight of the superincumbent mass is distributed over a large area.

To pay footing, to pay a fee on first doing anything, as working at a trade or in a ship.

Foot'less, *a.* Destitute of feet.

Foot'licker, *n.* A sycophant; an humble fawner.

Foot'light, *n.* One of the row of lights placed in front of, and on a level with the stage, in a theatre, &c.

Foot'man, *n.*; *pl.* FOOTMEN. A soldier that marches and fights on foot.—A menial servant; a runner; a servant in livery.

Foot'-note, *n.* (*Printing.*) A note of explanation or reference at the bottom of a page, ordinarily set in type two or more sizes smaller than that of the text.

Foot'-pace, *n.* A pace no faster than a slow walk.—A landing-place on stairs, where one makes two or three paces on a level before ascending another portion of the flight.

Foot'pad, *n.* A highwayman or robber on foot.

Foot'-passenger, *n.* One who passes or travels on foot; opposed to one who travels in a conveyance of any kind.

Foot'-plate, *n.* (*Mach.*) The platform of a locomotive engine on which the engineer and fireman attend to their duties, frequently called FOOT-BOARD.

Foot'-post, *n.* A messenger, or mail-carrier, who travels on foot.

Foot'-power, *n.* Power exerted by the foot.

Foot'-press, *n.* A press operated by the foot; a treadle-press.

Foot'-print, *n.* The impression of the foot.

—(*Geol.*) See ICHNOLOGY.

Foot'-rail, *n.* A bar or rail to support the feet.—A crosspiece, near the floor, of a table, chair, or bench.

Foot'-rope, *n.* (*Naut.*) The rope stretching along a yard, upon which men stand when reefing or furling the sails.

Foot'-rot, *n.* (*Vet. Surg.*) A disease in the feet of cattle and sheep, characterized by an abnormal growth of hoof which becomes cracked or torn, affording lodgment for sand or dirt.

(*Bot.*) A disease in plants of the orange family which causes the bark of the roots or stem near the the ground to peel off and sometimes kills the trees.

Foot'-rule, *n.* A rule or measure 12 inches in length.

Foots, *n. pl.* The lees, dregs, or sediment at the bottom of a barrel or cask of molasses, &c.

Foot'-screw, *n.* A screw attached to the leg of a table or bench, forming a foot for adjusting its length to uneven surfaces.

Foot'-sore, *a.* Having the feet sore or tender from excessive walking or friction of the foot-covering.

Foot'stalk (*-stawk*) *n.* (*Bot.*) A short stem on which a leaf is raised up from a plant; a leaf-stalk; a petiole.

Foot'stall, *n.* A woman's stirrup.

—(*Arch.*) The plinth or base of a pillar.

Foot'step, *n.* A track; the mark or impression of the foot.—Token; mark; trace; vestige; visible sign of a course pursued; as, the *footsteps* of Divine wisdom.—An inclined plane under a printing press.

—*n. pl.* Example; way; course; as, to follow in the *footsteps* of a predecessor.

Foot'-stool, *n.* A piece of furniture which supports the feet when one is sitting.

Foot'-stove, *n.* A stove intended to warm the feet; a foot-warmer.

Foot'-valve, *n.* (*Mach.*) The valve in the passage between the condenser and air-pump of a steam-engine, opening towards the air-pump.

Foot'-waling, *n.* (*Naut.*) The planking within a ship, below the lower deck.

Foot'way, *n.* A path for passengers on foot.

Foot'worn, *a.* Worn by the feet, as a path much trodden.—Wearied in the feet, as a traveller or wayfarer.

Foot'y, *a.* Having foots, sediments, lees, or dregs.

Fop, *n.* [A word probably made by chance. Cf. Lat. *vappa*, a spoiled or worthless fellow; Ger. *foppen*, to jest, to jeer.] A vain man of weak understanding and much ostentation; one whose ambition is to gain admiration by showy dress and affectation of manner; a gay, trifling man; a coxcomb.

Fop'ling, *n.* A petty fop.

Fop'pery, *n.* Affectation of show or importance; showy folly; foolery; vain or idle practice; idle affectation.

Fop'pish, *a.* Vain of dress; finical; dandyish; dressing in the extreme of fashion; vain; trifling; affected in manners.

Fop'pishly, *adv.* With vain ostentation of dress; in a trifling or affected manner.

Fop'pishness, *n.* Vanity and extravagance in dress; showy vanity.

For, *prep.* [A. S. *for*; Ger. *für, vor.*] Because of.

"With fiery eyes sparkling *for* very wrath."—*Shaks.*

—Against; in opposition to.

"To take medicine *for* disease."—*Addison.*

—In the place of; as equivalent to; instead of.

"Our present lot appears,
For happy, though but ill."—*Milton.*

—In exchange of.—In the character of; as, "to be assured of a thing *for* a truth."—In advantage of.

"An ant is a wise creature *for* itself."—*Bacon.*

—Conducive to; beneficial to.—In favor of; as, to work *for* one's party.—Leading or inducing to, as a motive.—With respect or regard to.—On the part of.—Through a certain distance of space or time. "Some please *for* once." (*Roscommon.*)—In quest of. "To run far back *for* arguments." (*Tillotson.*)—According to; as, "*for* aught I know." (*Johnson.*)—As far; as, to go up the mountain *for* one mile.—Notwithstanding.—In recompense of.—In proportion to.

—By means of; by interposition of.

"What would men do if it were not *for* God?"—*Tillotson.*

—As being.

"I hear *for* certain, the gentle York is up."—*Shaks.*

For, *conj.* Because; on this account that;—properly, *for that.*

"*For* never any man was yet so old,
But hoped his life one winter yet would hold."—*Denham.*

For, as a prefix to verbs, has usually the force of a negative or privative, denoting *before*, that is, *against* or *away, aside.* In a few cases it is merely intensive, as in *for*bathe.

For'age, *n.* [Fr. *fourrage*; L. Lat. *feragium*, fodder, food.] (*Mil.*) Hay, oats, corn, barley, grass, clover, and other means of sustenance for horses, brought into camp by troops with that object.

—Act of providing food for horses and cattle; search for provisions.

—Act of ravaging.

—*v. n.* To collect food for horses and cattle by wandering about and stripping the country; to gather provisions.

—To feed on spoil.

—*v. a.* To strip of provisions for horses, &c.; to supply with forage or fodder.

—To ravage.

For'ager, *n.* One who goes in search of food for horses and cattle.

Fora'men, *n.*; *pl.* FORAM'INA. [Lat., from *forare*, to pierce, to bore.] (*Anat.*) A term applied to certain holes or openings of the human body, more particularly of the skeleton, as the various foramina of the skull. The *foramen ovale* is a passage or communication between the two auricles of the heart in the fœtus.

Foram'inated, *a.* [Fr. *foraminé*; L. L. *foraminatus.*] Having little holes or perforations.

Foramin'ifer, *n.* [Lat. *foramen*, a hole, and *ferre*, to bear.] (*Zoöt.*) One of the *Foraminifera*, q. v.

Foraminifera, *n. pl.* [Lat. *foramen*, an orifice, from *fero*, I bear.] (*Zoöl.*) The name given by d'Orsigny to a group of minute organisms having calcareous shells, which are pierced with numerous holes or foramina. The pores are for the protrusion of delicate filaments, by the aid of which locomotion and perhaps nutrition are performed. They belong to the unicellular animals, or Protozoa, and are all marine in distribution. Fresh chambers are added in spiral and other forms, so that they look like minature sea-shells. Recent *Foraminifera* are beautiful microscopic objects. In the fossil state these tiny shells occur in rocks of all formations; they constitute the greater bulk of the chalk and the tertiary limestones. In the stone of which the buildings in Paris are constructed, the shells of *Foraminifera* are so numerous that this city may be said to be built of them. The shells of the *nummulites*, or coin-stones, of which the pyramids of Egypt are principally composed, come from an extinct species of F. Eozoon (*q. v.*), is claimed to be a very ancient F., of gigantic size.

Foraminiferous, *a.* Pertaining to, or similar to the *foraminifers.*

For'asmuch, *conj.* In consideration of; because that.

Fo'ray, *n.* [Lat. *foris, foras*, externally, beyond bounds.] A sudden and irregular incursion into the territory of a neighboring clan or shire;—used principally of the ancient border-warfare in Scotland.—Any sudden incursion for purposes of war and booty.

Foray'er, *n.* One belonging to an expedition for war or plunder.

Forbade', *imp.* of FORBID, *q. v.*

Forbear, (*for-bare'.*) *v. n.* (*imp.* FORBORE, *pp.* FORBORNE.) [A. S. *forberan*—*for*, and *beran*, to bear.] To bear off or away; to hold or keep away; to stop; to cease; to hold from proceeding; to pause; to delay; to abstain; to omit; to refrain.

"At this he started, and *forbore* to swear,
Not out of conscience of the sin, but fear."—*Dryden.*

—To decline; to refuse.

"Whether they will hear, or whether they will *forbear.*" *Ezek.* ii. 7.

—*v. a.* To keep or hold away from; to shun; to abstain from; to omit; to avoid doing.—To spare; to treat with indulgence and patience.

"*Forbearing* one another in love.—*Eph.* iv. 2.

—To withhold.

"*Forbear* thee from meddling with God."—2 *Chron.* xxxv. 22.

Forbear'ance, *n.* The act of shunning, omitting, abstaining, or ceasing from.—Command of temper; restraint of passions; the exercise of patience; long-suffering; lenity; mildness.

Forbear'ant, *a.* Same as FORBEARING, *q. v.*

Forbear'er, *n.* One who forbears.

Forbear'ing, *p. a.* Patient; long-suffering.

Forbear'ingly, *adv.* In a forbearing manner; with forbearance.

Forbes, DUNCAN, an eminent Scottish judge, was B. at Culloden, in 1685; he studied at Paris, Utrecht, and Edinburgh, and rose, in 1737, to the rank of President of the Court of Session, discharging the functions of his high office with zeal, ability, and patriotism. It was mainly owing to his exertions that the rebellion of 1745 was prevented from spreading more widely among the clans; but so ungratefully was he treated by the government, that he was never able to obtain repayment of the various sums he had expended to uphold it. He was the author of *Thoughts on Religion*, the *Culloden Papers*, &c. Died 1747.

Forbes, EDWARD, an English naturalist, B. 1815, in the Isle of Man, where his father was a banker. His love of natural history dated from his earliest childhood, and he had accumulated a large stock of knowledge when, in 1832, he went to the university of Edinburgh, to attend the lectures of Prof. Jameson, at that time reputed the first naturalist in the empire. Here he gained great distinction, and the qualities which he displayed predicted for him a brilliant career. After visiting Norway, Sweden, France, Germany, and other countries, in order to extend his knowledge of natural history, he delivered a course of lectures on his favorite science in Edinburgh in 1839, and in 1840–41 appeared his *History of British Star-fishes*, which at once gave him high rank as a naturalist. In 1841 he was attached to a scientific expedition sent to Asia Minor under the auspices of government. During his absence of two years he made important observations and discoveries in the botany, zoölogy, and geology of the Mediterranean Sea, islands, and coasts, many of which are embodied in the remarkable account of his voyages, which he published in conjunction with Lieut. Spratt. During his absence, he was appointed to the professorship of botany in King's College, London. His vast knowledge was soon appreciated, and he became secretary and curator to the Geological Society of London, and was afterwards placed at the head of the palæontological department of the Museum of Economic Geology, where he labored for some years with zeal and assiduity. Besides the works already mentioned, he contributed a variety of papers and memoirs to scientific journals; he also constructed the Geological and Palæontological Map of the British Isles; and a World Map of great interest, entitled *Distribution of Marine Life*, &c., embodying the results of his original researches. On the death of Jameson, professor of natural history in the university of Edinburgh, in 1853, Prof. Forbes was nominated his successor; he was chosen president of the Geological Society in the following year: and he seemed marked out for a long career of glory and usefulness, when he was cut off by death, 1854. A selection of his *Literary Papers*, and his *Life*, by Prof. George Wilson, have been published since his death.

For'besite, *n.* (*Min.*) An arseniate of nickel and cobalt found in the desert of Atacama. A variety of Annabergite. *Comp.* Arsenic 44·05, nickel 19·71, cobalt 9·24, hydrogen 26·98; *sp. gr.* 3·086.

Forbes'town, in *California*, a post-village of Butte co., abt. 20 m. E. by N. of Oroville; *pop.* about 400.

Forbid', *v. a.* (*imp.* FORBADE; *pp.* FORBID, FORBIDDEN.) [A. S. *forbeodan*; Ger. *verbieten.*] To prohibit; to interdict; to command to forbear or not to do.

"Time *forbids* us to dwell on the subject."—*Hooker.*

—To command away from; to prohibit from entrance.

"Have I not *forbid* her my house?"—*Shaks.*

—To oppose; to hinder; to obstruct.

"A blaze of glory that *forbids* the sight."—*Dryden.*

—To utter a prohibition.

"Now the good gods *forbid!*"—*Shaks.*

Forbid', FORBIDDEN, *p. a.* Hindered; obstructed.—Prohibited; interdicted; as, the *forbidden* fruit.

Forbid'den-fruit, *n.* (*Bot.*) A name fancifully given to the fruit of different species of the genus *Citrus.*

Forbid'denly, *adv.* In a forbidden manner.

Forbid'der, *n.* One who, or that which, forbids.

Forbid'ding, *p. a.* Repelling approach; disagreeable; unpleasant; displeasing; as, a *forbidding* countenance, a *forbidding* manner.

—Offensive; repulsive; odious; abhorrent.

"Tragedy was made *forbidding* and horrible."—*Hill.*

Forbid'dingly, *adv.* In a forbidding manner.

For'bin, CLAUDE, Chevalier de, a distinguished French naval commander, B. in 1656. In 1685 he accompanied the French ambassador to Siam, where he gained the favor of the king, then desirous of introducing into his kingdom the Christian religion and the civilization of

the West. Forbin remained two years, as high admiral, general, &c., to his Siamese majesty; and on his return to Europe he signalized himself on several occasions. In 1708 he was intrusted with the command of the squadron which was to convey the Pretender to Scotland, but owing to the vigilance of Admiral Byng, he could not effect a landing. D. 1733.

Forbore', *imp.* of FORBEAR, *q. v.*

Forborne', *pp.* of FORBEAR, *q. v.*

For'bush, in *N. Carolina*, a village of Yadkin co., abt. 40 m. N. by W. of Salisbury.

Force, (*fōrs,*) *n.* [Fr. *force*, from Lat. *fortis*, strong,—allied to Lat. *vis;* Gr. *his, hinos*, strength.] Strength; vigor; might; energy.

"A ship, which hath struck sail, doth run,
By *force* of that *force* which before it won." — *Donne.*

—That which causes an operation or moral effect.

"No definitions are of *force* enough to destroy constant experience."—*Locke.*

—Violence; compulsion; coercion.

"They hold the crown by *force* and not by right." — *Shaks.*

—Cogency; virtue; efficacy; validity; as, the *force* of an argument, or a term. — Power for war; troops; armament; an army or navy; — usually in the plural.

"Look on my *forces* with a gracious eye." — *Shaks.*

(*Mech.* and *Phys.*) Any cause which is capable of producing motion in matter, or of stopping or altering its direction when produced. Every visible particle of matter is under the influence of several forces, exerted upon it both by distant and by adjacent particles, and upon which it acts in return; for the action of one body on another is always accompanied by a reaction of the latter upon the former, of the same intensity, in an opposite direction. The motions observed in some bodies are owing to these forces, and upon their balance the apparent state of rest in others is dependent. According to Sir John Herschel, the origin of the idea of force must be referred to the consciousness of each individual. He says: "We are conscious of a power to move our own limbs, and by their intervention, other bodies; and this effect is the result of a certain inexplicable process, which we are aware of, by which we exert *force;* and even when such exertion produces no visible effect, (as when we press our two hands violently together, so as just to oppose each other's effort,) we still perceive, by the fatigue and exhaustion, and by the impossibility of maintaining the effort long, that something is going on within us, of which the mind is the agent, and the will the determining cause." In the case of *F.* exerted by the right hand, and met by an equal force from the left, the two, acting in opposite directions, exactly neutralize each other, and may be said to be *in equilibrio*, and the effect is called *pressure*. As this force is found to have its proximate seat in the muscles of man and other animals, it is called muscular or animal force. This force can be communicated to inanimate matter, as when a stone is projected from the hand. Muscular force may also be concentrated in the same mass by continued action, as when a stone, by means of a sling, is continuously acted upon by the same arm, it will at length be projected with an intensity of action capable of producing very violent effects. Force transferred to moving masses of matter is called mechanical force, and by multiplying the quantity of matter in a body by its velocity, we arrive at its *momentum*, or the quantity of force which it is capable of exerting upon other bodies opposed to it. The investigation of the laws of motion constitutes the province of Dynamics. In mechanics, the term decomposition of forces signifies the same thing as resolution of forces. Any force may be decomposed or resolved into a number of forces, and the original force will be equal to the resultant of those forces. Thus, if the given force be represented by the diagonal of a parallelogram, it can be resolved or decomposed into two forces of like intensity and direction, represented by the two sides of the parallelogram. Any one exerting muscular or animal force is soon made conscious that it may be opposed by other forces appertaining to inanimate matter. In lifting a lump of metal, stone, or other heavy substance from the ground, an opposing force is experienced, which is called *weight* or *gravity*. On pressing with the arm on a strong spring, another opposing force is observed, called *elasticity*. Some forces cause masses of matter to approach and others to recede from each other, retaining them in their second position against an opposing force; the former are called *forces of attraction*, and the latter of *repulsion;* thus, gravity is a force of attraction, and elasticity a force of repulsion. In electricity and magnetism the forces of attraction and repulsion are also shown. Polar forces are those which are conceived to act in opposite directions at the extremities of the axes of molecules or of masses of matter. The forces mentioned above are usually termed *external* forces, for they act upon matter at sensible distances; but there are others which act only upon its constituent molecules at insensible distances: these are frequently called *internal* or *molecular* forces; they include homogeneous attraction or cohesion, the universal antagonist of which is the repulsive force of heat. (See HEAT.) Another attractive force is that of heterogeneous affinity, by which a piece of metal or glass is *wetted* when dipped into water. Heterogeneous attraction is seen in its highest degree in chemical affinity, an inquiry into the laws of which force constitutes the chemist's peculiar province. (See AFFINITY.) The correlation of the physical forces is a very important principle in natural philosophy, which about 50 years ago was particularly enunciated by Mr. W. R. Grove, the inventor of the voltaic battery which goes by his name. Many philosophers had previously asserted that all the forces of nature were intimately connected, and dependent upon one common principle; but the correlation, or necessary mutual dependence and commutability of each of the physical forces upon and into any other, or into all, and of all, reciprocally into each other, was, at its original enunciation, the particular theory of Mr. Grove. His doctrine is, "that the various affections of matter which constitute the main objects of experimental physics, — namely, heat, light, electricity, magnetism, chemical affinity, and motion, are all correlative, or have a reciprocal dependence; that neither, taken abstractedly, can be said to be the essential cause of the others, but that either may produce or be converted into any of the others: thus, heat may, mediately or immediately, produce electricity; electricity may produce heat; and so of the rest, each merging itself, as the force it produces becomes developed: and that the same must hold good of other forces, it being an irresistible inference from observed phenomena, that a force cannot originate otherwise than by devolution from some preëxisting force or forces." — Ref. *On the Correlation of Physical Forces*, by W. R. Grove.

Force, *v. a.* To use or exert strength or power upon or against; to compel; to constrain; to cause to do, or to forbear, by the exercise of a power not resistible; to overpower; to impel; as, to *force* slaves to work, to *force* the enemy to submit. — To cause to move; to draw or push by main strength.

"It struck so fast, so deeply buried lay,
That scarce the victor *forced* the steel away." — *Dryden.*

—To enforce; to urge; to press; to compel by strength of evidence; as, to *force* conviction. — To obtain by force; to storm; to assault; to take by violence.

"Atrides might as well have *forced* the sky." — *Waller.*

—To ravish.

"*Force* her, — I like it not." — *Dryden.*

—To overstrain; to distort; as, *forced* conceits. — To hasten the growth of plants, fruits, &c., by artificial means.

—[Corrupted from FARCE, *q. v.*] To stuff. — *Shaks.*

—*v. n.* To use force or violence.

Foreed, *p. a.* Affected; overstrained; unnatural.

For'eedly, *adv.* In a forced manner.

For'eedness, *n.* The state or condition of being forced.

Force'ful, *a.* Impelled by violence; driven with force; acting with power; violent; impetuous.

Force'fully, *adv.* Violent; impetuously.

Force'less, *a.* Feeble; impotent.

Force'meat, *n.* [Fr. *farce*, stuffing, and Eng. *meat.*] See FARCE.

Foreene', *a.* [Fr.] (*Her.*) Said of a horse when rearing, or standing on his hinder legs.

For'ceps, *n.* [Lat., pincers. The latter part of the word, *ceps*, is from *capere*, to seize; the *for* probably from the root *fer*, to be hot, which appears in *fervere*, to be hot, *furnus*, an oven, &c.] A pair of pincers or tongs, for seizing hot iron, &c.

—Small pincers; nippers, used by dentists, watchmakers, and others, to seize and hold small bodies, which it would not be practicable to manipulate with the fingers.

(*Surg.*) A name common to certain instruments of various shapes, according to the purpose they are intended to serve; but the principal of all is that of a pair of pincers with two blades, either with or without handles. They are much used in surgery, especially for taking hold of substances that cannot be conveniently laid hold of with the fingers. Certain kinds are used for tooth-drawing; others, for securing the mouths of arteries, in order to their being tied; others are used in dissecting; others in lithotomy; and others in midwifery, for aiding delivery in difficult cases.

Force'-pump, Fore'ing-pump. See PUMP.

Fore'er, *n.* One who, or that which forces, drives, or constrains. — The solid piston of a forcing-pump.

For'cible, *a.* Having efficacy; impetuous; driving forward with force; powerful; acting with force; impressive; potent; weighty; cogent; strong; containing force; as, *forcible* arguments. — Acting by violence; done by force; suffered by force.

"In embraces *forcible* and foul." — *Milton.*

For'cible Entry, or Detainer. (*Law.*) An offence against the public peace, which is committed by violently taking or keeping possession of lands and tenements, with menaces, force, and arms, without the authority of law. Proceedings in case of *F. E.* are regulated by the statutes of the several States, and relate to a restitution of the property, if the individual who complains has been dispossessed, as well as to the punishment of the offender for a breach of the public peace.

For'cibleness, *n.* The quality of being forcible.

For'cibly, *adv.* In a forcible manner; powerfully; by violence or force.

Fore'ing, *p. a.* Compelling; impelling; driving; storming; ravishing.

—*n.* Act of one who urges or compels.

(*Hort.*) The system by which the growth and maturity of fruits, vegetables, and flowers are hastened by artificial means. The processes of forcing chiefly affect the admission of air, and the proper supplies of heat, light, and water. The grand effect is produced by heat, and the great art to be borne in mind is to supply only just so much of this as will harmonize with the light afforded by the sun, and the quantity of moisture which the nature of the plant under consideration requires. All the operations of nature being gradual, it will never do to accelerate the growth of plants to any very great extent, or in a hurry. The processes of forcing must, therefore, be conducted on a graduated scale; and the heat, light, and moisture must be increased by degrees, as the plant is approaching its maturity. It must be likewise considered that exotics require a far higher temperature for forcing purposes than plants grown in a more moderate clime; and that, therefore, the latter must not be subjected to as great heat as the former. Forcing is generally carried on in what are termed hothouses, which are heated by stoves and built of glass, with paved floors, in order to allow the heat and light afforded by the sun to enter. The Dutch, who are particularly celebrated for this horticultural art, however, carry on their forcing in pits heated by the fermentation of manure. The art of forcing plants must not be confounded with the art of growing them in artificial climates, though in both cases the gardener proceeds on the same principle — viz., the imitation of nature. The chief difficulty in accomplishing this is the want of light; and hence the earlier in the season that any forced crop is produced, the greater is its deficiency in color and flavor. Electricity is now successfully employed as a forcing agent. See ELECTRICAL AGRICULTURE.

Fore'ing-house, *n.* A hot-house for raising plants, flowers and fruits, earlier in the season than they would naturally grow.

Foreipa'tion, *n.* The act of seizing with pincers.

Ford, (*fourd,*) *n.* [A. S. *ford;* Ger. *furth*, from *führen*, to lead.] That part of a river where the water is sufficiently shallow to admit of any person or persons crossing by means of wading, without having recourse to a bridge, ferry, or any other means of transportation. In military operations, fords are of the greatest service to an army. They are generally found either in the widest part of the river, where the current is not so strong, or in a diagonal line with the salient angles of any bend of the stream. Fords for infantry, to be really useful, should not be more than three feet in depth, and those for cavalry should not exceed four feet. From the rapidity of some currents, fords of greater depth are generally unsafe.

—A stream; a current, without any consideration of passage or shallowness.

"Permit my ghost to pass the Stygian *ford.*"—*Dryden.*

—*v. a.* To pass or cross, as a river or other water by treading or walking upon the bottom: to pass, as through water, by wading; to wade through.

Ford'able, *a.* That may be waded or passed through on foot.

Ford'ableness, *n.* State of being fordable.

Ford, JOHN, one of the best of the old English dramatists, B. 1586. Little is known of his life. His genius, truly poetical, is lyric rather than dramatic. His earliest piece, acted in 1629, was the romantic play, *The Lover's Melancholy*, which contains his famous description of the nightingale. His manner, both of feeling and of expression, may be well gathered from that work and his *Broken Heart;* and some of the most touching passages in English poetry may be read in his revolting play, *'Tis Pity She's a Whore.* D. about 1640.

Ford, in *Illinois*, a N.E. central co.; *area*, about 490 sq. m. *Rivers.* Middle Fork of Vermilion river. *Surface*, level; *soil*, fertile. *Cap.* Paxton. *Pop.* (1890) 17,035.

Ford, in *Ohio*, a post-office of Geauga county.

Ford'ham, in *New York*, formerly a post-village of Westchester co., now part of New York city, to which it was annexed in 1873. It is the seat of two prominent Roman Catholic institutions—St. John's College and St. Joseph's Theological Seminary, founded in 1841.

Ford'ham, in *Wisconsin*, a village of Adams co., abt. 37 m. N.N.W. of Portage.

Fordoche Bayou, (*for-dosh'-bay-u',*) in *Louisiana*, enters the Atchafalaya Bayou from Iberville parish.

Ford River, or FORT RIVER, in *Michigan*, enters Green Bay from Delta co.

—A post-office of Delta co.

Fords'ville, in *Kentucky*, a post-village of Ohio co., about 130 m. W. by S. of Frankfort.

Fords'ville, in *Mississippi*, a post-village of Marion co., about 100 m. S. by E. of Jackson.

For'dyce, in *Pennsylvania*, a post-office of Greene co.

Fore, *a.* [A.S. *fore;* Ger. *vor;* Lat. *pro.*] Prior or anterior in place, time, order, or importance; advanced; being or coming in advance of something; coming first; anterior; preceding; prior. — Antecedent; as, the *fore* part of a discourse. — Being in front or toward the face; as, the *fore* part of a garment. — This word seldom occurs separately as an adjective, but is mostly found in composition, with the above significations.

—*adv.* In the part that precedes or goes first.

—*n.* (*Naut.*) The sea term for the part of the ship near the head.

Fore and aft. (*Naut.*) From stem to stern of a ship; from one end of a vessel to the other. — *Fore-and-aft sails* are the jibs, driver, and staysails.

Fore, a town of Ireland, in Leinster, co. Westmeath, about 3 m. E. of Castle Pollard.

Foreadmon'ish, *v. a.* To admonish or warn before the act or event.

Forearm', *v. a.* To prepare for attack or resistance before the time of need.

Fore'arm, *n.* That part of the arm which is furthest advanced; the part between the elbow and the wrist. — See ARM.

Forearmed', *a.* Armed beforehand.

Fore'bay, *n.* That portion of a mill-race where the water is thrown upon the wheel.

Forebode', *v. a.* [A. S. *fore*, and *bodan*, to announce: Ger. *bote*, a messenger. See BODE.] To foretell; to predict; to prognosticate; as, to *forebode* good or bad fortune. — To be prescient of; to foreknow; to have a secret sense, as of something future.

"My heart *forebodes* I ne'er shall see you more."—*Dryden.*

Forebode'ment, *n.* A presaging; prognostication.

Forebod'er, *n.* A prognosticator; a soothsayer; a foreknower.

Forebod'ing, *n.* Prognostication.
Forebod'ingly, *adv.* In a foreboding manner.
Fore'body, *n.* (*Anat.*) The chest.
(*Naut.*) All that portion of a vessel extending from the mainmast to the head.
Fore'-brace, *n.* (*Naut.*) A rope applied to the fore-yard-arm, to change the position of the foresail occasionally.
Fore'cast, *n.* Contrivance beforehand; antecedent policy; foresight; forethought.
"Alas! that Warwick had no more *forecast*."—*Shaks*
—Prevision, or the antecedent determination proceeding from it.
"Mem'ry and *forecast* just returns engage;
That pointed back to youth, this on to age."—*Pope.*
—*v. a.* To scheme beforehand; to plan before execution; to adjust, contrive, or appoint beforehand. — To foresee; to provide against.
—*v. n.* To form a scheme previously; to contrive beforehand.
Fore'caster, *n.* One who contrives beforehand.
Forecastle, (*fōr'kasl,*) *n.* (*Naut.*) A short deck placed in front of a ship above the upper deck. It is generally terminated at each end, in ships of war, by a breastwork, the foremast part reaching to the beak-head, and the after portion reaching to the fore-chains. This part of a ship used to be very much elevated in former times, for the accommodation of archers and cross-bowmen; whence the term *forecastle.*
Forechos'en, *a.* Pre-elected.
Foreclt'ed, *a.* Previously quoted.
Foreclose', *v. a.* To shut out thoroughly; to shut up; to preclude; to stop; to prevent.
(*Law.*) To shut up; to bar. Used of the process of destroying an equity of redemption.
Foreclos'ure, *n.* The act of foreclosing; prevention.
(*Law.*) The proceeding of a mortgagee to compel the mortgagor to elect whether to redeem the pledge or submit to the extinguishment of his right in the property, styled his *equity of redemption.* In some cases, however, the mortgagee obtains a decree for a sale of the land under the direction of an officer of the court, in which case the proceeds are applied to the discharge of incumbrances, according to their priority. This practice has been adopted in Indiana, Kentucky, Maryland, S. Carolina, Tennessee, Virginia, and perhaps in other States.
Foredate', *v. a.* To date before the true time.
Fore'deck, *n.* The forward part of a deck, or of a ship; the fore.
Foredesign, (*fore-de-zīne',*) *v. a.* To plan beforehand; to design previously.
Foredeter'mine, *v. a.* To decree beforehand.
Foredoom', *v. a.* To doom beforehand; to predestinate.
Fore'end, *n.* The anterior part.
Fore'father, *n.* An ancestor; a progenitor; one who precedes another in the line of genealogy, in any degree, —usually in a remote degree.
Fore'feeling, *n.* A presentiment.
Forefend', *v. a.* To ward off; to keep off; to hinder; to avert; to prevent approach; to forbid; to prohibit.
"Nay, heavens *forefend!*" — *Shaks.*
—To defend; to guard; to secure.
Fore'finger, *n.* The finger next to the thumb; the index-finger.
Fore'foot, *n.; pl.* FOREFEET. One of the anterior feet of a quadruped or multiped. — A contemptuous term for the hand.
Fore-front, (*fore'frunt,*) *n.* The foremost part.
(*Naut.*) A piece of timber at the fore extremity of the keel of a ship, from which the stem arises.
Fore'-ganger, *n.* (*Naut.*) A short piece of rope grafted on a harpoon, to which a line is attached when used.

Forego', *v. a.,* (*imp.* FOREWENT; *pp.* FOREGONE.) To give up; to renounce; to resign. — To forbear to possess or enjoy; voluntarily to avoid, as the enjoyment of good. To go before; to precede; as, the *foregoing* remark.
—To lose.
"Love, . . . whose violent property *foregoes* itself." — *Shaks.*
Forego'ing, *p. a.* Going before, in time or place; antecedent; previous; preceding; former.
Foregone', *p. a.* Given up; forborne to be possessed or enjoyed. — Predetermined; made up or decided beforehand; as, a *foregone* conclusion.
Fore'ground, *n.* (*Paint.*) The part of the field or expanse of a picture which seems to lie before the figures.
Fore'hand, *n.* That part of a horse which is before the rider.
—*a.* Done early; done sooner than is customary.
Fore'handed, *a.* Early; timely; seasonable; as, *forehanded* care. — Formed in the foreparts, as a horse.
"A substantial beast, bravely *forehanded.*" — *Dryden.*
—In easy circumstances; not behind-hand.
"A *forehanded,* thrifty man." — *Hawthorne.*
Forehead, (*for'ed,*) *n.* That part of the face which extends from the hair on the top of the head to the eyes. — Impudence; confidence; assurance.
"These men of *forehead* are magnificent in promises." — *Collier.*
Fore'-hook, *n.* (*Naut.*) A breast-hook.
Fore'-horse, *n.* The horse that goes foremost in a team.
Foreign, (*for'rin,*) *a.* [Fr. *forain;* Lat. *foraneus,* from *foras, foris,* abroad, out of doors.] Outlandish; external; extraneous; belonging to another nation or country; alien; not of the country in which one resides; strange; produced in a distant country or jurisdiction; coming from another country; as, *foreign* parts, *foreign* affairs, a *foreign* enemy. — Not belonging; not connected; not pertinent; not attaching; not to the purpose; excluded; not admitted; as, *foreign* to the purpose, *foreign* from the argument. — Held at a distance; adventitious; not native or natural.
(*Law.*) Every nation is foreign to all other nations; and the several States of the American Union are foreign to each other, with respect to their municipal laws. But the reciprocal relations between the national Government and the several States are not considered as foreign, but domestic.
For'eign Judgment. (*Law.*) The judgment of a foreign tribunal. Such judgments may be evidenced by *exemplifications* certified under the great seal of the state or country where the judgment is recorded, or under the seal of the court where the judgment remains. With regard to judgments in courts of sister States of the U. States, it is enacted by the Acts of May 26, 1790, and March 27, 1804, that they shall be proved or admitted in any other court within the U. States, by the attestation of the clerk and the seal of the court annexed; together with a certificate of the judge, chief justice, or presiding magistrate, as the case may be, that the said attestation is in due form: and that such records and judicial proceedings shall have such faith and credit given to them in every court within the U. States, as they have by law or usage in the courts of the State from whence they are or shall be taken.
Foreign Laws. (*Law.*) The laws of a foreign country. The courts do not judicially take notice of foreign laws; and they must, therefore, be proved as facts. Exemplified or sworn copies of written laws and other public documents must, as a general thing, be produced when they can be produced; but should they be refused by the competent authorities, then inferior proof may be admitted. The effect of foreign laws, when proved, is properly referable to the court; the object of the proof is to enable the court to instruct the jury what is, in point of law, the result from foreign laws to be applied to the matters in controversy before them. The court are, therefore, to decide which is the proper evidence of the laws of a foreign country, and when evidence is given of those laws, the court are to judge of their applicability to the matter in issue.
For'eigner, *n.* A person born in a foreign country, or without the country or jurisdiction of which one speaks. In the U. States, any one who was born in some other country than the U. States, and who owes allegiance to some foreign state or country, is a foreigner.
For'eignness, *n.* State of being foreign; remoteness; want of relation.
Fore-imag'ine, *v. a.* To conceive or fancy beforehand, or before proofs.
Forejudge, (*fore-juj',*) *v. a.* To judge before hearing the facts and proofs; to prejudge.
Forejudg'er, *n.* (*Eng. Law.*) A judgment by which a person is deprived or put out of a thing in question; a judgment of compulsion.
Foreknow, (*fore-nō',*) *v. a.* To have previous knowledge of; to foresee.
Foreknowledge, (*fore-nol'ej.*) *n.* Knowledge of a thing before it happens; prescience.
For'el, *n.* [L. Lat. *fodrus, forulus, forellus;* Fr. *fourreau,* a sheath.] A kind of parchment or vellum formerly much used for covering books.
Fore'land, *n.* A promontory or cape; a point of land extending into the sea; a headland.
(*Fort.*) A piece of ground between the wall of a place and the moat.
Fore'lands, (North and **South,)** two headlands on the S.E. coast of England, and on the E. seaboard of the co. of Kent; the first, or *N. Foreland,* forms the N.E. angle of the co.; it projects into the sea in the form of a bastion, and consists of chalky cliffs nearly 200 feet in height. A light-house of the first class, having a fixed light elevated 340 feet above the level of the sea, was erected on this promontory in 1688; Lat. 51° 22′ 25″ N., Lon. 1° 27′ W. The *S. Foreland,* about 16 m. S. of the former, consists also of chalky cliffs, and has two light-houses, with fixed lights, erected upon it, to warn ships coming from the S. of their approach to the Goodwin Sands. The N. Foreland is made, by Act of Parliament, the S.E. extremity of the port of London.
Forelay', *v. a.* To lie in wait for. — To lay or contrive beforehand.
Fore'lock, *n.* The lock of hair that grows from the forepart of the head.
To take time by the forelock, i. e., to avail one's self promptly of an opportunity.
(*Naut.*) On shipboard, a small iron wedge driven through a hole in a bolt to prevent it from slipping out of position.
Fore'man, *n.; pl.* FORE'MEN. The chief man of a jury, who acts as their speaker. — A chief workman; an overseer: a superintendent.
Fore'mast, *n.* (*Naut.*) The mast nearest to the bow in all vessels carrying more than one mast.
Foremen'tioned, *a.* Recited or written in a former part of the same discourse.
Fore'most, *a.* [A.S. *formest.*] First in place, rank, or dignity; most advanced; first in time.
Forenamed', *a.* Nominated before; mentioned before in the same writing or discourse.
Fore'noon, *n.* The former part of the day, from the morning to meridian or noon.
Foren'sic, FOREN'SICAL, *a.* [Lat. *forensis,* from *forum,* a market-place, — where, in ancient Rome, the courts of justice were held.] Belonging to the forum, where public courts were held; pertaining to courts of judicature; used in courts of legal proceedings; judicial; argumentative; as, *forensic* eloquence, *forensic* authority.
Foren'sic, *n.* In Harvard University, and perhaps in other American colleges, a written argument in which the student must maintain either the affirmative or the negative of a given question.
Forerdain', *v. a.* To prordain; to predestinate; to predetermine.
Forerdina'tion, *n.* Previous appointment; predetermination; predestination.
Fore'part, *n.* The part first in time; the part most advanced in place; the beginning.
Fore'plane, *n.* (*Carp.*) The PLANE.
Foreprom'ised, *a.* Pre-engaged.
Forequot'ed, *a.* Cited before; quoted in a foregoing part of the work.
Foreran', *imp.* of FORERUN, *q. v.*
Forerun', *v. a.* (*imp.* FORERAN, *pp.* FORERUN.) To advance before; to precede, or have the start of.
—To come before as an earnest of something to follow; to introduce as a harbinger.
"And pity still *foreruns* approaching love." — *Dryden.*
Forerun'ner, *n.* A messenger sent before to give notice of the approach of others; a harbinger; a precursor; a prognostic; a sign foreshadowing something to follow.
"Loss of sight is the *forerunner* of death." — *South.*
(*Naut.*) A piece of rag terminating the stray line of the log-line.
Foresail, (*fore'sel,*) *n.* (*Naut.*) The long lower square sail on the foremast of a ship; — the fore-and-aft sail on the foremast of a schooner: — the triangular sail before the mast of a sloop attached to the stay which leads from the mast-head to the foot of the bowsprit.

Foresee', *v. a.* (*imp.* FORESAW, *pp.* FORESEEN.) To see or know an event before it happens; to have prescience of; to foreknow.
—*v. n.* To exercise foresight.
Foreshad'ow, *v. a.* To typify beforehand.
Foreshad'owing, *n.* Act of shadowing beforehand; anticipation.
Fore'ship, *n.* The forward part of a ship.
Foreshort'en, *v. a.* (*Paint.*) To shorten, in drawing and painting, the parts of figures that stand forward; to represent figures as they appear to the eye when viewed obliquely.
Foreshort'ening, *n.* (*Paint. & Persp.*) The method of drawing, in strict accordance with the rules of perspective, the limbs or body of a human being, or the body of an animal, when we are looking directly against either of them, in a position which shows their breadth while it conceals their length, either entirely or partially. Or, in other words, foreshortening occurs when the latter is either approaching or receding from us, and when the former is extended, either toward us or from us, in a direction varying from a line which is at right angles to the surface of the eye to another that is parallel with it, under the former of which conditions it would be seen foreshortened to the greatest possible degree, while under the latter it would be viewed in its entire length. Great attention must be paid to the treatment of light and shadow in foreshortening the arm, leg, or body of a human being, or the carcass and legs of an animal, that the effect produced may convey a correct idea of the intention of the draughtsman, and that, although the object is shortened in drawing, so that the front or forepart only is presented to the view of the spectator, it may be clearly seen that it possesses length, and, as in the case of an extended arm, that it is projecting from the trunk to an extent compatible with the position in which it is placed. Practice in foreshortening may be best obtained by making drawings from plaster-casts of figures and animals placed in different positions; but the principle may be readily seen by placing a wooden cylinder on a vertical bar and turning it round, first in the horizontal plane passing through the eye of the observer, and then above and below that plane, while its outline assumes all forms between that of a circle when its end is directly opposite the eye, and that of a rectangular parallelogram when the eye beholds its entire length. In all positions between these extremes, the cylinder will present examples of foreshortening, although the term is more strictly confined to the view an object presents when its length is in a line perpendicular to the surface of the eye of the observer, or varying but little from it.
Foreshow', *v. a.* (*imp.* FORESHOWED, *pp.* FORESHOWN.) To predict; to prognosticate; to foretell; to represent beforehand.
Fore'side, *n.* The front side; also, a specious outside.
Fore'sight, *n.* Prescience; foreknowledge; prognostication. — Provident care of futurity; foreknowledge accompanied with prudence; forethought.
(*Surv.*) Any reading of the levelling staff at the given station except the back-sight. — The bearing taken by a compass forward.
Foresig'nify, *v. a.* To betoken previously; to foreshadow; to typify.
Fore'skin, *n.* (*Anat.*) The prepuce.
Forespok'en, *a.* Previously spoken.
For'est, *n.* [Fr. *forêt;* L. Lat. *foresta;* Ger. *forst.*] An extensive surface of country naturally covered with trees and undergrowth, as distinguished from a plantation which has been made by art. Forests are interesting in many ways, as they may be said to mark the track of civilization, besides being of the utmost utility to man, both from local as well as atmospherical influences. The Caledonian and Hercynian forests are the first we read of as celebrated in history; the former being the retreat of the Picts and Scots in North Britain, the latter extending from Switzerland to Transylvania. In the time of Cæsar, a journey through this forest was computed to last over sixty days, or more. Forests were greatly

venerated by the Romans and other ancient peoples, temples being often erected and sacrifices ordained in their honor. This may be considered one of the greatest reasons for the Druids' living in them, as it was thought much more sacred to dwell under trees than *en plein champ*—in the open field. Forests supply man with many necessaries. Timber and fuel, medicinal and nourishing plants, all trace their source to the luxuriant forest, which also affords shelter to the houseless, and a field of occupation to the hunter and lumberman. European forests are mostly composed of oak, elm, beech, poplar, ash, alder, plane, willow, lime, and birch, not to speak of the numbers of wild apple, pear, and other fruit trees; besides pine, fir, and cypress in profusion, with many species of brushwood and vines. In Norway, the forest-land extends up to Drontheim, which is in latitude 63° north. Switzerland is well wooded, and oaks and firs are found at a level over 4,000 feet above the sea. France has some fine examples, her variety of climate being favorable to the growth of many species of trees, some of which, indeed, belong to a much warmer climate; the forests of the Ardennes, Compeigne, and Fontainebleau may be mentioned as instances of the expanses she has covered with trees. In Italy, the plains of Ravenna afford a wide scope for the luxuriance of forest-life, and the pine grows there very extensively; most of the oak, too, used in the English navy for shipbuilding purposes, comes from Italy. In Germany, the Schwarzwald (Black Forest), Thuringer-Wald, Spessart, &c., are of considerable extent and distinguished for picturesqueness. There the forests are cultivated and preserved with the strictest care by the governments of the different States. Russia, however, bears away the palm for her abundance of forests, and some of the finest timber in the world comes from her ports on the Baltic. The districts of Tver and Novgorod are regularly covered with wood, and the forest of Volkousky is considered the largest in Europe. Poland, too, resembles Russia in this matter, and she may be considered the second best well-wooded country. But for the king of forests, the reader must look to our continent, where, both in the north and south, the vegetation appears to possess no limits. In the United States, nevertheless, the forests, though yet of immense extent, are rapidly disappearing, through the immigration into the country, and the diffusion of the settlers; but in South America, the whole of the valley of the Amazon, which embraces one-third of the entire area of that country, is one vast forest. It would be impossible to give an account of the various species of trees which are there to be found; for there are apparently a vast number, and the size of the individual trees is generally stupendous. England also, in early times, was covered with forests, which subsequently, as being waste land, came to be regarded as the property of the crown; and, as abounding with game of various kinds, were carefully protected, and were seized for the crown—as for example what became the "New Forest"—all persons being prohibited from hunting in them but the king or persons authorized by him. After the time of the Conquest the forests came to be guarded with greater strictness, their number was increased, and their bounds enlarged, and trespassers were punished with greater severity. Finally, a system of laws and courts for their administration was established, by which not only all offences touching the royal forests were tried, but all persons living upon these properties governed. The Conqueror is said to have possessed 68 forests, 13 chases, and 781 parks. A chase is a smaller kind of forest, not subject to the forest laws, and which may be in the hands of a subject; whereas a forest can only be held by the crown. A park differs from a forest or chase in being of smaller extent and inclosed. The Conqueror, who is said to have regarded the red deer with a sort of parental affection, enacted very severe penalties against trespassers, and the killing of a stag or boar was visited with loss of sight. His successors were credited with still greater severity, and it is said that the killing of any of the beasts of chase within a forest was punishable as murder. Vast tracts of country were depopulated in order to create new forests, or to extend the limits of old ones, and under the color of forest-law the most cruel and horrid oppressions were exercised. At length, however, many of these hardships were removed by the *charta de foresta*, obtained in the 9th year of Henry III., the immunities of which, says Blackstone, were "as warmly contended for, and extorted from the king with as much difficulty, as those of the Magna Charta itself." This law, still unrepealed, declares that "no man from henceforth shall lose either life or member for killing our deer; but if any man be taken and convicted for taking of our venison, he shall make a grievous fine if he have anything whereof; and if he have nothing to lose, he shall be imprisoned a year and a day, and after that time, if he cannot find sufficient sureties, he shall abjure the realm."—The principal forests of England are the New Forest, Sherwood, Dean, Windsor, Epping, Dartmoor, Wychwood, in Oxfordshire; Salcey, Whittlebury, and Rockingham, in Northamptonshire; Waltham, in Lincolnshire; and Richmond, in Yorkshire. During the reign of Queen Victoria, several of the royal tracts have been disafforested. According to Humboldt, the direct influence of forests on climate is a diminution of temperature, which is effected either by screening the soil from the heat of the sun's rays, by the evaporation of moisture from the leaves, or, thirdly, by the uneven surface which the leaves offer to the cooling process of radiation. The indirect influence of forests is the due preservation of moisture in the different countries, in the supply of rivers, and in other ways. As concerning the waterflow, forests become of prime importance as producers of a cheap source of water power. In the future, as coal becomes harder to obtain, this importance will be even more marked than at present.

For'est, *a.* Relating to a forest; sylvan; rustic.
—*v. a.* To cover with trees or wood.

For'est, in *Delaware*, a post-office of New Castle co.

For'est, in *Michigan*, a township of Genesee co.

For'est, in *Minnesota*, a township of Rice co.

For'est, in *Mississippi*, a post-village, cap. of Scott co.

For'est, in *New York*, a post-office of Clinton co.

For'est, in *Ohio*, a post-village of Hardin co., about 36 m. N. by E. of Bellefontaine.

For'est, in *Pennsylvania*, a N.N.W. co.; *area*, about 410 sq. m. *Rivers*, Clarion or Toby's river, and Tionesta creek. *Surface*, broken; *soil*, fertile. *Cap.* Tionesta. *Pop.* (1890) 8,482.

For'est, in *Wisconsin*, a township of Fond du Lac co.
—A town of of Richland co., about 15 m. N.W. of Richland Centre.
—A township of Vernon co.

Fore'staff, *n.* (*Naut.*) An instrument formerly used for taking the altitude of heavenly bodies.

For'estage, *n.* [Fr., from L. Lat. *forestagium.*] (*Eng. Law.*) A duty formerly paid to the king's foresters. Also, a service paid by foresters to the king of England.

For'estal, *a.* Pertaining to forests.

Forestall', *v. a.* [*Fore*, and STALL, *q. v.*] To intercept and buy up corn and provisions, before they arrive at the market stalls, with intent to sell them at higher prices.—Hence, by extension, to take beforehand; to anticipate; to hinder by prevention or preoccupation.

Forestall'er, *n.* One who forestalls.

Fore'-stay, *n.* (*Naut.*) The rope supporting the foremast of a ship.

For'estburg, in *New York*, a post-town of Sullivan co.

For'est Cantons, a distinctive appellation given to the Swiss cantons of Luzerne, Schwytz, Unterwalden, and Uri, in the center of which is the Lake of Luzerne. See SWITZERLAND.

For'est, in *California*, a post-village of Sierra county, on Oregon creek, about 32 m. N.E. of Nevada City.

For'est City, in *Illinois*, a post-village of Mason co., about 30 m. S.S.W. of Peoria.

For'est City, in *Iowa*, a flourishing township of Howard co.
—A post-town, cap. of Winnebago co., on M. & St. L. and B., C. R. & N. R. Rs., 28 m. W. N. W. of Mason City. Trade center of a rich farming region. *Pop.* (1897) about 1,200.

For'est City, in *Maine*, a post-town of Washington co.

For'est City, in *Minnesota*, a post-office of Meeker co., on Crow river, about 70 m. W.N.W. of St. Paul.

For'est City, in *Missouri*, a post-town of Holt co., on the Missouri river, about 68 m. above St. Joseph.

For'est City, in *North Carolina*, a P. O. of Washington co.

For'est City, in *New York*, a village of Tompkins co., about 150 m. W. of Albany.

For'est City, in *South Dakota*, a post-office of Potter co.

For'est Cottage, in *Kentucky*, a P. O. of Clinton co.

For'est Creek, in *South Carolina*, enters the Tiger river, from Union co.

For'estdale, in *Massachusetts*, a P. O. of Barnstable co.

For'ested, *a.* Covered with trees or forests; wooded.

For'ester, *n.* An officer appointed to watch over a forest, and preserve the game.—An inhabitant of a forest.

For'ester, in *Michigan*, a post-township of Sanilac co., about 85 m. N.N.E. of Detroit.

For'est Grove, in *New Jersey*, a post-village of Gloucester co., about 29 m. S. by E. of Camden.

For'est Grove, in *Oregon*, a post-village of Washington co., about 6 m. W. of Hillsboro.

For'est Hill, in *California*, a post-village of Placer co., about 22 m. N.E. of Auburn.

For'est Hill, in *Indiana*, a post-office of Decatur co.

For'est Hill, in *Maryland*, a post-office of Harford co.

For'est Hill, in *Michigan*, a post-office of Gratiot co.

For'est Hill, in *Pennsylvania*, a P. O. of Union co.

For'est Hill, in *Virginia*, a post-village of Brunswick co., 18 m. W. of Jarrett's Station.

For'est Hill, in *West Virginia*, a P. O. of Summers co.

For'est Home, in *California*, a post-village of Amador co., about 18 m. N.W. of Jackson.

For'est Home, in *Iowa*, a post-village of Poweshiek co., about 6 m. S.W. of Montezuma.

For'est Home, in *Missouri*, a P. O. of Lawrence co.

For'est Home, in *New York*, a P. O. of Tompkins co.

For'est House, in *Pennsylvania*, a post-village of Potter co.

For'est House, in *Wisconsin*, a village of Waukesha co., about 5 m. N.N.E. of Waukesha.

For'est Iron Works, in *Pennsylvania*, a village of Union co.

For'est Lake, in *Pennsylvania*, a post-township of Susquehanna co.

For'estlawn, in *New York*, a post-office of Monroe co.

For'est Mills, in *Minnesota*, a P. O. of Goodhue co.

For'est Mound, in *Minnesota*, a village of Wabasha co., about 16 m. N.E. of Rochester

For'estou, in *Illinois*, a post-village and township of Ogle co., about 12 m. S. of the city of Freeport. Also spelled FORRESTON.

For'eston, in *Iowa*, a post-town of Howard co., on the Upper Iowa river, about 30 m. W.N.W. of Decorah.

For'est Port, in *New York*, a post-town of Oneida co.

For'estry, *n.* The art of cultivating or forming forests.

For'est-tree, *n.* A tree of the forest, as opposed to *fruit-trees* or those under cultivation.

For'estville, in *Connecticut*, a post-village of Hartford co., about 15 m. W.S.W. of Hartford.

For'estville, in *Illinois*. See FOREST STATION.
—A village of Stephenson co.

For'estville, in *Indiana*, a village of Madison co., about 20 m. N. by W. of Anderson.

For'estville, in *Iowa*, a post-office of Delaware co.

For'estville, in *Maryland*, a P. O. of Prince George co.

For'estville, in *Michigan*, a village of Genesee co., abt. 16 m. N.E. of Flint.
—A post-village of Sanilac co., on Lake Huron, abt. 32 m. N. of Lexington.

Forestville, in *Minnesota*, a post-township of Fillmore co., abt. 7 m. W. by S. of Preston.

Forestville, in *N. Carolina*, a post-village of Wake co., abt. 15 m. W. of Raleigh.

Forestville, in *New York*, a post-village of Chautauqua co., about 8 m. S.E. of Dunkirk.

Forestville, in *South Carolina*, a P. O. of Florence co

Forestville, in *Virginia*, a P. O. of Shenandoah co.

Forestville, in *Wisconsin*, a post-township of Door co., abt. 2 m. W. of Lake Michigan.

Fore'taste, *n.* Previous enjoyment or experience; antepast.
—*v. a.* To have previous enjoyment or experience, as of something; to anticipate. — To taste before another.

Foretell', *v. a.* (*imp.* and *pp.* FORETOLD.) To tell before an event happens; to foretoken; to foreshow; to predict.
—*v. n.* To utter prediction or prophecy.

Foretell'er, *n.* One who predicts or prophesies; a foreshower.

Foretell'ing, *n.* A declaration of something future.

Forethink', *v. a.* (*imp.* and *pp.* FORETHOUGHT.) To think beforehand; to anticipate; to contrive antecedently.
—*v. n.* To contrive beforehand.

Forethought, (*fore-thawt'*,) *a.* Predetermined; deliberate; prepense.

Fore'thought, *n.* Anticipation; premeditation; foresight; provident care.

Forethought'ful, *a.* Having forethought.

Foreto'ken, *v. a.* To presignify; to foreshow; to prognosticate.

Fore'token, *n.* A previous sign; a prognostic.

Fore'tooth, *n.; pl.* FORETEETH. (*Anat.*) One of the teeth in the front part of the mouth; an incisor.

Fore'top, *n.* The top part in front, as of a head-dress. —The hair on the forepart of the head.
(*Naut.*) A frame or platform about the top of the foremast.

Foretop'man, *n.* (*Naut.*) A seaman whose duties relate to the foretop of a ship.

Forev'er, *adv.* To eternity; through endless ages; constantly; continually; unchangeably; always; ceaselessly; endlessly; everlastingly; eternally.

Forewarn', *v. a.* To admonish beforehand; to inform previously; to give previous notice to; to caution beforehand.

For'ey, ELIE FRÉDÉRIC, Marshal of France, B. in Paris, 1804, was admitted to the Military School of St. Cyr in 1822. He took part in the first expedition to Algiers, and distinguished himself at the battle of Medeah, in the retreat which followed the first siege of Constantine, and at the Iron Gates. Having been placed at the head of a battalion of *chasseurs-à-pied* in 1840, he went through four other African campaigns, and returned to France with the rank of colonel in 1844, became a general in 1848, took an active part in the *coup d'état* of Dec. 1851, and was made a general of division and commander of the Legion of Honor in 1852. At the breaking out of the war with Russia, he was placed on the reserve division of the Army of the East, and for a time held the command of the siege force before Sebastopol. In 1857 he was nominated to the first division of the army of Paris. He commanded this division during the Italian war in 1860, gained at Montebello the first battle of the campaign, and distinguished himself at Magenta and Solferino, being wounded at the latter. When the expedition to Mexico was decided upon in 1861, *F.* received the command of the French troops. After overcoming many obstacles, and fighting several sanguinary engagements, he attacked and stormed the strong post of Puebla, thereby throwing open the road to the city of Mexico. For this service he was made Marshal of France, when he resigned his command to Gen. Bazaine, and returned home, receiving the command of the 2d *corps d'armée*, 1863. He received the Grand Cross of the Legion of Honor in 1859, and was called to the senate in that year. D. 1872.

For'far, a town of Scotland, cap. of Forfarshire, is situated in the Vale of Strathmore, 14 m. N. of Dundee. *Manuf.* Linens, osnaburgs and Highland brogues. *Pop.* (1891) 12,844.

For'farshire, or ANGUS, a maritime county of Scotland, on the E. coast of that kingdom, having E. the German Ocean, S. the Frith of Tay and co. Perth, W. the latter, N. co. Aberdeen, and N.E. the co. of Kincardine. It is of an irregular shape, and comprises an area of 889 sq. m., or 568,750 acres. *Desc.* This co. is naturally divided into 4 dists., whereof the *first*, and most extensive, called the *Braes of Angus*, comprises all the S. slope of the Grampian Hills, from the summit of the ridge till it loses itself in the valley of Strathmore. The mountains in this division occasionally present bold, terrific precipices. The *second* division consists of that portion of the valley of Strathmore between the foot of the Grampians and the Sidlaw Hills (*Howe of Angus*), and is generally a finely diversified, well cultivated country. The *third* division consists of a portion of the Sidlaws, parallel to the Grampians, and attaining a height of from 1,200 to 1,400 ft. Some are detached, and covered with heath; others are well cultivated. The *fourth* and last division comprises the rich, low-lying,

level lands between the Sidlaw Hills and the sea, and the Frith of Tay. *Rivers.* The N. Esk, S. Esk, Isla, &c. *Min.* Limestone, porphyry, jasper, and cairngorms. *Prod.* Cereals. *Manuf.* Linens, canvas, leather, rope, &c. Ship-building is extensively carried on. *Chief towns.* Dundee, Montrose, Arbroath, and Forfar (the cap). *Pop.* (1897) 278,800.

Forfeit, (*for'fit,*) *v. a.* [Fr. *forfaire*, pp. *forfait;* L. Lat. *forisfacer*, from *foris*, outside, and *facere*, to make.] To do amiss. — To lose, or render confiscable, by some fault, offence, or crime; to lose the right, as to some species of property, or that which belongs to one; to alienate, as the right to possess, by some neglect or crime.

—*n.* That which is forfeited or lost, or the right to which is alienated by a crime, offence, neglect of duty, or breach of contract; hence, a fine; a mulct; a penalty.

—*pl.* A game, in which something deposited is redeemed only by performing some sportive task or paying a trifling fine.

For'feitable, *a.* Subject to forfeiture.

For'feited, *p. a.* Lost or alienated by an offence, crime, or breach of condition.

For'feiture, *n.* [Fr. *forfaiture*, from L. Lat. *forfatura.*] (*Eng. Law.*) A punishment annexed to some illegal act or negligence in the owner of real property, whereby he loses all his interest therein, and it goes to the party injured as a recompense for the wrong which either he alone or the public with him has sustained. Forfeitures are either *civil* or *criminal*. Civil forfeiture takes place when some alienation is made contrary to law, as in mortmain; or when a particular tenant alienes for a larger estate than he himself has, as when a tenant for life makes a conveyance in fee. Forfeiture for criminal causes takes place in treason or felony, and for one or two other offences.

(*Amer. Law.*) *F.* by alienation are almost unknown in this country, and the most just principle prevails that the conveyance by the tenant operates only on the interest which he possessed, and does not affect the remainder-man or reversioner. Under the constitution and laws of the U. States, *F.* for crimes is nearly abolished; and when it occurs, the State recovers only the title which the owner had. — An estate may be forfeited by a breach or non-performance of a condition annexed to the estate, either expressed in the deed at its original creation, or implied by law, from a principle of natural reason.

Forficula'riæ, *n. pl.* (*Zoöl.*) The Earwig, a family of insects belonging to the sub-order *Orthoptera*. The Common Earwig, *Forficula auricularia* (Fig. 1045), which may be given as type of the family, is about three quarters of an inch in length, and has a somewhat flattened body; the wings being folded under very short and truncated elytra or wing-cases, and the extremity of the abdomen armed with a horny forceps. When alarmed, the insect elevates the abdomen, and opens these forceps, in order to defend itself against the attack of enemies. Though not produced quite perfect from the egg, the Earwig requires but a very small change before it arrives at that state which fits it for flight and generation. Its natural functions are never suspended; from the instant it leaves the egg, it continues to eat, move, leap, and pursue its prey; and a skin, which inclosed a part of its body and limbs, bursts behind, and gives full play to a set of wings with which it flies in pursuit of its mate. They prefer cool and damp places, collect under stones and the bark of trees, creep into crevices, fly at night, and devour fruit. It has been said that they crawl into the ear.



Fig. 1045. EARWIG.

Forgave', *imp.* of FORGIVE, *q. v.*

Forge, (*förj,*) *n.* [Fr. *forge;* Sp. *fragua;* Lat. *fabrica*, the workshops of a *faber* or mechanic.] (*Metal.*) The apparatus or works for heating bars of iron and steel and working them under the hammer. Works in which cast-iron from the blast furnaces is converted into malleable iron by puddling (*q. v.*) and subsequent hammering, and also where the native ores of iron are reduced without fusion to the metallic state, are also called forges. Forges are required of various dimensions, and are often adapted to special uses. The common blacksmith's *F.* is a good representative of the smaller forges. It consists of a hearth in the platform from 2 to 2½ feet high, on which a fire of fine coal is kindled. A hood of sheet-iron above the fire prevents the escape of smoke and gases into the room. A pair of large bellows, or a blowing-apparatus, worked by a lever or treadle which the smith can operate while tending his fire, opens by means of an iron nozzle through the back wall of the *F.* into the fire. A trough filled with cold water stands at the end of the hearth in which the tongs and heated iron may be cooled, and which serves also for tempering articles of steel. Near the hearth stands the anvil on which the heated iron is hammered. These, with the necessary hammers, rasps, punches, drills, vices, &c., constitute the outfit of the forge. The fuel may be charcoal, bituminous coal, coke, or anthracite. It should be free from sulphur, as this has an injurious effect on the iron; for this reason hard-wood charcoal is an excellent material, though bituminous coal is very generally used. Portable forges, constructed of iron and containing within small space the bellows and water-trough, are used in many workshops; and from the facility with which they can be removed from one place to another, are well adapted for use in the army and on lines of public works. For forging heavy articles, as anchors, wrought-iron shafts for ocean-steamers, &c., powerful machinery is required, adapted to the nature of the work to be done. — Morrisou's steam-hammer (Fig. 1046), lately introduced into

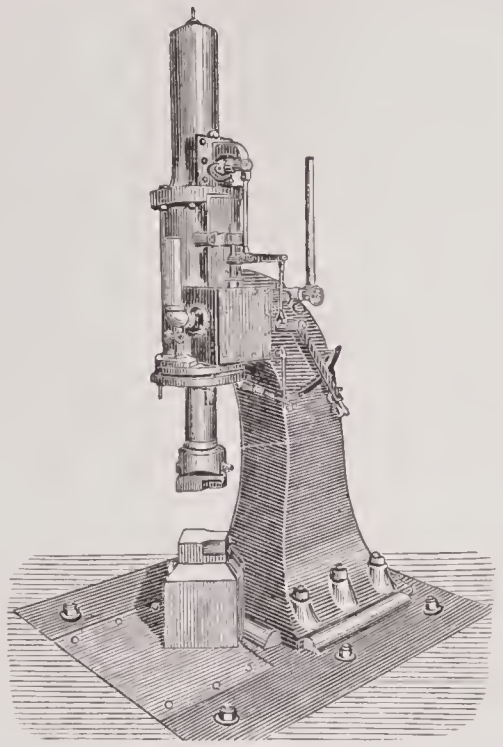


Fig. 1046. — STEAM-HAMMER.

this country, and with which a bar of iron can be forged of any size or thickness, is one solid wrought-iron hammer bar, piston-head and head for hammer face forged solid, with the bar passing through both ends of the cylinder, prevented from turning by the upper cylinder head. No guides below the cylinder. Slide-valve balanced. Double-acting hammers of all sizes, taking steam above and below the piston, with self-acting valve gear and hand movement; can be changed at will while in operation, thus affording complete control over its movements. Hammers of 2000 lbs. and under have one upright only; those over this size, two. In puddling iron, when the mass of cast-iron has been sufficiently purified in the furnace by burning out its carbon and other impurities, it is placed under the heavy forge-hammer (Fig. 1046), which squeezes out the liquid slag and forces the softened particles of iron to cohere into a continuous oblong mass or *bloom*. When iron is extracted from rich ores without first being converted into cast-iron, the forge-hammer is used to force the spongy mass of reduced ore into a compact bar of malleable iron. — See IRON.

—*v. a.* To make out of stone, wood, or metal; to frame, construct, or fabricate. — To form by heating and hammering; to beat into any particular shape, as a metal. — To make by any means. — To make falsely; to counterfeit; to feign, as a signature. — To make in the likeness of something else.

—*v. n.* To commit forgery; to counterfeit.

(*Naut.*) To move heavily and slowly, as a ship after the sails are furled; to work one's way, as one ship in outsailing another; — used especially in the phrase *to forge ahead.*

Forg'er, *n.* One who forges; one who makes or forms. —One who counterfeits; a falsifier.

Forg'ery, *n.* Act of forging; act of falsifying; the crime of counterfeiting; that which is forged or counterfeited.

(*Law.*) The fraudulent making or alteration of any record, deed, writing, instrument, register, stamp, &c., to the prejudice of another man's right. Most, and perhaps all, of the States in the Union have passed laws making certain acts to be *F.*, and the national legislature has also enacted several on this subject; but these statutes do not take away the character of the offence as a misdemeanor at common law, but only provide additional punishment in the cases particularly enumerated in the statutes.

Forget', *v. a.* [A.S. *forgitan, forgytan* — *for*, and *getan.* See GET.] To lose the remembrance of; to let go from the memory; not to remember; to slight; to neglect.

Forget'ful, *a.* Apt to forget; easily losing the remembrance of; unmindful; negligent; heedless; careless; neglectful; inattentive; causing to forget; oblivious.

Forget'fully, *adv.* In a forgetful manner.

Forget'fulness, *n.* Quality of being apt to forget, or let anything slip from the mind; loss of remembrance or recollection; a ceasing to remember; obliviousness; neglect; negligence; careless omission; inattention; heedlessness.

Forg'etive, *a.* That may forge. (R.) — *Shaks.*

Forget-me-not, *n.* (*Bot.*) See MYOSOTIS.

Forget'ter, *n.* One who forgets.

Forget'ting, *n.* Forgetfulness.

Forget'tingly, *adv.* Forgetfully; without attention.

Forge Village, in *Massachusetts*, a post-village of Middlesex co., about 30 m. N.W. of Boston.

Forg'ing, *n.* Act of beating into shape. — The act of counterfeiting.

Forgiv'able, *a.* That may be forgiven or pardoned. (R.)

Forgive', *v. a.* [*For* and *give;* A.S. *forgifan.*] To give away or up; to relinquish; to release; to remit, as a debt, fine, or penalty; to remit; to pardon, as an offence or debt; to overlook, as an offence, and treat the offender as not guilty.

Forgive'ness, *n.* Act of forgiving; the pardon of an offender; the pardon or remission of an offence or crime; disposition to pardon; willingness to forgive; remission of a debt, fine, or penalty.

Forgiv'ing, *a.* Disposed to forgive; inclined to overlook offences; mild; merciful; compassionate.

Forgiv'ingness, *n.* A disposition to forgive.

Forgot', Forgot'ten, *imp.* and *pp.* of FORGET, *q. v.*

Fo'rio, a town of Italy, picturesquely situated on the W. coast of the Island of Ischia, and at the N. side of the mouth of the Bay of Naples; *pop.* 7,000.

Forisfamilia'tion, *n.* [Lat. *foris*, without, *familia*, family.] (*Eng. Law.*) The separation of a child from the family of his father. A child is said to be *forisfamiliated*, either when he marries or when he receives from his father a separate stock, the profits of which are enjoyed by himself, though he may still reside with his father, or when he goes to live in another family with the consent of his father. The same result is also brought about when a child renounces his *legitim*, i. e., his legal share of the father's free movable property due to him on the death of the latter.

Fork, *n.* [A.S. *forc;* L. Ger. *forke;* Du. *vork;* Dan. *fork*, a pitchfork; Lat. *furca*, a two-pronged fork, a stake; probably from *fero*; Sans. *bhri*, to bear, to carry.] An instrument for lifting and carrying various substances; an instrument divided at the end into two or more points or prongs, and used for lifting or pitching anything. — Something resembling a fork; a point; a branch or division.

(*Hist.*) The instrument used at table is only about three centuries old. The Greeks, Romans, and other ancient nations knew nothing of *F.* They had large *F.* for hay, and also iron *F.* for taking meat out of pots, but no instruments of the nature of table-*F.* In ancient times, as is the practice still in the East, meat was commonly prepared as stews; or if roasted, it was cut into small pieces by a carver, so as to be easily taken in mouthfuls by the guests, who used their fingers and a knife for the purpose. It certainly is a strange fact, that the use of any species of *F.* at table was quite unknown till the 15th century, and they were then known only in Italy, which has the merit of this invention. None of the sovereigns of England had *F.* till after the reign of Henry VIII.; all, high and low, used their fingers. It was accordingly a part of the etiquette of the table to employ the fingers so delicately as not to dirty the hand to any serious degree; but as even by the best management the fingers were more or less soiled, it was the custom to wash the hands immediately on the dishes being removed from the table,— a custom still practised in some Oriental countries. Hence, in the royal household there was an officer called the *Ewerer* or *Ewry*, who, with a set of subordinates, attended at meals with basins, water, and towels. The first royal personage in England who is known to have had a *F.* was Queen Elizabeth; but although several were presented to her, it remains doubtful whether she used them on ordinary occasions.

(*Mach.*) A short piece of steel which fits into one of the sockets or chucks of a lathe, used by wood-turners for carrying round the piece to be turned; it is flattened at the end like a chisel, but has a projecting centre-point, to prevent the wood from moving laterally.

—*pl.* The point where two roads meet, or where two rivers meet and unite.

—*v. n.* To shoot into blades, as corn; to divide into two.

—*v. a.* To raise or pitch with a fork, as hay, &c.

Fork'-chuck, *n.* See FORK.

Forked, (*forkt,*) *a.* Opening into two or more parts, points, or shoots; as, *forked* lightning.

Forked Deer River, in *W. Tennessee*, formed by the junction of the N. and S. Forks in Dyer co., and flowing S.W., enters the Mississippi from Lauderdale co.

Forked Head, a promontory of N. America, on the S.E. coast of Cape Breton, between Fourchon Harbor and Portland Cove.

Fork'edly, *adv.* In a forked form.

Fork'edness, *n.* Quality of being forked; furcation.

Forked River, in *New Jersey*, a post-village of Ocean co., on a stream of the same name.

Fork'head, *n.* The head or point of an arrow.

Fork'iness, *n.* State of being forky or forked.

Fork'less, *a.* That has no fork.

Fork'land, in *Alabama*, a post-village of Greene co., at the confluence of the Black Warrior and Tombigbee rivers, about 18 miles S. of Eutaw.

Forks, in *Pennsylvania*, a post-office of Columbia co.

—A township of Northampton co.

—A township of Sullivan co.

Forks of Salmon, in *California*, a post-village, cap. of Siskiou co., 42 miles S.W. of Yreka.

Forks'ton, in *Pennsylvania*, a post-village and township of Wyoming co., about 100 m. N.E. of Harrisburg.

Forks'ville, in *Illinois*, a village of Lake co., about 50 miles N.N.W. of Chicago.

Forks'ville, in *Louisiana*, a post-village of Ouachita parish, about 15 miles W. of Monroe.

Forks'ville, in *Pennsylvania*, a post-borough of Sullivan co.

Forks'ville, in *Virginia*, a P. O. of Mecklenburg co.

Fork'town, in *Maryland*, a village of Somerset co., about 90 miles S.S.E. of Annapolis.

Fork Union, in *Virginia*, a P. O. of Fluvanna co.

Fork'y, *a.* Forked; opening into two or more parts, shoots, or points.

For'lara, *n.* [It.] A slow kind of jig.

For'li (anc. *Forum Livii*), a walled city of central Italy, cap. of province of same name, in a fertile plain between the Montone and Ronco, on the Emilian Way, 38

m. S.E. of Bologna, and 15 S.W. of Ravenna. *Manuf.* Silk ribbons and twist, oil-cloth, woollens, wax, nitre, and sulphur. In 1797 *F.* was taken by the French, who made it the cap. of the dep. Rubicon. In 1860 it was annexed to the kingdom of Italy. *Pop.* 40,222.

Forlimpo'poli, (anc. *Forum Popilii,*) a town of Central Italy, prov. Forli, 5 m. S.E. of the city of Forli; *pop.* 5,244.

Forlorn', *a.* [A.S. *forloren*, from *forleoran* —*for*, and *leoran*, to pass, to go away, to depart. See LORN.] Deserted; stripped or deprived; left without resource; destitute: abandoned; forsaken; solitary; friendless; wretched; miserable.

Forlorn-hope. [A.S. *forloren*, left without resource, *hopa*, hope.] (*Mil.*) A body of men selected to attempt a breach, or to lead in scaling the walls of a fortress. The name (which in the French *enfants perdus* is even more expressive) is given on account of the extreme danger to which the leaders of a storming-party are necessarily exposed. As, however, the honor of success is proportionate to the peril of the undertaking, there is ordinarily no lack of volunteers for this arduous service. The forlorn-hope is called by the Germans *Die verlornen Posten.*

Form, *n.* [Fr. *forme*; Lat. *forma*; Gr. *morphē*; O. Ger. *frumjan*, to make; probably allied to Heb. *bara*, to cut, to carve, to form, to produce.] The manner and mould in which anything is presented to our ideas of conception; mould; contour; external appearance of a body; the conformation or make; manner of arranging particulars; disposition of particular things; model; draught; pattern.—Beauty; elegance; splendor; dignity.—Regularity; method; order.

(*Phys.* and *Fine Arts.*) The shape and external appearance of a body; the figure of the same as defined by angles or lines, or that manner of presenting itself to the eye peculiar to different bodies; as, the *form* of a circle, the *form* of a square, the *form* of the human body.

(*Law.*) A rule to be observed in legal proceedings.

—A prescribed or settled mode; a stated method; established practice; system; as, *forms* of rhetoric, *forms* of government, logical *form*, *forms* of prayer, &c.

—Empty show; semblance: ceremony; formality; as, a mere matter of *form.*—Likeness; image; manner.

> "By *form* of laws condemned to die."—*Dryden.*
> "She was a *form* of life and light,
> That, seen, became a part of sight."—*Byron.*

(*Print.*) An assemblage of types, composed and arranged in order, disposed into pages or columns, and locked up in a chase ready for the press.

—A long seat without a back.—A class; a rank of students. (*Dryden.*)—The seat or bed of a hare.

—*v. a.* [Fr. *former*; Lat. *formo*, from *forma.*] To make or cause to exist; to shape, fashion, frame, or mould; to create; to construct; to plan; to scheme; to modify; to arrange; to combine in a particular manner; to contrive; to invent; to make up; to settle by deductions of reason, as an opinion; to model by instruction and discipline, as one's character; to combine; to establish; to compile; to constitute; to enact; to ordain.

—*v. n.* To take form.

For'mal, *a.* [L. Lat. *formalis*, from *forma.*] Relating to outward form; external; according to form; agreeable to established mode; regular; methodical; strictly ceremonious; precise; exact to affectation; done in due form or with solemnity; express; having the form or appearance without the substance or essence; external; constituent; proper; essential.

Formal'dehyde, or **Form'ic Al'dehyde,** *n.* (*Chem.*) An aldehyde is an alcohol from which a portion of its hydrogen has been removed, and from this, by a further chemical change, an acid can easily be produced. The different aldehydes are named from the acids into which they change; hence, the one which yields formic acid by its conversion is named *F.* This substance is a derivative of methyl or wood alcohol, from which it is easily produced. If wood alcohol be heated in contact with platinum over a wick of an ordinary spirit lamp, *F.* is given off as a vapor. If the lamp be extinguished after the platinum has become heated to a cherry red, the latter will continue to glow as long as any alcohol remains, the generation of *F.* being continuous. *F.* has been used in solution for some years in medical museums for the preservation of anatomical specimens, for which purpose it is considered much superior to alcohol. The solution is known under the name of *formaline*, and usually contains about 40 per cent. of *F.* The vapor of *F.* has recently been introduced as a disinfectant to replace sulphuric fumigation, which has long been objectionable from its injurious effects on furniture and clothing, it causing change of color, tarnishing of metallic surfaces, &c. *F.* is free from these injurious qualities, is a powerful germicide, and is strongly penetrative. Like sulphurous acid, it is irritating to the lungs, but not to the same extent; and while the fumes of sulphur are slow in dispersing, those of *F.* quickly disappear. For these reasons it is being introduced for disinfecting purposes. At a meeting of the American Public Health Association, in September, 1896, two lamps for the generation of *F.* were shown. One of these, presented by Dr. Robinson, professor of chemistry at Bowdoin College, consisted in a disk of moderately thick asbestos board, perforated with small holes, and platinized by the use of a strong solution of platinic chloride. A shallow dish partly filled with wood alcohol is provided; and the platinized disk, being wet with alcohol, is seized in a pair of small tongs and lighted. By the time the alcohol burns away the disk will be sufficiently heated, and if now placed over the dish it will retain its heat and convert the alcohol into *F.* Dr. Robinson's experiments were made in a room of about 3,000 cubic feet capacity, having three large windows with very loose sashes—an unfavorable arrangement, as the gas readily escapes through small crevices. In about three hours and a half the evaporation of about two quarts of alcohol resulted in the complete sterilization of diphtheria and typhoid cultures, and of all parts of clothing, including seams, insides of pockets, &c., in every part of the room. Typhoid bacilli, which had been buried half an inch deep in sand, were found to be destroyed. Cultures of typhoid and diphtheria germs which were imbedded in bed clothing, pillows, and mattresses, were found to be dead after seven hours, two quarts of alcohol being used. In the other method, a lamp burning wood alcohol is used, with a piece of platinized sheet asbestos at the top of the wick. The lamp is burned until the asbestos is red hot, and then extinguished, the gas being generated as before. For ordinary purposes the formaline solution may be used for washing walls or furniture, or may be applied as a spray. It is very volatile and will quickly evaporate into the room, though perhaps not with sufficient rapidity for deep penetration of clothing. Captain Weaver, health officer of Norristown, Pa., has used formaline freely for several years in fumigation, and with great success, finding its power remarkable in the destruction of the germs of disease. *F.* is considered much more efficient than formaline on account of the greater strength and penetrating power of the gas produced by the vapor lamp.

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For'malism, *n.* Quality of being formal; formality.

For'malist, *n.* [Fr. *formaliste.*] One who observes forms; one who esteems the form of a thing more than the thing itself, through narrow-mindedness.

Formal'ity, *n.* [Fr. *formalité*, from L. Lat. *formalitas.*] Quality of being formal; the practice or observance of forms; ceremony; mere conformity to customary modes; established order; rule of proceeding; mode; method; order; decorum to be observed; customary mode of behavior; conventional rule.

For'malize, *v. a.* To modify; to formulate.

—*v. n.* To affect formality. (R.).

For'malizer, *n.* A formalist.

For'mally, *adv.* In a formal manner.

For'ma paupe'ris. (*Law.*) See IN FORMA PAUPERIS.

For'mate, *n.* (*Chem.*) Same as formiate.

Forma'tion, *n.* [Fr.; L. Lat. *formatio.*] Act of creating or causing to exist; the operation of collecting things together, or shaping and giving form.—Generation; production; manner in which a thing is formed.

Forma'tions, Geolog'ical. A term used in speaking of certain large groups of rocks which form parts of geological strata. The geological record is usually classified into five main divisions: (1) The Archæan or Azoic; (2) the Primary or Palæozoic; (3) the Secondary or Mesozoic; (4) the Tertiary or Cainozoic; and (5) the Quaternary, or Recent Periods. These great divisions are further separated into systems, each system into formations, each formation into groups, and each group into single zones or horizons. The word *formation*, however, is used in a wider sense than this, and has been variously applied by geologists to different rock groups, now to the main divisions above named, now to smaller groups of stones, now to rocks of special kinds, as clay-slates, sandstones, limestones, &c. The oldest stratified formations are masses of gneissic and crystalline schistose rocks which lie beneath the earliest fossil-bearing formations, and belong perhaps to widely different geological periods. Their wide separation in time from the rocks that rest on them is shown by their strong unconformability to all the latter formations. They are everywhere crystalline in condition, occur in crumpled, often vertical, beds, and yield much of the materials out of which the later formations were made. In the U. S. they include the thick strata known as the Laurentian. These contain the problematic *Eozoon* (*q. v.*), together with beds of graphite, limestone, and iron ore, from which it has been deduced that they represent a period in which life existed, though this is extremely doubtful. Above them, in the Lake Huron region, lie beds of slate, quartz, limestone, &c., 10,000 to 20,000 feet thick, which have received the name of Huronian. No fossils have been found in them; and, though seemingly much younger than the Laurentian rocks, they are classed with the Archæan formations.

All the older sedimentary formations bearing remains of organic life are classed as Primary or Palæozoic. They extend to the top of the Permian system, and include the Cambrian, Silurian, Devonian, Carboniferous, and Permian. The Cambrian rocks of North America are divided by geologists into three formations: (1) the Acadian, a mass of grey and dark shales with some sandstones of 2,000 feet in thickness, and (2) the Potsdam, which attains a width of 5,600 in Newfoundland, but thins away westward and southward to a thickness of about 300 feet. This formation is rich in early forms of animal life. The Silurian system in the United States and Canada spreads over a vast territory, and is divided into the following formations. Lower Silurian: (1) Canadian, (2) Trenton, embracing limestones which are rich in fossils. Upper Silurian: (1) Niagara, (2) Salina, (3) Lower Helderberg. These are composed of sandstones, limestones, and shales, and contain, in addition to many species of trilobites, mollusks, &c., the earliest forms of fish which occur in the upper formations. Insects also make their first appearance in the Silurian rocks.

The Devonian System of the United States and Canada is divided into Lower and Upper Devonian, and comprises a number of formations, of which the Portage and Chemung rocks are from 2,000 to 3,000 feet thick in the Catskill Mountains and thicken to 5,000 or 6,000 feet along the Appalachian region. They possess some characteristic genera of fish. The Upper Devonian of Canada yields a vast arenaceous deposit termed the Gaspé Sandstones, of over 7,000 feet in thickness, which contains abundant plant remains, the oldest of the terrestrial floras of any importance. In these ferns and lycopods largely predominate; there are a few conifers, and from a locality on Lake Erie a fragment of dicotyledonous wood has been described, the oldest in existence. These vegetable layers are thick enough in some localities to form thin seams of coal—the pioneers of the coal formation.

It is in the Chemung, the upper formation of the Devonian system, that the mineral oil and gas of Pennsylvania are chiefly found, the drills descending to a coarse sandstone called the oil-sand, which is so open in texture that a vast amount of oil can be held in the spaces between the grains. Next above the Devonian lies the great Carboniferous system, important from its vast accumulations of coal. Its formations include the Subcarboniferous (the Mountain or Carboniferous limestone), and the Carboniferous, the coal bearing strata proper. The subcarboniferous is noted for extensive limestone strata interspersed with thin shales and sandstones over the Mississippi basin, and for sandstones and shales, with little limestone, in the East. In southwest Virginia the limestones become over 2,000 feet in thickness, while in southwestern Illinois they have a thickness of 1,200 to 1,500 feet. Upon them lie the formations of the coal measures, whose basic formation in the anthracite region of Pennsylvania is a conglomerate of silicious gravel and sand. This extends through the Mississippi valley, though thinning out westward. Upon it lies the coal formation, consisting of sandstone, shale, clay and limestone, with occasional strata of coal, and commonly beneath them a bed of fire clay. Of the total thickness of the formation about 1 foot in 40 is usually good coal, though in the more productive parts the proportion rises to 1 foot in 20. The life of this period was one of dense forests or jungles of cryptogamous plants, consisting of ferns, equiseta and lycopods, with some examples of conifers. Animal life included nearly all the forms found in the earlier periods, together with the first of the land vertebrates, frog-like batrachians of great bulk.

Lying upon the upper level of the coal formation are the Permian beds, the upper level of the Salæozoic geological division, and classed by some authors as a portion of the Carboniferous division. It is identified by its fossil remains, being otherwise not clearly distinguishable from the formations below. Among these are the earliest of the reptiles, the outcome of the batrachians of the lower beds, and the beginning of this great reptilian domain of life.

The Mesozoic age of geology comprises three systems of strata, the Triassic, Jurassic and Cretaceous, which are divided into numerous formations, differing considerably in different parts of the earth, as indeed is the case with all the geological systems. The Triassic rocks of the U. S. are mostly sandstones, conglomerates and shales, with occasional thin beds of limestone and some coal. The reptilian fauna increase here greatly in number and variety, while the earliest mammals make their appearance, in the form of insectivorous marsupials. The Jurassic formation, which succeeds the Triassic, is distinguished by its huge dinosaurian reptiles, creatures with short fore limbs, whose habit was to stand erect on the hind limbs and tail, yet some of which were of immense size. From them the birds are supposed to have evolved, their earliest known forms appearing in this geological age.

The Cretaceous formation, named from its great outcrop of chalk in England, is composed of very varied beds in America, the Lower Cretaceous being sub-divided by Hill into the Trinity, Fredericksburg, and Washita groups, and the upper by Cook into the Dakota, Colorado, Montana, Laramie. They present no new features of organic development other than a continued appearance of new reptilian forms, and of the first traces of the higher mammals in what are claimed to be upper Laramie beds. Above the Cretaceous appears the third division of geological time, the Tertiary, made up of three important formations, the Eocene, Miocene, and Pliocene. These are distinguished as being the formations in which mammalian life attained its great development, passing upward from low types to those that lie just below man in organization. The rocks vary greatly in character, there being no strata of almost continental extent and uniformity, as in the Silurian age, but a diversity much like that of modern formations.

The Quaternary beds, which overlie these, are strictly modern in deposition, and contains indications of human life throughout most of their extent. Of their formations the most important is the glacial—beds of ground, clay, &c., evidently due to a recent great extension of the polar ice and its slow withdrawal. Above these lie the Champlain formation, the strata that succeeded the vanishing of the polar ice, and the Recent, distinguished by the presence of mammals of existing species, and the soils which form the present agricultural surface of the earth.

Forma'tive, *a.* Giving form; having the power of giving form; plastic; serving to form.

(*Gram.*) Derivative.

—*n.* (*Gram.*) That which serves merely to give form, and is no part of the radical, as a prefix or termination used in forming a word or a class of words.

Form'er, *n.* He who forms; a maker; an author.

—That which gives form; a pattern; a dub around which the paper of cartridges is lapped.

For'mer, *a., comp. deg.* [A. S. *form*, early, first, with comp. sign *er*.] Prior; anterior; previous; antecedent; before in time; preceding another or something else in order of time; as, a *former* discourse.—Past, and frequently ancient; long past; as, in *former* times.—Precediug; mentioned before the other, as between two things mentioned together.

"Of wit and beauty, we may say, that the *former* retains the regard, which the *latter* first attracts."—*Johnson.*

For'merly, *adv.* In time past; either in time immediately preceding, or at any indefinite distance; of old; heretofore; anciently; in days of yore.

Formes, KARL JOHANN, singer, born at Mülheim, on the Rhine, Aug. 7, 1818; was engaged in the Imperial Theater at Vienna, as primo basso; visited Russia and Spain, and appeared in the Italian opera at Covent Garden, London; sang at the New York Academy of Music in 1857, achieving the same success as in the European capitals. His principal parts were *Sarastro*, *Figaro*, *Bertram* and *Plunkett*. During the later portion of life he resided in San Francisco, where he died in 1889.

Form'ful, *a.* Productive of forms or images; imaginative.

For'miate, *n.* [Fr. *fourmi;* Lat. *formica*, an ant.] (*Chem.*) A salt formed by the union of formic acid with a base.

For'miate, *a.* Resembling an ant (*formica*).

For'mica, *n.* (*Zoöl.*) One of the FORMICIDÆ (*q. v.*).

For'mic Acid, *n.* (*Chem.*) An acid occurring both in the animal and vegetable kingdoms. It derives its name from the fact that it was first obtained by distilling the red ant (*Formica rufa*), which when irritated ejects an acid liquor. It is a burning liquid of an irritating odor. It is exceedingly corrosive, producing a sore if dropped upon the skin. Below 32° it crystallizes in brilliant scales. It boils at 221·5°, yielding an inflammable vapor burning with a pale blue flame. *F. A.* is found in the leaves of stinging-nettles, and is prepared in the laboratory by the oxidation of various organic substances, particularly by distilling starch with binoxide of manganese and sulphuric acid; also by distilling dried oxalic acid, with enough glycerine to cover it, in a water bath, when it is resolved into carbonic acid and *F. A.* With the metals *F. A.* forms a series of soluble salts called *formiates*. *Sp. gr.* of *F. A.* at 32°, 1·2227. *Form.* HCO.OH.

Formica'tion, *n.* [Fr., from Lat. *formicatio.*] The creeping sensation upon the skin, resembling the crawling of ants over different parts of the body.

Formiche, (*for-mē̆k'*,) the name of two small islands in the Mediterranean, 5 m. S.W. of Trapani, on the W. coast of Sicily.—A group in the Mediterranean, off the S.E. point of Elba.—Another group in the Mediterranean, comprising Monte Cristo, Giglio, &c.

Formidabil'ity, *n.* The quality of exciting fear or apprehension.

For'midable, *a.* [Fr., from Lat. *formidabilis*, from *formidare*, to fear—*formido*, fear, dread.] Exciting fear or apprehension; impressing dread; adapted to excite fear and deter from approach, encounter, or undertaking; dreadful; fearful; frightful.

For'midableness, *n.* The quality of exciting terror or dread.—The thing causing dread or apprehension.

For'midably, *adv.* In a manner to excite fear.

Formi'ga, a town of Brazil, in the province of Minas-Geraes, on a small stream of the same name, abt. 140 m. E. of Villa Rica; *pop.* abt. 2,200.

Formi'gas, a town of Brazil, in the province of Minas-Geraes, abt. 100 m. W.N.W. of Minas-Novas; *pop.* abt. 1,500.

Formigny, (*for-mēn'ye*,) a small village of France, 12 m. from Bayeux. Here, in 1450, a battle was fought between the French and English, who were defeated and obliged to evacuate Normandy.

Form'less, *a.* Without determinate form; shapeless; wanting regularity of shape.

Form'lessness, *n.* The condition of being without determinate form.

Formo'sa, (Chin. *Tae-wan*, or "Terrace Bay,") an island in the Chinese Sea, belonging partly to China, bet. Lat. 22° and 25° 30′ N., and Lon. 120° 30′ and 122° E., abt. 80 m. from the Chinese coast, from which it is separated by the Channel of Foh-kien (sometimes called Strait of Formosa), and 170 m. N. of Luzon, the chief of the Philippine Islands; length, N. to S., abt. 250 m.; breadth, in its centre, abt. 80 m.; the area is estimated at 14,000 sq. m. *Desc.* A chain of mountains runs through the island in its entire length, forming, in general, the barrier between the Chinese on the W., and the independent natives of the unexplored country on the E. side. On many of its peaks snow remains during the most part of the summer; and Humboldt has supposed that a portion of it reaches an absolute elevation of 12,000 feet. It exhibits distinct evidence of former volcanic action, and sulphur, naphtha, and other volcanic products are abundant. Some parts of the coast present bold headlands; but all the W. shore is flat, and surrounded with rocks and shoals. Its harbors, which were formerly good, have now become nearly useless, owing to the encroachments of the land upon the sea. Ke-lung, at its N. extremity, is the only good port. *Soil*, highly fertile and productive, so much so indeed that this island has long been familiarly known as the granary of the Chinese maritime provinces. All the large plain of the S. resembles a vast cultivated garden. *Prod.* Rice, sugar, camphor, tobacco, wheat, maize, millet, truffles, vegetables, and the choicest of Asiatic and European fruits; pepper, aloes, green tea, cotton, hemp, and silk are also important articles of cultivation. *Zoöl.* The leopard, tiger, wolf, &c., are found in the more impenetrable tracts of the interior; the domestic breeds of animals, game, &c., are abundant. *Min.* Gold is believed to impregnate the soil in the E. part of the island; but the chief mineral deposits are coal, salt, and sulphur. *Man.* Silks, woollens, &c. The trade is mostly in the hands of Chinese and British merchants, who also own all the shipping. The principal article of import is opium. *Inhab.* The natives bear no resemblance to the Chinese; but they have an apparent alliance with the Malay or Polynesian race.—*Hist.* The Japanese, Spanish, Portuguese, and Dutch have been successively masters of the island. The latter were (1662) expelled by the Chinese. The Japanese invaded *F.* in 1874, and the French seized the port of Kelung ten years later, but soon withdrew. At the close of the Chino-Japanese war (1895) Japan claimed and received *F.* as a part of the indemnity demanded from China.

Formo'sa, one of the Bissagos islands, W. Africa; Lat. 11° 30′ N., Lon. 16° 10′ W.

Formo'sa, in *Missouri*, a village of Cole co., on the Missouri River, abt. 10. m. below Jefferson city.

Formo'sa, (Rio,) in Africa. See BENIN, (RIVER OF.)

Formo'sus, bishop of Porto, in Italy, succeeded Pope Stephen V. in 891. He condemned Photius, excommunicated the Emperor Lambert, duke of Spoleto, and nominated in his place Arnoul, king of Germania. D. 896.—The fiery Stephen VI., his successor, had his body disinterred, in order to put him on his trial. He was restored to his grave in 898, under John IX.

For'mula, *n.; pl.* FORMULÆ, or FORMULAS. [Lat. dim. of *forma*, a form or shape; Fr. *formule.*] A prescribed form; a rule; a model.

(*Eccl.*) A written confession of faith.

(*Algeb.*) The expression of a quantity in algebraical symbols. Thus,

$$\sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

is the formula for the area of a triangle whose sides are *a*, *b*, and *c*, and semi-perimeter *s*. Every formula may be regarded as an abbreviated rule for the solution of a problem, or as an abbreviated enunciation of a theorem.

(*Chem.*) An expression of the composition of a substance by means of symbols. The formula of bodies may be either *empirical* or *rational*. An empirical formula is one giving the elements contained in a body, without reference to their arrangement. For instance, the empirical formula of crystallized sulphate of copper would be CuO_9SH_5; but the rational formula, showing its composition, would be $CuO.SO_3 5aq$. Formulæ are the most convenient way of expressing the decompositions taking place when certain substances are mixed, a few lines of symbols serving for pages of explanation.

(*Med.*) The manner or style in which any article is prepared. A prescription is a formula. The term, however, is chiefly confined to the preparations in the Pharmacopœia.

Formularis'tic, *a.* Pertaining to the act of putting into prescribed form.

Formulariza'tion, *n.* The act of arranging and setting forth in a prescribed form.

For'mularize, *v. a.* To put in the shape of a formula.

For'mulary, *n.* [Fr., from L. Lat. *formularius*, a legal practitioner to draw out writs by form, from Lat. *formula.*] A prescribed form; a formula.—A book containing stated and prescribed forms, as of oaths, declarations, prayers, and the like; a book of precedents.

—*a.* Stated: prescribed; ritual.

For'mulate, *v. a.* To express by a formula; to put in a definite form of statement.

For'mulize, *v. a.* Same as FORMULATE, *q. v.*

For'myle, *n.* (*Chem.*) The basic hydrocarbon of formic acid. *Form.* C_2H.

For'nax, *n.* [Lat., a small furnace.] (*Astron.*) A constellation of the southern hemisphere, named by Lacaille, and situated in close proximity to Cetus, or the Sea-Monster. It is one of the recognized constellations, but contains no stars of the first or second magnitude.

For'nicate, For'nicated, *a.* [Lat. *fornicatus*, from *fornix*, an arch or vault.] Vaulted; arched.

(*Bot.*) Arching over; overarched.

For'nicate, *v. a.* [Lat. *fornicari*, from *fornix*, a vault, a brothel.] To have unlawful sexual intercourse with an unmarried woman.

Fornica'tion, *n.* [Fr., from Lat. *fornicatio—fornix*, an arch, a vault, also a brothel, from their anciently being in subterranean vaults.] (*Arch.*) The formation of an arch or vault.

—The unlawful conversation of a married man with an unmarried woman.

(*Script.*) Adultery; incest; idolatry.

For'nicator, *n.* [Fr. *fornicateur;* L. Lat. *fornicator.*] An unmarried person, male or female, who has criminal intercourse with the other sex; also, a married man who has sexual commerce with an unmarried woman.—A lewd person; an idolater.

For'nicatress, *n.* [Fr. *fornicatrice;* Lat. *fornicatrix.*] An unmarried female who has unlawful intercourse with the other sex.

For'ray, *n.* Same as FORAY, *q. v.*

For'res, a parliamentary borough and market-town of Scotland, co. Moray, 3 m. E. of the River Findhorn, and 11 W. of Elgin. The town is about a mile in length. *Pop.* 4,104.

Forsake', *v. a.* (*imp.* FORSOOK: *pp.* FORSAKEN.) [A.S. *forsaecan—for*, and *secan*, to seek, to approach. Cf. Ger. *versagen*, to renounce.] To quit; to leave entirely; to desert; to abandon: to depart from; to renounce; to reject; to leave; to withdraw from; to fail; as, to *forsake* one's religion, country, friends, &c.

Forsak'en, *p. a.* Deserted; left; abandoned; forlorn; destitute.

Forsak'enness, *n.* State of being forsaken, left, or abandoned.

Forsak'er, *n.* One who forsakes, quits, or abandons.

Forsak'ing, *n.* Act of desertion; dereliction.

Forsooth', *adv.* [A.S. *for*, and *soth*, sooth, truth.] In very truth: in fact; certainly; very well. (Chiefly used in contempt or irony; but once a word of honor in addressing women.)

Fors'ter, JOHANN REINHOLD, a German traveller and naturalist, B. in Dirschau, Prussia, 1729. In 1753 he became pastor at Nassenhuben, near Danzig; but he seems to have devoted most of his time to the study of mathematics, natural philosophy, natural history, and geography. In 1765 he accepted an offer made to him by the Russian government, to inspect and report upon the new colonies founded on the banks of the Volga; but his irritable temper soon involved him in difficulties with the Russian government; and in the following year he repaired to England, where he became teacher of natural history, and of the French and German languages. In 1772 he received the offer of naturalist to Captain Cook's second expedition to the South Seas. In the course of the voyage, his temper seems to have frequently brought him into unpleasant collision with the other officers. In 1776, in association with his son, he published a work (in Latin) on the botany of the expedition: and in 1778 his *Observations faites dans un Voyage autour du Monde sur la Géographie Physique, l'Histoire Naturelle, et la Philosophie Morale* appeared. In the latter year, he returned to Germany, and was soon afterwards made Professor of Natural History and Mineralogy at Halle, where he D., 1798. In addition to the works mentioned, he published *De Bysso Antiquorum*, 1775; *Zoölogia Indica*, 1781; *Geschichte der Entdeckungen und Schifffahrten im Norden*, 1784, (translated into English and French,) &c.

Forster, JOHANN GEORG ADAM, commonly known as GEORG *F.*, son of the above, a German traveller and naturalist, B. at Nassenhuben, near Danzig, 1754. When only 17 years of age, he accompanied his father in Captain Cook's second voyage; and shortly after his return, he published, with the assistance of his father, an account of the expedition. His book was well received by the public, and was translated into French, German, Swedish, and other languages. Humboldt speaks of this work and of its author, "my celebrated teacher and friend, George Forster," in the highest terms in the *Cosmos*, (see vol. ii. p. 437, Bohn's ed.) *F.* having returned to the continent, was made Professor of Natural History at Cassel, and afterwards at Wilna. Having there no access to books, in 1788 he gladly accepted the office of librarian to the Elector of Mayence. After Mayence was taken by the French in 1792, *F.*, who had become an ardent republican, was sent as a deputy to Paris, to request the incorporation of Mayence with the French republic. While he was in Paris on this mission, the Prussians retook Mayence, and *F.* lost all his property, including his books and manuscripts. D. 1794. Besides numerous translations, and the account of Captain Cook's voyage, his most important works are, *Kleine Schriften, ein Beitrag zur Länder- und Völkerkunde; Naturgeschichte und Philosophie des Lebens* (6 vols., Berlin, 1789–1797,); and *Ansichten vom Niederrhein, von Brabant, Flandern, Holland, England, und Frankreich* (3 vols., Berlin, 1791–1794). His widow, the daughter of Heine, but perhaps more widely known as Therese Huber, published a collection of his Letters, in 2 vols., in 1828–1829; and a complete edition of his works, in 9 vols., was published by his daughter and Gervinus, in 1843.

For'sterite, *n.* (*Min.*) A silicate of magnesia found at Vesuvius, in orthorhombic crystals of a vitreous lustre, and white, whitish, or greenish color. *Sp. gr.* 3·21–3·33. *Comp.* Silica 42·86, magnesia 57·14.

Forswear, (*for-zwar'*,) *v. a.* (*imp.* FORSWORE; *pp.* FORSWORN.) [A.S. *forswerian*, from *for.* and *swerian*, to swear; Ger. *verschwören.*] To reject or renounce upon oath; to abjure; to deny upon oath.—To swear falsely; to perjure one's self. (With reciprocal pronoun.)

"Thou shalt not *forswear thyself.*"—*Matt.* v. 33.

—*v. n.* To swear falsely; to commit perjury.

Forswear'er, *n.* One who rejects on oath; one who is perjured; one who swears a false oath.

Forswore', *imp.* of FORSWEAR, *q. v.*

Forsworn', *pp.* of FORSWEAR. Renounced on oath; perjured.

Forsworn'ness, *n.* State of being forsworn.

Forsyth', in *Georgia*, a N. central co.; *area*, about 297 sq. m. *Rivers.* Chattahoochee and Etowah rivers, and Vickery's and some other small creeks. *Surface*, varied; *soil*, generally fertile. *Min.* Gold has been found in considerable quantity in the vicinity of Sawney's Mountain. Silver and copper also abound, and diamonds, as well as other precious stones, have been found. *Cap.* Cumming. *Pop.* (1890) 11,155.

—A post-village, cap. of Monroe co., about 25 m. N. W of Macon.

Forsyth', in *Michigan*, a post-township of Marquette county.

Forsyth', in *Missouri*, a post-village, cap. of Taney co., on White river, about 150 m. S.S.W. of Jefferson City.

Forsyth', in *North Carolina*, a N. W. central co., area about 372 sq. m. *Rivers.* Yadkin river and Muddy creek. *Surface*, diversified; *soil*, fertile. *Cap.* Winston. *Pop.* (1890) 28,434.

Forsythe', in *Illinois*, a post-village of Macon co., about 6 m. N. of Decatur

Fort, *n.* [Fr. *fort;* It. *forte;* Lat. *fortis*, strong.] (*Mil.*) In the general sense of the word, a small inclosed work, usually erected near an important fortress or fortified town, to command any of the approaches to it. Forts

are also frequently erected on the sea coast, for the defence of certain positions, and are garrisoned by a small body of troops. Although they do not enclose a space of any great extent, yet they are strongly constructed, and, being placed in commanding situations, often form an important line of defence. They are generally quadrilateral, with bastions or demi-bastions at the angles; but it depends mainly on the position they occupy, whether they are triangular, square, polygonal, or in the form of a crown-work or star. They consist for the most part of a rampart, surrounded with a ditch and glacis; but in some cases an out-work is constructed for the defence of any side on which it may be more easily assailed. Paris is completely girdled with a chain of carefully planned forts, mostly pentagonal, in the shape of the enceinte, and situated at distances varying from a mile to 2½ miles from the inner line of bastions that encircle the city. Cherbourg may also be cited as an example in which a town is effectively protected from attack by sea or land by a chain of detached forts and redoubts, which is doubled on the south-west side of the town.—In North America, generally, the name was also applied to a trading-post in the wilderness with reference to the indispensable defences, however slight, against the surrounding savages. It has thus been employed to designate merely a palisaded log-hut—first oasis of civilization of the desert—and such is generally the origin of the numerous places to which the name *F.* is prefixed.

Fort Abercrom'bie, in *North Dakota*, a post-village of Richland co., on the Red River of the North. Now ABERCROMBIE.

Fort Ad'ams, in *Massachusetts*. See NEWPORT.

Fort Adams, in *Mississippi*, a post-village of Wilkinson co., on the Mississippi river, abt. 40 m. S. of Natchez.

Fort Alamo, in *Texas*, near San Antonio, in Bexar co. On the 6th of March, 1836, a small garrison of Texans resisted a body of Mexicans, ten times their number, and perished to a man, whence it is called the *Thermopylæ of Texas*. It was on this occasion that the celebrated frontiersman, Davy Crockett, was killed, together with the little band of adventurous spirits who delighted to follow the fortunes of that unique and daring pioneer.

Fortaleza (*for-ta-la'za*), a city of Brazil, cap. of the State of Ceara, at the mouth of the river Ceara; Lat. 3° 42′ S., Lon. 38° 30′ W. *Pop.* (1895) 20,000. It was formerly called CEARA, or VILLA DO FORTE.

Fort Am'sterdam, in *New York*, on the S. point of Manhattan Island. It was built in 1626, and while under British control was called FORT JAMES.

Fort An'cient, in *Ohio*, a post-office of Warren co.

Fort An'derson, in *North Carolina*, one of the defences of the mouth of Cape Fear river; surrendered to the Union forces, Feb. 20, 1865.

Fort Anne, in *New York*, a post-town and township of Washington co. about 67 miles N. by E. of Albany.

Fort Ar'nold, in *New York*, one of the redoubts of West Point during the Revolutionary War.

Fort Assinaboine or **Assiniboine,** in *Montana*, a post-town of Choteau co. *Pop.* (1890) 660.

Fort At'kinson, in *Iowa*, a post-village of Winnishiek co., about 110 miles N. by W. of Iowa City.

Fort Atkinson, or FORT SUMNER, in *Kansas*, once a military post on the Arkansas river, where it is crossed by the Santa Fe Road. It is memorable as the spot where, July, 1863, was concluded between the U. S. government and the Indian tribes of the Arkansas river, the treaty known as the *Laramie Treaty*.

Fort Atkinson, in *Wisconsin*, a city of Jefferson co., on Rock river, 20 miles N.E. of Janesville. *Pop.* (1895) 2,815.

Fort Au'gusta, in *Georgia*, ancient fort of Richmond co., on or near the present site of the city of Augusta.

Fort Augusta, in *Pennsylvania*, a revolutionary fort of Northumberland co., upon the site of which Sunbury is built.

Fort Augus'tus, a fortress of Scotland, co. Inverness, the center of the three forts erected along the great glen of Scotland, at the W. extremity of Loch ness, near the Caledonian Canal, 31 miles S. W. of Inverness, and 30 N.E. of Fort William.

Fort Bain'bridge, in *Ala.*, a village of Russell co.

Fort Ball, in *New York*, an ancient fort of Oneida co., near Rome.

Fort Barring'ton, or FORT BARRINGTON FERRY, in *Georgia*, a village of McIntosh co., on the Altamaha river, about 12 miles N. W. of Darien.

Fort Bar'tow, in *North Carolina*, a fortification of Roanoke Island, taken by the Union forces, Feb , 1862.

Fort Bay'ard, in *New Mexico*, a P. O. of Grant co.

Fort Beau'regard, in *South Carolina*, one of the defences of Port Royal harbor, taken by the Union forces, Nov. 7, 1861.

Fort Bend, in *Texas*, a S.E. co.; *area*, about 880 sq. miles. *Rivers.* Brazos and Bernard rivers. *Surface*, generally level; *soil*, in some parts fertile. *Cap.* Richmond. *Pop.* (1890) 10,586.

Fort Ben'ton, in *Montana*, a post-town and military station, cap. of Chouteau co., on the Missouri river; Lat. 47° 50′ N., Lon. 110° 30′ W. *Pop.* (1897) about 780.

Fort Beversede (*ba'ver-sa-deh*), in *Pennsylvania*, built near the mouth of the Schuylkill river by the Dutch in 1648.

Fort Bid'well, in *California*, a P. O. of Modoc co.

Fort Black'more, in *Virginia*, a P. O. of Scott co.

Fort Blunt, in *Tenn.*, a former P. O. of Jackson co.

Fort Boise, in *Idaho*, a fort formerly belonging to the Hudson Bay Co., but now in the possession of the U. S., situated on Lewis Fork, or Snake river, a few miles below the junction of the Big Wood river.

Fort Boone, in *Kentucky*, an ancient fort, now the site of Booneville.

Fort Bragg, in *California*, a post-town of Mendocino co., on the Pacific coast, 11 m. N. of Mendocino. Leading industry, lumbering. *Pop.* (1890) 945.

Fort Branch, in *Indiana*, a post-office of Gibson co.

Fort Bridg'er, in *Wyoming*, a post-office of Uinta co., on the Beach Fork of Green river, 10 miles S.E. of Carter Station of the Union Pacific R. R.

Fort Brook, in *Florida*, at the head of Tampa Bay.

Fort Brown, in *Texas*. See BROWNSVILLE.

Fort Byrd, in *Pennsylvania*, an ancient fort on the Monongahela river, at the mouth of Red Stone creek, in Fayette co.

Fort Calhoun', in *Nebraska*, a post-township of Washington co., on the Missouri river, 16 miles N. by W. of Omaha, *Pop.* (1897) about 1,400.

Fort Cas'imer, in *Delaware*, near the present site of Newcastle, in Newcastle co., on the Delaware; built by the Dutch, about 1650.

Fort Cas'well, in *North Carolina*, one of the old defences of the harbor of Smithfield.

Fort Chad'bourne, in *Texas*, a P. O. of Coke co.

Fort Charles, in *Virginia*, an ancient fort, built in 1645, near the present site of Richmond.

Fort Chippeway'an, and **Fort Wedderburn,** two forts of British North America at the W. extremity of Lake Athabaska.

Fort Christia'na, in *Delaware*, built by the Swedes in 1638, near the present site of Wilmington.

Fort Church'ill, in *Nevada*, a post-settlement and military depot of Lyon co., on Carson river, about 38 m. N.E. of Carson City. P. O. at DAYTON.

Fort Clark, in *North Dakota*, on the Missouri river, a few miles below the confluence of Knife river.

Fort Clark, in *Iowa*, on Lizard river, in Humboldt co., about 160 miles W.N.W. of Iowa City.

Fort Clarke, in *North Carolina*. See HATTERAS.

Fort Clinch, in *Georgia*, a fortification on Amelia Island, abandoned by the Confederates, Feb., 1862.

Fort Clin'ton, in *New York*, one of the defences of West Point during the War of Independence.

Fort Clyde, in *New York*, an ancient fort of Montgomery co., near Fort Plain.

Fort Col'lins, in *Colorado*, a post-town cap. of Larimer co. *Pop.* (1897) about 2,500.

Fort Colum'bus, in *New York*, on Governor's Island.

Fort Col'ville, in *Washington*, a military post near COLVILLE, the cap. of Stevens co., a post-village on the Spokane Falls & Northern R. R. *Pop.* of the village (1897) about 700.

Fort Con'fidence, a fort of British North America, at the N. extremity of Great Bear lake.

Fort Constitu'tion, in *New Hampshire*. See PORTSMOUTH.

Fort Cornwal'lis, in *Georgia*, built by the British near Augusta.

Fort Cov'ington, or FRENCH'S MILLS, in *New York*, a flourishing post-village and township of Franklin co.

Fort Cov'ington Centre, in *New York*, a post-office of Franklin co.

Fort Craig, in *N. Mex.*, a military post of Socorro co.

Fort Crook, in *Nebraska*, a post-office of Sarpy co.

Fort Crown Point, in *New York* See CROWN POINT.

Fort Cum'berland, in *Maryland*, built by General Braddock in 1750, on the present site of Cumberland.

Fort Cum'mings, in *New Mexico*, a village of Grant co. Here are the remains of a ruined fort.

Fort Dade, in *Florida*, a village of Pasco co., on the Withlacoochee river, about 170 miles S.E. of Tallahassee. It was in this vicinity, in December, 1835, that Major Dade, with 110 of his comrades, were overcome by a large body of Indians, and all but one man killed.

Fort Dar'ling, in *Virginia*, on the James river, about 7 miles below Richmond. Built during the Civil War.

Fort D. A. Russell, in *Wyoming*, a post-town of Laramie co., 3 m. N.W. of Cheyenne. This is a U. S. post. *Pop.* (1890) 553.

Fort Da'vis, in *Texas*, a post-vill., cap. of Jeff Davis co.

Fort Day'ton, in *New York*. See FORT HERKIMER.

Fort Deca'tur, in *Alabama*, a village of Macon co., about 30 miles E.N.E. of Montgomery.

Fort Defi'ance, in *Arizona*, a P. O. of Apache co.

Fort Defiance, in *Virginia*, a P. O. of Augusta co.

Fort Del'aware, a strong fort, built on a small island in Delaware river, near Delaware City, United States.

Fort Depos'it, in *Alabama*, a P. O. of Lowndes co.

Fort Des Moines, the old name of DES MOINES (*q.v.*).

Fort Dickinson, in *Pennsylvania*, an old fort near Wilkesbarre.

Fort Dodge, in *Iowa*, a thriving city, cap. of Webster co., on Des Moines river and four railroad lines, 85 miles N.N.W. of Des Moines. Coal and building stone abound in the vicinity; there are some local manuf., and the city has a large shipping trade in farm products. *Pop.* (1897) about 9,200.

Fort Dodge, in *Kansas*, a P. O. and military depot on the Arkansas river, about 30 miles below Fort Atkinson.

Fort Don'elson, in *Tennessee*, erected by the Confederates during the Civil War, on the Cumberland river, about 1 mile below Dover. Surrendered to General Grant and Commodore Foote, Feb., 1862.

Fort Dun'can, in *Texas*, a village and military station of Maverick co., on the Rio Grande at Eagle Pass, about 250 miles W.S.W. of Austin.

Fort Du Quesne, in *Pennsylvania*. See PITTSBURG.

Fort Dur'kee, in *Pennsylvania*, built in 1769, near Wilkesbarre.

Forte (*for'ty*), *adv.* [It. from Lat. *fortis*, strong.] (*Mus.*) A direction to the performer to execute loudly the part to which the word is affixed. It is indicated by the single letter *f*. If *ff* is used, the part is to be played or performed *fortissimo*, very lond.

Forte (*fōrt*), *n.* [Fr. *fort;* Lat. *fortis*, strong.] The strong point; a peculiar talent or faculty; that art or department in which any one excels.

For'teau Bay, an inlet of the Straits of Belleisle, on the S.E. coast of Labrador.

Fort'ed, *a.* Furnished with, or guarded by, forts.

Fort Ed'ward, in *New York*, a post-town and township of Washington co., on the Hudson river, about 23 miles from Whitehall It contains the ruins of Fort Edward, built in 1755. *Pop.* of town (1897) about 3,500. It is the seat of the Fort Edward Collegiate Institute.

Fort El'senburg, in *New Jersey*, built by the Swedes in 1643, near the present site of Salem.

Fort En'terprise, a fort of British North America, about 150 miles N. of the Great Slave Lake.

Fort Erie. See ERIE (FORT).

For'tesque, SIR JOHN, an English judge and writer on the law, was a son of Sir Henry *F.*, lord chief-justice of Ireland, and was born in Devonshire, 1395. He studied at Lincolns Inn, was called to to the bar, and in 1442 was made chief-justice of the court of King's Bench. He was a principal counsellor at the court of Henry VI., and for his devotion to that monarch he was attainted by the parliament under Edward IV.; and in 1463 he fled, with Queen Margaret and her suite, to Flanders, where he remained in exile several years; during which time he wrote his well-known work, *De Laudibus Legum Angliæ*. Returning to England to join in the struggle for the restoration of the house of Lancaster, he was taken at the battle of Tewkesbury; but obtained his pardon from Edward, and was allowed to retire to his seat in Gloucestershire. Died 1485.

Forteventura, or FUERTAVENTURA (*foo'air-ta-vain-too'ra*), one of the Canary Islands, in the E. part of the archipelago; *area*, 758 sq. miles. *Desc.* Hilly, deficient in water, but possessing tracts of great fertility. Lat. 28° 42′ N., Lon. 14° 1′ W.

Fort Fair'field, in *Maine*, a post-town of Aroostook co., on the Aroostook river, 150 miles N.E. by N. of Bangor. *Pop.* (1897) about 3,600.

Fort Fill'more, in *New Mexico*, a military depot on the Rio Grande, below Doña Aña.

Fort Fisher, in *North Carolina*, erected by the Confederates during the Civil War, on the E. side of Cape Fear river, about 20 miles S. of Wilmington. It was attacked Dec. 15, 1864, by the Union iron-clads under Admiral Porter, who was compelled by the weather to defer active measures till Dec. 23d. The gun-boat *Louisiana*, laden with 250 tons of powder, was then towed close under the walls, and exploded, 1.45 A.M., Dec. 24, without weakening the defences. The bombardment, which commenced the same day, was abandoned Dec. 25, when a reconnoitering party under Genl. Weitzel pronounced the works too strong for an assault. Land reinforcements under Genl. Terry having arrived, a second bombardment commenced Jan 13, 1865, and the fort was invested in the rear by the land forces. A combined attack, made Jan. 15, resulted in the capture of the fort with 1,971 prisoners.

Fort Frank'lin, a fort of British North America, on S.W. arm of Great Bear lake.

Fort Franklin, in *New York*, a revolutionary stockade at Lloyd's Neck, on Long Island.

Fort Fron'tenac. See KINGSTON, Canada.

Fort Gage, in *New York*, an ancient fort, a short distance S. of Fort George.

Fort Gaines, in *Alabama*. See MOBILE.

Fort Gaines, in *Georgia*, a post-town, cap. of Clay co., on the Chattahoochee river, 22 miles S. W. of Cuthbert.

Fort Gaines, now FORT RIPLEY, in *Minnesota*, a post-village of Morrison co., on the Mississippi river, about 122 miles N. of St. Paul.

Fort Gar'land, in *Colorado*, a post-vill. and military station of Costilla co., abt. 100 m. S. by W. of Pike's Peak.

Fort Garry, a fort of British North America, at the junction of the Assiniboine and Red rivers, about 40 miles S. of Lake Winnepeg.

Fort Gas'ton, in *California*, a former military depot in the N. part of the State, on the Trinity river, about 25 miles S. by W. of Orleans bar.

Fort Gay, in *W. Virginia*, a post-village of Wayne co.

Fort George, a fortress of Scotland co., Inverness, on a low, sandy peninsula jutting into the Moray Frith, which it commands. It is esteemed the most complete fortification in Britain, has barracks for 3,000 men, is mounted with 80 guns, was built in 1747, as one of the chain of 3 fortresses to overawe the Highlands, and has a governor and garrison.

Fort George, in *New York*, an ancient fort, now in ruins, at the S.E. extremity of Lake George.

Fort George, in *Oregon*, a fort of Astoria in Clatsop co., at the mouth of the Columbia river.

Fort Gib'son, in *Indian Territory*, a post-village and military dépôt, on the Neosho river near its confluence with the Arkansas river Lat. about 35° 45′ N., Lon. 95° 30′ W.

Fort Good Hope, in *Connecticut*, established by the Dutch in 1623, near the present site of Hartford.

Fort Got'tenburg, in *Pennsylvania*, built by the Swedes on Tinicum Island in 1642.

Fort Gower, in *Ohio*, a revolutionary fortress, on the Ohio river, at the mouth of the Great Hockhocking.

Fort Gran'by, in *South Carolina*, a revolutionary fort near Columbia.

Fort Gratiot (*gra'she-ot*), in *Michigan*, a military post and city of St. Clair co., at the head of St. Clair river, adjoining Port Huron, its P. O. *Pop.* (1894) 2,832.

Fort Grierson (*greer'son*), in *Georgia*, a revolutionary fort at Angusta.

Fort Gris'wold, in *Connecticut*, a Revolutionary fort near New London.

Forth, *adv.* [A.S. *fordh*, thence, further; Ger. *fort*, forth, away, onward.] Out from; forward; forward in place or order; onward in time; as, from that day *forth*, and so *forth*. — Out into public view or character.

"But when your troubled country called you *forth*."—*Waller.*

—Beyond the boundary of a place; abroad.

"They will privily relieve their friends that are *forth*."—*Spenser.*

Forth, a river of Scotland, rising on the E. side of Ben Lomond in Stirlingshire. After a sinuous course E., past Aberfoyle, Stirling, and Alloa, it unites with an arm of the sea called the *Frith of Forth*. Its chief affluents are the Teith, Allan, and Devon. The Frith at its mouth is 35 or 40 m. wide, from Fife Ness on the N., to St. Abb's Head on the S. shore, both washed by the German Ocean. It contains several islands, of which the chief are Inchgarvie, Inchcolm, Inchkeith, the Bass, and the Isle of May; the largest of these is but a few miles in circuit. Light-houses are erected on Inchkeith and on the Isle of May. The *F.* possesses many good harbors, and St. Margaret's Hope, above Queen's Ferry, is one of the safest roadsteads in the island. Length of river, including its "links," 180 m. The bridge over the Frith of Forth, completed in 1889, is a remarkable structure; the two principal spans are each 1,710 ft., the two side spans 675 ft., and height above high water, at the central span, 500 ft. It is on the cantilever principle, and the greatest of its kind in the world. See BRIDGE, in SECTION II.

Fort Hale, in *Connecticut*, an isolated rock in New Haven harbor, about 2 m. S. of New Haven. During the War of Independence it was named *Fort Rork*.

Fort Ham'ilton, in *New York*, a post-village of King's co., on the Narrows, at the W. extremity of Long Island. The fort defends the entrance to New York harbor.

Fort Han'cock, in *Texas*, a post-village of El Paso co., on So. Pac. & Tex. Pac. R. Rs.

Fort Har'dy, in *New York*, a Revolutionary fortress, now in ruins, at the confluence of the Fishkill creek and the Hudson river, near Saratoga.

Forthcoming (*forth-cum'ing*), *a.* [See COME.] Making appearance; ready to appear; as, the witnesses are *forthcoming*.

Fort Hen'derson, in *Alabama*, a village of Macon co., about 50 m. W.N.W. of Montgomery.

Fort Hen'ry, in *Tennessee*, a post-office of Stewart co.

Fort Hen'ry, in *Tennessee*, on the Tennessee river, about 8 m. W. of Fort Donelson. It surrendered to Gen. Grant and Com. Foote, Feb. 6, 1862.

Fort Hen'ry, in *Virginia*, an ancient fort erected on the site of the present town of Petersburg, in 1646.

Fort Hen'ry, in *West Virginia*, founded by Lord Dunmore in 1774, near the site of the present town of Wheeling, and named by him FINCASTLE.

Fort Her'kimer, in *New York*. It was built near the site of the present town of Herkimer, during the Old French, or Seven Years' War, and was known during the Revolution as FORT DAYTON.

Forth'going, *a.* Going forth.

—An utterance; a proceeding from.

Fort Hill, in *Illinois*, a post-village of Lake co., about 45 m. N.N.W. of Chicago.

Fort Hill, in *Ohio*, a post-office of Highland co.

Fort Hill, in *South Carolina*, a post-office of Pickens co.

Forth Moun'tains, a low mountain range of Ireland, in Leinster, memorable as the camping-place of about 15,000 of the insurgents previous to their attack upon and capture of Wexford in 1799.

Fort Hos'kins, in *Oregon*, a military post of Benton co., about 15 m. W.N.W. of Corvallis.

Fort Hun'ter, in *New York*, at the confluence of the Schoharie Creek and Mohawk River. It was the scene of many severe engagements during the French-Indian, and the Revolutionary wars.

—A post-village of Montgomery co., on the site of the above fort, abt. 35 m. W. by N. of Albany.

Forth'with, or FORTHWITH', *adv.* Without delay; immediately; directly.

For'tieth, *a.* [A.S. *feowertigte.*] The fourth tenth; noting the number next after thirty-nine.

—Any one of 40 equal parts into which a unit of any kind may be divided.

For'tifiable, *a.* [O. Fr.] That may, or can be, fortified.

Fortifica'tion, *n.* [Fr., from L. Lat, *fortificatio*, from *fortis*, strong, and *facere*, to make.] Act of fortifying. — The art or science of fortifying places to defend them against an enemy. — The works erected to defend a place against attack; a fortified place; a fort; a castle. — Additional strength.

"By way of *fortification* and antidote." — *Hooker.*

(*Mil.*) The art of constructing works of defence and offence for the protection or reduction of any important town or position. Such works are always planned by the military engineer, and carried out under his direction and superintendence. They are commonly divided into two classes, respectively known as *permanent fortifications* and *field-works*. Under the former all works are included that are constructed for the defence of a town, harbor, arsenal, dockyard, &c., being carefully laid out and built with a view to durability and the resistance of an attack, whenever it may be made; while, under the latter, all works are classed that are intended to serve a temporary purpose, such as siege-works and batteries for an attack on a fortress, or lines of intrenchment hastily thrown up for the protection of an army in the field, or to check the advance of an enemy on an important strategical position. These works differ mainly in the manner in which they are built, the ramparts and parapets of permanent works being faced or rivetted with blocks of granite; the terre-plein of the rampart on which the guns are worked, the cheeks of the embrasures, casemates, bomb-proof buildings for magazines, &c., being formed of the same material; while field-works consist of mounds of earth formed of that which is thrown up out of the ditch in front, having the ramparts and embrasures rivetted with sods of turf, fascines, gabions, and sand-bags, the terre-plein for the support of the guns and their carriages being made of pieces of thick timber strongly bolted together. The principal works in each class, and their component parts, are noticed under their respective headings, an account being given in all cases of the peculiar purposes for which they serve and the method adopted in their construction. (See BASTION, CROWN-WORK, CURTAIN, CAPONNIERE, COVERED WAY, DITCH, GLACIS, FLECHE, FORT, LUNETTE, RAVELIN, TENAILLE, TRAVERSE, BRIDGE-HEAD, LINES OF INTRENCHMENT, REDAN, REDOUBT, STAR FORT, TRENCH, &c.) It will, therefore, be only necessary, in the present article, to glance briefly at the history of the rise and progress of the science from the earliest ages to the present time. The existing system of fortification doubtless found its origin in early ages, in the formation of a mound and trench round any small collection of dwellings, for the purpose of affording the inmates and their possessions some protection from the attack of a marauding foe, a gate being made in one part of the rampart for the ingress and egress of those that dwelt within it, with a movable bridge for the passage of the ditch. This method was pursued by the Gauls and Britons in the time of Cæsar; and they added strength to the earthen mound by throwing it up against a stockade of stout stakes or piles, which were driven into the earth in close proximity to each other, and interwoven with boughs and branches of trees. The field-works of the Romans were as effective as the permanent fortifications of the savage tribes of Central and Western Europe, remaining in many parts of Europe to this day, as a testimony to the skill of the Roman soldiers in fortifying even temporary camps, and the great strength of their works. But the field-works of the Gauls and Britons consisted of nothing more than their cars and wagons disposed around the camp, in the form of a circle, and strengthened by an abattis, or barricade, formed of the branches and trunks of trees. At a very early period, stone walls of considerable breadth and great strength took the place of the simple ramparts of earth, for the defensive works thrown up around "fenced cities;" and these were furnished with battlements and machicolations (see MACHICOLATION) for the protection of the archers that manned the walls, and as a means of annoying the besiegers who might attempt to undermine the rampart. The spaces between the battlements, and the battlements themselves, were subsequently modified into the parapet-wall and embrasures, as we now have them, on the introduction of cannon. Examples of early fortifications are to be found in the remains of the Cyclopean walls that once surrounded the old Greek cities of Tiryus and Mycenæ. The Phœnicians are said to have been the first who regularly fortified their cities with stone walls: but, however this may be, it is certain that the cities of Egypt, and the great cities of Assyria — Babylon and Nineveh — were girdled with fortifications of marvellous strength and size, on which several chariots could be driven abreast of each other. Until the

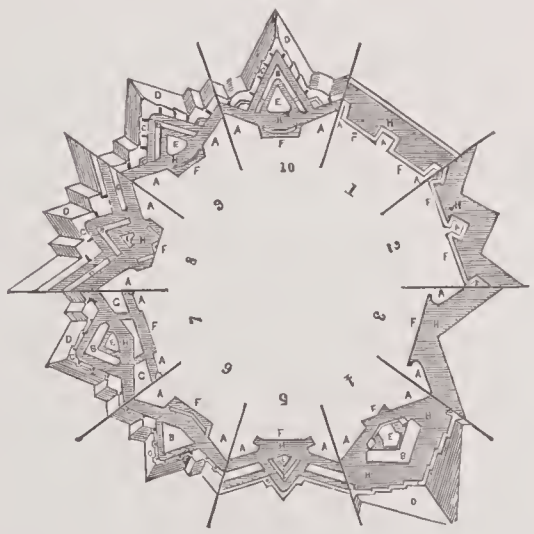


Fig. 1049.

A, Bastion; B, ravelin; C, covered way; D, glacis; E, cavalier; F, curtain; G, counterguard; H, ditch.

1, Castellated, 13th cent.; 2, Castellated, 14th cent.; 3, Early Italian system; 4, Errard's system, 16th cent.; 5, Pagan's system, 17th cent.; 6, Vauban, 1st system, 17th cent.; 7, Vauban, 3d system, 17th cent.; 8, Cohorn's system, 17th cent.; 9, Cormontaigne's system, 18th cent.; 10, Modern system.

year 1500, the characteristics of the defensive works of a town (1, Fig. 1049) were nearly the same in all countries: first; they consisted of a lofty and massive polygonal wall of great thickness, with a *fausse-braye*, or bank of earth, thrown up in a sloping form against the exterior, to protect it from the attacks of the battering-ram. Then towers were added, in the form of large square or semi-circular buttresses, projecting from the angles, and also from the face of the wall in various parts, which enabled the defenders to enfilade that portion of the wall which lay between any two of them, and so defend it in a more effectual manner from the attacks of assailants who sought to make a breach at its base with their engines of war. These flanking towers were the origin of the modern bastions. Out works were then constructed beyond the ditch, opposite to the different entrances to the town, for the better protection of the gates, connected with the main works by drawbridges. While this disposition of the wall, and its various parts, may be traced in all the fortifications of ancient cities, and those of towns and castles of the Middle Ages, so it may be seen more fully developed in the curtains, bastions, crown-works, and bridge-heads of the fortifications of modern times. The old method of construction was efficient enough as long as battering-rams, scaling-ladders, and similar engines, formed the chief means of attack, and javelins and arrows the most formidable projectile that could be showered on the assailants by those who manned the walls; and although the introduction of the inextinguishable Greek fire, in the 7th century, was a missile that brought death, terror, and destruction in its train, blazing fiercely even under water, and injuring everything wherever it fell, with the exception of stone walls, yet no modifications of the principles of construction were absolutely necessary, until the invention of cannon, which followed closely on that of gunpowder, in the 14th century, directed the thoughts of the soldier architects of the succeeding cycle to seek means whereby the new weapon might be made as efficient for the protection of the walls, by a proper disposition of the faces of the works with reference to each other, as it was effective in causing breaches in the ramparts, that rapidly crumbled under the crushing shocks of the heavy balls of stone and iron that were hurled point-blank against them. The result was the introduction of small bastions of the present form (2, 3, Fig. 1049), instead of the old flanking towers, projecting from the corners of the work in salient angles, the rampart forming four sides of an irregular pentagon, the fifth, or *gorge*, being left open as a communication between the bastion and the interior of the fortress. But the chief fault of the old flanking towers was equally perceptible in the new bastion; they were still too small, and too far apart, to defend each other in an efficient manner, and the platforms or terre-pleins of the majority were not calculated for the reception of artillery of any size. Toward the end of the 16th century, an attempt to remedy this defect was made by Errard de Bar le Duc, a French engineer, who introduced considerable improvements into the received methods of constructing fortifications (4, Fig. 1049). He made the faces of his bastions much longer, and the curtains connecting them much shorter, than they had hitherto been; but the faces of the bastions terminated at the shoulders in *arillons*, or pieces of the rampart in continuation of the face, which were in the form of an arc, and entered towards the interior of the bastion; and his flanks, which were bereft of their due proportions by the arillons, were disposed at an angle of 80° to the curtain, which would inevitably bring a fire of musketry, directed from the flank at right angles to its face, on the defenders occupying the opposite extremity of the curtain. De Ville, an engineer who flourished abt. 1630, lengthened the flanks, and constructed them at right angles to the curtain; but a still farther advance to the present system was made about fifteen years later by Count de Pagan (5, Fig. 1049), who constructed the faces of his flanks in lines perpendicular to the faces of the collateral bastions produced, which caused them to splay outwards from the curtain in such a direction that a fire directed perpendicularly from the faces along their entire length would enfilade the faces of the collateral bastions, and prevent an attacking party from effecting a lodgment in the ditch. He also constructed double and triple flanks to his bastions, which were parapets parallel to the faces of the outer flanks, rising above one another in tiers toward the interior of the bastion. It remained for Vauban to give a systematic method of constructing regular fortifications, which he effected (6, Fig. 1049) by taking fractional parts of the length of the side of the polygon within which the *enceinte* was formed, and which was bounded by lines drawn to join the salient angles of the bastions (which, indeed, were coincident with the angles of the polygon, as far as their vertices were concerned), to furnish the dimensions of various parts of the work. As this is the foundation on which all other systems are based, which have been introduced since Vauban's time, a detailed account of the method of constructing a regular front of fortification, in accordance with that engineer's first system, will be given elsewhere, with a ground-plan of the same, as has been already said. (See VAUBAN'S FIRST SYSTEM.) His second and third systems arose out of modifications of the first, in adapting it to the remodelling of the works of many old fortified towns. The chief features of these systems (7, Fig. 1049) consist in the bastions being detached from the *enceinte*, with a ditch in the rear, the curtains being continued, and meeting in an angle in the rear of the bastion, which was strengthened by a tower, also in the form of a bastion, the flanks of which defend the ditch. Vauban also improved the construction of the ravelin, and was the first engineer who introduced ricochet firing on attacking a fortress. He also formed traverses in the covered way, to protect the besieged from this kind of firing, and the places of arms at the salient and re-entering angles of the covered way. It will be understood, in the construction of works one in advance of another, that the reliefs of the different ramparts, on their heights one above another, must be sufficient to allow a fire of musketry being kept up from the crest of the parapet of a lower work, while a cannonade is being directed against the enemy on their siege-works from the ramparts of the works above, without injuring the men in the work below. Thus the soles of the embrasures

in the faces of the ravelin should be in a horizontal line, that is, at least four feet above the crest of the glacis and the tenaille should be low enough to allow a musketry fire from the flanks of the bastion and the intervening curtain to pass over the heads of its defenders. The Dutch engineer Cohorn was contemporary with Vauban, and constructed the fortifications of most of the principal towns of Holland and Belgium. His system (8, Fig. 1049) is very similar to those of Vauban, but it is distinguished by the introduction of large arillons, forming casemated batteries at the shoulders of the bastions. He also constructed works of great strength in the interior of the bastions, as well as in front of them, and redoubts in the interior of the ravelins, which protected his curtains. About 1740, Cormontaigne, a Frenchman, introduced a system founded upon Vauban's (9, Fig. 1049), in which he extended the faces of the ravelin in front of the curtain, diminishing the extent of the salient angle formed by them. He also formed retrenchments in his bastions, and made the re-entering places of arms in the covered way large enough to admit of the construction of redoubts, having the main ditch immediately in their rear. These were useful in adding to the means of defending the covered way, and they also protected the openings that appear between the extremities of the tenaille and the flanks of the bastions, on either side of it. Various additions and modifications of these systems have been introduced from time to time, by French, German, and English engineers, since 1750. The modern system (10, Fig. 1049) differs but little from that of Cormontaigne. The re-entering places of arms have circular fronts instead of angular; the angle of the ravelin is fixed at 60°, and all the best points of older systems are associated. The great improvements lately made in the construction of heavy guns have rendered it necessary to revise the systems of *F.* formerly in vogue. Iron and steel are taking the place of masonry in situations where earth cannot be employed; and, where it can practically be done, the guns are placed in revolving steel cupolas, with spherical roofs, or are mounted on disappearing carriages. In the U. S. the frontiers exposed to attack being very largely maritime, the fortifications are principally batteries of heavy guns adapted to a contest with steel-plated ships. These are enclosed in the rear with a land front, as protection against a land attack, but not made sufficiently strong to stand a long siege, it being taken granted that reinforcements can quickly be provided to repel a besieging force. It was formerly usual to mount guns in masonry casements built tier over tier, this method of building being common throughout the world. But this method has been discarded in consequence of the modern developments in ships and guns. The system recommended by a board of naval engineers, in 1886, proposed the use of steel plated turrets, armored casements, barbette batteries, mortar and floating batteries, and submarine mines; and U. S. fortifications of recent construction have been built in accordance with this recommendation.

For'tified, *p. a.* Made strong against attacks.

For'tifier, *n.* One who fortifies, or erects works for defence; one who strengthens, supports, or upholds.—That which strengthens.

For'tify, *v. a.* [Fr. *fortifier;* L. Lat. *fortificare*, from *fortis*, strong, and *facere*, to make.] To add to the strength of; to confirm; to invigorate; to strengthen against any attack.—To strengthen and secure by forts, batteries, and other defensive works.—To furnish with strength, or means of resisting force, violence, or assault.—*v. n.* To raise strong places.

> "Thou us empowered, to *fortify* thus far."—*Milton.*

Fort Independence, in *Massachusetts*, on Castle Island, about 3 miles below Boston. Previous to and during the Revolution it was called Fort William.

Fort Indian, in *Rhode Island*, a noted fortification of the Narragansetts, near Kingston.

Fort Inge, in *Texas*, a former P. O. of Uvalde co.

Fort Isle Aux Noix (*eel-o-mcaw*), a strong British fortress on the Sorel river, near the S. boundary of Quebec, originally founded by the French in 1759, and strengthened by Gen. Schuyler in 1775.

Fortis'simo, *adv.* [It. superl. of *forte*, strongly.] (*Mus.*) A distinction to sing or play with the utmost strength or loudness.

Forti'tion (*for-ti'shon*), n. [Lat. *fortitio, sortitio*, from *fors, sors*, lot or chance.] Selection by lot or chance.

For'titude, *n.* [Fr., from Lat. *fortitudo*, from *fortis*, strong.] Endurance; resoluteness; that strength or firmness of mind which enables a person to encounter danger with coolness and courage, or to bear pain or adversity with patience, submission, and resignation.

Fortitu'dinous, *a.* Having fortitude; courageous.

Fort Jack'son, in *Louisiana*, on the Mississippi river, about 80 m. below New Orleans. During the Civil War, the place was strongly fortified by the Confederates in conjunction with the sister batteries of Fort St. Philip, on the opposite side of the river, which latter was obstructed so effectually by hulks and chains, as to close the passage. From 20th to 25th April, 1862, the fleet under command of Commodore Farragut engaged both forts in a severe artillery duel, passed them with but comparatively small loss, and breaking through the river obstructions, succeeded in reaching New Orleans.

Fort Jackson, in *New York*, a post-village of St. Lawrence co., on the E. branch of St. Regis river, about 40 m. E. of Ogdensburgh.

Fort Jefferson, or Wickliffe, in *Kentucky*, a post-town, cap. of Ballard co. *Pop.* (1890), 959.

Fort Jefferson, in *Ohio*, a post-village and military depot of Darke co., about 5 m. S. of Greenville. The fort was built by Gen. St. Clair in 1791.

Fort Jen'kins, in *Pennsylvania*, (1) about 8 m. above Wilkesbarre, built in 1776; (2) on the Susquehanna, about half-way between Wilkesbarre and Sunbury.

Fort Jen'nings, in *Ohio*, a post-village of Putnam co., on the Auglaize river, about 112 miles N.W. of Columbus.

Fort Jes'up, in *Louisiana*, a P. O. of Sabine parish.

Fort Johns'town, in *North Carolina*, a revolutionary fortress, on Cape Fear river, on the site of the present town of Smithville. The more modern fortress of this name still forms one of the defences of Smithville Harbor.

Fort Johnstown, in *New York*, an ancient fortification on the Mohawk river, about 3 m. W. of Amsterdam.

Fort Jones, in *California*, a post-town and military station of Siskiyou co.; Lat. 41° 35′ N., Lon. 123° W.

Fort Kaskas'kia, in *Illinois*, an ancient and Revolutionary fortress, on the site of the present town of Kaskaskia.

Fort Kear'ny, in *Nebraska*, a former post-town and military station, of some importance, in Kearny co., on the Platte river; destroyed in 1875.

Fort Kent, in *Maine*, a post-town of Aroostook co., about 115 m. N. of Bangor. *Pop.* (1897) about 2,000.

Fort Klam'ath, in *Oregon*, near Lake Klamath, in Wasco co., about 90 m. E.N.E. of Jacksonville.

Fort Kootanye (*koo-ta-ni'*) in *Oregon*, on the Kootanye or Flet Bow river.

Fort La'fayette, in *New York*, a strong fortification in the Narrows, at the entrance of New York harbor, immediately in front of Fort Hamilton.

Fort Da'mar, in *Georgia*, a post-office of Madison co.

Fort Lar'amie, in *Wyoming*, a military station and post-settlement on the N. Fork of Platte river; Lat. 42° 12′ 10″ N., Lon. 104° 47′ 43″ W.

Fort Lau'rens, in *Ohio*, a revolutionary fort, built in 1778 near the present town of Bolivia.

Fort Law'rence, a seaport town of Nova Scotia, in the co. of Cumberland, and on an arm of Cumberland Bay, 90 m. N. by W. of Halifax. Now Amherst.

Fort Leav'enworth, in *Kansas*, on the W. side of the Missouri river, about 4 m. below Weston, Missouri. It is the oldest and most important military depot on the Missouri river, the fort having been built in 1827.

Fort Lee, in *New Jersey*, a post-village of Bergen co., on the Hudson river, about 9 m. above New York. The fort is now in ruins.

Fort Lem'hi, in *Idaho*, on the E. fork of Salmon river, about 105 m. N.N.E of Idaho City.

Fort'let, *n.* A little fort.

Fort Lewis, in *Virginia*, a post-office of Bath co.

Fort Liberte (*lee-ber-tā'*), or Fort Dauphin, a seaport town of Hayti, on the N. coast; Lot. 19° 42′ N., Lon. 71° 57′ W.

Fort Lit'tleton, in *Pennsylvania*, a post-village of Fulton co., about 86 m. W. by S. of Harrisburg.

Fort Lo'gan, in *Kentucky*, about 1 m. W. of the town of Stanton, in Lincoln co.

Fort Loudon (*low'don*), in *Tennessee*, an ancient fortification on the Tennessee river, near the borders of Georgia.

Fort Lup'ton, in *Colorado*, a post-office of Weld co.

Fort Ly'on, in *Colorado*, a post-office of Las Animos co.

Fort Lynn, in *Arkansas*, a post office of Miller co.

Fort McAl'lister, in *Georgia*, one of the defences of Savannah, taken by Gen. Sherman, Dec. 1864.

Fort McHenry, in *Maryland*, on Patapsco Bay, guarding the entrance to Baltimore.

Fort Ma'con, in *North Carolina*, near Beaufort Harbor.

Fort MacIntosh, in *Pennsylvania*, a revolutionary fort on the Ohio river, about 36 m. below Pittsburg.

Fort Mack'inaw, in *Michigan*. See Mackinaw.

Fort MacKean', in *New York*. See Fort Plain.

Fort Mad'ison, in *Iowa*, a city, cap. of Lee co., on the Mississippi river, about 21 m. above Keokuk. The town is well built on rising ground, and the locality is healthful. It has a considerable trade in grain, pork, lumber, &c. *Pop.* (1897) about 4,000.

Fort Magin'nis, in *Montana*, a P. O. of Fergus co.

Fort Mar'ion, in *Florida*. See St. Augustine.

Fort Massachu'setts, in *New Mexico*, about 150 m. N. from Santa Fé; Lat. 37° 45′ N., Lon. 105° 30′ W.

Fort Mer'cer, in *New Jersey*, a revolutionary fort on the Delaware river, now in ruins.

Fort Mif'flin, in *Pennsylvania*, a revolutionary fortress at the junction of the Delaware and Schuylkill rivers, about 6 m. below Philadelphia. Still garrisoned.

Fort Mill, in *South Carolina*, a post-office of York co.

Fort Mil'ler, in *California*, on the San Joaquin river, just above the head of navigation on the stream, in Fresno co.

Fort Miller, in *New York*, a revolutionary fort on the site of the present town of that name.

—A post-village of Washington co., on the Hudson river, about 40 m. N. of Albany.

Fort Mitch'ell, in *Alabama*, a post-village of Russell co., about 40 m. from Columbus, Georgia.

Fort Mitch'ell, in *North Carolina*, a post-office of Lunenberg co.

Fort Montgom'ery, in *New York*, a post-office of Orange co.

Fort Montpe'lier, in *Alabama*, a vill. of Baldwin co.

Fort Moore, in *Georgia*, an ancient fort near Sand Bar Ferry, on the Savannah river.

Fort Mor'gan, in *Alabama*. See Mobile.

Fort Morgan, in *Colorado*, a post-village, capital of Weld co.

Fort Motte, in *South Carolina*, a revolutionary fort, now a post-village, on the Congaree river, about 33 m. below Columbia, in Orangeburg co.

Fort Moultrie (*moo'trē*), in *South Carolina*, one of the Revolutionary defenees of Charleston Harbor, about 5 m. E.S.E. of Charleston. Still garrisoned.

Fort Nas'sau, in *New Jersey*, an old fort on the Delaware river, near the site of the present city of Gloucester, memorable as the first settlement on the shores of the Delaware, and built by Captain Jacobus May, in 1831.

Fort Neces'sity, in *Pennsylvania*, an old fort near the site of the present town of Union, in Fayette co.; built by Washington in 1754.

Fort Nel'son, in *Virginia*, a revolutionary fortress, once defending Norfolk, now the site of the U. S. Marine Hospital.

Fort Nes'qually, in *Washington*. See Nesqually.

Fort New'porc, in *New York*, an old fortress on Ward creek, a tributary of Oneida Lake.

Fort Niag'ara, an old fort of Ontario, built by the French in 1727. Still garrisoned.

Fortnight (*fort-nite'*), *n.* [Contracted from A. S. *feowertyne nights*, fourteen nights. It was the custom of the ancient northern nations to count time by nights; thus, *this day seven night* (sen'night).] The space of fourteen days; two weeks.

Fort Ninety-six, in *South Carolina*, a fort of Abbeville co., about 6 m. from the Saluda river; so-called on account of being 96 m. from the frontier fort of Prince George (*q. v.*). It was the scene of many severe conflicts during the War of Independence.

Fort Non'sense, in *New Jersey*, erected by Washington near Morristown, in the winter of 1779–80, to give employment to the men; hence its name.

Fort Nor'folk, in *Virginia*, defends the city of Norfolk; built in 1812. See Norfolk.

Fort Oglethorpe (*o'gl-thorp*), or Oglethorpe Barracks, in *Alabama*, erected by Gen. Oglethorpe in 1737, on St. Simon's Island, near the mouth of the Alabama river. It was the scene of considerable fighting during the Revolution, as well as the war of 1812. Now in ruins.

Fort Okon'agan, a fort of British Columbia, belonging to the Hudson Bay Company, on the Okanogan river, a few m. above its confluence with the Columbia.

Fort Onta'rio, in *New York*. See Fort Oswego.

Fort Oplandt (*op'lant*), in *Delaware*, built by the Dutch in 1631, near the site of the present village of Lewes.

Fort Or'ange, in *New York*, an old fort built by the Dutch in 1623, on the site of the present city of Albany.

Fort Oswegatch'ie, in *New York*, an old French fort, built on the site of the present city of Ogdensburg about 1735, and called Fort Preservation, and Fort La Gallette. In 1760 it was taken by the British, and called Fort William Augustus.

Fort Oswe'go, in *New York*, an old French fort, built on the site of the present city of Oswego by Count Frontenac, about 1696. Fort Ontario, however, was built on the opposite side of the Oswego river in 1755, and at once took the precedence. Both forts were the scenes of considerable fighting during the French and Revolutionary wars, and once in 1814.

Fort Par'is, in *New York*, a revolutionary fortress on Stone Arabia, about 3 m. N. of the Mohawk river.

Fort Paul'us Hook, in *New Jersey*, a revolutionary fortress erected by the British on the site of Jersey City.

Fort Payne, in *Alabama*, a post-town, the capital of DeKalb co. *Pop.* (1892) about 3,000.

Fort Pe'quot, in *Connecticut*, an old Indian fort on Pequot Hill, about 8 m. N.E. of New London.

Fort Pick'ens, in *Florida*. See Pensacola Bay.

Fort Pierce, in *Florida*, a P. O. of Brevard co.

Fort Pil'low, in *Tennessee*, erected by the Confederates during the Civil War, about 40 m. N. of Memphis, and abandoned by them, June, 1862, and occupied by the Union forces until April, 1864, when it was taken by the Confederates under Gen. Forrest, and the garrison killed.

Fort Pitt, a fort in British North America, on the Saskatchewan river; Lat. 47° 30′ N., Lon. 108° W.

Fort Pitt, in *Pennsylvania*. See Pittsburg.

Fort Plain, or Fort McKean, in *New York*, a revolutionary fort at the junction of the Mohawk and Osquaga creeks.

Fort Plain, in *New York*, a post-village of Montgomery co., on the Mohawk river, about 58 m. W.N.W. of Albany.

Fort Plank, or Fort Blank, in *New York*, a revolutionary furt of Montgomery co., about 2 m. N.W. of Fort Plain.

Fort Point, in *California*, on the S. side of the Golden Gate, about 3 m. N.W. of San Francisco.

Fort Pulas'ki, in *South Carolina*, a fortification at the mouth of the Savannah river. Seized by the Confederates, Jan 3, 1861, it was besieged and taken by the Union forces April 12, 1862.

Fort Put'nam, in *New York*, the principal defence of West Point during the Revolution. Now in ruins.

Fort Racoon', in *Iowa*, a village of Des Moines co.

Fort Ran'dall, in *South Dakota*, a post-village, cap. of Todd co.

Fort Ran'dolph, in *Tennessee*, on the Mississippi river, a few miles from Fort Pillow.

Fort Ransom, in *North Dakota*, a P. O. of Ransom co.

Fort Recov'ery, in *Ohio*, a post-office of Mercer co.

Fort Rensselaer', in *New York*, a revolutionary fortress near Canajoharie.

For'tress, *n.* [Fr. *forteresse*, from Lat. *fortis*, strong.] A city or town surrounded by regular works of defence, that requires to be invested by an attacking force, and subjected to regular siege operations before it can be reduced. Fortresses are generally found on the frontiers of continental states, and in the immediate vicinity of important harbors on the seacoast, where there are extensive naval dockyards and arsenals, and great quantities of government stores are gathered together.

Plymouth and Portsmouth, with Portland, are the most important, *F.* on the S. coast of England.
—Defence; safety; security.

"God is our *fortress*."—*Shaks.*

—*v. a.* To guard; to fortify.

For'tressed, *p. a.* Defended by a fortress.

Fortress Monroe', in *Virginia*, at the entrance of Hampton Roads, about 13 m. N. of Norfolk. It is one of the strongest and most important fortifications on the Atlantic coast. The walls are of granite, and it mounts some 400 guns, many of which are of high effectiveness. Near by is the famous resort, Old Point Comfort, where are two fine hotels.

Fort Ridge'ly, in *Minnesota*, a modern fort and post-office of Nicollet co., on the Minnesota river.

Fort Ri'ley, in *Kansas*, a post-village and military depot of Geary co., at the junction of the two main branches of the Kansas river, about 140 m. from Leavenworth; Lat. 39° 3′ 38″ N., Lon. 96° 24′ 56″ W.

Fort Rip'ley, in *Minnesota*. See FORT GAINES.
—A post-office of Crow Wing co., near Fort Gaines.

Fort Rit'ner, in *Indiana*, a post-village of Lawrence co., about 78 m. E. of Vincennes.

Fort Rob'inson, in *Nebraska*, a P. O. of Dawes co.

Fort'rose, a seaport and borough of Scotland, co. Ross, on the N. bank of the Moray Frith, opposite Fort George, 8 m. N.E. of Inverness. *Ind.* Deep-sea fishing. *Pop.* 1,127.

Fort Royal, now **Fort De France,** a fortified seaport town, and cap. of the Island of Martinique, W. Indies; Lat. 14° 35′ 9″ N., Lon. 60° 4′ 2″ W. It is a well-built place, and the residence of the French governor of the Island. In 1839 it was almost destroyed by an earthquake. *Pop.* (1895) 13,822.

Fort Salon'ga, in *New York*, a P. O. of Suffolk co.

Fort San'ders, in *Tennessee*, a fortification on the Holston river just above Knoxville.

Fort Sao Joachim (*swong zho-a-keeng*), a settlement of Brazilian Guiana, on the Branco, a tributary of the Amazon; Lat. 3° 1′ 46″ N., Lon. 60° 3′ W.

Fort Schuy'ler (NEW), in *New York*. See ROME.

Fort Schuy'ler (OLD), in *New York*. See UTICA.

Fort Scott, in *Kansas*, an important city, cap. of Bourbon co., on Marmiton river, and three chief railroad lines, 98 m. S. of Kansas city. Has extensive manufactories and window-glass works; coal and building stone are mined, and there are artesian and natural gas wells in the vicinity; seat of the Kansas Normal School. *Pop.* (1895) 11,108.

Fort Sen'eca, in *Ohio*, a post-office of Seneca co.

Fort Sim'coe, in *Washington*, a post-office and Indian agency of Yakima co.

Fort Slon'go, in *New York*, a revolutionary fortification built by the Tories, in 1781, on Treadwell Neck, Long Island.

Fort Smith, in *Arkansas*, a city and military post, cap. of Sebastian co., on the Arkansas river, about 160 m. W. N. W. of Little Rock; Lat. 34° 45′ N., Longitude, 95° W. *Pop.* (1897) about 17,800.

Fort Snel'ling, in *Minnesota*, a post-village and military post of Hennepin co., on the Mississippi river, about 7 m. above St. Paul.

Fort Sor'el, an old French fort of prov. Quebec, built by Sorel, a French engineer, about the year 1665, on the site of the present town of Sorel.

Fort St. David, a fortress of Hindostan, on the Coromandel coast, 12 m. from Pondicherry.—An English factory, established here in 1691, became, after the capture of Madras by the French in 1746, the head of the British East Indian settlements. In 1758 it was captured by Count de Lally-Tollendal, who dismantled the fortifications.

Fort St. Fred'erick, in *New York*, one of the forticications of Crown Point.

Fort St. Philip, in *Louisiana*, a fortification on the Mississippi river, opposite Fort Jackson (*q. v.*).

Fort Stan'ton, in *New Mexico*, a P. O. of Lincoln co.

Fort Stock'ton, in *Texas*, a post-village, cap. of Pecos county.

Fort Stead'man, in *Virginia*, on the James river, about 18 m. below Richmond. It was captured by the Confederates, March 14, 1865, and retaken by the Union troops shortly afterward.

Fort Ste'phens, in *Mississippi*, a P. O. of Kemper co.

Fort Sul'livan, in *Maine*, the most E. fortification of the U. S., defending Eastport.

Fort Sum'ner, in *N. Mex.*, a P. O. of Guadalupe co.

Fort Sum'ter, in *South Carolina*. See SUMTER, FORT.

Forts'ville, in *Georgia*, a village of Jones co., about 18 m. W. of Milledgeville.

Forts'ville, or FORTVILLE, in *Indiana*, a post-village of Hancock co., about 10 m. N. E. of Indianapolis.

Forts'ville, in *New York*, a P. O. of Saratoga co.

Fort Taylor, in *Florida*, a fortification of Key West, commanding the N. entrance to the Gulf of Mexico.

Fort Thomas, in *Arizona*, a P. O. of Graham co.

Fort Ticondero'ga, in *New York*. See TICONDEROGA.

Fort Tomp'kins, in *New York*, on Staten Island, at the entrance of New York harbor, and opposite Fort Hamilton.

Fort Tow'son, in *Indian Territory*, a fort of the Choctaw Nation, on the Kiamishi river, a few m. above its confluence with the Red river.

Fort Trum'bull, in *Connecticut*, a revolutionary fort on the W. side of the Thames river, below New London and opposite Fort Griswold. Both are still garrisoned.

Fortu'itous, *a.* [Lat. *fortuitous*, from *fors*, change, hap, luck, hazard.] Happening by chance; coming or occurring unexpectedly, or without any known cause; accidental; casual; contingent; incidental.

"The *fortuitous* concourse of atoms."—*Ray.*

Fortu'itously, *adv.* Accidentally; casually.

Fortu'itousness, *n.* The quality of being casual or accidental.

Fortu'ity, *n.* [Fr. *fortuité.*] Accident; incident; chance; contingency.

Fortu'na. (*Myth.*) Daughter of Oceanus, according to Homer, or one of the Parcæ according to Pindar, was the goddess of fortune, and from her hand were derived riches and poverty, pleasures and pains, blessings and misfortunes. She was worshipped in different parts of Greece. Bupalus was the first who modelled a statue of Fortune for the people of Smyrna, and he represented her with the polar star upon her head, and the horn of plenty in her hand. The Romans held her in high esteem, and had no less than 8 different temples erected to her honor in their city. She is generally represented blindfolded, and holding a wheel in her hand, as an emblem of her inconstancy. Sometimes she appears with wings.

Fortu'na, in *Kentucky*, a village of Graves co.

Fortu'na, in *Minnesota*, a village of Pine co., on the Kettle River, abt. 100 m. N. by E. of St. Paul.

Fortunatæ In'sulæ. [Lat., fortunate islands.] (*Myth.*) Islands at the W. of Mauritania, in the Atlantic Sea, supposed to be the Canary Isles of the moderns. They are represented as the seats of the blessed, where the souls of the virtuous were placed after death, and where the air was wholesome and temperate, and the earth produced an immense number of various fruits without the labor of man.

For'tunate, *a.* [Lat. *fortunatis*, pp. of *fortunare*, to render prosperous.] Lucky; prosperous; successful; happy; coming by good luck or favorable chance.

"I am most *fortunate*, thus accidentally to encounter you."*Shaks.*

—Bringing, or receiving, some unforeseen or unexpected good; as, a *fortunate* event, a *fortunate* number in a lottery.

For'tunately, *adv.* Luckily; successfully; happily; by good fortune; by favorable chance or issue.

For'tunateness, *n.* The state or quality of being fortunate.

Fortunatus, (*for-tu-nai'tus.*) (*Lit.*) The title of one of the best German *Volksbücher* (peoples' books) ever written, and which has been translated into perhaps every language of Europe. It originated in the 15th century, though many of the tales included in it are of much older date. The oldest printed edition of the book now extant was published at Frankfort in 1509. The story is, that Fortunatus and his sons are the possessors of an inexhaustible purse of gold and a wishing-cap, which, however, in the end, prove their ruin. Thomas Decker made it the subject of his *Pleasant Comedie of Old Fortunatus* (1600); and Tieck gives the story in his *Phantasus* (3 vols., Berlin, 1816).

For'tune, *n.* [Fr., from Lat. *fortuna*, a lengthened form of *fors*, chance, hap, luck, from *ferre*, to bring or bear.] Whatever arrives or occurs; chance; hap; luck; fate; accident; event; the good or ill that befalls a man; success, good or bad.—Appointed lot in life; destiny; futurity.

"You who men's *fortunes* in their faces read."—*Cowley.*

—The chance of life; the means of living.

"His father dying, he was driven to London to seek his *fortune*."—*Swift.*

—Wealth; estate; possessions; great wealth; as, to come into a *fortune*, to squander a *fortune*.

—The portion of a man or woman, generally of a woman; dower.

—*v. n.* To come casually to pass; to happen; to fall out; to befall.

"Here *fortuned* Curll to slide."—*Pope.*

For'tune Bay, an arm of the Atlantic Ocean, on the S. coast of Newfoundland, Lat. 47° N., Lon. 55° W.

For'tune-hunt'er, *n.* A man who seeks to marry a woman with a large fortune or dowry, with a view to enrich himself.

For'tune-hunt'ing, *n.* The seeking to obtain a fortune by marriage.

For'tune Key, one of the Bahama islands.

For'tuneless, *a* Luckless; also, destitute of a fortune or portion.

For'tune-tell'er, *n.* One who pretends to foretell fortunes, or the events of one's life.

For'tune-tell'ing, *n.* The act or practice of pretending to reveal the future events of one's life.

Fort Union, in *New Mexico*, a former P. O. and military station of Taos co., about 65 m. E. N. E. of Santa Fé.

Fort Val'ley, in *Georgia*, a post-village of Houston co., about 28 m. S. W. of Macon.

Fort Villari'no, a frontier settlement of Patagonia, on the island of Choleechel, in the Rio Negro.

Fort Washakie, in *Wyoming*, a P. O. of Fremont co.

Fort Wag'ner, in *S. Carolina*, on the E. shore of Morris Island, about 6 m. S. E. of Charleston (*q. v.*).

Fort Walk'er, in *South Carolina*, one of the defences of Port Royal, entrance on Hilton Head.

Fort Wal'lawal'la, in *Washington*, an important fort on the Columbia river, at the north of the Wallawalla river.

Fort War'ren, in *Massachusetts*, on Governor's Island, is one of the defences of Boston harbor.

Fort Wash'ington, in *Maryland*, a post-village of Prince George co., on the E. side of the Potomac River, abt. 15 m. S. of Washington city.

Fort Wash'ington, in *New York*, a revolutionary fortress on Manhattan Island, captured by the British in 1776.

Fort Wash'ta, in *Indian Territory*, a fort of the Chickasaw Nation, on the False Washita River, abt. 265 m. W. by S. of Little Rock, Arkansas.

Fort Wat'son, in *S. Carolina*, on the Santee River, in Sumter dist.

Fort Wayne, in *Indiana*, a city cap. of Allen co., at the junction of the St. Joseph's and St. Mary's rivers, about 112 m. N. E. of Indianapolis. Fort Wayne is built upon the site of the old Twightwee village of the Miami tribe. Gen. Wayne erected a fort here in 1794, and, though it ceased to be a military post about 1819, the town springing up around it still retained the name. The surrounding region is of the most fertile character, and the facilities for trade complete, both by land and water; hence Fort Wayne has now become one of the most important cities in the State. *Pop.* (1897) about 48,500.

Fort Webb, in *New York*. See WEST POINT.

Fort Wed'derburn. See FORT CHIPPEWAYAN.

Fort Wel'lington, a fortress in Ontario, Canada, near Prescott.

Fort Wilhel'mus, in *New York*, a fortress on Prince's Island, near Fort Orange.

Fort Wil'liam, a fortress of Scotland, one of a chain of three, erected to guard the Highlands, and originally built by Gen. Monk, in the time of the Commonwealth. It had accommodation for 2,000 men, but is now disused. In the rebellion of 1715 the Highlanders were repulsed in an attack upon it, and the fort, in 1746, stood a siege of 5 weeks by the Highlanders, adherents of Prince Charles Edward.—About 2 m. distant, on the edge of Loch Linnhe, is the town of FORT WILLIAM, originally *Maryburgh*, and now more generally *Gordonsburgh*. *Pop.* 1,500. Both fort and town lie at the base of Ben Nevis, the highest mountain in Great Britain.

Fort Wil'lis, in *New York*. See WEST POINT.

Fort Win'gate, in *N. Mex.*, a P. O. of Bernalillo co.

Fort Winneba'go, in *Wisconsin*. See PORTAGE.

Fort Winneba'go, in *Wisconsin*, a township of Columbia county.

Fort Worth, in *Texas*, an important city and railroad center, cap. of Tarrant co., on 8 lines of railroad, 175 m. N. of Austin. Here are extensive grain elevators, flour mills, stock yards, foundries, implement works, &c., with a very large shipping trade in grain, cattle, and other farm products. The city has grown with great rapidity, and has a population estimated (1897) at about 35,000.

Fort Wy'oming, in *Pennsylvania*, an old fort on the site of the present town of Wilkesbarre.

Fort Yam Hill, in *Oregon*, a village of Yam Hill co., about 30 m. S. W. of Lafayette.

For'ty, *a.* [A. S. *feowertig*, from *feower*, four, and *tig*, ten.] Four times ten.
—*n.* The product of four by ten.—Any symbol by which forty units are expressed; as 40, or XL.

For'ty Fort, in *Pennsylvania*, a P. O. of Luzerne co.

Fort Yuma, in *California*, at the junction of the Colorado and Gila rivers.

Forty-eight, in *Tenn.*, a P. O. of Wayne co.

Fo'rum, *n.*; *pl.* FORUMS, FORA. [Lat., from *foras*, *foris*, out of doors, outward.] (*Roman Hist.*) An open space in Roman cities, generally surrounded by a covered colonnade, that fronted an ambulatory, and buildings of various kinds, such as temples, courts of law, prisons, granaries, &c. In the later period of the empire, when Rome had attained the summit of its glory, there were nineteen *fora* within its limits, which were divided into two classes, some being especially set apart for public meetings and the proceedings of the law courts, while others were devoted to business purposes and the requirements of trade. The Forum Romanum, the first that was erected in Rome, served equally for the purposes of trade and all public meetings, as well as for the administration of justice by the consuls, decemvirs, and other magistrates of Rome. This forum was subsequently distinguished for its magnificence; the shops were removed, and many temples of the heathen gods, the senate-house, and the comitium, were erected in its immediate vicinity, and in communication with it. It was also adorned with arches, statues, and pulpits, from which public meetings were addressed, and which were called *rostra*, from being surrounded with the brazen beaks (*rostra*), or ornaments of the prows of the ships of war that had been captured by the Roman triremes. Exhibitions of gladiators were often shown in the forum. The Roman forum corresponded to the *agora* of the Greeks, and no Roman city or colony was without this important centre for the transaction of business and public affairs. Plans of the forum at Pompeii and the principal forum of Rome are given in "Pompeii," a work published by the Society for the Diffusion of Useful Knowledge.

(*Law.*) A place of jurisdiction; the place where a legal remedy is sought; jurisdiction; a court of justice.

For'ward, For'wards, *adv.* [A. S. *forweard*, from *for*, before, and *weard*, toward; Ger. *vorwärts.*] Toward a part or place before or in front: onward; progressively.
—*a.* Near or toward the fore part; in advance of something else.—Ready; prompt; strongly inclined; ardent; impetuous; eager; earnest.

"Or lead the *forward* youth to war."—*Prior.*

—Immodest; presumptuous.

"A boy too *forward* for his years."—*Dryden.*

—Advanced beyond the usual degree; advanced for the season.

"Short summer lightly has a *forward* spring."—*Shaks.*

—Quick; hasty; too ready.

"Nor do we find him *forward* to be sounded."—*Shaks.*

—*v. a.* To advance: to help onward; to promote; to accelerate; to quicken; to hasten.—To send forward; to transmit, as a letter, a despatch, &c.

For'ward, in *Pennsylvania*, a township of Butler co.; *pop.* abt. 1,300.

For'warder, *n.* He who promotes or advances in progress.—One who acts as agent for the owner in the

transhipment, transmission, or forwarding of goods; a forwarding merchant.

For'warding, *n.* The employment of attending to the transhipment, transmission, or sending forward of goods to their owners.

—*a.* Advancing; promoting; aiding in progress; accelerating in growth; sending forward; transmitting.

Forwarding merchant. (*Law.*) A person who receives and forwards goods, taking on himself the expenses of transportation, for which he receives a compensation from the owners, but who has no concern in the vessels or wagons by which they are transported, and no interest in the freight. A forwarding merchant is not deemed a common carrier, but a mere warehouseman or agent.

For'wardly, *adv.* Eagerly; hastily; quickly.

For'wardness, *n.* State or quality of being forward; cheerful readiness; promptness.

"Eagerness to live, or *forwardness* to die."—*Hooker.*

—Eagerness; ardor; zeal; eager desire for action.—Want of due reserve and modesty; assurance; boldness; confidence; presumption.—A state of advance beyond the usual degree; earliness, as of plants or fruits.

For'wards, *adv.* Same as FORWARD, *q. v.*

Forzan'do, Sforzan'do, *adv.* [It. *forzando, sforzando*, pp. of *forzare, sforzare*, to force.] (*Mus.*) With force and sudden emphasis;—expressed by the sign > over each note so sounded, or by *fz.* or *sf.*, referring to a whole passage.

Foscari, FRANCESCO, (*fos-kar'e,*) a doge of Venice, who, in 1426, was named procurator of St. Mark's, and in 1423 was elected doge. His son Giacopo, being accused of ordering the assassination of a senator Donati, the enemies of the family created such commotion in the state, that, unable to clear himself to their satisfaction of the charge, he was banished from the city, the father having to ratify the sentence. Love of his country, and devotion to his wife, compelled the banished Foscari at all hazards to revisit his beloved Venice, where, being discovered by his enemies, he was denounced, again made prisoner, put to the question of the rack, and a second time banished, dying soon after of his wounds, or the torments of his secret punishment, and of grief at separation from his idolized family. The fate of the son had such an effect on the doge that the bereaved father went mad, in which state the enemies of his family compelled him to abdicate. He died three days after in a spasm, upon hearing the bells of St. Mark's announce to Venice the election of a new ruler. Byron has written on the subject a tragedy entitled *The Two Foscari.*

Foscolo, NICOLO UGO, (*fos'ko-lo,*) an Italian poet and miscellaneous writer, B. in the island of Zante, of a Venetian family, 1777. He received his education at Padua, and before he was 20 produced a tragedy called *Thyestes.* Soon afterwards he obtained employment as secretary to Battaglio, who was sent as ambassador to Bonaparte, to propitiate him to favor the independence of the republic of Venice. The ambassador was unsuccessful in his mission, and *F.* went to Lombardy, where he devoted himself to the cultivation of literature, and produced his celebrated *Letters to Ortis*, which established his fame. He now enrolled his name in the list of the first Italian legion that was formed, and was in Genoa during the siege of 1799. He continued with the Italian army till 1805, when he was sent to Calais with the troops professedly designed for the invasion of England: but he soon afterwards quitted the army, and in 1809 became professor of literature in Pavia. The language of his introductory lecture, however, offended Bonaparte, and the professorship was suppressed. In 1812 he produced his *Ajax*, which being supposed to convey a satire on Napoleon I., he deemed it prudent to withdraw to Florence. Afterwards, it is asserted, he engaged in a conspiracy to eject the Austrians from Italy, and was forced to take refuge in Switzerland, whence he went to England, where he continued to apply himself to literature, and published *Essays on Petrarch*, and *Disputations and Notes on Dante.* D. 1827.

Fos'sa, *n.* [Lat., a trench.] (*Zoöl.*) A name applied to certain depressions on the external surface; generally the seat of cutaneous glands, as the *lachrymal fossa* in deer and antelopes, the *jugular fossa, inguinal fossa*, &c.

Fossa'no, a town of N. Italy, in Piedmont, on the Stura. *Manuf.* Silk. *Pop.* 14,000.

Fosse, (*fos,*) *n.* [Fr. *fosse;* Lat. *fossa*, from *fossus*, pp. of *fodere*, to dig.] (*Fort.*) A ditch, generally filled with water, encircling the rampart of a fort, lying between the scarp and the counterscarp.

(*Anat.*) A small cavity or depression in a bone with a large orifice. Also applied to other cavities, the entrance to which is always larger than the base.

Fos'sil, *a.* [Fr. *fossile;* Lat. *fossilis*, from *fodere*, to dig.] Dug out of the earth; as, *fossil* salt.

—Pertaining to or like fossils; as, *fossil* bones.

—*n.* A substance dug out of the earth.

(*Geol.*) The body, or any portion of the body, of an animal or plant buried in the earth by natural causes, or any recognizable impression or trace of such a body or part of a body. The old geologists used to include minerals, or any other distinct bodies that were found in rocks, under the term of fossils. According to modern views, fossils are simply organic remains, allowing the word "remains" to apply even to footprints and other transient impressions. A fossil is not necessarily a petrifaction. Some fossil shells found in comparatively old rocks, such as the soft compact clays of the oölitic series, are less altered from their living state than many shells included in recent coral reefs. Wood, again, may be found in such rocks, still soft and but little altered, while in much more recent formations it is entirely mineralized, and converted either into flint or coal.

—That department of geology which relates to fossils is termed PALÆONTOLOGY, *q. v.*

Fos'sil Co'pal, *n.* (*Min.*) Copalite, a fossil hydrocarbon from the blue clay of Highgate Hill, near London. It resembles the resin copal (*q. v.*) in hardness, color, lustre, transparency, and difficult solubility in alcohol. *Comp.* Carbon 85·7, hydrogen 11·4, oxygen 2·9. *Sp. gr.* 1·01–1·05.

Fossilif'erous, *a.* [Lat. *fossilis*, fossil, and *ferre*, to produce.] Containing fossil remains; as, *fossiliferous* strata, *fossiliferous* rocks.

Fossilifica'tion, *n.* [Lat. *fossilis*, fossil, and *facere*, to make.] Act of becoming fossil.

Fos'silism, *n.* The science of fossils.

Fos'silist, *n.* One versed in the science of fossils.

Fossiliza'tion, *n.* The act or process of conversion into a fossil, or petrified state.

Fos'silize, *v. a.* To convert into a fossil, or petrified state.

—*v. n.* To be changed into a fossil state.

Fos'silized, *p. a.* Converted into a fossil state.

Fossombro'ne, (anc. *Forum Sempronii,*) a town of central Italy, prov. Urbino, on the Metauro, in a fertile district, 7 m. E.S.E. of Urbino. *Manuf.* Silk, said to be the finest in Italy. Near this town was fought, 194 B.C., the great battle between the Carthaginians under Asdrubal, the brother of Hannibal, and the Romans, in which the former were totally defeated, and their general killed. This victory decided the long contested struggle between the two powers. *Pop.* 7,227.

Foss'ores, *n. pl.* [Lat. *fossor*, a digger, from *fodere*, to dig.] (*Zoöl.*) An extensive genus of hymenopterous insects, belonging to the family *Vespariæ*, q. v.

Fosso'rial, *a.* [Lat. *fossor*, from *fodere, fossum*, to dig.] Digging; burrowing, or accustomed to dig or burrow.

—*n.* (*Zoöl.*) Animals which dig their retreats and seek their food in the earth are so called. The locomotive extremities, which are organized for burrowing, as those of the mole, or mole-cricket, are called *pedes fossori.*

Fos'sulate, *a.* [Lat. *fossula*, dim. of *fossa*, a ditch, from *fossum*, to dig.] Having trenches, or long narrow trench-like depressions.

Fos'ter, *v. a.* [A. S. *fostrian*, to nourish; from *foster*, food, *fostre*, a nurse, from *fedan*, to feed.] To feed; to nurse; to nourish; to bring up.

"Some say that ravens *foster* forlorn children."—*Shaks.*

—To cherish; to forward; to promote the growth of; to harbor or indulge; to encourage; to sustain and promote; as, to *foster* talent, to *foster* ill-will.

Foster, JOHN, an English essayist, B. in Halifax, Yorkshire, 1770. He was educated for the ministry at the Baptist College at Bristol, but after preaching for several years to various small congregations with very indifferent success, he resolved to devote himself mainly to literature. His *Essays in a Series of Letters*, published in 1805, while he was officiating as pastor of a Baptist chapel at Frome, in Somersetshire, have been remarkably popular, especially among the more thoughtful of the community, and have gone through upwards of twenty editions. In 1808, *F.* married the lady to whom his essays were originally addressed, and retired to Bourton-on-the-Water, in Gloucestershire, where he lived a quiet, studious, literary life, preaching, however, in the villages round about on Sundays. In 1819 appeared his celebrated *Essay on the Evils of Popular Ignorance*, in which he urges the necessity of a national system of Education. He was long the principal writer in the *Eclectic Review*, and a selection from his contributions to that magazine was published by Dr. Price in 1844. D. 1843. *F.* was a man of deep but sombre piety. The shadows that overhung his soul were, however, those of an inborn melancholy, and had nothing in common with the repulsive gloom of bigotry or fanaticism. His thinking is rugged, massive, and original; and at times, when his great imagination rouses itself from sleep, a splendor of illustration breaks over his pages that startles the reader both by its beauty and its suggestiveness.

Fos'ter, in *Kentucky*, a post-village of Bracken co., on the Ohio River, abt. 50 m. N.E. of Lexington.

Foster, in *Minnesota*, a township of Faribault co.

Foster, in *North Dakota*, a central co.; *area*, 648 sq. m.; *soil*, fertile; *products*, wheat and other cereals. *Pop.* (1897) about 1,600. *Cap.* Carrington.

Foster, in *Pennsylvania*, a township of Luzerne co.

—A township of Schuylkill co.

Foster, in *Rhode Island*, a post-village and township of Providence co.

Fos'terage, *n.* The charge of nursing.

Fos'ter-brother, *n.* A male *nursed* at the same breast, or fed by the same *nurse*, but not the offspring of the same parents.

Fos'terburg, in *Illinois*, a post-office of Madison co.

Fos'ter Centre, in *Rhode Island*, a post-office of Providence co.

Fos'ter-child, *n.* A child nursed by a woman not the mother, or bred by a man not the father.

Fos'terdale, in *New York*, a post-village of Sullivan co., abt. 120 m. S.W. of Albany.

Fos'ter-dam, *n.* A nurse; one that performs the office of a mother, by giving food to a young child.

"The *foster-dam* lolled out her fawning tongue."—*Dryden.*

Fos'ter-daughter, *n.* A female fed and educated like a daughter, though not one by birth.

Fos'terer, *n.* A nurse; one who feeds and nourishes in the place of parents.

Fos'ter-father, *n.* One who takes the place of a father in feeding and educating a child.

Fos'tering, *p. a.* Nourishing; cherishing; bringing up.

—That cherishes, or encourages; as, *fostering* care.

Fos'terling, *n.* A foster child.

Fos'ter-mother, *n.* A nurse.

Fos'ter's, in *Alabama*, a post-office of Tuscaloosa co.

Fos'ter's, in *Illinois*, a village of Marion co., about 15 m. S.S.E. of Vandalia.

Fos'ter's Bar, in *California*, a village and township of Yuba co.

Fos'ter's Falls, in *Virginia*, a post-office of Wythe co.

Fos'ter-sister, *n.* A female nursed and brought up as a sister, though not of the same parents.

Fos'ter's Mills, in *Pennsylvania*, a post-office of Armstrong co.

Fos'ter-son, *n.* One bred and educated like a son, though not one by birth.

Fos'ter's Meadow, in *New York*, a post-office of Queens co.

Fos'tertown, in *New Jersey*, a village of Burlington co., about 6 m. S. of Mount Holly.

Fos'terville, in *New York*, a post-village of Cayuga co., about 155 m. W. N.W. of Albany.

Fos'terville, in *Tennessee*, a post-village of Rutherford co., about 40 m. S. E. of Nashville.

Fosto'ria, in *Ohio*, a thriving city of Seneca co., on the B. & O. and four other railroad lines, 13 m. W. by N. of Tiffin. Is in the natural gas region; has a good local trade and extensive manufacturing industries. *Pop.* (1897) about 9,200.

Fosto'ria, in *Pennsylvania*, a post-village of Blair co. abt. 125 m. W.N.W. of Harrisburg.

Foth'er, *n.* Same as FODDER, *q. v.*

—*v. a.* [Cf. FODDER, *v. a.*, and Ger. *füttern*, to cover within or without, to line.] To endeavor to stop, as a leak in the bottom of a ship, when afloat, by letting down a sail under her bottom, by its corners, and putting between it and the ship's sides oakum, to be sucked into the cracks.

Foth'eringay, a village of England, co. Northampton, 4 m. from Oundle, formerly celebrated for its fine castle, in which Richard III. was born, and where Mary, Queen of Scots, was imprisoned, and finally executed. The son of the latter, James I., razed it to the ground.

Fot'mal, *n.* (*Com.*) A term for seventy pounds of lead.

Fou'ah, a town in the Delta of Egypt, on the E. bank of the Rosetta branch of the Nile, prov. Garbieh, 16 m. S.S.E. of Rosetta.

Fouché, JOSEPH, Napoleon's minister of police, was the son of a captain of a merchant-ship, and B. at Nantes in 1763. It was intended he should follow the same profession as his father, but he adopted that of the law, and the events of the revolution soon brought him into notice. He headed a popular society at Nantes, by which he was sent, in 1792, as their deputy to the National Convention; and on the trial of Louis XVI. he voted for his death. In 1793 he was sent to Lyons with Collot d'Herbois, and the cold-blooded cruelties he there committed are recorded in his own letters and reports. Returning to Paris, he joined in the destruction of Robespierre, merely from the fear of becoming one of his victims. He, however, had several narrow escapes during the turbulent times that followed; but circumstances at length placed him at the head of the French police, in which office he was a useful instrument in the hands of Napoleon. To the superintendence of police Bonaparte added the ministry of the interior, and in 1809 he made him duke of Otranto. He then opened his drawing-room to the ancient nobility, many of whom he employed as spies; but the emperor grew suspicious of this minister, and after his second marriage he resolved on dismissing him, for which an opportunity soon offered. As they felt no confidence in each other, both employed a secret agent at the English court; which agents, not being known to each other, had no means of concerting measures together; consequently their communications did not agree, and the English minister concluded, from the want of coincidence in their proposals, that France was merely trifling, and complained loudly of the insult. This led to some investigation, when the contractor Ouvrard was proved to have been secretly employed by the duke of Otranto. Immediately upon this, the duke of Rovigo was made prefect of police, and *F.* was required to deliver up his papers. He was then sent into a sort of honorable exile, with the empty title of governor of Rome. In 1814 he returned to France, and was well received by the restored government. When Napoleon re-appeared in France, *F.* was suddenly called to the ministry, and filled his post with skill. After the battle of Waterloo he was appointed president of the provisional government, when he appeared as negotiator between the emperor and the allied powers, to which he had sold himself. Louis XVIII. continued Otranto as one of his ministers, until by the law of the 6th of January, 1816, he was obliged to quit France. After trav-



Fig. 1050.
FOUCHÉ, (DUC D'OTRANTO.)

elling some time in Germany, he took up his residence at Trieste, where he d. in 1820. He was certainly one of the most celebrated, and, perhaps, the most designedly wicked of all the French revolutionists. One of his countrymen has summed up his character in this short sentence, — "Fouché effected some good, and a great deal of evil."

Fougade', Fougasse', *n.* [Fr., from Lat. *focus*, a fireplace.] (*Mil.*) A small mine, made by sinking a pit about ten or twelve feet below the surface of the ground, and putting a wooden case at the bottom, containing several pounds of powder, and occasionally some shells. It was formerly fired by means of a saucisson, — a long narrow bag of linen filled with powder, — which was protected from injury likely to arise from the dampness of the ground by inclosing it in a casing of wood. The saucisson communicated with the fougasse at one end, while the other was brought in a shallow trench under the earth to any point from which the train might be conveniently fired. Fougasses are generally made in the glacis of a work, to throw the attacking party into confusion when an attempt is made to take the work by storm. A very destructive kind of fougasse is made by filling the hole that has been excavated to receive the powder with rough stones, as well as earth. In modern warfare, fougasses are exploded by means of the electric sparks, and by detonating powder, with which wires communicate that are laid in the path by which the assailants advance to the attack.

Fougères, (*foō-zhair,*) a town of France, dep. Ile-et-Vilaine, cap. arrond., on a hill near the Nançon, 27 m. N. E. of Rennes. In the 15th cent. *F.* was considered one of the keys of Brittany. *Manuf.* Sail-cloth and hemp fabrics, flannels, hats, leather, &c. *Pop.* 10,278.

Fought, (*fawt,*) *imp.* and *pp.* of FIGHT, *q. v.*

Foul, *a.* [A.S. *fûl*, putrid; Ger. *faul*, rotten; allied to Lat. *putere*, to stink.] Unclean; covered with, or containing extraneous matter which is injurious, noxious, or offensive; turbid; thick; muddy; filthy; dirty; polluted; impure; contaminated; as, a *foul* handkerchief, *foul* water. — Scurrilous; obscene; profane; as, a *foul* tongue. — Cloudy and stormy; rainy or tempestuous; as, a *foul* sky, *foul* weather. — Defiling; wicked; detestable; abominable; as, a *foul* witch. — Unfair; not honest; not lawful or according to established rules or customs; as, a *foul* blow, *foul* play. — Loathsome; disgraceful; shameful; coarse; gross; as, *foul* appetites. — Full of weeds; entangled; hindered from motion; opposed to *clear;* as, a *foul* anchor, — a *foul* bottom, said of a ship — Not fair; contrary, as the wind.

A foul copy, a first draft with many erasures and interlineations. — *To fall foul*, to come to variance; to quarrel. — *To fall foul of*, to come into collision with.

Foul, *v. a.* To defile; to make filthy; to daub; to dirty; to bemire; to soil. — To entangle.

—*v. n.* To become entangled, as rope. — To collide, as boats.

Fou'la, one of the Shetland islands lying N. of the Orkneys in the North Sea; Lat. 60° 8′ N., Lon. 2° 6′ W. *Ext.* 2 m. long by an equal breadth, with an elevation of nearly 1,400 ft. above sea-level.

Foulard, (*foo'lar,*) *n.* [Fr.] A kind of silk handkerchief. — A silk material for ladies' dressing, plain, dyed, or printed.

Foul'ly, *adv.* Filthily; nastily; hatefully; scandalously; disgracefully; shamefully; unfairly; not honestly.

"Thou play'dst most *foully* for it."—*Shaks.*

Foul'-mouthed, *a.* Using scurrilous language; opprobrious; obscene or profane; uttering abuse, or profane or obscene words; accustomed to use bad language.

Foul'ness, *n.* Quality or state of being foul or filthy; filthiness; defilement. — Quality or state of containing or being covered with anything extraneous which is noxious or offensive; pollution; impurity. — Hatefulness; atrociousness; abominableness; wickedness. — Unfairness; dishonesty; want of candor.

Foul'ness, an island on the E. coast of England, co. Essex, in the N. Sea, 9 m. from Rochford; *pop.* abt. 800.

Foul'-spoken, *a.* Using profane, scurrilous, or abusive language.

Foumart, (*foo'mart,*) *n.* [A.S. *fûl*, fetid, and *marten;* Fr. *marte.*] (*Zoöl.*) See MUSTELA.

Found, *imp.* and *pp.* of FIND, *q. v.*

Found, *v. a.* [Fr. *fonder;* Lat. *fundare*, from *fundus*, the bottom.] To lay, as the bottom, base, or foundation of anything; to set or place, as on something solid, for support; to lay the foundation of, and raise a superstructure upon; to raise; to erect; to construct; to establish, as on something solid and durable. — To begin; to form or lay the basis of; to institute; to give birth to; to originate; to establish on a base.

Found, *v. a.* [Fr.; Lat. *fundo, fusus;* allied to Gr. *cheō, cheusō*, to pour, and Hind. *oondelna*, to pour.] To cast; to form by melting a metal and pouring it into a mould.

"With wondrous art *founded* the massy ore."—*Milton.*

Founda'tion, *n.* [Lat. *fundatio.*] Act of founding or fixing the base; the base of an edifice; original; rise; origin; that part of a building which rests on the ground; the base or groundwork of anything; establishment. — A donation or legacy appropriated to support an institution; an established revenue, particularly for a charity; endowment; settlement; institution.

(*Arch.*) The word *F.* may be applied either to the surface or bed on which a building rests, or to the lower part of the building which rests on the natural bed. 1. *Foundation as the bed.* The best that can be had is solid rock, or any kind of resisting incompressible stratum, free from water. Where there is no chance of water, sand forms a solid foundation. When the soil is soft, loose, and shifting, a solid bearing can be obtained only by driving *piles* or long beams of wood sharpened at the end, through the soft soil, till they reach a hard bottom. This is then planked or laid with cross-beams, on which the superstructure is built. The piers of many bridges are formed in this manner. Where the soil is soft, but not shifting, as in the case of made or deposited earth, the method of *concreting* is adopted — *i. e.*, a large surface is laid with broken metal or gravel, and run together with hot lime, so as to form a broad, solid artificial rock, on which the building may rest. — 2. *Foundation as the base of the building.* The broader and larger the lower course of the mason-work, the stronger the wall. The stones should, if possible, extend through and through, and project on each side of the wall. In the best periods of art, the foundations have always been most attentively considered. The Romans formed solid bearings of concrete as above described, and paid great attention to secure the stability of their buildings. In the dark ages, when there was want of knowledge combined with want of materials and means, many buildings fell from the yielding of the foundations. Some of the earlier Gothic buildings also suffered from the same cause. But knowledge came with experience, and the foundations of the later Gothic buildings, during the 14th and 15th centuries, were built with extreme care, and on the virgin soil; — the stones being as finely dressed as those above ground, were necessary to resist a strong thrust. And where the weight is thrown unequally on piers and walls, these detached points are all carefully united below the floor with a net-work of solid walls. — Bad foundations are often the cause of the ruin of many modern buildings. This arises from the costly nature of making a good foundation, when the soil is not naturally suitable. But it is clear that no expense should be spared to make the foundation good, as the value and stability of the superstructure depend entirely on the security of the foundation.

Founda'tioner, *n.* One who derives support from the funds or foundation of a college or great school.

Founda'tionless, *a.* Without foundation.

Founda'tion-muslin, *n.* (*Manuf.*) An open, gummed fabric, used for stiffened dresses and bonnets.

Found'er, *n.* One who founds, establishes, and erects; one who lays a foundation; an author; an originator. — An endower.

—[Fr. *fondeur.*] A caster; one who casts metals. — A lameness occasioned by inflammation in the hoof of a horse.

Founder, *v. n.* [Fr. *fondre*, from Lat. *fundere*, to pour, to melt.] To melt; to sink; to fall; to trip; to fill or be filled with water, and sink, as a ship.

—*v. a.* To cause internal inflammation and great soreness in the feet of a horse, so that he is ready to stumble or fall.

Foun'dered, *p. a.* Made lame in the feet by inflammation and extreme tenderness, as a horse. — Sunk in the sea, as a ship.

Foun'derous, *a.* [See FOUNDER.] Full of bogs; failing; ruinous.

Foun'ders-dust, *n.* Powder of charcoal, or of the coal used by founders to sift on the moulds. *Simmonds.*

Foun'ders-sand, *n.* A species of sand used by founders to sift on the moulds.

Foun'dery, *n.* [Fr. *fonderie.*] The art of founding, or of casting metals into various forms for use; the casting of statues. (See FOUNDING.) More especially, the house and works occupied in casting metals. (Commonly written *foundry.*)

Found'ing, *n.* The process of producing any article by causing molten metal or plaster of Paris to run in a liquid state into a mould of the requisite form, which is made in various ways, and of substances best suited for the reception of the liquid material that is to be poured into it. The process is applied to the manufacture of articles in iron, bronze, bell-metal, lead, steel, copper, porcelain, plaster, and cement of various kinds. The method of founding or casting cannons in iron and bronze will be found elsewhere (see CANNON), and as the process adopted in casting statues in plaster, and making ornamental pottery and busts in Parian ware, differs so materially from that which is used in forming metal castings, each will be described in that branch of art to which they respectively belong (see PORCELAIN, POTTERY, SCULPTURE), and the present article devoted to a brief account of the method adopted in founding iron castings of great size, and bells and statues in bell-metal and bronze. An account of type-founding will also be given under its proper heading; (see TYPE-FOUNDING.) After iron ore has been roasted, to drive off the arsenic, sulphur, and water that may exist in it, it is thrown into an enormous furnace (see BLAST-FURNACES, IRON MANUFACTURE), with a quantity of coke and limestone, the latter of which acts as a flue to the ore, and promotes the melting of the iron. The following proportion is generally observed, namely, a ton and a half of coke and 8 cwt. of limestone, broken in very small pieces, to every ton of ore; but if pig-iron be used, or iron that has been extracted from the ore, the addition of limestone is not necessary. When this mixture is in the furnace, a strong current of air is directed against the glowing mass, and the metal sinks to the bottom of the furnace, leaving a quantity of scoriæ, technically called "slag," behind it, when the vent at the bottom has been opened, and the molten fluid allowed to escape. The model of the article to be cast is generally made in wood, and from these models moulds are constructed, being made of a peculiar kind of yellow sand, which has been well mixed and kneaded with a little water. If the article is to be made in a solid piece, there is not much difficulty in making the mould, which is generally fashioned in two pieces if the casting be cylindrical in shape, or in more than two if it be irregular in form; but when it is to be cast hollow, a core is formed, to occupy the greater part of the interior of the mould, leaving a certain thickness everywhere between the inner surface of the mould and the exterior of the core; the former of which gives the external form to the casting, and the latter the internal form. To make the core, a quantity of wax or clay is pressed into the mould, or parts of the mould if it be made in pieces, of the thickness required for the metal. The mould having been thus lined, is then built together, and the internal cavity filled with sand, or a composition made for the purpose. The exterior mould is then taken off, and the wax or clay which represented the metal is removed, leaving the core around which the mould is subsequently built up, being prevented from touching it by stops that are arranged to preserve the necessary space between the mould and the core. They are then thoroughly dried by being exposed to the action of heat in a drying-stove. Great care is taken to insure perfect freedom from moisture, which would generate steam, and cause an explosion at the entrance of the metal. As soon as all parts of the mould are dry, they are built together and surrounded by sand, which is carefully banked up around and over the mould, to assist in resisting the weight of the metal when it enters: but if the casting be of considerable size, it is generally buried in a pit below the level of the furnace, which is filled with sand as soon as the mould has been built up in it, and in such cases the mould and core are strengthened by bars and hoops of iron, which have been introduced during the process of making them. Sometimes the moulds are packed with sand into frames of iron or casting-boxes. When all is ready, the furnace is opened, and the metal is allowed to run into the mould along channels made for the purpose, or if the mould be some distance from the furnace, and the casting be of small size, it is carried from the furnace by men in large iron pots or crucibles. Sufficient time is then given to allow the casting to cool, after which the mould is broken off, and the iron, if necessary, is cleaned, and the external roughness removed by filing, &c. The above is an outline of the process used in making castings in iron, and it is pretty nearly the same for castings in all kinds of metal, with some slight difference, that is required either by the form of the article (see SHELL), or the peculiar metal of which it is made. In casting large bells for churches, cathedrals, and clock-towers, and groups of figures, or statues of great size, very large furnaces are required, as the whole of the metal used in the casting must be melted and run into the mould at one time. The pit in which the bell is cast is made near the furnace. The core consists of a mass of brickwork covered with a composition of loam and horse-dung, which is carefully fashioned to the shape of the interior of the bell. Another coating of composition is then added, after sprinkling the core with tan-dust to prevent one coat from adhering to the other, and this is carefully moulded to the form of the exterior of the bell, forming what is called the model. More tan-dust is then applied, and on the model a third coating is laid, called the shell, which eventually gives the form to the exterior of the bell. This shell is then carefully taken off and the model removed, after which the shell is built up round the core, and the pit filled with sand or loam. The bell-metal, formed of tin and copper (see BELL-METAL), which has been melted in a furnace heated with wood, instead of coal or coke, is then allowed to run into the mould. After casting, the tone of the bell is duly regulated (see BELL). The method used in casting bronze statues is similar to that adopted for castings in iron and bell-metal; but the composition of which the mould and core are made is different, consisting chiefly of a mixture of plaster of Paris and brick-dust. It is unnecessary to make large bronze castings in one piece, as they can be made in parts, which are afterwards soldered together. The composition of bronze is given under its proper heading; (see BRONZE.)

Found'ling, *n.* [From *found, find.*] One that is found; a child found without a parent or owner; a deserted or exposed infant.

Found'ling-hos'pital, *n.* A charitable institution established for the care and bringing-up of foundlings, or children that have been abandoned by their parents. The object of such institutions is to prevent the destruction of children, either by actual violence or through exposure in the streets or highways; and their establishment dates from the Middle Ages. In ancient Greece and Rome the exposure of children was a frequent practice, as it is among the Chinese at the present day. Neither Plato nor Aristotle condemn it; they content themselves with laying down general rules for the preservation of the healthier and stronger at the expense of the more weakly. Thebes was the only State of ancient Greece that is known to have forbidden by law the exposure of children. Abandoned children were declared by law to be the slaves or absolute property of those who brought them up. The practice of exposing infants seems also to have prevailed among the Germanic nations before the introduction of Christianity. With the spread of Christianity, different feelings began to prevail on this subject, and the exposure of infants was forbidden by the emperors Valentinian and Gratian. At the same time, the stricter laws that came in force concerning marriage, and against concubinage, rendered women more anxious than before to conceal their shame, so that, in fact, the danger to infants of being exposed or put to death was rather increased than diminished; and hence Gibbon has some reason to speak of child-exposure as one of the most

stubborn remnants of heathendom. So early as the 6th century a species of foundling-hospital is said to have existed at Treves, the then bishop of that place permitting children to be deposited in a marble basin which stood before the cathedral, and giving them in charge to the members of the church. The first well-authenticated instance, however, is that established at Milan, in 787, by the arch-presbyter Datheus. Subsequently, foundling-hospitals were established at Montpellier in 1070, at Einbeck in 1200, at Florence in 1317, at Nuremberg in 1331, at Paris in 1362, and at Venice in 1380. In 1198, Innocent III., when rebuilding the great hospital of Santo Spirito at Rome, allotted a portion of it for the reception of foundlings. This system prevails in France, Spain, and Italy, and in general in all Roman Catholic countries in Europe, whereas in Protestant countries it is not looked upon with favor. The principal objection that has been raised against foundling-hospitals is, that they tend to encourage illegitimacy; and the great argument in favor of them is, that they have the effect of preventing child-murder. The question is one of very great difficulty; but the prevailing opinion in this country has always been opposed to these institutions, as being, on the whole, more pernicious than beneficial. The mortality in foundling-hospitals has always been very great, though the evil has in some measure been mitigated in more recent times by means of improved management and the practice of giving out children to be nursed. The usual mode of depositing children in the hospital is by means of a turning-box fixed in the wall, in which the child is laid, and, on a bell being rung, it is taken in by one of the watchers. The proportion of illegitimate children in Paris is about one in every three births; and of the total number of illegitimate children about 58 out of every 100 become inmates of the foundling-hospital, where more than one-half of them die before they are a year old. In this country public opinion has been very decidedly opposed to the establishment of foundling-hospitals. In Philadelphia, abandoned children are taken in charge by the Guardians of the Poor. The greater number of them, such is generally their condition when found, die soon after removal to the hospitals; but such as survive are well provided for by adoption in respectable families. In New York such children, and those whose parents are unable to provide for them, are taken to a Foundling Hospital which has recently been established upon the principles which govern such institutions in Paris.

Foun'dress, *n.* A female founder; a woman who founds or establishes, or who endows with a fund.

Foun'dry, *n.* See FOUNDERY.

Foun'dryville, in *Pennsylvania*, a post-village of Columbia co., about 14 m. E. by N. of Bloomsburg.

Fount, *n.* A spring: a fountain.
(*Printing.*) Same as FONT, *q. v.*

Foun'tain, *n.* [Fr. *fontaine*; L. Lat. *fontana*, from Lat. *fons, fontis*, from *fundo*, to pour; Sansk. *plu*, to flow, to swim.] A spring or source of water rising above the earth in a jet or jets, forced up by either natural or artificial means. Artificial *F.* flow from vases, statues, or other picturesque pieces of sculpture. Among the ancients, *F.* were generally esteemed sacred, and sacrifices and libations were made in their honor. Horace, in his Odes, gives a tribute of praise to one at Rome, distinguished by the appellation of *Fons Blandusiæ*. Many

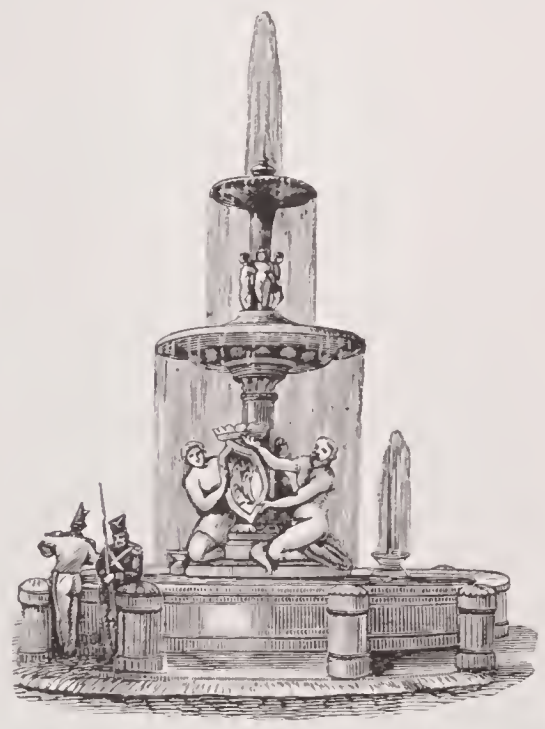


Fig. 1051. — FOUNTAIN OF THE PRADO (Madrid).

of the Greek cities were adorned with these beautiful and necessary objects of art. Corinth especially. In the ruins of Pompeii and Herculaneum, *F.* were seen in nearly every situation; and, from the number of leaden pipes also found, it seems that every house was provided with one. Modern *F.* are, for the most part, entirely ornamental. This arises from the use of distributing water in pipes through the houses, making the street fountains, to a great extent, useless. It is found, however, that our town population — both man and beast — require some public supplies of water, and these, in this country, begin to be largely supplied by the numerous drinking-fountains which are being constructed in Philadelphia and other of our principal cities. See p. 1031.
—Original; first principle or cause; the source of anything.

Foun'tain of Hero. (*Hydraulics.*) An ingenious machine, of which the invention is ascribed to Hero of Alexandria, who lived about 150 years before our æra. Its principle is the transmission of the pressure sustained by a body of water in one vessel to that in another by means of the elasticity of air. The essential parts of the apparatus consist (1, Fig. 1052) of two close vessels, A and B, the first placed at some height above the other, and connected by a frame; and of three tubes or pipes, of which the first, *a b*, descends from a basin, C, to very near the bottom of the lower vessel, B; the second, *c d*, rises from the summit of the vessel B to the top of A; the third, *e f*, rising from the lower part of A to some height above A, and forming the jet at *f*. Conceive the vessel A to be filled with water, and B with air.

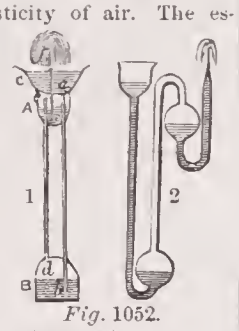


Fig. 1052.
FOUNTAINS OF HERO.

In this disposition of the apparatus, let water be poured into the basin C; this will descend through the pipe *a b*, and gradually fill the vessel B. But as it rises in B, the air in that vessel escapes through the pipe *c d*, and is compressed at the top of A, and, by its spring or elasticity, forces the water through the tube *e f*, and thus produces a jet at *f*, which will continue until the vessel A is nearly emptied, or B nearly filled. The force which produces the jet is equal to the pressure of a column of water, the height of which is equal to the difference of the levels of the water in C and B: according to this theory, therefore, the water should spout to a height above its level in A equal to that distance; but its friction against the walls of the tube *e f*, and the resistance to its ascent offered by the air, prevent more than a fraction of this height being attained. 2, Fig. 1052, represents the fountain of Hero in another form. An apparatus constructed on this principle is employed for draining the water from the mines of Schemnitz in Hungary.

Foun'tain, in *Colorado*, a post-office of El Paso co.

Foun'tain, in *Indiana*, a W. co.; *area*, about 400 sq. m. *Rivers.* Wabash River and Coal Creek. *Surface*, generally level; *soil*, very fertile. *Min.* Coal and iron in abundance. *Cap.* Covington. *Pop.* (1890) 19,558.
—A post-office of Fountain co.

Foun'tain, in *Wisconsin*, a township of Juneau co. *Pop.* (1897) about 950.

Fountain City, in *Colorado*, a village of Pueblo co., on the Arkansas River, about 100 m. S. of Denver.

Fountain City, in *Wisconsin*, a post-village of Buffalo co., on the Mississippi River, about 8 m. above Winona.

Fountain Creek, in *Tennessee*, a P.O. of Maury co.

Fountain Dale, in *Pennsylvania*, a P.O. of Adams co.

Fountain Green, in *Illinois*, a post-village of Hancock co., about 10 m. N.E. of Carthage.

Fountain Green, in *Maryland*, a post-office of Harford co.

Fountain Green, in *Utah*, a post-village of San Pete co., about 28 m. N. of Manti.

Foun'tain-head, *n.* The head or source of a fountain; primary source; original; first principle.

Fountain Hill, in *Arkansas*, a post-village, former cap. of Ashley co., about 155 m. S.E. of Little Rock.

Foun'tainless, *a.* That has no fountain.

Foun'tain-pen, *n.* A writing-pen with a reservoir for ink.

Fountain Prai'rie, in *Wisconsin*, a township of Columbia co.
—(Formerly FALL RIVER,) a post-village of Columbia co.

Fountain Run, in *Kentucky*, a post-village of Monroe co.

Fountain Spring, in *W. Virginia*, a P.O. of Wood co.

Fouquier Tin'ville, ANTOINE QUENTIN, (*foo'ke-ai,*) an execrable monster of the French Revolution, B. 1747. His early career was immoral, but insignificant. On the outbreak of the Revolution, he figured as one of the fiercest democrats. By Robespierre he was appointed, first, a member, then director and public accuser, of the Revolutionary Tribunal. Without education, conscience, or sense of justice, he executed with brutal apathy the bloody orders of the Committee of Public Safety. In reference to this feature of his character, his countrymen say that "he had no soul—not even that of a tiger, which at least pretends to be pleased with what it devours." Incapable of friendship, or of anything even remotely allied to generosity, he systematically abandoned his successive coadjutors in their hour of need, and sent to the scaffold, without the slightest compunction, Bailly and Vergniaud, Danton and Hebert, Robespierre and St. Just. He himself died by the guillotine, in a cowardly manner, May 7, 1795.

Four, *a.* [A.S. *fower*; Lat. *quatuor*: Ger. *vier*; Sansk. *catvar.*] Twice two.

Fourche A Dumas, (*foorsh-a-doo-ma'.*) in *Missouri* and *Arkansas*, a small stream rising in Ripley co. in the former State, and joining the Big Black River just above the village of Pocahontas in Randolph co., Arkansas.

Fourche A Reynault, (*foorsh-a-ra-no'.*) in *Missouri*, a post-village of Washington co., abt. 65 m. S.W. of St. Louis.

Fourche La Fave, (*foorsh-la-fav'.*) in *Arkansas*, enters the Arkansas River from Perry co.

Fourchée, (*for-sha'.*) *n.* (*Her.*) A cross forked at the end.

Fourchette', *n.* [Fr., a fork.] (*Anat.*) The posterior commissure of the labia majora.
(*Surg.*) An instrument used for supporting the tongue during the operation of dividing the frænum.

Four Cor'ners, in *Iowa*, a post-office of Jefferson co.

Four Corners, in *Maryland*, a village of Montgomery county.

Foureroy, ANTOINE FRANÇOIS DE, (*foor'krór.*) a French chemist and natural philosopher, B. at Paris, 1755. Having chosen the medical profession for his occupation, he devoted himself to the study of those sciences which are more immediately connected with it, especially chemistry. In 1784 he was appointed professor of this science at the Jardin du Roi, and became associated with Berthollet, Lavoisier, and others in researches which led to vast improvements, whilst they suggested the new chemical nomenclature, entitled *Methode de Nomenclature Chimique*. On the breaking out of the Revolution, he became entangled in the politics of the period, and was elected a deputy from Paris to the National Convention. In 1794 he became a member of the Committee of Public Safety, and next year was received as one of the Council of the Ancients. In 1799 Bonaparte gave him a place in the Council of State, when the affairs relating to public instruction were placed under his management. In this important trust he ably acquitted himself. In the various departments of chemical science and natural philosophy, he produced many valuable works. D. 1809.

Fourdrin'ier. See PAPER (MANUFACTURE OF).

Four Evan'gelists, part of a larger group of islands known as the *Twelve Apostles*, lie off the west entrance of the Strait of Magellan. They are abt. Lat. 52° 34′ S., and Lon. 75° 5′ W. The eight other islands, with which they are classed as above, run abt. 15 m. further out into the Pacific.

Four'fold, *a.* Four-double; quadruple; four times told.
—*n.* Four times as much.
—*v. a.* To make fourfold, as an assessment.

Four'footed, *a.* Having four feet.

Four-four, *a.* (*Mus.*) Applied to a measure containing four crotchets in a bar.

Fourgon', *n.* [Fr.] A wagon; a van.—A fire-poker; a coal-rake.

Four'-handed, *a.* That has four hands; quadrumanous.

Fourier, FRANÇOIS CHARLES MARIE, (*foor'e-ai,*) the inventor of the co-operative system, B. at Besançon, 1768. He was son of a clothier, and was brought up to mercantile employment at Lyons and Marseilles. The agitations of the first years of the revolution led him to reflect and speculate on the evils which afflict society and possible remedies for them, and in 1808 he announced his discovery or theory in a volume entitled, *Théorie des Quatre Mouvemens et des Destinées Générales*, which, after exciting a nine-days' wonder, was forgotten. It was merely the prospectus of a voluminous work which he began to publish in 1822; the first portion being entitled, *Traité de l'Association Domestique et Agricole.* No notice was taken of it by the press or by the public men to whom Fourier sent copies; nor did his compendium entitled, *Le Nouveau Monde Industriel et Sociétaire*, find a better reception. By a severe attack on the principles of the St. Simonians and Owenites in 1831, Fourier gained attention and attracted disciples, and he soon after began publishing a journal, "La Phalange," for the propagation of his views. The attempt made to give practical shape to them came to nothing, but the craving for realization of his idea — a better distribution of labor and the profits of it by means of social organization — is wide-spread and deep-seated, especially in France. Fourier published various other works, and D. 1837.

Fourierism, (*foor're-er-izm,*) *n.* (*Polit. Econ.*) A system of socialism promulgated by Charles Fourier (1772–1837), and which differs materially from the systems of communism strictly so called. It professes to be based upon natural laws, and to be founded on calculations which he maintained to be the counterpart of Newton's physical system. This system, unlike communism, does not, in theory at least, withdraw any of the motives to exertion which exist at present, nor does it contemplate the abolition of private property. According to the Fourierists, there is scarcely any kind of useful labor which is naturally and necessarily disagreeable, unless it be either regarded as dishonorable, or is immoderate in degree, or destitute of the stimulus of sympathy and emulation. They, therefore, endeavor to strengthen and foster those motives for exertion that are naturally inherent in man. Society was to be formed into associations, or phalansteries, each comprising 400 families, or 1,800 persons, numbers brought out by very careful calculations. The phalanstery was to include everything in structure and character which could gratify the highest taste and sense of enjoyment. The pursuits and functions of the members were to be infallibly adjusted through a distribution by which each person was to be set precisely to that occupation in life to which his passions and propensities directed him. Life was thus to be a perpetual enjoyment; and labor, instead of being a task, was to be as much a source of enjoyment as the pursuits of the hunter or the angler. The property of the association was to be held in 1,128 shares, and the whole products were to be divided into twelve parts; of which five were to go to labor, four to capital, and three to skill or talent. The capital of the community may be owned in unequal shares by different members, who would receive proportional dividends, and the claim of each person to the share of the produce appropriated to

talent is estimated by the grade or rank which the individual occupies in the several groups of laborers to which he or she belongs. The remuneration, when received, would not of necessity be expended or enjoyed in common. The system, however, as a whole, is so complex, that Fourier himself never admitted that even the most ardent of his disciples understood it; and to the last he would sanction nothing as an announcement of his views that he had not himself written. An attempt was made to carry out Fourier's views practically in the neighborhood of the small town of Rambouillet, easily accessible from Paris. About $100,000 is said to have been expended in the attempt, which proved a failure. Fourierism is "the most skilfully combined, and with the greatest foresight of objections, of all the forms of socialism." It "does no violence to any of the general laws by which human action, even in the present imperfect state of moral and intellectual cultivation, is influenced; and it would be extremely rash to pronounce it incapable of success, or unfitted to realize a great part of the hopes founded on it by its partisans."—Ref. *Encyclopedia Britannica*, art. COMMUNISM, (PRINCIPLES OF.)

Fou'rierite, *n.* An adherent to Fourierism.

Four Lakes, in *Wisconsin*, a chain of lakes in Dane co., known respectively as First, Second, Third, and Fourth lakes. *First Lake*, the smallest and lowest of the chain, is about 3 m. long by 2 m. wide, and has its outlet in Catfish River; *Second Lake*, about 4 m. N.W., and communicating by means of a small stream, is 3½ m. long by 2 broad; *Third Lake*, about 1 m. N.W. of the last, is about 6½ m. long by 2 m. wide; finally, *Fourth Lake*, the largest and most beautiful, is 6 m. long by 4 wide, and separated from Third Lake by a narrow strip of land, upon which Madison, the capital of the State, is built. The waters of these lakes are cold and pure, and mostly navigable for small steamers. The two last are now called lakes Monona and Mendota.

Four'-legged, *a.* Having four legs.

Four'ling, *n.* A name for any one of 4 children born at the same birth.

Four Mile, in *Iowa*, a township of Polk co.

Four Mile, in *Colorado*, a post-office of Routt co.

Four Mile, in *Kansas*, a township of Morris co.

Four Mile, in *Wisconsin*, a post-office of Fond du Lac co.

Four Mile Creek, in *Michigan*, enters the Kalamazoo river in Kalamazoo co.

Four Mile Creek, in *Ohio*, enters the Miami river in Butler co.

Fourneau (*foor'nō*), *n.* [Fr.] (*Mil.*) The chamber of a mine in which the powder is placed.

Fourne'tite, *n.* (*Min.*) A mixture of galenite with copper ore. See GALENITE.

Four'ni Islands, a group of about 20 small islands in the Grecian Archipelago, between Nicaria and Samos, on the eastern coast of Asiatic Turkey. The largest of these islets is about 5 m. in circuit.

Four Oaks, in *Kentucky*, a post-office of Pendleton co.

Four Oaks, in *North Carolina*, a post-township of Johnson co.

Four'pence, *n.* A British silver coin; a groat.

Four'score, *a.* Four times twenty; eighty.

Four'square, *a.* Having four sides and four angles equal; quadrangular.

Fourteen, in *West Virginia*, a post-office of Lincoln co.

Four'teen, *a.* [*Four* and *ten;* A.S. *feowertyne.*] Four and ten; twice seven.

Four'teenth, *a.* The ordinal of 14; the fourth after the tenth.

—*n.* (*Mus.*) An interval embracing an octave and a 7th.

Four'teen Mile Creek, in *Indiana*, enters the Ohio in Clarke co.

Four'teen Mile Creek, in *Mississippi*, enters Big Black River in Hinds co.

Fourth, *a.* Ordinal of 4; the next after the third.

—*n.* (*Mus.*) A distance comprising three diatonic intervals. There are three kinds of fourths; viz., the *diminished F.*, composed of a whole tone and two semitones; the *perfect F.*, consisting of two whole tones and a semitone; and the *extreme sharp* or *superfluous F.*, consisting of three whole tones.

Fourth Cross'ing, in *California*, a post-village of Calaveras co., abt. 14 m. S. of Mokelumne Hill.

Fourth Lake, in *Wisconsin*. See FOUR LAKES.

Fourth'ly, *adv.* In the fourth place.

Fourth'-rate, *n.* A vessel of war carrying from 50 to 70 guns.

Four Towns, in *Michigan*, a P. O. of Oakland co.

Four-way'-cock, *n.* (*Engineering.*) A cock having two separate passages in the plug, and communicating with four pipes.

Four'-wheeled, *a.* Having four wheels.

Fou'sel-oil, *n.* See AMYLE.

Fou'ter, *n.* A despicable fellow.

Fou'ty, *a.* [O.Fr. *foutu.*] Despicable. (Vulgar.)

Fo'veate, *a.* [Lat. *fovea*, a small pit.] (*Bot.*) Deeply pitted.

Fove'olate, *a.* [Dim. of *foveate.*] (*Bot.*) That has small holes or depressions.

Fovilla, (*fo-vil'la,*) *n.* [Lat. *foveo*, to nourish.] (*Bot.*) The matter contained within the membranes of the pollen-grains. It is a semi-fluid granular protoplasm, in which are suspended very minute starch granules, and what appear to be oil globules. It is, without doubt, the essential part of the pollen-grain. (See POLLEN.)

Fowl, *n.* [A.S. *fugel*, to fly.] In its general sense, this term is nearly synonymous with *birds;* but in a more restricted sense it means those domestic birds brought up in a farmyard for the table. Fowls originally came from Persia and India, and they are valuable to the breeder in many ways, yielding profit as they do in eggs, in broods, and in feathers. The principal kinds of this useful domestic creature are: 1. The *Game Fowl*, with erect and slender body and showy colors, valued also for the delicacy of the flesh and of the eggs, although the latter are rather small. It is this breed which is used for cock-fighting; and so excessive is the pugnacity which characterizes it, that broods scarcely feathered are occasionally found to have reduced themselves to utter blindness by their combats. Some poultry-keepers think it good to have a game-cock in their poultry-yard, on account of the improvement of the quality of the fowls sent to the table; but it is almost needless to say, he must, like the prototype of Robinson Crusoe, be sole monarch of all he surveys. 2. The *Dorking Fowl*, so named from Dorking, in Surrey, where it has long been bred in great numbers for the London market—a breed characterized by an additional spur on each leg: often of a white color, with short legs; one of the most useful of all breeds, both for excellence of flesh and for abundance of eggs. 3. The *Polish Fowl*, black, with a white tuft, a breed very extensively reared in France, Egypt, &c., little inclined to incubation, but valued for an almost uninterrupted laying of eggs. 4. The *Spanish F.*, very similar to the Polish, but larger, and laying larger eggs, on account of which it is now much valued, and very common in Britain; black, with white cheeks and large red comb. 5. The *Malay Fowl*, tall and handsome, very pugnacious, but little esteemed. 6. The *Hamburg F.*,

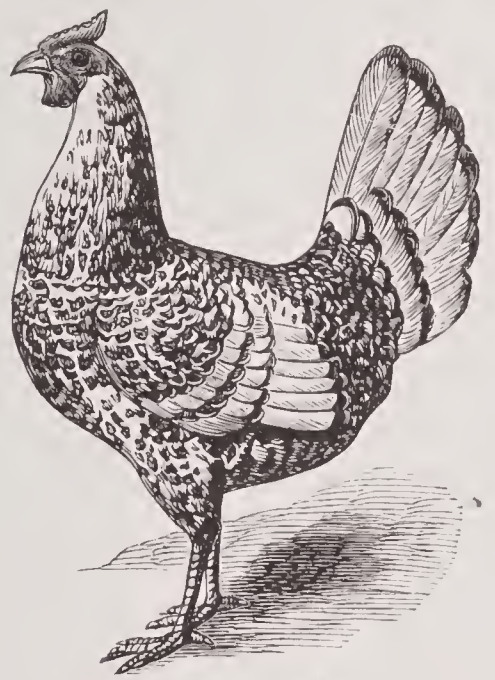


Fig. 1053.—SILVER-SPANGLED HAMBURG FOWL (HEN).

(Fig. 1053), of very beautiful plumage, and much valued for the quality both of flesh and eggs, as also for extreme productiveness of eggs. 7. The *Cochin China F.*, (see GALLUS,) a large, tall, ungraceful variety, with small tail and wings, for which there was a great rage among poultry-fanciers when it was introduced, more particularly about the year 1852, and which is valuable chiefly on account of its fecundity, eggs being laid even during winter, and the hens incubating frequently. 8. The *Bantam Fowl*, a diminutive variety, rather curious than useful.—Of most of these there are many subvarieties and *fancy breeds*—gold-pencilled, silver-pencilled, &c. The common *Dunghill Fowl* is apparently a breed produced by the intermixture of others, and perhaps chiefly a less graceful, less spirited, and less pugnacious race of the Game Fowl. The *Guinea Fowl*, or Pintado, is sometimes classed among the common order of fowls; they are very wild and restless in their nature, and, unlike the ordinary fowls, they give no notice to any one of their laying or sitting; they have consequently to be closely watched. The Guinea *F.* is very delicate eating, and is in season about Lent. Their eggs are something like those of turkeys, but not so gross. As the Guinea Fowl rarely watches over her nest and rears a brood, its eggs are generally put under a common hen, which performs in a satisfactory manner the duties of foster mother. For a complete list and description of pure breeds of domestic fowls, see FOWLS, DOMESTIC, in Section 11. See also HATCHING, POULTRY, &c.

Fowl, *v. n.* To catch or kill wild fowls for game or food.

Fowl'er, *n.* A sportsman who pursues wild fowls, or takes or kills them for food.

Fowler, in *Illinois*, a post-office of Adams co.

Fowl'er, in *New York*, a post-town of St. Lawrence co., on the Oswegatchie river, about 27 m. S.W. of Canton. *Pop.* (1890) 1,592.

Fowler, in *Ohio*, a post-township of Trumbull co., about 160 m. N.E. of Columbus.

Fowler Knob, in *West Virginia*, a P. O. of Nicholas co.

Fowl'erite, *n.* (*Min.*) A variety of Rhodonite (*q. v.*) containing zinc.

Fowler's, in *West Virginia*, a post-office of Brooke co.

Fowler's Mills, in *Ohio*, a post-village of Geauga co., about 170 m. N.E. of Columbus.

Fowl'erville, in *Michigan*, a post-village of Livingston co., on the Red Cedar river, about 27 m. E. by S. of Lansing.

Fowl'erville, in *Minnesota*, a post-office of Rice co.

Fowl'erville, in *New York*, a post-office of Livingston county.

Fowl'erville, in *Pennsylvania*, a P. O. of Columbia co.

Fowls'town, in *Georgia*, a village of Decatur co., about 200 m. S.W. of Milledgeville.

Fowl'ing, *n.* The art or practice of catching or shooting fowls or birds; also, falconry.

Fowl'ing-piece, *n.* A light gun for shooting fowls or birds.

Fox, GEORGE, the founder of the Society of Friends, B. 1624 at Drayton in Leicestershire, England. His father was a weaver, and by the strict honesty of his conduct had won from his neighbors the sobriquet of "Righteous Christer." George, while yet a boy, was distinguished by his gravity and exemplary conduct. When in the twentieth year of his age, and for some two or three years afterwards, Fox describes himself as having been in a very distressed state of mind, from which the various professors and clergymen to whom he applied for counsel were unable to relieve him. From this condition he was at length delivered by that which he regarded as the voice of God in his soul, directing him to Christ as alone able "to speak to his condition." Very soon after this he commenced his public ministrations at Dukinfield, Manchester, and the neighborhood. From the first, his preaching seems to have made many converts and excited much opposition. Fox's first imprisonment took place in the year 1648, in consequence of his opposing the preacher in "the great steeple-house at Nottingham," on a point of doctrine. In 1650 he was imprisoned at Derby under a false charge of blasphemy. One of the committing justices, Bennet, acted with great violence on this occasion, and it was he who on Fox's bidding him "tremble at the word of the Lord," first applied to him and his friends the name of *Quakers*. Fox lay in prison at Derby for about a year, the time having been lengthened in consequence of his refusal to accept a commission as captain of one of the regiments then being raised by Parliament. To his belief of the unlawfulness of all war, which prompted this refusal, was added at the same time a clear view of the enormity of the punishment of death for crimes affecting property only, and he exerted himself to save the life of a poor woman then in jail for theft. Within ten years of Fox's first appearance as a preacher, meetings of the Friends were established in most parts of England. At the same time, so actively were they persecuted, that for many years there were seldom less than a thousand of them in prison. Cromwell, though himself favorable to liberty of conscience, seems to have been unable to curb the excesses of popular hostility launched in all quarters against a sect which denounced all state interference with religion, and maintained that the gospel should be preached without fee or reward. Fox had several interviews with the Protector, having been first sent to him as a dangerous person, by Colonel Hacker, in 1654. After much conversation with him at Whitehall on the subject of religion, Fox was about to leave, when Cromwell caught him by the hand, saying—"Come again to my house, for if thou and I were but an hour of a day together, we should be nearer one to the other;" adding that he wished him "no more ill than he did to his own soul." Captain Drury, who had taken Fox to London, was commissioned to tell him that he was at liberty, and might go whither he would. About a month after the restoration of Charles II., Fox was committed to Lancaster Castle, "on the charge of being a common disturber of the peace, and of endeavoring to make insurrection and embroil the whole kingdom in blood." After lying in jail some months, a habeas corpus was obtained, and the authorities showed their disbelief of these grave charges by allowing Fox himself, unbailed and unguarded, to convey to London the sheriff's return to the writ. The hopes entertained by the members of the young society that they would be allowed a breathing-time from persecution, were dispelled at the commencement of 1661, by the atrocious measures which followed the mad attempt of Venner and his Fifth-Monarchy men. The Act empowering magistrates to tender the oaths of allegiance and supremacy to any person whom they thought fit to suspect, also operated with great severity against the Friends: under its provisions Fox was committed to prison at Lancaster in the beginning of 1664, whence he was removed to Scarborough Castle, where he lay till the autumn of 1666. His treatment during the greater part of this incarceration of nearly three years seems to have been most inhuman, and to have seriously affected his health. After his release, Fox turned his attention more closely to the internal regulation of the now large society, and to the subject of education, recommending his friends to establish schools for the instruction of their children in "whatsoever things were civil and useful in the creation." In 1669 Fox married Margaret Fell, the widow of one of the judges of the Welsh courts. The year 1670 witnessed the passing of the most stringent of the conventicle acts, forbidding under heavy penalties the assembling for religious worship, in any house, of more than four persons besides the family, except according to the usages of the Church of England. As a society the Friends seem to have stood almost alone in their refusal to comply with it, and the pains and penalties of the law consequently fell principally upon them. Fox exhorted his friends to firmness, and himself remained in London, to share with their sufferings—attending the meeting in Gracechurch Street, where it was expected the storm would first fall. Soon after his recovery from a severe illness he sailed for Barbadoes, where he exerted himself greatly in the interests of religion and humanity. It is interesting to trace in his narrative of this journey the germ of that anti-slavery principle which has since been so conspicuous in his successors. It was whilst in this island that Fox drew up a statement of his own and his friends'

belief in all the great doctrines of Christianity,—a statement clearly disproving their alleged sympathy with Socinian tenets. After a considerable time spent in Barbadoes, Jamaica, and the North American continent, he returned to England in 1673. Here further persecutions awaited him. Arrested for holding a meeting for worship, and detained for refusing to take the oaths of allegiance and supremacy, he underwent 14 months imprisonment, and was at length liberated by the Court of King's Bench on account of the errors in his indictment. In 1677, in company with Penn and Barclay, who had joined the Society about ten years before, he paid a visit to Holland and some parts of Germany, where his services seem to have been well received. The last 15 years of his life were tranquil as regards personal molestation, but he continued to be actively engaged in various ways in promoting the welfare of his brethren. Their persecutions continued throughout the reign of Charles II.; and although James, by a stretch of the royal prerogative, ordered a general release of those imprisoned for conscience sake, the legal toleration of dissent was reserved for the next reign. In the first year of William and Mary was passed the bill which nullified the conventicle acts, and allowed the Friends to make a solemn declaration in lieu of taking the oaths, and Fox had the gratification of seeing the public worship of the Society legally recognized before his death. D. 1690. In person, Fox was tall; in countenance, manly, intelligent, and graceful; and in manners, says Wm. Penn, "civil beyond all forms of breeding." Fox's services in the Christian church will be variously estimated according to the opinions formed of those principles and practices on which he was the first in modern times to insist, and which have now for 200 years distinguished the Society of Friends. The man himself must, however, be acknowledged by all to have furnished a noble example of unflinching integrity. Never would he barter an iota of what he regarded as the Christian truth, to secure immunity from ridicule and persecution. On religious liberty, slavery, the treatment of prisoners, capital punishment, &c., his sentiments were far in advance of the age; while in regard to oaths and war, there has been a considerable approximation to his views in later times. All that he did and wrote is not to be defended, neither did he himself, nor do his followers in religious profession, regard him as other than a fallible mortal; yet in that progress of opinion, which so often rubs the gilt from the tinsel, while it polishes the diamond, we are fain to believe that on a more faithful page than that of the prejudiced historian — in the hearts of the lowly and sincere — will a place of honor be more and more freely accorded to the memory of Geo. Fox.

Fox, Charles James, a celebrated English statesman and orator, b. 1748. He received his education at Westminster, Eton, and Oxford, where his proficiency in classical literature attracted considerable notice. It was the intention of his father Lord Holland, who had a high opinion of his capacity, that he should occupy a prominent station in the political world, and he accordingly procured for him a seat in parliament for the borough of Midhurst, when he was only 19. He, however, prudently remained silent till he had attained the legal age of a member, and then we find him, in 1770, aiding the ministry, who rewarded him with the office of one of the lords



Fig. 1054. — CHARLES JAMES FOX.

of the Admiralty; but he resigned that position in 1772, and in 1773 was nominated a commissioner of the Treasury, from whence he was suddenly dismissed, in consequence of some disagreement with Lord North. *F.* now entered the lists of opposition, and throughout the whole of the American war proved a most powerful antagonist to the ministers of that period. He foretold the defeat of the British armies in America, and saw his prophecies one by one fulfilled. On the downfall of Lord North he was appointed, in 1782, one of the secretaries of state, which situation he resigned on the death of the marquis of Rockingham; when the earl of Shelburne, afterwards marquis of Lansdowne, was appointed to succeed him. On the dissolution of that short-lived administration, he formed the coalition with Lord North (a coalition which was odious to the great mass of the people), and resumed his former office. He now brought in his India bill, which, after having passed the House of Commons, was unexpectedly thrown out by the House of Lords, and occasioned the resignation of the ministry, of which he formed a part. Pitt then came into power, while *F.* placed himself at the head of the opposition, and a long contest took place between these illustrious rivals. Worn out, and perhaps disgusted with public business, he, in 1788, repaired to the Continent, in company with Mrs. *F.*, and after spending a few days with Gibbon the historian, at Lausanne, entered the classic regions of Italy. In consequence, however, of the sudden illness of the king, and the probable necessity of constituting a regency, he was soon recalled. The regency bill, the trial of Mr. Hastings, and, above all, the French revolution, and its effects on his country, gave ample scope for his talents and eloquence, which he continued to exert against the administration of Pitt, inveighing against the war with France, and denouncing the measures of his great rival on every subject of importance. However men may differ as to the soundness of *F.*'s political views, no one denies that he was a sincere friend to the freedom and best interests of mankind, or that in private life a more amiable and pleasant companion could not be found. In the senate he was argumentative, bold, and energetic; in the domestic circle, no one was more ingenuous, bland, and courteous. His literary abilities were of a high order; and had he lived in less stirring times, there is every probability his country would have benefited by his writings. As it was, he left little behind him but his eloquent speeches, and *The History of the Early Part of the Reign of James II.* On the death of Pitt he was again recalled to power, and set on foot a negotiation for peace with France, but did not live to see the issue of it. D. 1806.

Fox, *n.* [A.S. *fox*; Ger. *fuchs*; Goth. *fauho.* The root is found in O. Ger. and Goth. *fahan*, Icel. *fanga*, to seize. Pers. *rûbah*, a robber, allied to Gr. *alōpēx*, and to Sansk. *lōpâca*, the carrion-eater.] (*Zoöl.*) The *F.* were formerly placed, by the most eminent naturalists, together with the wolf and dog; but according to the most recent classifications of the mammalia, it is separated from these animals, and placed in the gen *Vulpes.* In many particulars, it is true, the *F.* greatly resembles the gen. *Canis*; but the shape of the pupil of the eye (which is elongated), the bullet-head, the bushy tail, the long body, supported on short limbs — all these characteristics fully establish the soundness and correctness of the position to which the *F.* is assigned by the modern zoölogists. Of all beasts of prey, the *F.* is considered to be the most crafty and sagacious, whether in obtaining food, or in eluding pursuit. They appear to be pretty generally diffused throughout all the northern and temperate parts of the globe; occurring with numerous varieties, as to color and size, in most parts of Europe, the north of Asia, and America. The *F.* has a broad head, a sharp snout, a flat forehead, obliquely seated eyes, sharp erect ears, an elongated body well covered with hair, proportionally short limbs, and a straight bushy tail, so long that when pendent it touches the ground. The common American Red Fox, *V. fulvus*, is notorious for his nocturnal depredations upon farm-yards, whence he carries away chickens, geese, and turkeys to the dense thickets, where he spends most of the daytime. The general color is reddish-yellow, the back behind grizzled with grayish, throat and a line on the belly and tip of tail white, feet and ears black. The *F.* varies considerably in size, but, in general, measures about 42 inches from the snout to the end of the tail, which latter is 16 inches in length, and the height of the shoulders about 14 inches. The *F.* seems to be wholly devoid of that instinct of gratitude which characterizes the dog, and is even found in the wolf and jackal; nay, whatever kindness may be shown him when in a state of confinement, he is still sly, timid, and suspicious, insusceptible, as it would seem, of any kind of attachment. His voice is a kind of yelp, or stifled bark, and his bite is very severe and dangerous. The fetid odor of the *F.* is



Fig. 1055.
ARCTIC FOX, (*Vulpus lagopus.*)

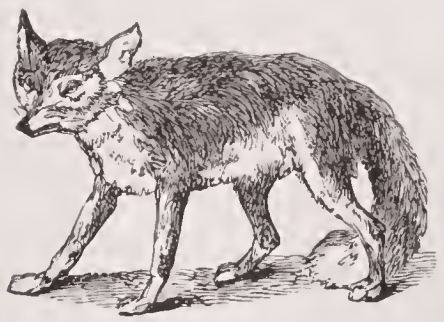


Fig. 1056. — AMERICAN RED FOX, (*Vulpus fulvus.*)

intolerable; his sight is keen; and he possesses astonishing acuteness of smell. The time of gestation is about sixty-three days; and while the female is suckling her young, nothing can exceed her courage and boldness. The *F.*, unmolested, will live 12 or 14 years. In the first year he is called a *cub*; the second, a *F.*; and the third, an *old F.*: he is 18 months, or nearly 2 years old, before he arrives at full maturity. The skin makes a warm and soft fur, and is therefore used for muffs, linings, &c. — The Arctic Fox, *V. lagopus*, is smaller than the common *F.*, with a sharp nose, and short rounded ears, almost hid in its fur; the legs are short, and the toes are covered, both above and below, with a very thick soft fur; the tail is shorter than that of the common *F.*, but more bushy. It inhabits the countries bordering on the Frozen Ocean in both continents. At the approach of winter their coat of hair becomes thick and ragged, till at length it grows perfectly white.

Fox, *n.* A sly, cunning fellow.

—*v. a.* To repair, as boots, by adding new soles, and covering the feet with new leather.

—*v. n.* To turn sour in the act of fermentation, as beer, &c.

Fox, in *Illinois*, a post-township of Kendall co. *Pop.* (1897) about 1,280.

Fox, in *Indiana*, a post-office of Grant co.

Fox, in *Iowa*, a former county, now mostly incorporated with Pocahontas co.

—A township of Black Hawk co.

Fox, in *Missouri*, a post-office of Ray co.

Fox, in *Ohio*, a township of Carroll co.

Fox, in *Pennsylvania*, a township of Sullivan co.

—A township of Elk co.

Fox'borough, in *Massachusetts*, a post-town and township of Norfolk co., about 21 m. S.S.W. of Boston. *Pop.* (1895) 3,219.

Fox'-brush, *n.* The tail of a fox, cut off the dead animal after a chase, and presented as a trophy to the first who is up at the finish.

Fox'burg, in *Pennsylvania*, a post-village of Clarion co., on the Allegheny river, at the month of Clarion river. *Pop.* (1897) about 750.

Fox'-case, *n.* The skin of a fox.

Fox Chan'nel, a strait of British N. America, between Melville Peninsula and Southampton Islands on the W., and an unexplored country on the E.

Fox'chase, in *Pennsylvania*, a village now within the chartered limits of Philadelphia, about 9 m. N.N.E. of the State-House.

Fox Creek, in *Missouri*, a post-village of St. Louis co., about 28 m. W. of St. Louis.

Fox Croft, in *Maine*, a post-village and township of Piscataquis co., on the Piscataquis River, about 60 m. N.N.E. of Augusta; *pop.* of township about 1,500.

Foxed, *a.* Furnished with new soles and feet, as boots. — Soured in fermentation, as beer.

Fox-evil, *n.* One of the numerous local names for *alopecia*, or falling of the hair.

Fox-glove, *n.* (*Bot.*) See Digitalis.

Fox-grape, *n.* (*Bot.*) See Vitis.

Fox'-hound, *n.* A species of dog used in the sport of fox-hunting. An extraordinary amount of care and attention has been given in Europe to the proper breeding of this animal; and no pack can be justly considered



Fig. 1057. — FOX-HOUND.

perfect without each particular animal composing it being especially picked out as adhering to the rules laid down for the guidance of dog-fanciers. In the true fox-hound, nearly all the individual good qualities which distinguish other varieties of dogs are combined; and in fleetness, strength, fine scent, spirit, perseverance, and subordination, they have no equals. The fox-hound is not a very large animal, his height averaging from twenty to twenty-two inches. The color of the fox-hound is generally pied — such as yellow, black, dun, fallow and brown intermixed. In order to be perfect, an old authority on the chase observes, that the animal should be of the following proportions: his legs straight as arrows; his feet round, and of medium size; his shoulders black: his breast wide; his chest deep; his back broad; his head small; his neck thin; and his tail bushy, thick, and well-carried.

Fox'-hunting, Fox-hunt, *n.* The sport of hunting foxes.

—*a.* Pertaining to the sport of hunting foxes; engaged or occupied with such sport.

Fox Indians. See Sacs.

Fox Islands, or Aleutian Islands. See Aleutian Islands.

Fox Lake, in *Illinois*, a post-office of Lake co.

Fox Lake, or Waushara, in *Wisconsin*, a post-village and township on a lake of the same name, about 50 m. N.N.E. of Madison; *pop.* of township about 2,500.

Fox Lake, or Waushara, in *Wisconsin*, a small sheet of water in Dodge co.

Fox'on, in *California*, a village of Santa Barbara co., about 40 m. N.W. of Santa Barbara.

Fox River, (Great and Little,) two rivers of Lower Canada, entering the Gulf of St. Lawrence from Gaspé district.

Fox River, in *Iowa*, a township of Davis co.
Fox River, in *Iowa* and *Missouri*, rises in Davis co. in the former State, and enters the Mississippi in Clarke co., Missouri. It is also known as Aromatic River.
Fox River, in *Wisconsin*, enters Green Bay from Brown co. It connects Lake Winnebago with Green Bay, and was called by the Indians Neenah.
Fox River, in *Wisconsin*, a post-office of Kenosha co.
Fox River, or Pishtak'a, in *Wisconsin* and *Illinois*, rises in Waukesha co., in the former State, and flowing generally S. by S.W., joins the Illinois River at Ottawa in La Salle co., Illinois. *Length*, about 200 m.
Fox'tail-grass, *n.* (*Bot.*) See Alopecurus.
Fox'ville, in *Virginia*, a post-village of Fauquier co., on the Rappahannock River, about 110 m. W.N.W. of Richmond.
Foxville, in *Wisconsin*, a village of Dane co., abt. 15 m. W. of Madison.
Fox'y, *a.* Pertaining to foxes; wily; cunning; subtle; as, a *foxy* disposition. — Having too much the color of a fox in the shading, as a painting. — Sour; acid; disagreeable to the taste, as wine, beer, &c., when not thoroughly fermented.
Foy, Maximilien Sebastien, a French general and orator, b. at Ham, 1775. He entered the army at 15 years of age, and made his first campaign under Dumouriez in 1792. He displayed his military talents to great advantage in Italy, Germany, and Portugal; and succeeded Marmont as commander-in-chief after the battle of Salamanca, when he conducted a skilful retreat to the Douro. He received his 15th wound on the field of Waterloo, but refused to quit his post until the close of that engagement. He was afterwards employed as inspector-general of infantry; and in 1819 was elected a member of the Chamber of Deputies; where he distinguished himself as an orator, and was a great public favorite. He died in 1825; and having left his widow and family in destitute circumstances, a most liberal subscription was immediately entered into, to provide for them, and to erect a monument to his memory. From his MSS. a *History of the Peninsular War* has been published by his widow.
Foy'ers, a river of Scotland, co. Inverness, falling into Loch Ness. It is noted for its fine cataract called the *Falls of Foyers*, falling from a sheer height of over 90 ft.
Foyle, a river of Ireland, formed by the junction of the Finn and Mourne at Lifford, which, after a N. course of about 14 m., expands into Lough Foyle, *q. v.*
Foyle, (Lough,) an arm of the North Channel between Donegal and Londonderry, Ireland. It receives the waters of the river Foyle. *Length*, abt. 18 m. by 9 in width.
Fra'cas, *n.* [Fr., from *fracasser*, to break in pieces, from Lat. *fra*, i. c. *inter*, among, and *cassare*, freq. of *quatere*, to break with violence.] An uproar; a noisy quarrel; a disturbance; a brawl.
Frache, (*frash.*) *n.* (*Glass-works.*) Flat iron pans into which the glass vessels already formed are put, to be placed in the lower oven, over the working-furnace.
Fract'ed, *a.* (*Her.*) Broken asunder.
Fraction, (*frak'shun,*) *n.* [Fr., from Lat. *fractio*, a breaking, from *frangere*, to break.] State of being broken, especially by violence.

"The evident marks of *fraction* and ruin." — *Burnet.*

—A part, portion, or fragment.

"The *fractions* of her faith." — *Shaks.*

(*Arith.* and *Alg.*) A part of any magnitude, integer (whole number), or unit. For example, "two and a fraction" means two units and that part of a unit which can be distinguished, as one-half, two-fifths, and so on. In the fraction $\frac{1}{3}$ in arithmetic, or $\frac{a}{b}$ in algebra, the figure 1, or *a*, is the *numerator*, and 3, or *b*, is the *denominator*; and they represent that, if a whole number is divided into *three* or *b* parts, only *one* or *a* parts are taken. In the addition of fractions, the fractions must be brought down to the same denominator, and their numerators (as expressed in the value of their new denominator) must then be added, when we have one whole fraction. Thus, if we want to add $\frac{1}{3}$ and $\frac{2}{5}$, we must find the least common multiple of 3 and 5, which is found to be 15; then, as 3 goes 5 times into 15, and 5 goes 3 times into the same number, we multiply the numerators of the different fractions by these respective quotients, and then add the two quantities together. Thus, $\frac{1}{3}$ added to $\frac{2}{5}$ will be 5 *added* 6 *fifteenths*. The true definition of a *fraction* may be thus summed up: — It is the division of its numerator by its denominator; as *seven-eighths* are equivalent to the whole number 7 *divided* by 8, — whence a fraction is obtained. Decimal fractions simplify calculations greatly, as they are constructed on the principle of having one common denominator — a multiple of ten: and thus fractions can be added, subtracted, and divided without repeating over and over the tedious process of bringing them down to a common denominator. — See Arithmetic and Decimals.
Frac'tional, *a.* Belonging to a fraction or broken number.
—Comprising a part or the parts of a unit.
Frac'tionary, *a.* Fractional; relating to, or consisting of fractions.
Frac'tious, *a.* [Lat. *fractus*, pp. of *frangere*, to break.] Apt to break out into a quarrel; apt to fall into a passion; snappish; peevish; cross; quarrelsome.
Frac'tiously, *adv.* Passionately; snappishly.
Frac'tiousness, *n.* State or quality of having a cross or snappish temper.
Fract'ural, *a.* Belonging to, or resulting from a fracture.
Fract'ure, *n.* [Fr., from Lat. *fractura*, from *frangere*, to break.] A breach in any body, especially a breach caused by violence; a rupture of a solid body.

"Without any great *fracture* of the most stable parts of nature." *Hale.*

(*Surg.*) The term applied to broken bones. This is one of the commonest accidents to which one is liable, especially in very cold weather, when the bones are very brittle, and in certain conditions of the bones themselves. Fractures are divided into simple, compound, comminuted, and complicated. Simple fractures are those in which the fracture does not communicate with the external air. These are by far the most common, and usually affect the shaft of long bones, this part being the most subject to injuries of this description. Compound fractures are those in which one or more bones are broken, and the fracture communicates with the external air by means of a wound in the soft parts. Comminuted fractures are those in which the bones are broken into several portions; while complicated fractures are such as are complicated with some other injury — as a wound of the principal artery of the limb. Fractures are also distinguished as transverse, oblique, or longitudinal, according to their direction. A transverse fracture is usually much more easily treated than an oblique: for the parts, when placed in opposition, may be kept there without much difficulty; whereas, in the latter case, they are liable to be displaced by the movements of the muscles or parts; also, in the latter case, the contiguous soft parts are much more liable to be lacerated by broken edges of the bone than in the former. In treating the oblique fracture, the limb should, if possible, be placed in such a position as will relax the principal muscles connected with the bone; in the transverse fracture, the straight position is often the best. The general symptoms of a fracture are deformity of the limb, caused either by the overlapping of the bones, or effusion of blood, lymph, or serum into the cellular tissue; shortening of the limb; and crepitus, or a grating sound when the ends of the fractured bone are moved upon each other. The treatment of fractures consists in retaining the broken fragments, as nearly as possible, in their former positions, and securing them in that state. Where displacement has taken place, it is first of all necessary to soothe the muscular irritation by means of gentle friction or warm fomentations, after which, by a gentle application of force, the bone is to be restored, as nearly as possible, to its proper position. When the limb has been reduced, or set, it is to be placed in *splints*, which are thin pieces of wood, or other material of the requisite firmness and length, shaped and hollowed out, so as to fit evenly without making undue pressure upon any part. The skin is to be protected by folds of linen, or thin soft pads a little wider than the splints, which are also useful to prevent them from slipping. These are to be bound upon the limb with a moderate degree of pressure, and they ought to be removed and re-adjusted occasionally, in order to detect and rectify any deviation that may be observable. The mode of healing, in simple fractures, differs little from the manner in which bone is originally formed. Immediately after the fracture has taken place, a quantity of blood is poured out into the surrounding cellular tissue by the vessels of the adjoining structure. Inflammation sets in, and the periosteum becomes thickened; lymph is poured out, by which the ends of the bones are united, and in which bony matter is formed, until a complete union is effected. The period taken for the accomplishment of this varies according to the bone broken, the age, constitution, &c., of the patient. It is quicker in children than in adults, and it is slowest in old age. Taking all ages, however, the time occupied is from two to eight or ten weeks. The treatment of compound fracture consists in placing the broken bones in opposition, and healing the external wound, so as to convert the compound into a simple fracture. This is best done, where it can be effected, by bringing the edges of the wound together with adhesive plaster, or with sutures if necessary. But the modes of treatment in this, and the other complicated cases of fracture, are so varied, and depend in so great a measure upon the circumstances of each particular case, that our limits do not admit of our entering upon them; which is the less to be regretted, as they can only be properly treated at the hands of a skilful surgeon.

(*Min.*) The manner in which a mineral breaks and by which its texture is displayed; as, a fibrous, foliated, or conchoidal *fracture*.

—*v. a.* To break; to burst asunder; to separate, as continuous parts; to crack; as, to *fracture* a stone, to *fracture* the skull.
Fract'ured, *p. a.* Broken; cracked.
Fra'des, a small island of Brazil, in All-Saints Bay, abt. 25 m. N.W. of Bahia.
Fra Dia'volo, ("The Devil's brother,") a Neapolitan robber, whose real name was Michael Pozzo. He began life as a stocking-maker, after which he became a friar, and in this capacity was the leader of a gang of banditti in Calabria. In 1799 he assisted Cardinal Ruffo, who headed the counter-revolutionists in favor of the Bourbons of Naples. For this he received a pardon of his crimes, and a pension of 3,600 ducats, with which he was enabled to purchase an estate. He now lived in peace till 1806, when he rose again in favor of the expelled Bourbons. He entered Spalinga, and threw open the prisons, when he was joined by large numbers of lazzaroni; but, after a severe engagement with the Bonapartists, he was taken prisoner, condemned, and summarily executed in the same year. — Auber, the French musical composer, has written one of his best operas founded on the adventures of this bandit.
Fræ'num, *n.* [Lat., a bridle.] (*Anat.*) A name given to several membranous folds, which bridle and retain certain organs.
Fra'ga, a town of Spain, prov. Aragon, on the borders of Catalonia, 55 m. S.E. of Huesca; *pop.* about 5,000.
Fraga'ria, *n.* [Lat. *fragrare*, to emit a smell.] (*Bot.*) The Strawberry plant, a genus of the order *Rosaceæ*. Two species are natives of this country, namely, *F. vesca*, the Wood strawberry, and *F. Virginiana*, the Scarlet or Wild strawberry. The latter is very rarely met with in a wild state. From these and several foreign species, a great number of varieties have been developed. The fruit is remarkably wholesome, and is regarded by most people as the choicest of our native fruits. In cultivating the strawberry, an open situation and a rich loamy soil are required. The plants, until the fruit is formed, demand copious supplies of water. The row-culture is most convenient, and frequent renewal insures vigorous plants and large fruit.
Fragile, (*fraj'il.*) *a.* [Lat. *fragilis*, liable to break, easily broken, from *frangere*, to break, allied to Gr. *rhegnusthai*, to burst or break.] Easily broken; brittle; easily destroyed. — Liable to fail; infirm; weak; frail.

"The *fragile* arm of man." — *Addison.*

Fra'gilely, *adv.* In a feeble, weak, or frail manner.
Fragil'ity, *n.* [Fr. *fragilité*; Lat. *fragilitas*, from *fragilis*, brittle, *frangere*, to break.] Brittleness; weakness. Liability to fail; frailty; liability to fault; as, the *fragility* of human nature.
Frag'ment, *n.* [Fr., from Lat. *fragmentum*, from *frangere*, to break.] A part broken off from a whole; a broken piece; a scrap. — An imperfect part; a small detached portion; as, the *fragments* of the writings of Alcæus.
Fragment'al, Frag'mentary, *a.* Composed of fragments.
Frag'mentarily, *adv.* Piecemeal.
Frag'mented, *a.* Broken into fragments or detached pieces.
Fra'gor, *n.* [Lat., from *frangere*, to break.] A loud, sudden sound; a noise; a crack; a crash.

"Pursued by hideous *fragors*." — *Sandys.*

Fra'grance, Fra'grancy, *n.* [Fr., from Lat. *fragrantia*, from *fragrare*, to emit a scent, to smell, to reek; — allied to *flagrare*, to flame up, to burn.] Sweetness of smell; pleasing scent; grateful odor or perfume.
Fra'grant, *a.* Emitting a smell or odor; throwing out or diffusing an agreeable odor; sweet-smelling; odorous; odoriferous; sweet-scented; balmy; spicy; aromatic.

"Their scent less *fragrant* than her breath." — *Prior.*

Fra'grantly, *adv.* With sweet scent or odor.
Frail, (*frāle,*) *a.* [Fr. *frêle*, contr. from *fragile*, from Lat. *fragilis*, brittle, weak.] Easily broken; weak; easily destroyed; perishable; not firm or durable; as, a *frail* foundation, a *frail* body. — Weak in mind or resolution; liable to error or deception.

"Man is *frail*, and prone to error." — *Taylor.*

—*n.* O. Fr. *fraile*, from L. Lat. *fraellum*, a basket.] A basket made of rushes, principally for holding figs and raisins. — A rush for weaving baskets.
Frail'ly, *adv.* Weakly; infirmly.
Frail'ty, *n.* [From *frail*; Lat. *fragilitas.*] State or quality of being frail; weakness of resolution; infirmity; liableness to be deceived or seduced; weakness or infirmity of body; fault proceeding from weakness or instability; failing; feebleness.

"*Frailty*, thy name is woman."—*Shaks.*

Fraischeur, (*frā'shur,*) *n.* [O. Fr.; Fr. *fraicheur.*] Freshness; coolness. (R.)
Fraise, *n.* [Fr.] (*Fort.*) A defence consisting of pointed iron or wooden spikes, driven along the foot of the external slope of the parapet, or the top of the escarp, in a horizontal or inclined position, so as to prevent the works being escaladed.
Fra'ley, in *Pennsylvania*, a township of Schuylkill county.
Fram'able, *a.* That may be framed.
Framboe'sia, *n* (*Med*) A raspberry See Yaws,
Frame, *v. a.* [A.S. *fremman*, *gefremman*, to form, to make; allied to Lat. *formo*, to shape, to fashion. See Form.] To make; to execute; to effect; to put together in a regular or orderly manner; to construct; to fabricate by orderly construction and union of various parts; to fit; to adjust; to make suitable. — To make or compose, as laws; to regulate; to shape; to conform. — To form and digest by thought, as ideas: to contrive; to plan; to devise, as a scheme; to invent; to fabricate. — To place in a frame; to surround with a frame.
—*n.* Anything framed or contrived: anything made to inclose, surround, or support something else; the skeleton of a building; any fabric or structure composed of parts united; order; regularity; adjusted series or composition of parts; form; scheme; structure; system; constitution; contrivance; projection.
—Particular state, as of the mind.

(*Engineering.*) The strong framework, outside the wheel, which supports the boiler and machinery on the axes of a locomotive-engine.
Frame'-bridge, *n.* (*Engineering.*) A bridge built of beams of timber, and framed together, as it is technically called, in such a manner that any weight which may be placed on the structure exerts a crushing or pulling strain on the timbers in the direction of the grain of the wood; any disposition of the pieces that may cause a strain to be exerted on them transversely to the direction of the fibres of the material being carefully avoided. In making *F.-B.* of considerable span, the timbers are often put together to present the form of an arch, in the same manner in which centrings are formed on which arches of brickwork or masonry are constructed (see Centring); but, in the majority of

bridges of this class, the weight is either thrown on a horizontal tie-beam by oblique timbers which support a pathway above, and are framed into the tie-beam abutting firmly against it, and transmitting the weight in the direction of its length, as in the bridge of Schaffhausen, on the Rhine, in which no outward thrust is exerted against the piers on which the tie-beam which supports the structure is laid; or, on the contrary, in some, a great part of the weight is thrown on the abutments of the bridge by diagonal struts through which a considerable outward thrust is conveyed against them. *F.-B.* are common in this country, where it may be said that this branch of the art has been brought to perfection. In erecting bridges of this description, care should be taken to prevent their decay, from exposure to the weather, as far as possible, by guarding against the settlement of water in the joints of the timbers, and to promote a free circulation of the air about the ends of the beams that rest on or are imbedded in the masonry of the whole mass. Fig. 1058 represents a simple and use-

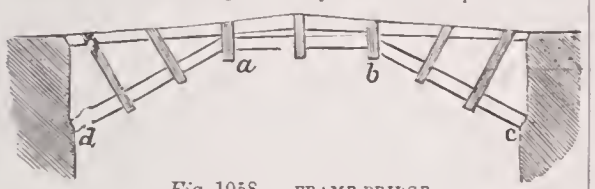


Fig. 1058. — FRAME-BRIDGE.

ful form of *F.-B.* It will be seen at once that a weight upon the bridge will exert a pulling strain upon the horizontal timber *a b*, and a crushing strain upon *b c* and *a d*, as well as upon the upper timbers, and that the main support is in *a b*, which must be torn asunder before *a d* and *b c* can be bent or displaced to any considerable extent.

Framed, *p. a.* Made; fitted and united in due form; composed; devised; adjusted.

Fram'er, *n.* One who frames; a maker; a contriver.

Frame'work, *n.* The frame; that which supports or incloses anything else; work done in a kind of a loom, called a frame.

Fram'ing, *n.* The process of joining and fitting together any kind of work composed of a number of different parts, whether in wood or in metal. In carpentry, however, this is generally called *joining*, and the carpenter who is employed on such work is termed a *joiner*. In such trades as mathematical, optical, philosophical, and other complex instrument-making, the workman who does flat-filed work, and fits all the parts, and puts the whole instrument together, is called the *framer*, and his work *framing*. In the watch-trade, the man who frames all the parts together and builds up the watch is called a *finisher*, and his work is called *finishing*, though it corresponds with what is called framing in other trades.

Fram'ingham, in *Massachusetts*, a post-town and township of Middlesex co., about 21 m. W. by S. of Boston. *Pop.* of township (1895) 9,239.

Framp'ton, in *Ohio*, a post-office of Lickiug co.

Franc, *n.* A French silver coin and money of account which forms the unit of the French monetary system, and has also been adopted as such by Belgium and Switzerland. The franc is coined of silver, nine-tenths fine, and weighs five grammes, its value being about 20 cents. The franc is divided into 100 centimes. There are in France silver coins of $\frac{1}{5}$, $\frac{1}{2}$, 1, 2, and 5 francs; and gold pieces of 20 and 40 francs. Sardinia has also adopted the French money-system, only that the franc is called *Lira nuova*.

Franca, (*fran'ka.*) or VILLA-FRANCA-DO-IMPERADOR, a town of Brazil, abt. 270 m. N.N.E. of São-Paulo, on the Mugi.

Francavilla, (*fran-ka-veel'ya,*) a town of S. Italy, prov. Otranto, in a fertile dist., 23 m. W.S.W. of Brindisi, and 17 E.N.E. of Tarento. *Manuf.* Woollens, cotton stockings, earthenware, and snuff. In 1734 this place was partially destroyed by an earthquake.

France, (REPUBLIC OF,) one of the richest, most important, and powerful of the states of Europe, in the W. part of which it is advantageously situated, between Lat. 42° 20′ and 51° 5′ N., and Lon. 4° 50′ W. and 8° 20′ E.; having N.W. and N. the English Channel (*La Manche*), the Straits of Dover (*Pas de Calais*), and the North Sea; N.E. by a conventional line running from the Vosges to the North Sea, along the frontiers of Germany, the grand duchy of Luxemburg, and Belgium; E. the Alps, and the Jura and Vosges mountains; S. the Mediterranean and Spain, and W. the Bay of Biscay and the Atlantic. France possesses its natural boundaries, except on the N.E., where its natural frontier should be the Rhine. The shape of this country is an irregular hexagon, the sides of which might be drawn respectively along the English Channel, the Atlantic, the Pyrenees, the Mediterranean, the Alps, and the Vosges mountains. Its greatest length N.W. to S.E. (from the extremity of the dep. Finistère to Nice on the Mediterranean) is abt. 664 m.; its maximum breadth (a line crossing the former nearly at right angles) is about 620 m. Length N. to S., Dunkerque to Perpignan, nearly 600 m.; greatest breadth E. to W., between lat. 48° and 49°, about 555 m.; least breadth E. to W. abt. its centre 335 m. Inclusive of Corsica, and the three depts. of Alpes-Maritimes, Savoie, and Haute-Savoie, ceded to France by Italy, the total area is estimated, in the official tables published by the French govt., at abt. 52,857,695 hectares, or 204,091 sq. m. *Polit. Div.* France is divided into 87 departments — 89 previous to the German war of 1870–'71 — formed out of the provinces into which France was formerly divided as follows:

Departments.	*Old Provinces.*	*Departments.*	*Old Provinces.*
Nord	French Flanders.	Haute-Vienne; Correze	Limousin.
Pas de Calais	Artois.	Creuse	Marche.
Somme	Picardy.	Allier	Bourbonnais.
Seine-Inferieure; Eure; Orne; Calvados; Manche	Normandy.	Nevers	Nivernais.
Ardennes; Marne; Haute-Marne; Aube	Champagne and Brie.	Haute-Saône; Doubs; Jura	Franche Comté.
Vosges; Meurthe & Moselle; Meuse	Lorraine and Bar.	Yonne; Côte-d'Or; Saône-et-Loire; Ain	Burgundy, and Bresse.
The territory of Belfort	Alsace.	Dordogne; Gironde; Lot; Lot-et-Garonne; Tarn-et-Garonne; Aveyron; Landes; Gers; Haute-Pyrenees	Guienne, and Gascony.
Ille-et-Vilaine; Côtes-du-Nord; Finistere; Loire-Inférieure; Morbihan	Bretagne.	Haute-Loire; Ardeche; Lozere; Hérault; Gard; Tarn; Aude; Haute-Garonne	Languedoc.
Maine-et-Loire	Anjou.	Basses-Pyrenées	Bearn, and Navarre.
Sarthe; Mayenne	Maine, and Perche.	Ariège	Foix.
Indre-et-Loire	Touraine.	Pyrenées-Orient	Roussillon.
Vienne; Vendee; Deux Sevres	Poitou.	Rhone; Loire	Lyonnais, and Forez.
Charente-Inferieure	Aunis.	Isère; Drôme; Hautes-Alpes	Dauphiné.
Charente	Saintonge, and Angoumois.	Basses-Alpes; Bouches-du-Rhone; Var	Provence.
Seine; Seine-et-Oise; Seine-et-Marne; Oise; Aisne	Isle of France.	Corsica, (island of)	
Loiret; Eure-et-Loir; Loir-et-Cher	Orléanais.	*Newly Annexed Departments.*	
Indre; Cher	Berri.	Alpes-Maritimes; Savoie; Haute-Savoie	Formerly part of Piedmont and Savoy
Puy-de-Dôme; Cantal	Auvergne.		

Gen. Desc. France is indebted not only to her large population, and the active spirit of her people, but in a great measure to her admirable geographical position, for her commanding influence in European affairs. Unlike any of the other States of Central Europe, she has the command of three seas, including those which wash both the N. and the S. shores of that continent. The N.W. coast presents the two considerable peninsulas of Brittany and Cotentin, the bay of St. Malo between them, the æstuaries of the Seine, and the harbors of Morlaix, Cherbourg, Havre, Boulogne, Calais, and Dunkerque. From the latter place to Calais, the shore is bordered by sandy downs (*dunes*). From the latter point to the mouth of the Seine, the coast is chiefly characterized by chalk and marl cliffs; further W., granitic cliffs alternate with low shelving shores. There is seldom deep water near the shore on this coast; the bay of Cancale near Avranches, for instance, being left nearly dry at ebb-tide, and passengers at such times go from the mainland to Mt. St. Michel (Fig. 1059), across



Fig. 1059. — MONT ST. MICHEL.

the sands in carriages. The W. part of this coast is beset with rocks, which are especially numerous between the mouths of the Seine and the Vire. Good harbors are few, and navigation is rendered dangerous by violent tides, the force of which is attested by numerous salt marshes along the shore, produced by eruptions of the sea. The W. coast, formed in part by the peninsula of Brittany, is at first elevated, bold, and rocky, but gradually declines toward the S.; and from the mouth of the Gironde to the foot of the Pyrenees it presents an unbroken line of *Landes*, or sandy downs and marshes. This coast is indented by numerous bays. The S. coast, except its E. part, is generally low, sandy, and bordered, where it surrounds the Gulf of Lyons, by numerous lagoons; and its harbors, excepting that of Toulon and one or two others, are neither well sheltered nor easy of access. *Islands.* Excepting those at the mouth of the Rhone, the islands around *F.*, and belonging to her, are of little importance. On the W. coast the principal are Oleron, Ré, Yeu, Noirmontier, Belle-Ile, and Onessant (Ushant). In the Mediterranean are the isles of Hières, Ratoneau, Pomègue, &c., near Marseilles. In the channel are Bréhat and a few rocky groups in the Bay of St. Malo, of which Chausey is the principal. Guernsey, Jersey, Alderney, &c., belong to Eng., and are the only remains of the extensive dominions the English once possessed in *F.* — *Mountains.* Of these the most considerable are those of the Alps, Pyrenees, Cevennes, Auvergne, Jura, and the Vosges. The Alps between *F.* and Italy have for their principal summits, Ventoux, Génevre, Vise, and Pelvoux, respectively 6,260, 11,785, 12,692 and 14,108 feet above the level of the sea. Among the Pyrenees, between *F.* and Spain, are the summits Canigou Midi, and Perdu, respectively 9,140, 9,440, and nearly 11,000 feet high. Among the Cevennes are Lozère, 4,884, and Mezin, 5,794 feet high. The Auvergne have the Puy-de-Dôme, 4,806; Cantal, 6,100, and Mont-d'Or, 6,188 feet. It was in ascending the Puy-de-Dôme that Pascal's famous discovery was made, that at greater elevations the height of the column of the mercury in the barometer is diminished. The Jura, between *F.* and Switzerland, culminate in Reculet, 5,643 feet high, and the Vosges, between Lorraine and Alsace in the Ballon d'Alsace, 4,688 above the level of the sea. These summits are given as the highest only within the boundaries of *F.* *Rivers.* The principal are the Seine, Loire, Garonne, and Rhône. The Seine falls into the Eng. Channel. It is about 500 miles long. Its æstuary and the lower part of its course is subject to the phenomenon of the *bore* (*q. v.*), which sometimes occasions considerable damage. The Loire is the largest, and traverses the centre of the empire, and falls into the Atlantic. It is about 620 m. long, 510 of which are navigable. The Garonne empties into the Bay of Biscay. It is about 350 m. long, 294 of which are navigable. The Rhône is 530 m. long, and falls into the Mediterranean, discharging by several branches, forming a delta. It is navigable for 310 m. The other rivers of importance are the Meuse, Moselle, Sambre, Scheldt, and Lys, flowing into the North Sea; the Somme, Oise, Orne, Marne, Aisne, Yonne, and Eure, flowing into the Eng. Channel; the Blavet, Vilaine, Adour, Allier, Cher, Indre, Vienne, Creuse, Mayenne, Sarthe, Gers, Dordogne, Ariège, Tarn, and Lot, falling into the Atlantic; and the Aude, Hérault, Saone, Doubs, Isère, and Durance, falling into the Mediterranean. Most of the chief rivers are connected by canals, thus greatly increasing the means of internal communication; and it is estimated that there are nearly 400 navigable streams, and 500 smaller ones in *F.* — *Lakes and Marshes.* There are no lakes of importance. The largest is that of Grand Lieu, in the dep. of the Lower Loire. It is only 6 m. across. In Ain and Loire-et-Cher, marshes are numerous. The extensive lagoons on the S. and S.W. coasts and elsewhere, are too shallow to be used otherwise than for fishing and salt-works. It is estimated that about $\frac{1}{8}$ of the area of *F.* is covered with forests. Among these the principal are those of Ardennes, Fontainebleau, Compiègne, and Orleans. The general appearance of the country is level or gently undulating. Geologically, the whole of *F.* may be considered as one extensive basin, the circumference and centre of which consist of primitive formations, the intermediate space being filled with those of a secondary and tertiary kind. The most widely diffused primary rocks are granite, gneiss, micaceous and argillaceous schists, and primitive limestone. In Vendée, porphyry, diorite, and serpentines are found. In the Pyrenees calcareous rocks are very abundant, some of which contain great numbers of organic remains, even at an elevation of over 10,000 feet. Porphyry of various kinds, some of which exhibit great beauty, is the prevailing rock of the Vosges. The Puy-de-Dôme and some other adjacent mountains have a base of trachyte, and in the Vivrais especially, groups of gigantic basaltic columns are met with, alternating with calcareous strata containing fresh-water shells. These rocks, with the traces of extinct craters, lava streams, and other volcanic products, clearly point to a time of comparatively recent volcanic activity in this region. The secondary formation occupies the space between the primitive formations of the centre and circumference of *F.* They are generally calcareous or marly. It is on the thin soils of this formation that the growths yielding the finest Burgundy wines are raised in the Côte-d'Or. The tertiary deposits of *F.* are mostly calcareous, enclosing great quantities of shells and the remains of fossil mammalia of large size. The so-called "Paris Basin" is the most remarkable of these formations. The most extensive alluvial district is that about the mouth of the Rhône. The soil of *F.* is, generally speaking, very superior. While there are vast tracts, especially in Brittany, Anjou, and Gascony, of healthy and unproductive land; yet her productive soil bears a larger proportion to the entire extent of the country than in most of the European states. Exclusive of the departments of Savoy and Nice, the soil of *F.* is divided as follows:

Under Cultivation.	*Per cent.*
Grain crops	28·30
Other "	5·00
Artificial meadows	5·00
Fallow	10·80
Natural meadows	9·50
Vineyards	4·10
Chestnuts, olives, mulberry, &c.	0·20
Pasture and waste lands	13·50
Forest, water, roads, houses, and uncultivated	23.60
	100·00

Minerals. *F.* has considerable mineral wealth. Iron is obtained in the greater number of departments. Coal is very widely diffused, and immense beds of salt, sufficient to supply the country for ages, exist in Lorraine. Silver, lead, copper, mercury, zinc, tin, manganese, arsenic, and other rarer minerals are met with; and peat, asphaltum, sulphur, vitriol, alum, nitre, gypsum, porcelain and other clays, graphite, jet, asbestos, lithographic, mill and building stone, marble, slate, granite, &c., are among the valuable mineral products. The climate of *F.* is not excelled by that of any other part of Europe. The air is generally pure and the winters mild; though the difference of latitude, soil, and elevation and exposure, occasion in this respect very material differences. *Zoöl.* The animals of *F.* are those common to Europe generally. *Prod.* Wheat, barley, oats, pulse, potatoes, truffles, and beet-root, from which sugar is made; flax, hemp, tobacco, hops, dye-woods, and medicinal palms. In the S., olives, oranges, grapes, figs, pomegranates, citrons, and the pistachio nut. The vine is cultivated to the extent of about a twenty-seventh part of the superficial area of the country; and Burgundy, Bordeaux, and Champagne wines are produced of the most excellent quality. Timber for carpentry and for shipbuilding purposes is largely grown; and, in the S., the cork-tree abounds. *Manf.* In the development of these, France has been particularly active in the nineteenth century. In the produce of iron and steel goods she has made immense advances, without neglecting other industrial arts, for which she has long been famed. Her most important manufactures are those of watches, jewelry, arms, cabinet-work, coach-building, pottery, glass, crystal, musical instruments, chemicals, oil, soap, beet-root sugar, dyeing, paper-making, printing, woollens, silks, linens, cottons, carpets, shawls, and lace. *Com.* The chief commercial harbors of France are Bordeaux, Marseilles, Nantes, Hâvre-de-Grace, St. Malo, L'Orient, Bayonne, Dunkerque, Dieppe, and Rochelle. Marseilles trades with the West Indies and the Levant; Bordeaux, with the East and West Indies and with the north of Europe, to a great extent in wine. Nantes has likewise a share of the colonial and wine trade. Hâvre is a principal seaport. Her chief commercial relations are carried on with the following countries:—Belgium, Switzerland, England, Italy, Germany, Spain, the United States, and her own colonies. With these states the imports and exports amount to about one-sixth of the whole external commerce of the country.—*Govt.* Previous to 1870, when a republic was for the third time established in *F.*, the government was an hereditary monarchy, with the title of emperor in the sovereign. There were three houses of legislation, the Council of State, the Senate and the Legislature. The Council of State, appointed by the Emperor, and including the ministers as ex-officio members, prepared, under the direction of the Emperor and his ministers, such projects of law as were to be laid before the legislative body. The Senate, composed of cardinals, marshals, admirers and distinguished citizens selected by the Emperor, was composed of 150 members, appointed for life. It was its special duty to oppose all laws contrary to the constitution, religion, freedom of conscience, and the liberty and equality of citizens; while its sanction was required for all laws passed by the lower house. The Legislative body was elected by the people on the principle of universal suffrage, in the proportion of one representative to 35,500 electors. It was its duty to discuss and vote on all laws submitted to it by the Council of State, and also the annual budget of income and expenditure of the government.—*The Republic.* On September 4, 1870, in consequence of the deposition of Napoleon III., a republic was established which is still maintained, and promises to be permanent. The existing constitution was adopted on Feb. 25, 1875, by the National Assembly. Under this constitution the executive, administrative and judiciary powers are vested in the President, who is elected by the National Assembly for a term of 7 years. The Assembly, consisting of a Senate and Chamber of Deputies, exercises the legislative powers. The ministers, or head of the departments of the government, 10 in number, are appointed and are subject to dismissal by the President, but are responsible, not only to him, but also to the Assembly. The Senate consists of 300 members, of whom 75 were elected for life under the law of 1875. The others are elected for 9 years, one-third retiring every three years; while the life senatorships, as they become vacant, are replaced by ordinary 9 years senatorships. The Chamber of Deputies (584 members) is chosen by universal suffrage, each arrondissement electing one member for every 70,000 population, the term of office being 4 years. The National Assembly holds annual sessions of at least 5 months' duration, while the President, with the consent of the Senate, has the power of dissolving the Chamber of Deputies.—*The Commune and Department.* The basis of French administration is the Commune, which varies greatly in size, each commune administering its local affairs by the aid of an elected municipal council and mayor. In Paris there are mayors for each division of the city, a prefect taking the place of the mayor of the whole city. A considerable degree of centralization persists, the central government greatly checking the independence of the communes, though a strong disposition is shown toward the increase of communal power. The next higher body of the State is the canton, composed of from 10 to 15 communes; and above this is the arrondissement, or district, composed of not more than 9 cantons. The arrondissement has its own elected council, which assesses the local taxes. It is governed by a sub-prefect, who has control of the council. The department, the next higher division of the State, is made up of a number of arrondissements, averaging about four. This division was introduced during the Revolution, and is still maintained, the departments being administrative areas named usually from their chief rivers or mountains. There are 87 of these divisions, each possessing an elected "general council," one member from each canton. A prefect represents the State in the department, with considerable control over the decisions of the council, whose powers embrace the subjects of taxation and the promotion of institutions of public utility.—*Justice.* The judicial institutions of *F.* retain many vestiges of their ancient character, and greatly add to the political control of the government. There is a justice of the peace in each canton, with jurisdiction over small civil suits only; a court in each arrondissement before which matters of more importance are brought; and provisional courts of appeal for the hearing of all cases involving more than 1,000 francs. There is also a tribunal of commerce in all places where mercantile disputes are likely to arise; tribunals of police, or petty courts, for the punishment of small delinquencies; and tribunals elected by the heads and the workmen of industrial establishments to settle questions arising within them. The *Cour de Cassation*, or highest court at present existing in the French Republic, situated at Paris, takes cognizance of all appeals from the provincial courts of appeal. In criminal matters a destructive feature of the French judicial system is the secrecy of the preliminary investigation, which, conducted by a state functionary, may continue for months. No counsel for the defence is admitted until the case is brought into open court. There are no juries employed for minor offences, and the jurors of the assize courts are selected with great care from reputable citizens. They give majority verdicts. Appeal may be made to the court of cassation from the decisions of all jury trials.—*Education.* The educational system of France is presided over by a minister of public instruction. There has been a long struggle between Church and State for its control, the dispute being settled in 1880 in favor of the State. Compulsory and free public education now exists under state control, the privileges of the Church having been abolished, and the teaching of "civic morality," from hand-books issued by the state, introduced. Secondary education may be obtained in *lycées* and government colleges, and higher education in the universities or *facultés*, where instruction of a high standard, and almost free, is given. Practically there is but one university in France, which comprises all the *facultés*. In addition there are church and other private schools, and such special institutions as the College de France, the Museum of Natural History, the Polytechnic School, and many others.—*Religion.* The Roman Catholic is the dominant religion of *F.*, and includes about ninety-seven per cent. of the population; but there in no religious restriction, and every citizen is protected in the exercise of his religious opinions.—*Finances.* By the budget of 1896 the revenue of the state was estimated at $689,663,418; the expenditures at $689,583,640, of which $243,958,210 were credited to the interest and other costs of the public debt, whose grand total amounted to $6,207,050,500. The national debt of *F.* very largely exceeds that of any other country.—*Army and Navy.* In 1896 the active and reserve army of *F.* was composed of 26,800 officers, and, in round numbers, 2,000,000 men; the first reserve force, 18,192 officers, and 733,600 men; second reserve force 18,857 officers and 803,000 men; making a total of 60,941 officers, and 3,539,600 men. The peace establishment of the army consisted of 549,091 men, and in 112,628 horses and 3,720 guns. The navy included 61 iron-clads, of various grades; 66 unarmored ships, cruisers, and others; 35 unarmored gunboats; 27 other vessels; and about 250 torpedo boats, the total number of guns, of all sizes, being 5,985. This navy was manned by 4,947 officers, and 73,290 seamen and marines. —*Colonies.* *F.* has numerous and extensive colonial dependencies. Her once large colonial province in America is now reduced to a few islands of a total area of about 28,000 sq. miles; but in Africa her possessions are large and growing, consisting of the once kingdoms of Algeria and Tunis, and a very large district on the west coast, extending far inward in the region south of the Sahara, with another north of the Congo. Of her island colonial possessions may be particularly mentioned Madagascar, now under French control. In Asia, all the eastern region of Indo-China, including Cambodia, Cochin China, Anam, and Tonquin, is under French control, the whole forming a large rich, and populous country.—*Hist.* Before the time of Cæsar, the whole of *F.* was known to the Romans by the name of Transalpine Gaul; but after its conquest it was divided into the four provinces of *Provincia Romanorum* (Provence), *Gallica Aquitanica*, *Celtica*, and *Belgica*. In the 5th century it was subdivided into 17 provinces, inclusive of all the territory on the E. bank of the Rhine. At the latter epoch the Germanic nations began to pour in an irresistible torrent over Gaul; the Visigoths established themselves in the W. and S., from the Loire to the Pyrenees, where they established a kingdom that lasted till about 540. The Burgundians, in a similar manner, settled in the E., from the Lake of Geneva to the Rhine, and afterwards stretched along the Rhone to the Mediterranean. The independent sovereignty they erected lasted until about 532. The Franks, whose dominion swallowed up those of both the foregoing tribes, had been long settled in the N.; and Pharamond, their chief in 420, is considered the founder of the French monarchy, as he was of the first or Merovingian race of Frankish kings. In 485 Clovus defeated Syagrius, the Roman general, at Soissons, and finally extinguished the Roman power in the W., and in 507, by his victory over the Visigoths, he rendered himself master of all the country between the Loire and the Garonne. On the death of Clovis, in 511, his dominions were divided into four kingdoms, —those of Paris, Metz, Soissons, and Orleans, each governed by one of his four sons. These, however, were reunited in 558. In 732 Charles Martel defeated the Saracens, who had effected the conquest of a great part of the S. of France, and ultimately expelled them from the kingdom. Under Pepin and Charlemagne the country was relatively peaceful and prosperous; but after the latter's death things returned to their original state of confusion. Under his immediate successor *F.* was again divided into four parts, and the Normans began to ravage its N. provinces; the power of the nobility also rapidly increased: and the last sovereign of the Carlovingian dynasty, Louis V., in 986–7, possessed only the town of Laon. His successor, Hugh Capet, count of Paris and Orleans, the founder of the third race of kings, governed only the Ile-de-France, Picardy, and the Orleannais: the dukes of Normandy, Brittany, Aquitaine, Gascony, Lorraine, and Burgundy, the counts of Flanders, Champagne, Vermandois, Toulouse, and several minor seigneurs, shared among them the rest of the modern kingdom. By degrees, however, all the great fiefs fell in various ways to the crown. Vermandois was united to it by Philip Augustus; Toulouse and Perche, by Louis IX.; Champagne, in 1274; the Lyonnais, Dauphiny, and Languedoc, in the 14th century; Berri, Normandy, Gascony, Burgundy, Anjou, Maine, and Provence, in the 15th; Bourbonnais, Auvergne, Brittany, Lorraine, and considerable territories in the S.W., in the 16th; and Flanders, Artois, Franche-Comté, and Alsace in the 17th century. While the monarchy gained in consistency and extent, the regal power was making constant advances. The political rights and privileges which the nobles exercised under the feudal system were the objects of continual attacks on the part of the crown, which, though sometimes defeated, were in most instances successful. At length, under the administration of Richelieu, the nobles were stripped of all power; and there being no other body in the state, with the exception of the parliaments, — which had degenerated into little else than courts of law, — that enjoyed any constitutional privileges, the power of the crown was raised above control. Under the vigorous, and for a lengthened period prosperous, government of Louis XIV., the royal prerogative arrived at a maximum. But the close of this reign was eminently unprosperous; and the wars in which Louis had been long engaged, the burdens they obliged him to impose on his subjects, and the vast debts he had contracted, produced not only great suffering and misery, but also great discontent. During the regency and the subsequent part of the reign of Louis XV., abuses of all sorts multiplied on all hands, and were no longer concealed by the dazzling splendor and magnificence of the preceding period; the most worthless parasites obtained a predominating influence at court; the command of fleets and armies was intrusted to the merest imbeciles; the finances were involved in the greatest disorder; and France and Europe were scandalized and disgusted by the gross sensuality and vulgar profligacy of the king and his intimate associates. Louis XVI., who ascended the throne in 1774, was actuated by the best intentions, but he wanted the firmness of purpose and capacity required in so desperate a crisis. The abuses that infected the whole frame of society, though destructive of the public interests, were either really advantageous, or believed to be so, to a vast number of persons, including the nobility and clergy; and it would have required a mind of a very different order from that of Louis to have frustrated the solicitations, intrigues, and cabals of such powerful parties, and to have safely carried through the reforms that had become indispensable. At length, after a variety of futile expedients had been in vain resorted to, it was resolved, in 1789, to hold a meeting of the States-General, which had not been convened since 1614, for effecting the necessary changes, and averting a public bankruptcy. This was the commencement of that tremendous revolution which cost Louis XVI. the crown and his life, and destroyed every vestige of the govt. and institutions that existed when it broke out. The atrocities connected with the Revolution were the wild, but not unnatural excesses of an uninstructed populace, that had suddenly been emancipated from a state of extreme degradation. The proscriptions and anarchy by which the Revolution was accompanied continued till Napoleon attained to the supreme direction of affairs. The talents of this extraordinary man were surpassed only by his ambition, which, by overstepping all bounds, precipitated him into enterprises that ultimately led to his overthrow. In 1814, the Bourbon was replaced upon the throne; but the elder branch had profited as little as the Stuarts in England, under similar circumstances, by the lessons of adversity, and in 1830 they were reëxpelled from the kingdom. The crown was then offered, under certain conditions, to Louis Philippe, Duke d'Orleans, by whom it was accepted. He has the merit of having contributed, under very difficult circumstances, to maintain, for a lengthened period, the peace of *F.* and Europe. But he alienated the public by his plans for advancing and enriching his children, and by the corruption which pervaded every department of his government. This led to the revolution of Feb. 24, 1848, and the establishment of the republic, presided over by a Provisional Government. A new constitution having been voted by a "Constituent Assembly" of 900 members, Prince Louis Napoleon was elected head of the republic, for 4 years, by 5,562,843 votes, on the 10th of December, 1848. The Prince Presi-

dent dissolved the National Assembly by a *coup d'état*, Dec. 2, 1851, and having remodelled the constitution, appealed to universal suffrage, which declared him president for 10 years, by 7,439,216 votes, on the 21st of Dec., 1851. By a third vote, Louis Napoleon was chosen Emperor of France, by 7,864,216 against 231,145 votes, on the 22d of Nov., 1852, and assumed the title Napoleon III., Emperor of the French, on the 1st of Dec., 1852. For an account of the history of *F.* during his reign, see NAPOLEON III. Since the close of the disastrous war with Germany the history of *F.* has been one of continued peace and prosperity, under the successive presidencies of Thiers (1871), McMahon (1873), Grévy (1879), Carnot (1887), Casimir-Périer (1895), and Faure (1895). The immense indemnity of 500,000,000 francs demanded by Germany, was paid by Sept., 1873, and *F.* has since borne its enormous debt without serious difficulty. *Pop.* (1891) 38,095,170.

CHRONOLOGICAL TABLE OF THE SOVEREIGNS OF FRANCE.

A. D.	MEROVINGIANS.
418.	Pharamond.
428.	Clodion.
447.	Merovæus.
458.	Childeric I.
481.	Clovis I.
511.	Thierry I. (Austrasia or Metz). Clodomir (Orleans). Childebert I. (Paris). Clotaire I. (Soissons or Neustria).
534.	Theodebert I. (Metz).
548.	Theodebald (Metz).
558.	Clotaire I. (France).
561.	Caribert (Paris). Gontran (Orleans and Burgundy). Chilperic I. (Soissons). Sigebert I. (Austrasia).
575.	Childebert II. (Austrasia).
593.	Ditto. (Burgundy).
594.	Clotaire II. (Soissons).
613.	Ditto. (France).
595.	Thierry II. (Burgundy). Theodebert II. (Austrasia).
628.	Dagobert I.
638.	Sigebert II. (Austrasia). Clovis II. (Soissons and Burgundy).
656.	Clovis II. (France).
660.	Clotaire III. (Soissons and Burgundy). Childeric II. (Austrasia).
670.	Childeric II. (France).
673.	Dagobert II. (Austrasia). Thierry III. (Soissons and Burgundy).
691.	Clovis III. (Neustria and Burgundy).
695.	Childebert III. " "
711.	Dagobert III. " "
715.	Chilperic II. " "
717.	Clotaire IV. " "
720.	Thierry IV. " "
737.	(Interregnum.)
742.	Childeric III. " "

CARLOVINGIANS.

A. D.		A. D.	
752.	Pepin (the Short).	884.	Charles the Fat (emperor).
768.	Charles I., Charlemagne (the Great).	887.	Endes.
814.	Louis I., (le Débonnaire).	898.	Charles III. (the Simple.)
840.	Charles II. (the Bald.)	922.	Robert I.
877.	Louis II. (the Stammerer.)	923.	Rudolph, (or Raoul.)
879.	Louis III., and Carloman.	936.	Louis IV., (d'Outremer.)
882.	Carloman (alone).	954.	Lothaire.
		984.	Louis V. (le Fainéant.)

CAPETIANS.

987.	Hugh Capet.	1226.	Louis IX. (St. Louis.)
996.	Robert II.	1270.	PhilipIII. (theBold.)
1031.	Henry I.	1285.	Philip IV. (the Fair.)
1060.	Philip I.	1314.	Louis X., the Headstrong (Hutin).
1108.	Louis VI. (the Fat.)	1316.	John I.
1137.	Louis VII. (the Young.)	1316.	Philip V. (the Long.)
1180.	Philip II., Augustus.	1322.	CharlesIV.(theFair.)
1223.	LouisVIII.(theLion.)		

HOUSE OF VALOIS.

1328.	Philip VI., de Valois.	1498.	Louis XII.
1350.	John II. (the Good.)	1515.	Francis I.
1364.	Charles V. (theWise.)	1547.	Henry II.
1380.	Charles VI.	1559.	Francis II.
1422.	Charles VII.	1560.	Charles IX.
1461.	Louis XI.	1574.	Henry III.
1483.	Charles VIII.		

HOUSE OF BOURBON.

1589.	HenryIV(ofNavarre)	1774.	Louis XVI.
1610.	LouisXIII.(theJust.)	1793.	Louis XVII. (merely nominally a king).
1643.	LouisXIV.(leGrand)		
1715.	Louis XV. (the Well-beloved.)		

THE REPUBLIC.

1792.	Convention.	1799.	Consulate.
1795.	Directory.		

THE EMPIRE.

1804.	Napoleon I.	1815.	Napoleon I. (again).
1814.	Louis XVIII. (king).		

HOUSE OF BOURBON RESTORED.

1815.	Louis XVIII.	1824.	Charles X.

HOUSE OF ORLEANS.

1830.	Louis Philippe I.	1848.	Republic.

THE EMPIRE RESTORED.

1852.	Napoleon III.	1870,	THE REPUBLIC.

France, (Isle of.) See MAURITIUS.

France's Creek, in *Wisconsin*, a P. O. of Manitowoc co.

Fran'cesville, in *Indiana*, a post-village of Pulaski co., abt. 40 m. N. of Lafayette.

France'za, an island of Brazil, prov. of Rio-de-Janeiro, a short distance S.W. of Cape Frio.

Franche-Comté, (*franzh kom'tai,*) an ancient prov. of France, adjacent to Switzerland and Lorraine. Its capital was Besançon, and it is now divided into the deps. of Haute-Saône, Jura, and Doubs. This province, conquered by the Franks in 534, formed part of the duchy of Burgundy, and was bestowed on Philip II. of Spain on his marriage with Isabella, daughter of Henry II. of France, in 1559. Louis XIV. conquered it in 1668, and restored it to Spain by the treaty of Aix-la-Chapelle, May 12, 1668. He conquered it again in 1674, and it was finally ceded to France by Spain, by the treaty of Nimeguen, Sept. 17, 1678.

Fran'chise, *n.* [Fr., from *franc*, free. See FRANK.] Freedom; liberty; a particular privilege or right granted by a sovereign or state to an individual or to a number of persons.—The right of voting in an election.

—*v. a.* To enfranchise; to make free. See ENFRANCHISE.

Fran'chisement, *n.* See ENFRANCHISEMENT.

Francia, (*fran'che-a,*) an eminent painter, whose real name was FRANCESCO RAIBOLINI, was B. at Bologna in 1450. It is now known that FRANCESCO DA BOLOGNA, celebrated as a type-founder, is the same person as *F.* the painter. In his youth he was a goldsmith and an engraver of medals, but afterwards applied himself wholly to painting. Being employed by Rafaelle, in 1517, to place his picture of St. Cecilia in a church at Bologna, it is said that he was so struck with its beauty, and convinced of his own inferiority to Rafaelle, that he fell into a desponding state, which hastened his end. He had, however, nearly lived his threescore years and ten. D. 1518.

Fran'cia, DR. JOSE GASPAR RODRIGUEZ, the celebrated dictator of Paraguay, was the son of a small French proprietor in that country, and B. at Assunçion, in 1757. His mother was a Creole. Arrived at the proper age, he was sent to the university of Cordova, with a view to entering the church; but his plans underwent a change while he was still a student, and on his return to his native town with the degree of doctor of laws, he began his public career as a barrister. His high reputation for learning, but still more for honesty and independence, procured him an extensive practice; and he devoted himself to legal pursuits for thirty years, varying his professional avocations with a perusal of the French *Encyclopædic* writers, and with the study of mathematics and mechanical philosophy, to which he remained addicted throughout his life. In 1811, soon after the revolution in the Spanish possessions of South America became general, Dr. *F.*, then in his 54th year, was appointed secretary to the independent junta of Paraguay; and such was the ability he displayed in this capacity, that on the formation of a new congress, called in 1813, he was appointed consul of the republic, with Yegros for his colleague. From this moment the affairs of his country underwent a favorable change; the finances were husbanded; peace was obtained in Paraguay, while the rest of the South American continent was a prey to anarchy; and the people's gratitude to their deliverer was characteristically exhibited in conferring upon him, in 1817, unlimited despotic authority, which he exercised during the remainder of his life. D. 1840.

Fran'cic, *a.* Relating to the Franks, or to their language; Frankish.

Fran'cis I., King of France, B. 1494, succeeded to the throne in 1515, on the death of Louis XII., who died without male issue. Scarcely had he ascended, than he, as grandson of Valentino of Milan, put himself at the head of an army to assert his right over the Milanese. The Swiss, who opposed him in his entry into the duchy, were defeated at Marignano (or Melegnano),



Fig. 1061. — FRANCIS I., KING OF FRANCE.

and Milan fell immediately after this victory. After a short war with England, the famous interview between Henry VIII. and *F.* took place, in 1520, in Flanders, which, from the magnificence displayed on the occasion, was called "the Field of the Cloth of Gold," *q. v.* In the same year, Charles V. of Spain having inherited the empire after the death of Maximilian, *F.* laid claim to the imperial dignity, and declared war against his rival. In this struggle, however, he met with nothing but reverses. After the defeat of Marshal Lautrec at Bicoca, in 1522, the retreat of Bonnivet, and Bayard's death (see these names), *F.* was himself, in 1525, beaten at Pavia, and taken prisoner. The fight had been a fierce one, and the king wrote to his mother, "All is lost, except honor." Led captive into Spain, he only recovered his liberty at the cost of an onerous treaty, signed at Madrid in 1526; but which was not entirely carried out. He immediately recommenced the war in Italy, met with fresh defeats, and concluded a second treaty at Cambrai, in 1529. He once more invaded Italy, in 1536, and, after various successes, consented to a definitive arrangement at Crespi, in 1544, by which the French were excluded from Italy, though Milan was given to the Duke of Orleans, the second son of *F.* He D. at the Château de Rambouillet, 1547, and was succeeded by his son, Henry II.—*F.* was a friend to arts and literature, which flourished during his reign; and he was called the "Father of Letters." Justice, also, began to be better administered in his reign. He founded the Royal College of France, the Royal Library, and built several palaces.

FRANCIS II., King of France, the eldest son of Henry II, and his queen Catherine de Medicis, B. at Fontainebleau, 1544. He succeeded his father in July, 1559, having in the preceding year married Mary Stuart, daughter of James V. of Scotland. He made the cardinal of Lorraine first minister, and his brother, the duke of Guise, commander-in-chief. The insolence and cruelty of their rule produced profound discontent,



Fig. 1062. — COSTUME OF FRANCIS II. (France.)

and led to the conspiracy of Amboise, and the beginning of the civil war between the Catholics and Protestants. The states-general were convoked at Orleans in 1560, and the prince of Condé, who had joined the Protestants, was there arrested, and sentenced to death; but the sentence was not executed in consequence of the death of the king soon after, Dec., 1560.

Francis I., Emperor of Germany, B. 1708, was the son of Leopold, Duke of Lorraine. He inherited this duchy from his father, in 1729, and six years afterwards exchanged it for that of Tuscany, which the death of the last of the Medicis had rendered vacant. In 1736 he married Maria Theresa, the daughter of the Emperor Charles VI. On the death of the latter, he disputed the imperial dignity with the Elector of Bavaria, whom France supported, and who took the name of Charles VII.; he was, however, defeated, and Francis reigned peaceably for twenty years. D. 1765.—His character was tarnished by avarice. He had sixteen children, among whom was Joseph II., who succeeded him, and the unfortunate Marie Antoinette.

FRANCIS II., Emperor of Germany, and I. of Austria, B. 1768, succeeded his father, Leopold II., in 1792, as emperor of Germany, king of Bohemia, Hungary, &c. At the very commencement of his reign, he had to sustain a war against France, in which he was defeated, and was, in 1797, obliged to sign the treaty of Campo Formio, which deprived him of the Netherlands and Lombardy. Another war taking place with the same power, he was not more fortunate than in the first, and was beaten at Marengo, and lost, by the treaty of Luneville, in 1801, all his possessions on the Rhine. In a third campaign, undertaken in 1805, the French were victorious over his armies at Elchingen, Ulm, and Austerlitz; and the treaty of Presburg still further diminished his territory. Renouncing now the title of Emperor of Germany, he took that of Austria, under the name of Francis I. He tried again the fate of battles in 1809; but the defeats of Eckmühl and Wagram led to the peace of Schönbrunn; to cement which more strongly, his daughter Maria Louisa was, in 1810, given to Napoleon I. Notwithstanding this alliance, however, he, in 1813, joined the coalition against his son-in-law, and contributed considerably to his overthrow. The treaties of 1815 put him again in possession of the greater portion of his territory, and he reigned peaceably till his death in 1835. He was succeeded by his son Ferdinand, who, in his turn, abdicated in favor of the reigning emperor, Francis Joseph, in 1848.

Francis Joseph, CHARLES, Emperor of Austria, b. 1830, ascended the throne, Dec. 2, 1848. On mounting the throne he found the empire shaken by internal dissensions; and his first step was to promise a free and constitutional government to the country. The course of events, however, compelled him to close the national assembly, and to assume absolute power. Assisted by Prince Schwartzenberg, and after his death by Count Buol and Baron Bach, he centralized the governments of his heterogeneous nationalities at Vienna, and, aided by Herr Von Brück, inaugurated a series of fiscal and commercial reforms favorable to the interests of the middle classes. In 1853–4, the emperor endeavored, though in vain, to induce the Czar Nicholas to abandon his ambitious designs against Turkey, and further excited that autocrat's displeasure by refusing to assist Russia against the Western Powers, whose rulers also felt aggrieved, because he resolved to remain neutral, and declined to throw the weight of his name into their scale. The unwillingness of Austria to make common cause with the Western Powers has been severely punished, for had she joined the alliance against Russia in 1854, in all probability Louis Napoleon would not have crossed the Alps and dictated the peace of Villafranca. It is, therefore, more than probable that her reluctance to act against Russia in that war was the cause of her losing Lombardy three years later. The emperor is tall and handsome. At Solferino he gave proof of bravery amounting almost to rashness. In April, 1854, he married the Princess Elizabeth Amalie Eugenie, daughter of the Duke Maximilian Joseph, and consin, on her mother's side, to the King of Bavaria. The plenipotentiaries of Austria, Prussia, and Denmark assembled at Vienna to consider the terms of a peace, July 26, 1864, which was concluded Oct. 30. The convention of Gastein, signed Aug. 14, 1865, which transferred the gov-



Fig. 1063. — FRANCIS JOSEPH, EMPEROR OF AUSTRIA.

ernment of Schleswig to Prussia, and that of Holstein to Austria, was a few days after confirmed by the emperor and the king of Prussia at Salzburg. The emperor issued an important manifesto to his people, Sept. 20, in which he expressed very conciliatory intentions towards the peoples of Hungary and Croatia. At the beginning of 1866, the armaments against Prussia commenced, and an imperial order was issued May 6, placing the whole army on a war-footing, and concentrating the army of the north on the frontiers of Bohemia and Silesia. The emperor published a manifesto relative to the impending contest, June 17, the Prussian minister having received his passports June 12. The emperor showed much devotion in the struggle which ensued, and the fortunes of war having proved adverse (see PRUSSIA), at once made peace and applied his energies to the difficult task of reconstructing the empire. In 1867, the emperor put an end to the hostilities of Hungary by reëstablishing the constitution of that country; and on June 8, he was crowned at Pesth as king of Hungary, with extraordinary pomp. There was a memorable meeting of the emperors of Germany, Russia and Austria at Berlin in 1872. Francis Joseph visited the emperor of Russia at St. Petersburg in 1874, and was visited by the king of Italy in 1881.

Francis I., King of the Two Sicilies, was the son of Ferdinand I., and twice during the lifetime of his father he carried on the government of the kingdom under the name of viceroy; first in 1812, when a constitution was granted to Sicily; and afterwards in 1820, during the troubles which broke out in Naples and Palermo. He mounted the throne in 1825, and died 1830, without having achieved anything remarkable. — He was succeeded by Ferdinand II. (Bomba), who, dying in 1859, was followed by Francis II., who lost his throne in 1861.

Francis, (St.,) or FRANCIS OF ASSISI, the founder of the order of Franciscan friars, was born at Assisi, in Umbria, in 1182. He was the son of a merchant, and was said to be of dissolute habits; but on recovering from a dangerous illness he became enthusiastically devout, and devoted himself to solitude, joyfully undergoing every species of penance and mortification. Thinking his extravagance proceeded from insanity, his father had him closely confined; and at length, being taken before the bishop of Assisi, in order formally to resign all claim to his paternal estate, he not only assented to it, but literally stripped himself. He was now looked upon as a saint; and great numbers joining him in his vow of poverty, he drew up rules for their use, which being sanctioned by Pope Innocent III., the order of Franciscans was established. So rapidly did they increase, that in 1219 he held a chapter which was attended by 5000 friars. After having made a fruitless effort to convert the sultan Meleddin, he returned to Assisi, where he D. in 1226, and was canonized by Pope Gregory IX. in 1230.

Fran'cis de Paulo, St., B. at Paulo, Calabria, 1416. He was brought up in a Franciscan convent; and retired to a cell on the desert part of the coast, where he soon obtained followers, built a monastery, and thus commenced a new order, called *Minims*. He enjoined on his disciples a total abstinence from wine, flesh, and fish; besides which they were always to go barefoot and never sleep on a bed. D. in France, 1507, and was canonized by Leo X.

Francis de Sales, St., bishop of Geneva, founder of the Order of the Visitation, was born of a noble Savoyard family, at the château of Sales, near Geneva, in 1567. He was educated by the Jesuits at Paris, studied law at Padua, and having a strong bent to theology and a religious life, entered the Church. Earnest and successful as a preacher, he was sent, in 1594, with his kinsman, Louis de Sales, to preach in the duchy of Chablais, and bring back, if possible, to the Catholic church the followers of Calvin. He had a large measure of success. His conferences with Théodore de Bèze, Calvin's successor, at Geneva, were, however, without result. He went to Paris in 1602, preached there with great success, and steadily refused the offers of dignities made by the French king. The same year he was appointed bishop of Geneva, and taking St. Charles Borromeo as his model, applied himself zealously to the reform of the diocese and its monasteries. He was disinterested and free from worldly ambition, and declined the offer of a cardinal's hat and the renewed invitations of the king of France. In 1610 he founded the Order of the Visitation, of which the first directress was his friend Madame de Chantal. He was sent again to Paris in 1618, and died in 1622. His best known works are the "Introduction de la Vie Dévote," "Philothée, on Traité de l'amour de Dieu," and his "Lettres Spirituelles." He was canonized by Pope Alexander VII. in 1665.

Francis'can, *n. pl.* (*Eccl. Hist.*) One of the four orders of mendicant friars, who were termed Franciscans after their founder St. Francis; Gray, from their gray clothing; and Minor, or Minorites, in token of their humility. — The order was established by St. Francis at Assisi, in Naples, in 1208. It was distinguished by vows of absolute poverty and a renunciation of all the pleasures of the world, the members being strictly prohibited from having any property whatever. The rule of the order, sanctioned by the Pope in 1210 and 1223, destined them to beg and preach. The popes granted them many extensive privileges, which excited the envy and opposition of the secular clergy, upon whose rights they often made great encroachments; and they refused to acknowledge any authority whatever but that of the Pope. They spread with great rapidity, and at length comprised many thousand monasteries, all established by alms and contributions. The *Capuchins*, the *Fraticelli*, the *Observants*, and the *Clares* or *Clarisses*, are branches of the *F.*, which has at all times maintained its popularity in the Roman Catholic Church. Since the French revolution, the number has of course been very much diminished, the order having been suppressed in more than one kingdom; but it is still one of the most numerous in the Roman Catholic Church. Many of the foreign missions are mainly supplied by Franciscans, and they possess convents in almost every part of the world.



Fig. 1064. — A FRANCISCAN.

Francis'co, (San.) in *California*. See SAN FRANCISCO.

Francis'co, (São,) in Brazil. See SÃO FRANCISCO.

Francis'co, in *Indiana*, a post-village of Gibson co., abt. 25 m. N. by E. of Evansville.

Francis'co, in *N. Carolina*, a P. O. of Stokes co.

Francis'co, in *Michigan*, a post-office of Jackson co.

Fran'cistown, in *New Hampshire*, a post-town and township of Hillsborough co., abt. 20 m. S.W. of Concord. *Pop.* (1897) abt. 900. Generally spelled FRANCESTOWN.

Fran'cisville, in *Georgia*, a village of Crawford co., about 31 m. W.S.W. of Macon.

Fran'cisville, in *Kentucky*, a village of Boone co.

Fran'cis Xavier, (St.) See XAVIER.

Franck'er, a town of the Netherlands, in Friesland, 9 m. from the Zuyder-Zee; *pop* 4,500.

François, (*franse'waw.*) [Fr., Francis.] See FRANCIS.

François, St., a town of the island of Guadaloupe, 7½ m. from St. Ann. Sugar and cotton works are extensively carried on. *Pop.* 5,000.

Franco'li, a small river of Spain, rising abt. 3 m. from Prades, in Catalonia; thence flowing through Tarragona, and after a course of 30 m. falling into the Mediterranean, 1 m. from Tarragona.

Fran'colin, *n.* (*Zoöl.*) A genus of birds, closely allied to Partridges, from which they are only distinguished by a stouter bill, and a large tail. The species are natives of the Old World.

Fran'colite, *n.* (*Min.*) A variety of apatite or phosphate of lime, *q. v.*

Franco'nia. This name was originally applied to the German country on both sides of the Maine, which was colonized by Frankish settlers under Thierry I., eldest son of Clovis I., who succeeded to his father's German possessions in 511. Conrad, Duke or Count of Franconia, was elected King of Germany Nov. 8, 911, and princes of the same house occupied the throne from 1024 till 1250. The Emperor Wenceslaus, in 1387, divided the empire into four circles, of which Franconia and Thuringia constituted one; and Maximilian I., in 1512, erected Franconia into a distinct circle. In 1806 it was divided among Würtemberg, Baden, Hesse-Cassel, the Saxon duchies, and Bavaria, but since 1814 the greater part has belonged to Bavaria, where the districts or circles of Upper, Middle, and Lower Franconia were established in 1837. *Upper F.* includes the N.E. portion of Bavaria. It is watered by numerous rivers, as the Maine, Raab, Saale, &c., and it is intersected by the Fichtelgebirge and by the hilly ravines of the Böhmer-, Franken-, and Steiger-Wald. The valleys produce good crops and fruit, and the district is rich in minerals. *Middle F.*, which abuts upon Würtemberg, is intersected by branches of the Franconian Jura chain, but has few rivers of importance besides the Regnitz and Altmühl, which are connected by the great Ludwig Canal. It produces good wine, but is principally celebrated for its hop-gardens. *Lower F.*, which occupies the N.W. part of Bavaria, is traversed by the Spessart, the Rhöngebirge, and the Steiger-Wald, and watered by the Maine and Saale. It is the richest and best cultivated of the Franconian circles, and is celebrated for the excellence of its wines, the Steiner and Leister. The district is noted for its mineral springs at Kissingen, Brückenau, Orb, and Wipfeld. — See BAVARIA.

Franco'nia, in *Minnesota*, a township of Chisago co; *pop.* about 300.

Franco'nia, in *New Hampshire*, a post-township of Grafton co., abt. 75 m. N. by W. of Concord. It is situated in the midst of the magnificent scenery of the White Mountains, and contains the celebrated natural curiosity called the *Old Man of the Mountain*, consisting of 5 immense granite blocks, on an overhanging

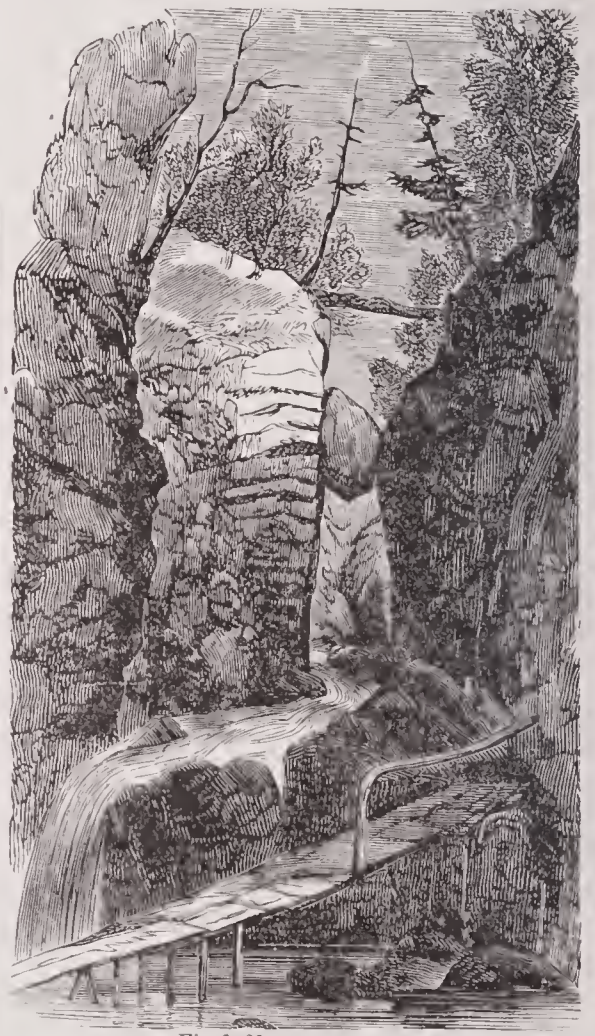


Fig. 1065. — THE FLUME.
(White Mountains.)

cliff of Profile or Jackson Mountain, so disposed that, as seen from the road 1,000 feet below, they closely resemble the outline of a human face. The S. branch of the Ammonoosuck River passes through the township, and exhibits the most sublime scenery (see Fig. 1065.) The township abounds in magnetic iron.

Franco'nia, in *Ohio*, a village of Putnam co., on the Anglaize River, abt. 120 m. N.W. of Columbus.

Franco'nia, in *Pennsylvania*, a post-township of Montgomery co., abt 15 m. N. of Norristown.



Benjamin Franklin

1706–1790

Frangibil'ity, *n.* [L. Lat. *frangibilitas.*] The state or quality of being frangible.

Fran'gible, *a.* [L. Lat. *frangibilis*, from Lat. *frango*, to break. See FRAGILE.] That may be broken; brittle; fragile; easily broken.

Fran'gibleness, *n.* Frangibility.

Fran'gipane, *n.* A species of pastry chiefly made with cream and almonds. — A perfume of jasmine.

Frank, *a.* [A. S. *Francan*, the Franks; O. Ger. *franco*, free, ingenuous; Fr. *franc*, true, open, sincere; It. and Sp. *franco*; Icel. *Frakkar*, the Franks, is formed from *fracki*, warlike, powerful, or from *fraekin*, brave, spirited, free.] Brave; spirited; free; free in uttering real sentiments; not reserved; using no disguise; open; ingenuous; candid; leading to the utterance of one's sentiments without reserve, as a disposition; without conditions or compensation, as a gift.

—*n.* A name given by the Greeks, Turks, Arabs, and other eastern nations, to a Christian. It probably originated at the time of the Crusades, in which the French particularly distinguished themselves. — See FRANKS.

—A letter sent, or the privilege of sending letters, by mail, free of postage.

—*v. a.* To free from postage or expense, as letters.

Frank'-chase, *n.* (*Law.*) A liberty of free chase within the precincts of a forest.

Fran'kenberg, a town of Hesse-Cassel, 30 miles from Cassel. *Manuf.* Woollen stuffs, cotton, and leather. *Pop.* 3,500. — Another, in Saxony, on an affluent of the Mulde, 7 miles from Chemnitz. *Manuf.* Linen and cotton weaving; mining is also carried on. The place is of considerable importance.

Frankenhaus'en, a town of Central Germany, on the Wipper, 30 m. from Erfurt; *pop.* 6,000.

Frankenia'eeæ, *n. pl.* [After John *Frankenius*, professor of botany at Upsal.] (*Bot.*) The Frankenlads, an order of plants, alliance *Violales*, consisting of herbs and undershrubs much branched, with opposite exstipulate leaves and sessile flowers; calyx tubular, furrowed, persistent; petals unguiculate, 4 or 5, hypogynous; stamens hypogynous, distinct; ovary superior, 1-celled, with parietal placeutas; fruit capsular, 1-celled, inclosed in the calyx and dehiscing in a septicidal manner; seeds numerous; embryo straight, ereet, in the middle of albumen. The plants of the order chiefly occur in the south of Europe and north of Africa, but are found in other parts. They are mucilaginous and slightly aromatic. The leaves of a species of Beatsonia are used at St. Helena as a substitute for tea.

Fran'kenlust, in *Michigan*, a village of Saginaw co., about 6 m. E. of Saginaw.

Fran'kenmuth, in *Michigan*, a post-township of Saginaw co.

Frankenstein (*frank'en-stīne*), a town of Silesia, 37 m. S. S. E. of Breslau. *Pop.* (1895) 7,330.

Fran'kenthal, a manufacturing town of Germany, in Bavaria, on the Isenach, 16 m. N. N. W. of Spires. *Pop.* (1895) 7,201.

Fran'kentrust, in *Michigan*, a village of Saginaw co., abt. 9 m. E. of Saginaw city.

Frank'ford, in *Delaware*, a post-village of Sussex co., abt. 55 m. S. by E. of Dover.

Frank'ford, in *Minnesota*, a post-village and township of Mower co

Frank'ford, in *Missouri*, a post-village of Pike co., abt. 80 m. N.E. of Jefferson city.

Frank'ford, in *New Jersey*, a township of Sussex co.

Frank'ford, in *Pennsylvania*, a borough included within the chartered limits of the city of Philadelphia, abt. 5 m. N.E. of the State House.

—A village of Beaver co.

—A village and township of Cumberland co., abt. 10 m. N. of Carlisle.

Frank'ford, in *W. Virginia*, a post-village of Greenbrier co., abt. 10 m. N.E. of Lewisburg.

Frank'ford Creek, in *Pennsylvania*. See TACONY.

Frank'fort, in *Alabama*, a post-village of Franklin co., abt. 75 m. W. by S. of Huntsville.

Frank'fort, in *Illinois*, a post-village of Franklin co., abt. 160 m. S. by E. of Springfield.

—A village and township of Will co., abt. 13 m. E. of Joliet.

Frank'fort, in *Indiana*, a city, the cap. of Clinton co., on L. E. & W. and three other railroads, 24 m. E. S. E. of Lafayette; has some manufactures and a good local trade. *Pop.* (1897) about 7,100.

Frank'fort, in *Iowa*, a village of Montgomery co.

—A village of Webster co., on the Des Moines river, about 20 m. below Fort Dodge.

Frank'fort, in *Kentucky*, a city, capital of the State, and seat of justice of Franklin co., on the Kentucky river, about 24 m. W. N.W. of Lexington; Lat. 38° 14′ N., Lon. 84° 40′ W. *Pop.* (1897) about 8,600.

Frank'fort, in *Maine*, a post-town of Waldo co. *Pop.* (1890) 1,099.

Frank'fort, in *Michigan*, a post-village of Benzie co., on Lake Michigan, 110 m. N. of Muskegon. *Pop.* (1894) 1,175.

Frank'fort, in *Minnesota*, a township of Wright co.

Frank'fort, in *Missouri*, a village of Pike co., about 90 m. N. E. of Jefferson city.

—A village of Webster co., about 24 m. E. by S. of Springfield.

Frank'fort, in *Nebraska*, a hamlet of Knox co., on the Missouri river, above 10 m. above Yankton, S. D.

Frank'fort, in *New Jersey*, a post-office of Somerset co.

Frank'fort, in *New York*, a post-village and township of Herkimer co.

Frank'fort, in *Ohio*, a post-village of Ross co., about 10 m. N.W. of Chillicothe.

Frank'fort, in *South Dakota*, a post-office of Spink co.

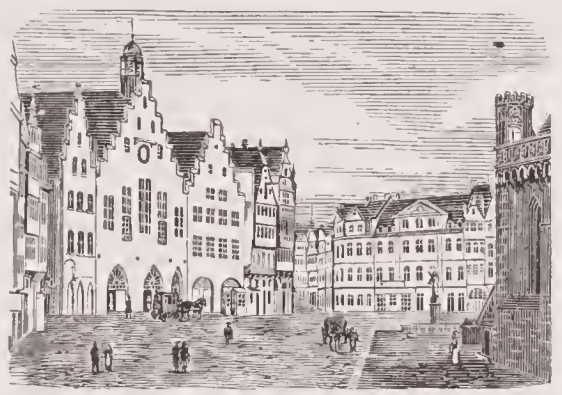
Frank'fort, in *West Virginia*, a village of Hampshire co., about 12 m. S. of Cumberland, Maryland.

Frank'fort, in *Wisconsin*, a township of Pepin co., on the Chippewa river, about 7 m. N. N. E. of Pepin.

Frank'fort-black, *n.* Charcoal procured by the calcination of vine-branches and other remains of the wine manufacture of Germany; — used in copper-plate printing.

Frankfort Hill, in *New York*, a P.O. of Herkimer co.

Frank'fort-on-the-Main, a city of Germany, the cap. of a district of same name, on the Main, 20 m. above its conflux with the Rhine; Lat. 50° 6′ 43″ N., Lon. 8° 41′ 24″ E. It is divided by the river into two unequal parts: the one on the north bank, called Frankfort Proper, being considerably larger than the other, which is called Sachsenhausen; and the two communicate by a stone bridge. Frankfort was formerly fortified; but most of its outworks are now converted into gardens and promenades, and it is entered by nine gates. The principal streets are wide; there are also many squares, and a number of large buildings; among which may be named the Rœmerberg (Fig. 1066), or old palace, in which the emperors of Germany were elected, and place of the assembling of the Diet; the Taxis palace, a place of residence of the Emperors; the Sallhof, a modern imperial palace; the Lutheran, or High church; other churches, Jews' synagogues, hospitals, a theatre, an academy of painting, and the Senkenberg Museum. Besides these, there are a geographical society, college, medical institute, and numerous schools. *Manuf.* Carpets, table-covers, oil-cloths, cotton and silk fabrics, woollen stuffs, jewelry, tobacco and printer's black. It has also large printing, lithographic and stereotyping establishments. *Pop.* (1891) 179,850.—*F.* was founded by the Franks in the 5th century. Charlemagne, who had a palace



1. The Rœmerberg. 2. The Taxis Palace.

Fig. 1066. — FRANKFORT.

in this city, summoned a council in 794, and it was surrounded with walls by Louis I. in 838. It was the capital of the Eastern Franks from 843 to 889, when Ratisbon was selected. Frederick I. was elected at *F.* in 1152. From that time it became the place of election of the emperors. *F.* was made a free city in 1257. The bridge over the Maine was built in 1342. Frederick of Prussia signed a treaty, known as the Union of *F.* with the empire, France, and Sweden, at this city, May 13, 1744. The French captured it Jan. 2, 1750, and again in 1792; but the Prussians wrested it from them Dec. 2, 1792. It was bombarded by the French July 12, and surrendered July 19, 1796. It formed part of the Confederation of the Rhine in 1806. Napoleon I. erected *F.* into a duchy in 1810. The Declaration of the Allied Powers was issued at *F.* Dec. 1, 1813. By the Congress of Vienna, in 1815, it was made one of the four free cities of Germany, and the seat of the Germanic Diet. It was made a free port in 1831. The constituent Assembly, elected in 1848, held its sittings at *F.* It was occupied by the Prussians July 16, 1866, and is now incorporated with Prussia. Councils were held here in 794, 853, 1001, 1007 (Feb. 2), 1234, and 1400.

Frankfort-on-the-Oder, a well-built town of Prussia, the capital of a district of same name, prov. of Brandenburg, 48 m. from Berlin, with which it communicates by railway. Its university, founded in 1506, was in 1811 transferred to Breslau. *Manuf.* Woollens, silks, leather, earthenware, tobacco, mustard, &c. *Pop.* (1891) 55,738. Lat. 52° 22′ 8″ N., Lon. 14° 33′ 24″ E. Near it is Kunersdorf, the scene of the victory of the Austrians and Russians over Frederick the Great, in 1759. The district has an area of 8,000 sq. m., with a population of 1,000,000.

Frankfort Springs, in *Pennsylvania*, a post-borough of Beaver co., about 25 m. W. of Pittsburg.

Frank'hearted, *a.* Having a frank disposition.

Frank'heartedness, *n.* Quality of being of an open and frank disposition.

Frank'incense, *n.* [*Frank* and *incense.*] A resin obtained from a great number of trees of the fir species, and greatly esteemed as an incense. The article now universally known as *F.* is the resin called *thus*, a common, inodorous article, little better than common white rosin. The article once so highly valued, and which, with gold and myrrh, was deemed a gift to lay before the Saviour, must have been some other drug more precious than pine or spruce rosin, and was doubtless the still valuable and beautiful substance known as benzoin.

Frank'ing, *n.* The act of making free; the exemption of letters, &c. from postage. In the United States, every member of the national legislature had the privilege of receiving and sending letters free of postage; but this exception was limited in 1879 to public documents printed by order of congress.

(*Joinery.*) The mode of forming the joints where the cross-pieces of the frames of window-sashes intersect each other.

Frank'ish, *a.* That relates to the Franks.

Frank'lin, *n.* A freeholder; a yeoman; — applied, in the time of Elizabeth, to a man above the condition of a vassal, but not a gentleman.

Franklin, BENJAMIN, an American statesman and philosopher, b. in Boston, 1706. The name of Dr. *F.* is popular in every civilized country: his discoveries in electricity have given him a permanent place in scientific history; and he deserves highest honor from all mankind for his services to the cause of rational liberty and the independence of nations. — We must omit all details concerning Franklin's early life; however, if any one would sustain hope amid unpromising labor — discern the inestimable value of small portions of time economized and put scrupulously to uses — or learn how cheerfulness, patience, and fortitude, guided by good sense and integrity, must ever command success — he will find nowhere better instruction than in that graphic narrative of the events and struggles of his opening manhood, by which *F.* has let us into the innermost being of the journeyman printer of Philadelphia. Distinguished no less by practical benevolence than by an almost intuitive appreciation of the wants and character of early American society, *F.* could not fail to rise into authority. Accordingly, we find him the favorite counsellor in most of the grave difficulties belonging to that period of our history. Commencing public life in the struggle between the Assembly of Pennsylvania and the old proprietary Governors — we again meet him proposing to the different States a project of union, which afterwards became the basis of a confederacy; then, on a mission to England regarding the American Stamp Act; afterwards ambassador to France; the observed of all observers in Paris, soliciting aid in arms from the court of Versailles; finally, Minister to England, signing the treaty by which the mother-country, submitting to ill-fortune, acknowledged the independence of her former colonies. — It has been said that Franklin represented the practical genius, the moral and political spirit of the 18th century, as Voltaire represented its metaphysical and religious scepticism; this, at least, is certain: — no man saw more clearly, or felt more profoundly in his own person, the political and moral ideas which necessarily bear sway in a strictly industrial community like the one emerging from infancy in the New World. Unconnected with England by birth or close association, he looked only with astonishment on those pretensions to prerogative, which certainly could find no natural soil where all men were socially equal; and his system of morals included every sanction and precept likely to recommend themselves to a people who could never reach prosperity unless through patient industry and the exercise of the prudential virtues. His code was "The Way to Wealth;" and the wisdom of *Poor Richard* instructed every man how, by the strength of his arm and dominion over his passions, wealth might be attained and made secure. Since *F.*'s time a new element has arisen in America; powerful tendencies are developing with higher aims than mere wealth, and which demand a larger code than the utilitarian. *F.* did not recognize, or, rather, had not foreseen, the necessary advent of that speculative habit now very rapidly becoming dominant over American thought; but in his treatment of the equally powerful tendency of which he saw the influence, and whereof he himself so largely partook, his *Poor Richard* is complete: — he threw off all prerogative and tradition, and looked at things as they are. Temperance, Silence, Order, Resolution, Frugality, Activity, Sincerity, Justice, Moderation, Cleanliness, Tranquillity, Chastity, Humility, — these are his virtues; and *F.* teaches how to acquire them, by precepts which in earlier times would have ranked as *golden verses*; they are as valuable as anything that has descended from Pythagoras. — It is rare that a single mind establishes claims so various as those of *F.*: — he ranks also among the foremost as a Physical Inquirer and Discoverer. Attracted by the opening subject of *Electricity*, he was the first who reduced it to order; and that grand step is owing to him which identified the attraction and repulsion of rubbed glass and amber with the energy that produces lightning, and causes the most imposing of meteorological phenomena. His memoirs on Electricity and other physical subjects still astonish one by their clearness and chastity, and the precision and elegance of their method; their style and manner are as worthy of admiration as their doctrines. They gained for the author immediate admission to the highest scientific societies in Europe. — In his personal bearing, *F.* was sedate and weighty. He had no striking eloquence; he spoke sententiously; but men instinctively felt his worth, and submitted themselves to his wisdom.



Fig. 1067. — BENJAMIN FRANKLIN.

Except Washington, whom in many qualities he much resembled, this country yet ranks among her dead nowhere so great a man. Died in Philadelphia, 1790.

Frank'lin, Sir John, an English navigator, born at Spilsby, Lincolnshire, 1786. In 1806 he was present at the battle of Trafalgar, and in 1814 at that of New Orleans, and in 1819 was appointed to head an overland expedition from Hudson's Bay to the Arctic Ocean. After suffering many hardships, and being frequently on the verge of death from hunger and fatigue, he reached home in 1822. In the following year he married a Miss Purden, the daughter of an architect, and the author of several poetical effusions. In 1825 he submitted to Lord Bathurst a plan "for an expedition overland to the mouth of the Mackenzie river, and thence by sea to the N.W. extremity of America, with the combined object also of surveying the coast between the Mackenzie and Copper-mine rivers." This proposition was accepted, and six days after he left Liverpool, in the same year, his wife died. In 1827 Captain *F.* arrived at Liverpool, where he was married a second time, and in 1829 had the honor of knighthood conferred upon him. In 1845, Sir John set out on a third expedition with two ships, called the *Erebus* and *Terror*, and spent his first winter in a cove between Cape Riley and Beechey Island. After that period many expeditions were despatched, both from England and America, in search of Sir John, of whom there were no tidings, and not until 1854 did the intelligence reach England that the brave navigator and his heroic companions had, in all probability, perished in the winter of 1850–51. This intelligence, however, wanted confirmation and Lady Franklin, who deserves all praise for the intelligent persistency of her efforts, resolved to have the mystery cleared up as to whether her gallant husband had really met the fate which it was generally believed he had experienced. Accordingly, a last expedition was fitted out, and the melancholy news was, in 1859, at length confirmed by the return of Captain McClintock, in the yacht *Fox*, after a persevering search for the lost adventurers. This officer brought with him indisputable proofs of the death of Sir John and the loss of his crew. Several articles belonging to the unfortunate explorers were found at Ross Cairn and Point Victory. At the latter place a record was discovered, wherein it was stated that Sir John *F.* had died on the 11th of June, 1847. Other traces were found on the W. coast of King William's Island, as the various survivors of the expedition had strayed from each other, perhaps in search of food, or the means of escaping from their dreary and desolate situations. C. F. Hall, the eminent Arctic explorer, returned Sept., 1869, from a five-years' search for the remains of Sir John *F.*'s companions, and brought back about 150 relics of the expedition, purchased from the natives of King William's Land. It remained, however, for Lieut. Schwatka to find the bodies of the Franklin party in his expedition of 1879–80.

Franklin, in *Alabama*, a N.W. co., bordering on Mississippi; *area*, about 620 sq. m. *Rivers.* Tennessee river, and Bear, Cedar, and other creeks. *Surface*, hilly; *soil*, generally fertile. *Cap.* Russellville. *Pop.* (1890) 10,681.

—A village of Henry co., on the Chattahoochee river, about 100 m. S.E. of Montgomery.

—A village of Macon co., abt. 15 m. E.N.E. of Montgomery.

Frank'lin, in *Arkansas*, a N.W. co.; *area*, about 672 sq.m. *Rivers.* Arkansas and Petit Jean rivers, besides numerous smaller streams. *Surface*, hilly; *soil*, generally fertile. *Cap.* Ozark. *Pop.* (1890) 19,934.

—A township of Carroll co.

—A post-office of Izard co.

—A post-township of Izard co.

—A township of Stone co.

—A township of Union co.

Frank'lin, or Georgetown, in *California*, a post-village of Sacramento co., about 14 m. S. of Sacramento.

Frank'lin, in *California*, a post-township of Sacramento co.

Frank'lin, in *Connecticut*, a post-town of New London co., about 30 m. E. of Hartford. *Pop.* (1897) about 650.

Frank'lin, in *Florida*, a N.W. co., bordering on the Gulf of Mexico; *area*, about 690 sq. m. *Rivers.* Apalachicola and Ocklockonee rivers. *Surface*, low; *soil*, not fertile. *Cap.* Apalachicola. *Pop.* (1890) 3,308.

Frank'lin, in *Georgia*, a N.E. co., bordering on South Carolina; *area*, about 359 sq. m. *Rivers.* Tugaloo, and the headwaters of the Broad river. *Surface*, broken; *soil*, fertile. *Min.* Iron ore and some gold. *Cap.* Carnesville. *Pop.* (1897) about 16,750.

—A post-village, capital of Heard co., on the Chattahoochee river, about 145 m. W. of Milledgeville.

Frank'lin, in *Idaho*, a post-village of Oneida co., near the northern boundary of Utah.

Frank'lin, in *Illinois*, a S. co.; *area*, about 430 sq. m. *Rivers.* Big Muddy river and Saline creek. *Surface*, diversified; *soil*, fertile. *Cap.* Benton. *Pop.* (1890) 17,138.

—A village and township of De Kalb co.

—A village of De Witt co., on Salt creek, about 40 m. N.E. of Springfield.

—A post-village and township of Morgan co., about 12 m. S.E. of Jacksonville.

Frank'lin, in *Indiana*, a S.E. co., bordering on Ohio; *area*, about 400 sq. m. *Rivers.* Whitewater river and other smaller streams. *Surface*, level; *soil*, mostly fertile. *Cap.* Brookville. *Pop.* (1890) 12,366.

—A township of De Kalb co.

—A township of Floyd co.

—A village of Franklin co., about 34 W. of Hamilton, O.

—A township of Harrison co.

—A township of Hendricks co.

—A township of Henry co.

—A township of Kosciusko co.

—A thriving city, capital of Johnson co., on two important railroad lines 20 m. S. of Indianapolis; is the trade center of a fine farming region, and has several flour mills and other manuf.; seat of Franklin College (Baptist). *Pop.* (1897) about 4,500.

—A township of Marion co.

—A township of Montgomery co.

—A township of Owen co.

—A township of Putnam co.

—A township of Randolph co.

—A township of Ripley co.

—A township of Pulaski co.

—A township of Washington co.

—A township of Wayne co.

Frank'lin, in *Iowa*, a N. co.; *area*, 576 sq. m. *Rivers.* Iowa river, and Otter and Pipe creeks. *Surface*, generally level; *soil*, fertile. *Cap.* Hampton. *Pop.* (1897) about 14,000.

—A township of Allamakee co.

—A township of Appanoose co.

—A township of Bremer co.

—A township of Clarke co.

—A village and township of Decatur co., about 6 m. N.E. of Leon.

—A township of Des Moines co.

—A township of Greene co.

—A village and township of Lee co., about 25 m. N. by W. of Keokuk city.

—A township of Linn co.

—A township of Marion co.

—A township of Monona co.

—A township of Monroe co.

—A township of Polk co.

—A township of Story co.

—A township of Washington co.

Frank'lin, in *Kansas*, an E. co.; *area*, about 576 sq. m. *Rivers.* Marais des Cygnes and Osage river, and Middle creek. *Surface*, undulating; *soil*, fertile. *Cap.* Ottawa, *Pop.* (1895) 20,734.

—A township of Bourbon co.

—A township of Jackson co.

Frank'lin, in *Kentucky*, a N. central co.; *area*, about 200 sq. m. *Rivers.* Kentucky and Elkhorn rivers. *Surface*, diversified; *soil*, fertile. *Cap.* Frankfort. *Pop.* (1897) 21,267.

—A post-village, capital of Simpson co., on Drake's creek, about 150 m. S.W. of Frankfort.

Frank'lin, in *Louisiana*, a N.E. parish; *area*, about 600 sq. m. *Rivers.* Bayou Bœuf, and Jones, Pine, and Deer creeks. *Surface*, uneven, *soil*, fertile. *Cap.* Winnsborough. *Pop.* (1897) 6,950.

—A post-town and port of entry, capital of St. Mary's parish, on the Bayou Teche, about 65 m. from the Gulf of Mexico. *Pop.* (1897) about 2,480.

Frank'lin, in *Maine*, a W. co., separated from Canada on the N. by the Green Mountains; *area*, about 1,660 sq. m. *Rivers.* Androscoggin, Dead, and Sandy rivers, besides numerous smaller streams, and several fine lakes. *Surface*, diversified; *soil*, fertile. *Cap.* Farmington. *Pop.* (1890) 17,053.

—A post-town and township of Hancock co., at the head of Frenchman's Bay. *Pop.* (1897) about 1,275.

Frank'lin, in *Maryland*, a village of Baltimore co., about 35 m. N. of Annapolis.

—A township of Baltimore co.

Frank'lin, in *Massachusetts*, a N.W. co., bordering on Vermont and New Hampshire; *area*, about 665 sq. m. *Rivers.* Connecticut, Deerfield, and Miller's river. *Surface*, hilly; *soil*, fertile. *Cap.* Greenfield. *Pop.* (1895) 40,145.

—A post-town of Norfolk co., about 27 m. S.W. of the city of Boston. *Pop.* (1895) 4,831.

Frank'lin, in *Michigan*, a township of Lenawee co.

—A post-village of Oakland co., abt. 21 m. N.W. of Detroit.

Frank'lin, in *Minnesota*, a village of Steel co., about 14 m. S. by E. of Faribault.

—A township of Wright co.

Frank'lin, in *Mississippi*, a S.W. co.; *area*, about 556 sq. m. *Rivers.* Homochitto and Morgan's Fork. *Surface*, uneven; *soil*, not generally fertile. *Cap.* Meadville. *Pop.* (1890) 10,424.

—A village of Holmes co., about 60 m. N. of Jackson.

Frank'lin, in *Missouri*, an E. co.; *area*, about 866 sq. m. *Rivers.* Missouri, Maramec, and Riviere au Bœuf, and Berger, Bourbeuse, St. John's, and Indian creeks. *Surface*, hilly; *soil*, fertile. *Min.* Copper, iron, and lead. *Cap.* Union. *Pop.* (1890) 28,056.

—A village of Franklin co., on the Maramec river, about 37 m. W. S. W. of St. Louis. Now called Pacific.

—A post-village (now called New Franklin), and township of Howard co.

Frank'lin, in *Nebraska*, a S. co., *area*, 576 sq. m. *Surface*, level. *Cap.* Bloomington. *Pop.* (1890) 7,693.

—A township of Richardson co.

Frank'lin, in *North Carolina*, a N.E. central co.; *area*, about 480 sq. m. *Rivers.* Tar river and some smaller streams. *Surface*, level; *soil*, fertile. *Cap.* Louisburg. *Pop.* (1890) 21,090.

—A post-village, capital of Macon co., on the Tennessee river, about 325 m. W. by S. of Raleigh.

Frank'lin, in *New Hampshire*, a post-town and township of Merrimac co., on the Merrimac river, 19 miles N. N.W. of Concord. *Pop.* (1897) about 4,450.

—A post-office of Merrimac co. Called Franklin Falls.

Frank'lin, in *New Jersey*, a township of Bergen co.

—A township of Essex co.

—A township of Gloucester co.

—A township of Hunterdon co.

—A township of Somerset co.

—A village of Sussex co., about 10 m. E.N.E. of Newton.

—A township of Warren co.

Frank'lin, in *New York*, a N.E. co., bordering on Canada; *area*, about 1,783 sq. m. *Rivers.* Saranac, Chateaugay, Salmon, St. Regis, and Rackett rivers, besides several lakes. *Surface*, uneven, and in the S. part mountainous, Mt. Seward rising to a height of 4,800 ft. *Cap.* Malone. *Pop.* (1890) 38,110.

—A post-village and township of Delaware co., about 82 m. W.S.W. of Albany.

—A township of Franklin co.

Frank'lin, in *Ohio*, a central co.; *area*, about 524 sq. m. *Rivers.* Scioto and Olentangy rivers, and Big Walnut and Alum creeks, besides numerous smaller streams. *Surface*, level; *soil*, fertile. *County-seat*, Columbus. *Pop.* (1897) about 162,000.

—A township of Adams co.

—A township of Brown co.

—A township of Clermont co.

—A township of Columbiana co.

—A township of Coshocton co.

—A township of Darke co.

—A township of Franklin co.

—A township of Fulton co.

—A village and township of Harrison co., about 14 miles N.W. of Cadiz.

—A township of Jackson co.

—A township of Licking co.

—A township of Mercer co.

—A township of Monroe co.

—A township of Morrow co.

—A township of Portage co.

—A township of Richland co

—A township of Ross co.

—A township of Shelby co.

—A township of Summit co.

—A township of Tuscarawas co.

—A post-village and township of Warren co., on the Miami river, about 33 m. N. by E. of the city of Cincinnati.

—A township of Wayne co.

Frank'lin, in *Oregon*, a post-village of Lane co.

Frank'lin, in *Pennsylvania*, a S. co., bordering on Maryland; *area*, about 740 sq. m. *Rivers.* Conedogwinet, Antietam, Tuscarora, and Conecocheague creeks. *Surface*, broken and mountainous, South Mountain rising on the E., and Tuscarora Mountain on the W. border; *soil*, in the valleys extremely fertile. *Min.* Iron, limestone, marble, and slate. *Cap.* Chambersburg. *Pop.* (1890) 51,433.

—A township of Adams co.

—A township of Allegheny co.

—A township of Beaver co.

—A township of Bradford co.

—A township of Butler co.

—A borough of Cambria co.

—A township of Carbon co.

—A township of Chester co.

—A township of Columbia co.

—A township of Erie co.

—A township of Fayette co.

—A township of Greene co.

—A township of Huntingdon co.

—A township of Luzerne co.

—A township of Lycoming co.

—A township of Snyder co.

—A township of Susquehanna co.

—A handsome city, capital of Venango co., on Allegheny river and three railroad lines, 9 m. S.W. of Oil City; in the center of the Penna. oil and natural gas field. Here are immense oil refineries, and various other manufactories. *Pop.* (1897) about 7,000.

—A township of Washington co.

—A township of Westmoreland co.

—A township of York co.

Frank'lin, in *Tennessee*, a S. co., bordering on Alabama; *area*, about 570 sq. m. *Rivers.* Big Crow and Raccoon creeks, and also the head-waters of Elk river. *Surface*, mountainous, the S.E. part being intersected by the Cumberland mountains; *soil*, fertile. *Cap.* Winchester. *Pop.* (1890) 18,929.

—A post-town, capital of Williamson co., on the Harpeth river, about 18 m. S. of Nashville. It was the scene of a severe but indecisive battle, between the Union and Confederate forces under Generals Schofield and Hood, on Nov. 30, 1864. *Pop.* (1897) about 2,400.

Frank'lin, in *Texas*, a post-town, capital of Robertson co., about 90 m. N.E. of Austin. *Pop.* (1897) about 900.

Frank'lin, in *Vermont*, a N.W. co., bordering on Canada and New York, from which latter it is separated by Lake Champlain. *Area*, about 639 sq. m. *Rivers.* Richelieu or Sorel, Missisquoi, and Lamoille rivers. *Surface*, broken; *soil*, fertile. *County-seat*, St. Albans. *Pop.* (1890) 29,755.

—A post-town of Franklin co. *Pop.* 1,300.

Frank'lin, in *Virginia*, a S. co.; *area*, about 750 sq. m. *Rivers.* Staunton river. *Surface*, diversified, the Blue Ridge extending along the N.W. border; *soil*, fertile. *Cap.* Rocky Mount *Pop.* (1890) 24,985.

—A post-village of Southampton co, about 88 m. S.S.E. of Richmond.

Frank'lin, in *Washington*, a village of Pierce co., about 16 m. E. of Steilacoom.

Frank'lin, in *Wisconsin*, a township of Kewaunee co.

—A township of Manitowoc co.

—A village and township of Milwaukee co., about 12 m. S.W. of Milwaukee.

—A village of Pierce co., on the Trimbella river, about 4 m. N. of Red Wing, Minnesota.

—A township of Sauk co.

—A village of Sheboygan co.

—A township of Vernon co.

Frank'lin, in *West Virginia*, a post-village, capital of Pendleton co., about 160 m. S.E. of Wheeling.

Frank'lin Bay, an arm of the Arctic Ocean, extending into British North America, between Port Fitton and Capo Parry

Frank'lin City, in *Massachusetts*, a post-village of Norfolk co., 30 m. S.W. of Boston. Now FRANKLIN.

Franklin College, in *Tennessee*, a village of Davidson co., near Nashville.

Frank'lin Corners, in *Pennsylvania*, a post-office of Erie co.

Frank'lin Creek, in *Ohio*, enters the Miami River in Butler co.

Frank'lin Cross Roads, in *Kentucky*, a post-office of Hardin co.

Frank'lindale, in *New York*, a village of Dutchess co., abt. 65 m. N. of New York city.

Frank'lindale, in *Pennsylvania*, a post-village of Bradford co., abt. 9 m. S.W. of Towanda.

Frank'lin Falls, in *New York*, a post-vill. of Franklin co., on the Saranac River, abt. 35 m. S.S.E. of Malone.

Frank'lin Furnace, in *New Jersey*, a post-village of Sussex co., on the Walkill River, abt. 10 m. N.E. of Newton.

Frank'lin Furnace, in *Ohio*, a post-village of Scioto co., on the Ohio River, abt. 12 m. E S.E. of Portsmouth.

Frank'lin Grove, or FRANKLIN, in *Illinois*, a post-village of Lee co., abt. 90 m. W. of Chicago.

Frank'lin Iron Works, in *New York*, a post-village of Oneida co.

Frank'lin Island, an island in the Antarctic Ocean, discovered by Sir John Ross, in Lat. 76° 8′ S., Lon. 168° 12′ E. It is 12 miles long and entirely composed of igneous rocks.

Frank'lin Island, in *Maine*, an island and light-house at the mouth of St. George's river. It has a flashing light 50 feet above the sea-level; Lat. 43° 51′ N., Lon. 69° 10′ W.

Franklin'ic, *a.* (*Elect.*) Applied to electricity executed by friction.

Frank'linite, *n.* (*Min.*) A ferriferous oxide of zinc. Crystals, indistinct octohedral; color, iron-black; opaque; brittle. Acts slightly on the magnet. Sp. gr. 5·069. *Comp.* Peroxide of iron 66.07, sesquioxide of manganese 12·24, oxide of zinc 21·39, silica 0·29. Occurs abundantly at Sterling and Hamburg, New Jersey, near Franklin Furnace; also found near Eibach, in Nassau, and at Alteuberg, near Aix-la-Chapelle.

Frank'lin Mills, in *Ohio*, the former name of KENT, a thriving post-village of Portage co., on the Cuyahoga river, 10 m. N. E. of Akron. *Pop.* (1897) about 4,000.

Franklin Square, in *Ohio*, a post-office of Columbiana co., about 155 m. N. E. of Columbus.

Franklin Station, in *Iowa*, a post-office of Lee co.

Franklin Station, in *Ohio*, a P. O. of Coshocton co.

Frank'linton, in *Kentucky*, a post-village of Henry co., about 8 m. E. of Newcastle.

Franklinton, in *Louisiana*, a post-town, capital of Washington parish, on the Bogue Chitto river, about 70 m. N. of New Orleans.

Franklinton, in *North Carolina*, a post-town of Franklin co., about 27 m. N. E. of Raleigh. *Pop.* (1897) 500.

Franklinton, in *New York*, a post-village of Schoharie co., about 30 m. W. S.W. of Albany.

Franklinton, in *Ohio*, formerly a village of Franklin co., on the Scioto river; now part of Columbus.

Frank'lintown, in *Pennsylvania*, a post-borough of York co., about 18 m. S.W. of Harrisburg.

Frank'linville, in *Illinois*, a village of Boone co.

—A village of McHenry co.

Franklinville, in *Maryland*, a P.O. of Baltimore co.

Franklinville, in *New Jersey*, a village of Essex co., about 10 m. N. W. of Jersey City. This village is now called FRANKLIN.

—A post-village of Gloucester co., about 16 m. S. S. E. of Woodbury. It was formerly called LITTLE EASE.

Franklinville, in *New York*, a post-village and township of Cattaraugus co., about 45 m. S. S. E. of Buffalo. *Pop.* of township (1897) about 2,300.

Franklinville, in *North Carolina*, a post-office of Randolph co., on Deep river, about 70 m. W. of Raleigh.

Franklinville, in *Pennsylvania*, a post-office of Huntingdon co.

Frank'ly, *adv.* In a frank manner; openly; freely; candidly; unreservedly.

Frank'ness, *n.* Quality of being frank; plainness of speech; candor; freedom in communication; openness; ingenuousness; fairness.

Franks, *n. pl.* (*Hist.*) The name of a confederation which was formed, about 240, by the tribes dwelling on the banks of the Lower Rhine and the Weser, who united under the title of Franks or free men. They invaded Gaul in 256, and for 12 years ravaged that country and Spain, extending their incursions as far as the opposite continent of Africa. Probus drove them back into their native marshes in 277; but their influence gradually increased, and after the death of Constantino I., in 337, they constituted a powerful faction at the imperial court. In 355 they again invaded Gaul, and were defeated by Julian, who permitted them to establish a colony in Brabant or Taxandria. In 418 they again invaded Gaul, where, under their leader Pharamond, they founded the modern kingdom of France, *q.v.*

Frank's Island Lighthouse, in *Louisiana*, an island and light-house, at the mouth of the Mississippi River, N.E. pass. It has a fixed light 78 ft. above gulf-level. Lat. 29° 8′ 30″ N., Lon. 89° 1′ 24″ W.

Franks'town, or FRANKTOWN, in *Colorado*, a post-village of Douglas co., abt. 28 m. S.S.E. of Denver.

Frankstown, in *Pennsylvania*, a post-town and township of Blair co. *Pop.* of township about 1,400.

Frank'ton, in *Indiana*, a post-town of Madison co., about 10 m. N. N.W. of Anderson.

Franktown, a village of the province of Ontario, in the county of Lanark, about 9 m. S. of Carleton Place. *Pop.* (1897) about 100.

Franktown, in *Nevada*, a post-village of Washoe co., about 6 m. S. of Washoe City.

Franktown, in *Virginia*, a P. O. of Northampton co.

Frank'ville, in *Georgia*, a post-office of Monroe co.

Frank'ville, in *Iowa*, a post-township of Winneshiek co. *Pop.* (1897) about 1,000.

Franks'ville, in *Wisconsin*, a post-office of Racine co.

Fran'tic, *a.* [Fr. *phrenetique;* Lat. *phreneticus;* Gr. *phrenitikos*, from *phrēn*, the midriff, the heart, and parts about the heart, the seat of joy, fear, &c., and also of the thought, the mind.] Having the mind disordered; frenzied; mad; delirious; raving; furious; outrageous; desperate: raging; wild and disorderly; distracted; characterized by violence, fury, and disorder; noisy; wild; irregular; turbulent.

Fran'tically, or FRAN'TICLY, *adv.* Madly; distractedly; outrageously.

Fran'ticness, *n.* Quality of being frantic; madness; frenzy.

Fran'zensbrunn, a village of Bohemia in the Austrian empire, 18 m. from Elbogen, noted for its bath establishments. From its 4 mineral springs are exported about 200,000 bottles of water annually.

Frasca'ti, a town of Central Italy, situated in the Campagna di Roma, about 11 miles S.E. of Rome. Here are the ruins of Tusculum (*q. v.*), the birthplace of Cato, and also the residences of Lucullus, Cicero, and Mœcenas. *Pop.* usually about 4,300; but during the summer months it is considerably increased by the influx of visitors.

Fra'ser, in *Michigan*, a post-office of Macomb co.

Frase'ra, *n.* (*Bot.*) A genus of N. American plants, order *Gentianaceæ*. The Columba, *F. Carolinensis*, is officinal in our pharmacopœia as a substitute for gentian-root, but it is less powerful.

Fra'serburgh, a town and sea-port of Aberdeen co., Scotland, about 18 miles from Peterhead. The harbor was constructed at a cost of $250,000. *Pop.* 3,500.

Frap, *v. a.* (*Naut.*) To prevent from blowing loose, as a sail, by passing ropes around it.—To pass ropes or chains around a weakened vessel so as to keep her together.—To cross and draw together the several parts of a tackle, to increase the tension.

F. R. A. S. Abbreviation for Fellow of the Royal Astronomical Society.

Frater'nal, *a.* [Fr. *fraternel;* Lat. *fraternus*, from *frater*, a brother, *q. v.*] Brotherly; pertaining to brethren; becoming brothers.

Frater'nally, *adv.* In a brotherly manner.

Frater'nate, *v. n.* To fraternize. (R.)

Fraterna'tion, or FRATERNISM, *n.* Fraternization. (R.)

Frater'nity, *n.* [Fr. *fraternité;* Lat. *fraternitas*, from *frater.*] Literally, a body of men united together in one brotherhood. In Roman Catholic countries, a society originated for purposes of devotion. Such societies are of several sorts, the more remarkable of them being,—1. of the Rosary, founded by St. Dominic, and divided into two branches, called the Common rosary and the Perpetual rosary, the latter being under very strict engagements, and enjoined to repeat the rosary continually; 2. of the Scapulary, whom, according to the Sabbatine bull of John XXII., the Virgin has promised to deliver out of hell the first Sunday after their death; 3. of St. Francis's girdle, who are clothed with a sack of gray color, which they tie with a cord, and in procession walk barefooted, carrying in their hands a wooden cross; 4. of St. Augustine's leathern girdle, which comprehends a great number of devotees. Italy, Spain, and Portugal are the countries where the greatest number of these fraternities are to be seen, some of which assume the name of arch-fraternities. Pope Clement VI. instituted the arch-fraternity of Charity, which distributes bread every Sunday among the poor; and the fraternity of Death buries such dead as are abandoned by their relations, and causes masses to be celebrated for them.

Fraterniza'tion, *n.* Act of associating and holding fellowship as brethren.

Frater'nize, *v. n.* [Fr. *fraternizer.*] To associate or hold fellowship as brothers, or as men of like occupation or disposition.

—*v. a.* To cause to associate as brothers.

Frater'nizer, *n.* One who fraternizes.

Fraticel'li, FRATICELLIANS, or LESSER BRETHREN, a branch of the Franciscans (*q. v.*), that arose in Italy towards the end of the 13th century. They were, according to Milman, bound to the Cœlestinians by the closest ties. By some authors they have been confounded with the Beghards, to whom the name Fraticelli, or Fratercali, was applied as a term of reproach. They disappeared towards the end of the 15th century.

Fratrici'dal, *a.* Pertaining to fratricide.

Frat'ricide, *n.* [Lat. *fratricidium—frater*, and *cædo*, to kill.] The crime of murdering a brother.—One who murders a brother.

Frat'ta-Maggio're, a town 6 m. N.E. of the city of Naples, Italy. It rears great numbers of silk-worms, has extensive rope-walks, and furnishes great quantities of strawberries for the market at Naples. *Pop.* 9,000.

Fraud, *n.* [Fr. *fraude;* Sp. *fraude*, from Lat. *fraus, fraudis*, a cheating, imposition. Etymol. uncertain.] A cheating; deceit; imposition; deception; trick; artifice by which the right or interest of another is injured; guile; subtlety; craft; wile; circumvention; stratagem; cheat.

(*Law.*) All deceitful practices in defrauding, or endeavoring to defraud, another of his known right, by means of some artful device, contrary to the plain rules of common honesty. It is condemned by the common law, and punishable according to the heinousness of the offence. All frauds and deceits for which there is no remedy by the ordinary course of law, are properly cognizable in equity, and, indeed, constitute one of the chief branches of cases to which the jurisdiction of chancery was originally confined. There are few cases of fraud that are not cognizable by equity, though in most cases the courts of law have a concurrent jurisdiction. Where a fraud can be clearly established, courts of law exercise a concurrent jurisdiction with courts of equity. Wherever fraud or surprise can be imputed to, or collected from, the circumstances, equity will interpose and grant relief against it. It is impossible to lay down any general rules that shall be applicable to all kinds of fraud, for they are innumerable and ever varying; the ingenuity of man ever finding out new modes of deceit and new means of avoiding detection. A fraudulent conveyance of lands or goods to deceive creditors is, as to creditors, void in law; and a fraudulent conveyance to deceive purchasers is also to such purchasers void. Where a person is party to a fraud, all that follows by reason of that fraud shall be said to be done by him. A party prejudiced by a fraud may file a bill in equity for a discovery of all its circumstances. Mere inadequacy of price alone is not a ground for a court to annul an agreement: but if there be such inadequacy as to show that the person did not understand the bargain he made, or was so oppressed that he was glad to make it, knowing its inadequacy, it will show a command over him which may amount to a fraud. If a person be fraudulently prevented from doing an act, equity will consider the act as done; and equity also relieves against bargains made under misconception of rights. In treaties, concealment of a material fact by one of the parties, in order to keep the other in ignorance, whereby to profit, is a gross fraud, and the contract will be set aside in equity. *Suppressio veri* (suppression of truth), *suggestio falsi* (suggestion of falsehood), in solemn conveyances, releases, or agreements, will afford a sufficient ground for setting them aside. *Constructive fraud* is applied to such acts or contracts as, though not originating in any actual evil design or contrivance to perpetrate a positive fraud, or injury upon other persons, yet, by their tendency to deceive or mislead other persons, or to violate public or private confidence, or to impair or injure the public interests, are deemed equally reprehensible with positive fraud, and are prohibited by law, as within the same reason and mischief as acts and contracts done *malo animo*. Gross criminal frauds are punishable by way of indictment or information; such as playing with false dice, causing an illiterate person to execute a deed to his prejudice, &c. For these, and such like offences, the party may be punished with fine and imprisonment. Frauds are not indictable at common law unless they be such as affect the public,—as vending unwholesome provisions, or using false weights or measures; or by way of conspiracy; or unless they affect the crown or the administration of justice.

Fraud'ful, *a.* Full of fraud; deceitful in making bargains; trickish; treacherous; containing fraud or deceit.

Fraud'fully, *adv.* Deceitfully; with intention to deceive, and gain an undue advantage; trickishly; treacherously; by stratagem.

Fraud'less, *a.* Free from fraud.

Fraud'lessly, *adv.* In a fraudless manner.

Fraud'ulence, FRAUDULENCY, *n.* [L. Lat. *fraudulentia.* Deceitfulness; trickishness in making bargains in social concerns; proneness to artifice.

Fraud'ulent, *a.* [Lat *fraudulentus*, from *fraus*, deceit.] Deceitful; fraudful; crafty; trickish; deceptive; treacherous.—Practising deceit in making contracts; unfair; dishonest.—Containing fraud; founded on, or proceeding from fraud; as, a *fraudulent* agreement.

Fraud'ulently, *adv.* By fraud; by deceit; by artifice or imposition.

Fraught, (*frawt,*) *a.* [Anc. pp. of *fraight*, to load, now written *freight*, q. v. Ger. *fracht*, cargo.] Freighted; laden; loaded; charged.

"A vessel richly *fraught.*"—*Shaks.*

Fraun'hofer's Lines. See SPECTRUM.

Fraustadt, (*frou'stat,*) a town of Prussia, in the grand-duchy of Posen, 55 m. from Breslau. *Manuf.* Linens, woollens, hats, and Morocco leather. It has a considerable trade in grain and cattle. In the vicinity are about 100 windmills. In 1706 the Swedes here defeated the Saxons and Russians. *Pop.* 7,926.

Fraxinel'la, *n.* (*Bot.*) See DICTAMNUS.

Frax'inine, *n.* [Lat. *fraxinus*, a beech-tree.] (*Chem.*) A neutral vegetable principle, of a bitter taste, obtained from the bark of the *Fraxinus excelsior.*

Fraxinus, (*frăks'e-nus.*) *n.* [From Lat. *frango*, I break, in allusion to its brittleness.] (*Bot.*) The Ash, a genus of the order *Oleaceæ*, consisting of about 50 species, mostly natives of N. America and Europe. The leaves are deciduous, and pinnate, with a terminal leaflet. The flowers are very imperfect, the calyx being obsolete and the corolla either wanting or ¾ partite. The fruit is a *Samara*, q. v. *F. Americana*, the American or White-ash common in the N. States and in Canada, is a beautiful and umbrageous tree, rising to the height of 100 to 150 feet. The wood is white, tough, hard, and light, much valued by wheelwrights, coach-makers, and turners. It is peculiarly adapted for agricultural implements, handles for tools, and ladders. Some interesting varieties have been developed by cultivation: the Weeping-ash, with branches drooping to the ground; the Curled-leaved ash, with dark green wrinkled or curled leaves; and the Entire-leaved ash, with many or all the leaves simple. The sweet concrete exudation known as *manna* is procured by making incisions in the stems of certain species of *Fraxinus*, chiefly *F. ornus* and *rotundifolia*, natives of Calabria, Apulia, and Sicily. Manna is

a mild, agreeable laxative. It owes its properties to a peculiar resin called mannite. The insect which produces the white wax of China feeds upon the species *F. Chinensis*.



Fig. 1068. — AMERICAN ASH, (*Fraxinus Americana.*)

Fray. *n.* [Contr. from *affray*, q. v.] A broil, quarrel, or violent riot that puts men in fear; a combat; a battle; a fight; also, a single combat or duel; a contest; contention; altercation; fend.

"Nature and death continue long their *fray*."—*Denham.*

—[Fr. *fraie*, from *frayer;* Lat. *fricare*, to rub.] A rub; a fret or chafe in cloth.

—*v. a.* [Contr. from *affray*, q. v.] To frighten; to terrify.

—[Fr. *frayer;* Lat. *fricare*, to rub.] To fret, as cloth by wearing; — hence, to ruffle; to grate upon; as, to *fray* one's temper.

—*v. n.* To rub; to wear off; to ravel, — said of cloth.

Fray'ing, *n.* The outer integument or peel which a deer rubs from his horn.

Fra'zer, in *Pennsylvania*, a post-office of Chester co.

Fra'zer River, a river of British N. America, enters the Gulf of Georgia, opposite the island of Vancouver, in Lat. 45° N.

Fra'zeysburg, in *Ohio*, a post-village of Muskingum co., about 61 m. E. N. E. of Columbus.

Fra'zier's Bot'tom, in *W. Virginia*, a post-office of Putnam co.

F. R. B. S., Fellow of the Royal Botanic Society.

F. R. C. P., Fellow of the Royal College of Physicians.

F. R. C. S., Fellow of the Royal College of Surgeons.

Freak, (*freek,*) *n.* [A. S. *frec*, greedy, bold; Ger. *frech*, saucy, impudent.] A sudden and causeless starting and change of place. — A sudden, causeless change or turn of the mind; a capricious prank; a whim; a fancy; caprice; frolic; sport.

"To vex me more he took a *freak*,
To slit my tongue and make me speak."—*Swift.*

—*v. a.* [A Scottish word introduced into English by Thomson.] To variegate; to checker.

"*Freaked* with many a mingled hue."—*Thomson.*

Freak'ish, *a.* Apt to change the mind suddenly; whimsical; capricious.

Freak'ishly, *adv.* Capriciously; with sudden change of mind without apparent cause.

Freak'ishness, *n.* Capriciousness; whimsicalness.

Freas'burg, in *New Jersey*, a village of Salem co., abt. 12 m. S.E. of Salem.

Free'kle, *n.* [Dan. *fregne:* Ger. *fleck*, a spot, a discoloration.] (*Med.*) A cutaneous affection of the countenance to which persons of a florid complexion are greatly subject, especially females with auburn hair. Freckles are small yellow spots that break out over the face in the hot period of summer, and by their number give a stained and unpleasant appearance to the countenance. A still more obstinate form of freckles appears in the winter, often proceeding from a disordered state of the stomach. Various applications have been proposed for their removal; and perhaps the best is a liniment composed of lime-water and oil, with the addition of a little ammonia. The Irish peasantry are in the habit of washing their faces with buttermilk as a cosmetic, and with great success. An excellent wash for freckles is also made by scraping some horse-radish very fine, and letting it stand for some hours in buttermilk, then straining, and using the wash night and morning.

—The name is also commonly applied to any small spot or discoloration.

—*v. a.* To spot or cover with freckles.

—*v. n.* To acquire freckles; to be spotted.

Frec'kled, *a.* Spotted; having small yellowish spots on the skin or surface.

Frec'kledness, *n.* The state or condition of being freckled.

Freck'ly, *a.* Full of freckles; sprinkled with spots.

Fred, *n.* [A. S. *fridhu*, peace; Ger. *friede.*] Peace; a word found only in composition, principally with proper names; as, Al*fred*, all peace; Wini*fred*, a friend's peace; *Fred*eric, the king of peace.

Fred'erica, in *Delaware*, a post-village of Kent co., on Motherkill Creek, abt. 13 m. S. of Dover.

Fred'erica, in *Georgia*, a post-office of Glynn co., on St. Simon's Sound, abt. 70 m. S.S.W. of Savannah.

Fred'erica, in *Iowa*, a post-office of Bremer co.

Frederic'ia, a fortified town of Denmark, in Jütland, on the Little Belt, 12 m. from Veyle; Lat. 55° 35′ N., Lon. 9° 44′ E.; *pop.* 5,500.

Fred'erick, or **Fred'eric,** the name of several monarchs or princes, of whom the following are the most eminent:

GERMANY.

Frederick I., surnamed BARBAROSSA, emperor of the West, son of Frederick, duke of Suabia, B. 1121, and was chosen to succeed his uncle Conrad III. in 1152. He had accompanied Conrad to Palestine five years previously, and his great qualities had already appeared. He was crowned at Aix-la-Chapelle a few days after his election. His great ambition was to secure the independence of the empire, and, above all, to be master of Italy. His first expedition to Italy was made in 1154, when, after subduing several towns in Lombardy, he went to Rome, and, after some delays, had himself crowned emperor by Adrian IV. He marched a second time into Italy in 1158, took Brescia and Milan, and at the celebrated Diet at Roncaglia assumed the sovereignty of the towns, and received the homage of the lords. On his return to Germany he triumphed over Bohemia, and made Poland tributary to the empire. After the death of Pope Adrian, *F.* had three anti-popes in succession elected in opposition to Alexander III., who excommunicated him and his pope, Victor. The same year, 1160, he besieged and took Crema, after a most courageous defence. In 1162 he conquered Milan, and had the fortifications partly destroyed and many of the public buildings; after which the other towns of Lombardy submitted to him. Fresh revolts, excited by the tyrannical measures of his officers, recalled him to Italy in 1164; but he retired without engaging the army of the League. Again, there, in 1166, he traversed the Romagna, levied contributions on the towns, besieged Ancona, and had himself crowned a second time at Rome by the anti-pope Pascal. A fresh league being formed against him, he put its members under the ban of the empire, and returned to Germany. In 1174 he besieged, unsuccessfully, the newly-founded town of Alessandria, and in the following year was totally defeated by the Milanese at Como. Soon after he made peace with the Pope and the towns of Lombardy. In 1188 he assumed the cross, set out in the following year on the third crusade, was opposed on the march by the Greek emperor and the Sultan, arrived in Asia, and was drowned while crossing a river, in June, 1190. *F.* was great, not only as a soldier, but as a ruler. His administration was marked by justice, his subordinate officers were chosen for their capacity and probity, he was himself an educated man, and promoted education and literature. His memory is still cherished among the peasants of Germany, who dream of the return of Fritz Redbeard, as the Welsh did of King Arthur.

FREDERICK II., emperor of the West, son of Henry VI. and Constance of Sicily, B. 1194, elected king of the Romans in 1196, again after his father's death, and a third time on the excommunication of Otho IV., in 1211. He was already king of Sicily, and duke of Suabia, under the joint regency of his mother and Pope Innocent II. He made a league with Philip Augustus, king of France, and after the defeat of Otho by the latter at the battle of Bouvines, was crowned at Aix-la-Chapelle in 1215. Five years still elapsed before he received the imperial crown at Rome; on which occasion he had to renew a vow previously extorted from him to take the cross. In 1225 he married Yolande, daughter of John of Brienne, king of Jerusalem, and two years later, after several delays, he embarked for the Holy Land. Illness compelled him in a few days to land again, and for this he was excommunicated by Pope Gregory IX., the first of ten thunders of the Vatican against him. He set out again in 1228, and the Pope exciting opposition to him, and invading his hereditary states, he at once concluded a truce with Kameel, the Sultan of Egypt, by which he became master of Jerusalem. He entered the city, crowned himself, (no priest daring to do it,) and returned to Europe. He recovered his states, made peace with the Pope, and suppressed the revolt of his son Henry, who was then imprisoned for life. In 1235 *F.* began the war with the cities of Lombardy, having for his ally Ecclino, tyrant of Verona. After his victory of Cortenuova, most of the cities submitted to him, and he approached Rome, but did not attack it. He took Ravenna, Faenza, and Benevento; and, in 1241, his fleet, commanded by his natural son Enzio, whom he made king of Sardinia, defeated that of the Genoese, and captured the cardinals and bishops who were on their way to attend a council against him. *F.* promoted the election of Innocent IV., who had been his friend, and made a treaty with him: but he soon found Innocent a most determined enemy. A new anathema and sentence of deposition, and release of his subjects from their allegiance to him, was published in 1245. The mediation of St. Louis utterly failed to bend the pope to reconciliation. Rival emperors were set up, the war in Italy continued, Parma was lost in 1248, Enzio was defeated and made prisoner in the following year, and *F.* himself died at Viorenzuoli, 1250. *F.* was the most accomplished sovereign of the Middle Ages; but his strong sympathies with his Italian motherland, and his unremitting endeavors to establish a compact and all-supreme empire in Italy, were the causes, not only of his own misfortunes, but of the miseries which he brought upon the German empire, by embroiling him in costly wars abroad, and leading him to neglect the welfare, and sacrifice the interests of his German subjects.

FREDERICK III., was the son of Albert I., and was chosen emperor in 1314, by some of the electors, but the majority elected Louis of Bavaria, who defeated and took Frederick prisoner at Mühldorf, in 1322. The latter then renounced his claim, and D. 1330.

FREDERICK IV., called the *Pacific*, B. at Innspruck, 1415, ascended the throne in 1440, and was crowned at Rome in 1442. His reign was passed in forming plans for the pacification of the empire. He is said to have died of a surfeit of melons, or in consequence of an amputation of his leg. He left it to his son Maximilian to carry out the device inscribed upon his palaces and books, A, E, I, O, U; which characters are generally supposed to represent the motto, *Austriæ est Imperare Orbi Universo.* D. 1493.

DENMARK.

Frederick I., king of Denmark and Norway, B. 1673, succeeded his nephew Christiern (or Christian) II., on the deposition of the latter, in 1523, and entered into an alliance with Gustavus I., king of Sweden. After taking Copenhagen, he gained over all the nobility, and introduced Lutheranism into his dominions. D. 1534.

FREDERICK II., the son and successor of Christiern (or Christian) III., B. 1534, ascended the throne in 1559. He was a great friend of learning, and was a patron of Tycho Brahe and other men of science. He waged a long war with Sweden, which ended in 1570. D. 1588.

FREDERICK III., B. 1609, succeeded his father Christiern IV. in 1648. The most remarkable event of his reign was his changing of the constitution from an elective to an hereditary monarchy. D. 1670.

FREDERICK IV., B. 1671, ascended the throne on the death of Christiern V. in 1699. He leagued against Charles XII. of Sweden, who forced him to make peace; but when Charles fled to Turkey, Frederick drove the Swedes out of Norway, and concluded a favorable peace, retaining possession of the duchy of Schleswig. D. 1730.

FREDERICK V., grandson of the preceding, was B. 1723, and came to the throne in 1746. The character of his reign may be inferred from the following remark, which, on his death-bed, he made to his successor Christiern VII.: "It is a great consolation to me, my son, that I have not injured any person, and that my hands are not stained with one drop of blood." D. 1766.

FREDERICK VI., king of Denmark, B. 1768, ascended the throne in 1808; from 1784 he was associated in the gov. with his insane father. He had to repair the damages done by the English in their bombardment of Copenhagen in 1807, and to wage a war with the Swedes, who unsuccessfully attempted to take Norway. Peace was signed with Sweden, in 1809. Allying with Napoleon, Norway was, in 1814, given to Sweden, under Bernadotte; Pomerania and the isle of Rügen falling to Denmark. D. 1839.

FREDERICK VII., son and successor in 1848 of Christian VIII. B. 1808; D. 1863. The Schleswig-Holstein war of 1848, and the abolition of the Sound dues (1857), were the chief events of his reign. With his death, the elder line of the royal house of Oldenburg became extinct.

SWEDEN.

Frederick, king of Sweden, was the eldest son of Charles, landgrave of Hesse-Cassel. He married the sister of Charles XII., on whose death, in 1718, the states of Sweden elected her queen, and in the year following consented to her resigning the crown to her husband. He had a long and unsuccessful war with Russia, which ended in a disadvantageous peace to Sweden. He then gave his energies to the pursuits of peace, restored the finances, aided agriculture and commerce, and founded an academy at Stockholm. D. without issue, 1751.

PRUSSIA.

Frederick William, generally called the GREAT ELECTOR, was B. in 1620, and at the age of 20 years succeeded his father as elector of Brandenburg. He is considered as the founder of Prussian greatness; and from him was derived much of that military spirit which became the national characteristic. He made Prussia free from feudal subjection to Poland, conquered Pomerania, joined the League against Louis XIV., and defeated the Swedes who invaded Prussia in 1674. He applied himself with much wisdom and earnestness to the promotion of the well-being of his subjects, favoring trade, making roads, &c. By affording protection to the French Protestant refugees, he gained, as citizens of the state, 20,000 industrious manufacturers, an acquisition of no slight importance to the north of Germany; and he also gave great encouragement to agricultural improvements. He founded the library at Berlin, and a university at Duisburg; and at his death he left to his son a country much enlarged, and a well-supplied treasury. D. 1688.

Frederick I., first king of Prussia, (FREDERICK III. as elector of Brandenburg,) B. 1657, was son of the above. He succeeded his father in 1688, entered into the alliance against France, and seized Bonn and other towns, sent auxiliaries to the emperor against the Turks, and, after a dispute of some years, sold to the emperor the circle Schwiebus, which the Great Elector had acquired in exchange for the principalities of Liegnitz, Brieg, and Wohlau. He supported the emperor in the war of the Spanish Succession, and in 1701 obtained from him the title of king, which he had long coveted. Frederick gratified his love of pomp in the ceremony of his coronation at Königsberg, the cost of which exhausted his treasury for a time. He placed the crown on his head with his own hands. In 1694 he founded the university of Halle; two years later, the Berlin Academy of Painting; and, in 1707, he established the Academy of Sci-

ences, Berlin, and made Leibnitz first president. He was thrice married; his third wife became insane, but her state was concealed from him. One day she escaped, rushed into the king's apartment, smashing the glass door, and so terrified him that he immediately fell into a fever, and after six weeks' illness died, Feb., 1713.

FREDERICK WILLIAM I., son of the above, and father of Frederick the Great, was b. in 1688, and commenced his reign in 1713, after having married a daughter of the elector of Hanover, afterwards George I. of England. In 1715 he declared war against Charles XII. of Sweden, and in conjunction with Denmark took Stralsund; but on the death of Charles, in 1718, he made peace. D. 1740. — The habits of this sovereign were entirely military, and he labored unwearyingly to promote the discipline of his troops. One of his strongest peculiarities was an extraordinary love for tall soldiers; and in order to procure these sons of Anak, he had agents employed in all parts of Europe. He held science and literature in profound contempt; but money he worshipped, and men of a military character after his own ideal he respected and encouraged. The consequence was, that he left an abundant treasury and a well-appointed army of 66,000 men.

FREDERICK II., commonly called *Frederick the Great*, was born 24th January, 1712, and began to reign in 1740. He found himself in possession of a full treasury and a powerful army, which he soon employed in attacking Austria, and conquering from her the province of Silesia (1740–1742). In 1744 he engaged in a second war with Austria, which was terminated in 1745, and left him in possession of Silesia, but with no augmentation of power, though his military renown was raised throughout Europe. The great struggle of the Seven Years' War began in 1756. Prussia was now attacked by the Austrians, the Russians, the French, the Saxons, and the Swedes, and her destruction and dismemberment seemed inevitable. England was her only ally. Prussia went through the struggle, and came out triumphant. When the peace of Hubertsburg was concluded in 1763, Prussia did not cede an inch of land, or pay a dollar of money; and from that time forth she was recognized as one of the five great powers of Europe. For this glorious result she was indebted to her king. It is not merely the military genius of Frederick, as displayed during the sanguinary



Fig. 1069. — FREDERICK II., (THE GREAT.)
(King of Prussia.)

campaigns of the Seven Years' War, that demands our attention, for we cannot help admiring also his moral courage and his indomitable energy under reverses which would have crushed almost any other spirit. Though victorious at Prague, at Rosbach, and Lissa (1757), at Zorndorf (1758), at Liegnitz and Torgau (1760), he suffered heavy defeats at Collin (1757), at Hochkirchen (1758), at Kunnersdorf (1759); and his lieutenants, with the exception of Prince Ferdinand of Brunswick, were generally unsuccessful. But *F.*'s firmness never failed him, even when all hope seemed lost. In a period of extreme danger, he wrote to Voltaire (who had advised him to beg mercy from his enemies), "I am a man, and therefore born to suffer. To the rigor of destiny I oppose my own constancy. Menaced with shipwreck, I will bear the storm; I will be king in spirit; and I will die, as I have lived, a king." — After the conclusion of the war, *F.* exerted himself earnestly in relieving the suffering which so many years of carnage and devastation had brought upon Prussia. *F.* died 17th August, 1786. He was fond of the society of literary men, and was himself an author of many works of considerable merit. During his struggles against Austria and France, *F.* was regarded in England and America as the champion of Protestantism, and he was called a second Gustavus Adolphus. He ill deserved the title. The disciple of Voltaire, he is supposed to have had no religious faith whatever. FRED. III. See F. WM.

FREDERICK WILLIAM II., king of Prussia, was nephew to Frederick the Great, and was born in 1744. He succeeded his uncle in 1786, and gave himself up, as he had long done, to low pleasures, wasting his resources on his mistresses and favorites. He entered into the Triple Alliance in 1788; made an alliance with the Porte; sent an army under the Duke of Brunswick to invade France, in 1792; took part in the second partition of Poland: and made peace with France in 1795. Died, 1797.

FREDERICK WILLIAM III., king of Prussia, son of the above, commenced his reign in 1797 by maintaining a strict neutrality in the various alliances with and against France, which resulted from the ambitious designs of Napoleon I. In 1805, however, he yielded to the solicitations of Russia, allying himself with the Czar against the French emperor. The rapid campaign of 1806, and the defeat of the Prussians at Jena, opened the gates of Berlin to the enemy, in whose hands it remained till 1809. In 1807 the battle of Friedland led to the humiliating peace of Tilsit, by which Frederick lost half his dominions. Restored to his capital, the king diligently endeavored to repair the evils of war; but new disasters overtook him, and his kingdom suffered greatly during the struggle from 1812 to 1814. Forced, in the former year, to contribute a force of 30,000 men to Napoleon's army, he subsequently joined his troops with those of Russia. The allies having triumphed over the French at Leipsic, Frederick William, in 1814, entered Paris with the Czar Alexander. He also accompanied the latter to England in the same year. On the return of Napoleon from Elba, he once more joined the allies. After the victory of Waterloo, in which the Prussians, under Blücher (whom see), played an important part, Prussia, once more at peace, gradually recovered the losses she had sustained, under the wise and paternal sway of Frederick, whose constant efforts and moderation contributed greatly to the maintenance of peace. D. 1840. — Throughout his life, he was a warm defender of the Protestant religion, and a patron of education. He never redeemed his promise, however, to bestow a representative constitution on his people. The establishment of the provincial estates only affected very slightly the absolute power, which, it is true, he wielded with ability, and with a kind of paternal affection for his people. It may finally be said of him, that, a waverer between the absolutist party and the liberal party, he secured, as is the lot with most undecided men, the respect and adherence of neither.

FREDERICK WILLIAM IV., king of Prussia, on the death of his father, succeeded to the throne in 1840. He served, as a simple officer, in the campaigns of 1813 and 1814, and evinced, at an early period of his life, a very great love for the arts, which he preserved throughout his career. During the first years of his reign his subjects anxiously demanded the reform of the government, requiring the liberal constitution which had been promised them in 1815, in return for the great sacrifices they had made during the continental war. In 1847, at a general diet of the Prussian states, many of these reforms were granted, and it was thought that the kingdom might escape the troubles of the next year's revolution. In March, 1848, however, the people and the troops came into collision, the king was obliged to change the ministry, to issue a general amnesty, and commence a war in favor of Schleswig against Denmark, and to salute from his balcony the corpses of the insurgents. These humiliations were somewhat softened by his hopes of becoming emperor of a united Germany, and by the success of his army in putting down an insurrection of the Poles in Posen. The mingled irresolution and absolutism of Frederick, however, led him subsequently to other conflicts in June and August of the same year; and it was not until two *coups-d'état* that Frederick, assisted by his army, succeeded in retaining his authority almost unimpaired by the powers he had yielded. In the war between the Western powers and Russia, the king preserved a strict neutrality, although earnestly solicited by each party to espouse its side in the conflict. In his reply to the demands of the Czar, he said: "There is hardly anything I will not do for the emperor Nicholas, whom I love; but if I remember that he is my father-in-law, neither do I forget that Prussia is not the sister-in-law of Russia." In 1856, in consequence of an attack on Neufchâtel by some Prussian partisans, war was in danger of breaking out between Switzerland and Prussia; but this was avoided, and a treaty concluded, in May, 1857, in reference to the king's claims on that place. In the complication relative to the Danubian principalities, Prussia followed the lead of France and Russia as opposed to England and Austria. Towards the end of 1857, a severe illness, resulting in the loss of some of his faculties, caused his brother WILLIAM to be nominated regent, who succeeded him as king in 1861.

POLAND.

Frederick Augustus II., III. See AUGUSTUS.

SAXONY.

Frederick III., THE WISE, b. 1463, succeeded his father Ernest, 1436, as elector of Saxony. He is known chiefly as founder of the university of Wittenberg, and as the friend and very cautious protector of Luther, who was one of the first professors at the new university. It was by his arrangement that Luther, after the Diet of Worms, was seized and carried off to Wartzburg. He did not, however, establish the reformed faith in his dominions. He became administrator of the empire in 1519, and was offered the imperial crown, but declined it. D. 1525.

BOHEMIA.

Frederick V., Elector-Palatine and king of Bohemia, succeeded his father, Frederick IV., in 1610. In 1618 he married the Princess Elizabeth, daughter of James I. of England, and in the following year accepted the crown of Bohemia. He made a triumphal entry into Prague, followed in 1620 by his total defeat by the Imperial forces at the battle of Prague, and the loss of his kingdom and hereditary states. He took refuge in Holland, and died in 1631.

Fred'erick, in *Illinois*, a post-village of Schuyler co., very pleasantly located on the Illinois river, about 80 m. below Peoria.
—A township of Schuyler co.

Fred'erick, in *Kentucky*, a village of Barren co., about 17 m. N. E. of Glasgow.

Fred'erick, in *Maryland*, a N. county, bordering on Pennsylvania; *area*, 633 sq. m. *Rivers.* Potomac and Monocacy rivers, and Catoctin, Pipe, Linganore and Bennett's creeks. *Surface*, diversified, South Mountain extending along the western border; *soil*, very fertile. *Min.* Copper, iron, manganese, and a superior quality of limestone. *Cap.* Frederick. *Pop.* (1890) 49,512.
—A thriving city, capital of above county, on B. & O. and Penn. R. Rs., 44 m. N. N.W. of Washington, D. C. Has fine local trade and important manufactures. Seat of Frederick College and a State Deaf and Dumb Asylum. *Pop.* (1897) about 11,000

Fred'erick, in *Michigan*, a village of Macomb co., on Clinton river, about 20 m. N. N. E. of Detroit.

Fred'erick, in *Ohio*, a post-village of Mahoning co.

Fred'erick, in *Pennsylvania*, a post-township of Montgomery co., about 15 m. N. N.W. of Norristown.

Fred'erick, in *Virginia*, a N. co., bordering on West Virginia; *area*, 380 sq. m. *Rivers*, Opequan, Sleepy and Black creeks *Surface*, diversified; *soil*, fertile. *Cap.* Winchester. *Pop.* (1897) about 17,880.

Fred'ericksborg, a citadel of Sweden, 15 m. from Stockholm, the entrance to the harbor of which it defends.

Fred'ericksburg, in *Indiana*, a post-town of Washington co., on Blue river, about 15 m. S. S.W. of Salem.

Fred'ericksburg, in *Iowa*, a post-township of Chickasaw co.

Fred'ericksburg, in *Kentucky.* See WARSAW.

Fred'ericksburg, in *Ohio*, a post-village of Wayne co., about 9 m. S. E. of Wooster.

Fred'ericksburg, in *Pennsylvania*, a post-village of Lebanon co., about 10 m. N. of Lebanon.

Fred'ericksburg, in *Texas*, a post-village, cap. of Gillespie co., about 65 m. W. by S. of Austin.

Fred'ericksburg, in *Virginia*, a city of Spottsylvania co., on the Rappahannock river, about 65 m. N. of Richmond. Here, on Dec. 13, 1862, Gen. Burnside attacked the Confederates, who, under the command of Gen. Lee, occupied a strong position on the heights. The battle, after raging with desperate violence during the day, terminated in the defeat of the Nationals. Little fighting took place Dec. 14 and 15, and Burnside was permitted to recross the Rappahannock without opposition, Dec. 16. This city enjoys a good local trade and has some manufactures. *Pop.* (1897) about 5,000.

Fred'ericksburg, in *Missouri*, a post-office of Gasconade co.

Fred'erickshall, a town of Norway, on an inlet called Swinesund, 57 m. S.S E. of Christiana. On a perpendicular rock, 400 feet above the town, stands the strong fortress of Frederickstein, at the siege of which Charles XII. of Sweden was killed, Dec. 11, 1718. *Pop.* (1895) 9,300.

Fred'erickshamn, or **Hamina,** a fortified town of Finland, 52 m. from Wyborg. Here, in 1809, the treaty which ceded Finland to Russia was signed. *Pop.* (1895) 2,704.

Fred'erickshavn. See FLADSTRAND.

Fred'erick's Oord, a pauper colony of the Netherlands on the borders of Overyssel and Friesland, 5. m. from Steenwyk. It consists of a large number of paupers, who are here employed in various manual occupations for the benefit of the state.

Fred'erickstadt, a well-built town of Denmark, 18 m. from Schleswig. It was founded by the Arminians, who, in 1621, were driven from the Netherlands by the decisions of the Synod of Dort.

Fred'erickstadt, a fortified town of Norway, on the Skager-rack, 46 m. from Christiana. It has an arsenal. *Manuf.* Tobacco. *Pop.* 2,700.

Fredericksville, in *Pennsylvania*, a post-office of Berks co.

Fred'ericktown, a sea-port town of Nova Scotia, in the county of Cumberland, and at the head of Wallace Bay, about 82 m. N. of Halifax. Now called WALLACE.

Fred'ericktown, in *Kentucky*, a post-village of Washington co., abt. 8 m. N.W. of Springfield.

Fred'ericktown, in *Missouri*, a post-village, cap. of Madison co., abt. 158 m. S.E. of Jefferson city. Here, Oct. 1861, an engagement took place between the Nationals under Col. Plummer, and the Confederates under Gen. Thomson, in which the latter were defeated, and sustained heavy loss.

Fred'ericktown, in *Ohio*, a village of Columbiana co., about 170 m. N.E. of Columbus.
—A post-village of Knox co., on Vernon River, about 50 m. N.E. of Columbus.

Fredericktown, in *Pennsylvania*, a post-office of Washington co.

Fred'ericton, a city and port of entry, cap. of New Brunswick, on the St. John River, about 60 m. N.N.W. of St. John. Lat. 45° 55′ N., Lon. 45° 32′ 30″ W. The city is regularly and substantially built, and contains some fine public edifices. Its former name was St. Ann. *Pop.* about 6,000.

Fre'don, in *New Jersey*, a post-village of Sussex co., about 6 m. W. of Newton.

Fredo'nia, in *Alabama*, a post-village of Chambers co., about 175 m. E. by S. of Tuscaloosa.

Fredonia, in *Colorado* a post-office of Bent co.

Fredonia, in *Illinois*, a post-village of Williamson co., on Muddy river, about 15 m. N.W. of Marion.

Fredo'nia, in *Indiana*, a post-village of Crawford co.
Fredonia, in *Iowa*, a post-village of Louisa co., at the junction of the Iowa and Cedar rivers.
Fredonia, in *Kentucky*, a post-village of Caldwell co., about 12 m. W. of Princeton.
Fredonia, in *Michigan*, a township of Calhoun county.
—A post-village of Washtenaw co.
Fredonia, in *Missouri*, a post-office of Benton co.
Fredonia, in *New York*, a post-village of Chautauqua co., 40 m. S.W. of Buffalo. *Pop.* (1897) about 3,650.
Fredonia, in *Ohio*, a post-village of Licking co., about 10 m. N.W. of Newark.
—A village of Noble co.
Fredonia, in *Tennessee*, a post-village of Montgomery co., about 38 m. N.W. of Nashville.
Fredonia, in *Texas*, a village of Rusk co., on the Sabine River, about 20 m. N. of Henderson.
Fredonia, in *Wisconsin*, a post-township of Ozankee co.
Free, *a.* [A.S. *fri, frio, freo;* Ger. *frei.*] Being at liberty; not being under necessity or restraint, physical or moral; not enslaved; not being in a state of vassalage or dependence. — Subject only to fixed laws, made by consent; instituted by a free people; not arbitrary or despotic; as, a *free* government. — Not imprisoned, confined, or under arrest; unconstrained; unrestrained; as, to set a prisoner *free.* — Permitted; allowed.

"Why sir, I pray, are not the streets *free?*" — *Shaks.*

—Open; not appropriated; not obstructed. — Licentious; unrestrained; as, *free* conversation. — Open; candid; frank; ingenuous; unreserved.

"Will you be *free* and candid to your friend?" — *Otway.*

—Liberal in expenses; generous; munificent; bountiful.

"O'ercharging your *free* purses with large fines." — *Shaks.*

—Guiltless; innocent; clear; exempt.

"My hands are guilty, but my heart is *free.*" — *Dryden.*

—Not encumbered with; disunited from anything else; as, *free* carbonic acid gas. — Open to all; without restriction, or without expense, as a school or library. — Invested with franchises; enjoying certain immunities; possessing without vassalage or slavish conditions.

"Art thou of Bethlem's noble college *free?*" — *Dryden.*

(*Naut.*) Fair or favorable; — said of the wind.
Free, *v. a.* [A.S. *freogan.*] To set free; to remove, as any incumbrance or obstruction; to disengage from; to rid; to strip; to clear; to liberate; to set at liberty; to rescue or release from slavery, captivity, or confinement.

"Our land is from the rage of tigers *freed.*" — *Dryden.*

—To loose; to disentangle; to disengage; to exempt; to release from obligation or duty.

"For he that is dead, is *freed* from sin." — *Rom.* vi. 7.

Free'-a'gency, *n.* The condition or state of acting freely; without necessity or constraint of the will.
Free'-bench, *n.* (*Eng. Law.*) A widow's dower in a copyhold.
Free'booter, *n.* [Ger. *frei*, free, and *beute*, plunder.] One who roves lawlessly in quest of booty or plunder; a robber; a pillager; a plunderer. — See BUCCANEER, FILIBUSTER.
Free'bootery, *n.* The act or practice of one who roves lawlessly in quest of plunder; also, the plunder thereby acquired.
Free'booting, *n.* Robbery; plunder; pillage.
—*a.* Robbing; plundering; acting the freebooter.
Free'born, *a.* Inheriting liberty; not born in slavery.
Free'born, in *Minnesota*, a S. co., bordering on Iowa; *area*, about 720 sq. m. *Rivers.* Shell Rock River, and the head-waters of the Red Cedar River. *Surface*, diversified; *soil*, fertile. *Cap.* Albert Lea. *Pop.* (1895) 21,138.
—A post-village of Freeborn co., on a small lake of the same name, about 40 m. S.S.E. of Mankato.
—A townsbip of Freeborn co.
Free'born, in *North Dakota*, a post-office of Eddy co.
Free'bridge, in *Georgia*, a village of Gordon co., on the Oostenaula River, about 170 m. N.W. of Milledgeville.
Free'burg, in *Illinois*, a post-office of St. Clair co.
Freeburg, in *Minnesota*, a post-village of Houston co., about 17 m. S. by W. of La Crosse, Wisconsin.
Freeburg, in *Ohio*, a post-office of Stark co.
Freeburg, in *Pennsylvania*, a post-vill. of Snyder co.
Free Church, *n.* (*Eccl. Hist.*) See PRESBYTERIANISM, & *Free Church of Scotland.*
Free City. (*Hist.*) The name given to certain German cities which form in themselves independent states, and were members of the Germanic Confederation. They are Hamburg, Bremen, Lübeck, and, formerly, Frankfort-on-the-Main.
Free Com'panies. (*Hist.*) Bands of discharged soldiers, who ravaged France after the conclusion of the peace of Bretigny, May 8, 1360. Bertrand du Guesclin, born in Brittany in 1314, put himself at their head, and led them against Peter the Cruel, king of Castile, whom he dethroned in 1365, placing Henry, count of Trastamara, on the throne. Edward the Black Prince recalled the free companies, defeated Henry at Najara, April 3, 1367, and restored Peter the Cruel, who was, however, defeated March 14, 1369, and killed by Henry of Trastamara, March 23.
Freed'man, *n.*; *pl.* FREEDMEN. A man who has been a slave, and is manumitted or emancipated.
Free'dom, *n.* [A.S. *freedom.*] A state of exemption from the power or control of another: liberty; independence; exemption from slavery, servitude, confinement, control, or restraint.

"O *freedom*, first delight of human kind." — *Dryden.*

—Particular privileges; franchise; immunity.

"Upon your charter and the city's *freedom.*" — *Shaks.*

—Exemption from fate, necessity, or any other constraint, in consequence of predetermination, or otherwise.

"A higher and perfecter degree of *freedom.*" — *South.*

—Ease or facility in doing anything; as, sketched with *freedom.* — Frankness; as, to speak with *freedom.* — Boldness; license. — Improper familiarity; violation of the rules of decorum.
Free'dom, in *Illinois*, a flourishing township of Carroll co.
—A post-township of La Salle co.
Freedom, in *Indiana*, a post-village of Owen co., on White River, abt. 65 m. S.W. of Indianapolis.
Freedom, in *Kansas*, a post-office of Butler co.
—A towuship of Republic county.
Freedom, in *Kentucky*, a post-office of Barreu co.
Freedom, in *Maine*, a post-town and township of Waldo county, about 28 m. N.E. of tho city of Augusta. *Pop.* (1897) 540.
Freedom, in *Maryland*, a post-office of Carroll co.
Freedom, in *Michigan*, a village of St. Joseph co., about 95 m. W. of Adrian.
—A township of Washteuaw co.
Freedom, in *Missouri*, a village and township of Lafayette co.
Freedom, in *New Hampshire*, a post-town and township of Carroll county, about 45 miles N.N.E. of Concord. *Pop.* (1897) 682.
Freedom, in *New York*, a post-town of Cattaraugus co., *Pop.* (1897) about 1,350.
Freedom, in *Ohio*, a flourishing township of Henry co.
—A post-township of Portage co.
—A village of Stark co., about 136 m. N.E. of Columbus.
—A township of Wood co.
Freedom, in *Oregon*, a village of Lane co., about 16 m. N. of Eugene City.
Freedom, in *Pennsylvania*, a township of Adams co.
—A post-borough of Beaver co., on the Ohio river, about 23 m. N.W. of Pittsburg. *Pop.* (1897) about 870.
—A township of Blair co.
Freedom, in *Wisconsin*, a township of Outagamie co.
—A township of Sauk co.
Freedom, in *Wyoming*, a post-office of Uinta co.
Freedom Center, in *Illinois*, a former post-office of La Salle co.
Freedom Mills, in *Ohio*, a village of Henry co.
Freedom Plains, in *New York*, a post-village of Dutchess co., abt. 80 m. S. of Albany.
Freedom Station, in *Ohio*, a P. O. of Portage co.
Free'hearted, *a.* Frank; unreserved; liberal; charitable; generous,
Free'heartedly, *adv.* Generously; liberally; frankly.
Free'heartedness, *n.* Generosity; good-nature; openness of disposition.
Free'hold, *n.* [A.S.; Lat. *liberum tenementum*, frank tenement.] (*Eng. Law.*) An estate in lands or other real property, held either in fee, in tail, or for life, independently of the will of the feudal lord, and used in opposition to copyhold lands, held during the will of the superior, or for a term of years.
Freehold, in *New Jersey*, a flourishing post-village and township, cap. of Monmouth co. It is the scene of the battle of Monmouth Court-House, *q. v.*
Freehold, in *New York*, a post-village of Greene co., about 26 m. S.S.W. of Albany.
Freehold, in *Pennsylvania*, a post-township of Warren co., abt. 15 m. N.W. of Warren.
Free'holder, *n.* One who has a freehold.
Free'land, in *Colorado*, a post-office of Clear creek co.
Freeland, in *Iowa*, a village of Lucas co.
Freeland, in *Maryland*, a post-office of Baltimore co.
Freeland, in *Michigan*, a post-village of Saginaw co.
Freeland, in *Pennsylvania*, a post-borough of Luzerne co. *Pop.* (1897) about 2,000.
Free'landville, in *Indiana*, a P. O. of Knox co.
Free'-liver, *n.* One who gives great license or indulgence to his appetites.
Free'-living, *n.* Unstinted gratification of the appetites.
Free'ly, *adv.* [A.S. *freilice.*] Independently; voluntarily; readily; liberally; generously; bountifully; gratuitously; unreservedly.
Free'man, *n.*; *pl.* FREEMEN. A term used in contradistinction to a *slave*, denoting one who is born or made free, and who enjoys certain privileges which are denied to the other. — The title is also given to one admitted to the freedom of a corporate town, or of any other corporate body.
Free'man, in *Maine*, a post-township of Franklin co., about 45 m. N.W. of Augusta.
Freeman, in *Minnesota*, a township of Freeborn co.
Freeman, in *Missouri*, a post-town of Cass co.
Freeman, in *Ohio*, a post-office of Jefferson co.
Freeman, in *Wisconsin*, a post-township of Crawford co.
Free'mansburg, in *Pennsylvania*, a post-borough of Northampton co., on the Lehigh river, about 10 m. from its mouth. *Pop.* (1897) about 720.
Free'man's Landing, in *West Virginia*, a village of Hancock co.
Freemansville, in *Georgia*, a post-office of Milton co.
Free'manton, in *Illinois*, a village of Effingham co., about 5 m. W. of Ewington.
Free'-martin, *n.* A female twin calf, whose mate is a male; generally an hermaphrodite and therefore barren, but in some cases capable of breeding.
Free'mason, *n.* One initiated into freemasonry.
Freema'sonry, *n.* [Fr. *maçon*, mason,] This is a name which is applied to a secret and wide-spread association, who term themselves *Free and Accepted Masons.* Societies of Freemasons exist in all parts of the civilized world, and their members are of every religion and condition of life. Every candidate, before his initiation, comes under a solemn engagement never to divulge the mysteries of the order, nor to communicate to the uninitiated the secrets with which he may be intrusted, and the proceedings and plans in which the fraternity may be engaged. After the candidate has undergone the necessary ceremonies, and received the usual instructions, appropriate words, and significant signs are imparted to him, that he may be enabled to distinguish his brethren of the order from the uninitiated, and to convince others that he is entitled to the privileges of a brother, should he be visited by distress or by want in a distant land. After a due interval of probation, if the newly-admitted member be found qualified for a higher degree, he is promoted, till he has received that Masonic knowledge which enables him to hold the highest offices of trust to which the fraternity can raise its members. At regular and appointed seasons, convivial meetings of the fraternity are held in lodges, appointed for the purpose: and all distinctions of rank are laid aside, all differences in religions and political matters forgotten, and peace and harmony generally prevail. Every one strives to give happiness to his brother, and men seem to recollect for once that they are sprung from one common origin, and are possessed of the same nature. According to its own peculiar language, Masonry is founded on "the practice of social and moral virtue." Its character is charity in the most extended sense, and "brotherly love, relief, and truth" are inculcated in it. Like every other society of any duration, it has been subject to the influences of human frailties; and while it has been the means of effecting much good, it has doubtless at times also been productive of much evil. Recently much has been written both for and against Freemasonry, its ritual, benefits, and tendency; while books have even appeared professing to reveal all the secrets of the order; but most Masons maintain that the true secret of Masonry has never yet been divulged, and there are even many Masonic writers, defenders of the society, who yet call its secret signs and rites accidental and unimportant. No one, we believe, even among intelligent Masons themselves, credits the great antiquity which some of their authors claim for it. According to some, it is as old as the creation, while others only carry it back to the building of the Tower of Babel, and some are content with tracing it no further back than the building of Solomon's Temple. It is asserted that the institution has been continued down, in uninterrupted succession, from that very remote period to the present day, through all the changes of governments, religion, civilization, and knowledge. It is indeed not improbable, that, after building rose to be a separate art, and to demand a certain amount of skill and training, those who were members of the order should seek to impart a mystery to their profession, and adopt certain initiatory proceedings, before communicating their knowledge to others. The later Eleusinian and other mysteries, to which others trace its origin, may have also imparted to it something of their character; but there is nothing in history, or in the character of Masonry, to warrant us in giving it so high an origin. Without, therefore, attempting to unravel its early history, we may state, generally, that the desire for magnificent churches and monasteries by the Roman Catholic priests led to great encouragement being given to the artificers of such works. The pontiffs of Rome, and the other potentates of Europe, conferred on the fraternity of masons the most important privileges, and allowed them to be governed by laws, customs, and ceremonies peculiar to themselves. Such encouragement must have been productive of the most beneficial results to the fraternity. The association was composed of men of all nations, — of Italian, Greek, French, German, English, and Flemish artists, who were denominated *Free Masons*, and who, ranging from one country to another, erected those elegant churches and cathedrals which still excite admiration. Their government was remarkably regular, and the members lived in a camp of huts reared beside the building which they were employed in erecting. A surveyor, or master, presided over and directed the whole, and every tenth man was called a *warden*, and had the oversight of the other nine. The most ancient lodge of Freemasons in England is that of York, founded in 926, under the patronage of Edwin, brother of King Athelstan, who obtained for it a charter from the king, and became himself grandmaster. The constitution of this lodge, which is still preserved at York, gives a history of Masonry from the earliest times, beginning with Adam, and comprising quotations from some rabbinical tales, respecting the building of the Tower of Babel and the Temple of Solomon, limited, however, to the information contained in the Bible. It then passes over to the Greeks and Romans, mentioning particularly Pythagoras, Euclid, and Vitruvius. Then we are told that St. Albanus, an honorable Roman knight, patronized the art about A. D. 300, settled the fundamental institutions of the Masons, procured them employment, wages, and a charter from the emperor Carausius, according to which they might form a society in Britain under the government of architects. The devastation of the country, and the destruction of the edifices by the northern tribes, and the Angles and Saxons, is related; and how the pious Athelstan had resolved to restore the ancient and venerable society. By virtue of this charter, all the Masons in the kingdom were assembled, and they established a general, or grand lodge, for their future government. Under the patronage and jurisdiction of this lodge, the fraternity very considerably increased. The principles of F. became gradually diffused throughout England and Scotland, and continued to flourish throughout those king-

doms for several centuries after the institution had ceased on the continent of Europe, where the jealousy entertained by the Church of its principles had brought about its gradual suppression. Among those who held the office of Grand Master in England may be mentioned Henry VII., Cardinal Wolsey, Inigo Jones (the celebrated architect), and Sir Christopher Wren. In 1717 the society ceased all connection with building, and became, purely, a brotherhood united for purposes of mutual aid and benevolence. At the present time the order in Great Britain consists of about 1,000 lodges, possessed of great wealth, with numerous schools and charitable funds, and numbering among its members many of the most distinguished persons in the kingdom. The first lodge in France instituted after the English system, was established in 1725; and the first in Germany was founded at Hamburg in 1730. The first lodge of Masons in the U. States was established at Boston in 1733; an example followed the year afterward by Philadelphia, whose lodge elected Benj. Franklin their Worshipful Master. The other colonies speedily initiated themselves into the order, and in 1752 Gen. Washington became a member of the new lodge inaugurated in Virginia. After the establishment of this country's independence, grand lodges came to be instituted on the same national basis as possessed by those of the Old World, and the order developed itself into a vigorous and mature growth. At the present day, Masonry—despite a futile attempt made in 1829 for its extinction—presents a greater numerical strength in the U. States than in any other country in the world. In 1882, not fewer than 50 grand lodges and 5,000 subordinate lodges were in flourishing existence throughout the Union, forming an aggregate of about 400,000 members.—The officers of a lodge in the U. States are 9 in number; viz., *worshipful master*, *senior warden*, *junior warden*, *treasurer*, *secretary*, *senior deacon*, *junior deacon*, *tiler*, and *chaplain*, besides two *stewards*. Of the officers, the master, the wardens, and the tiler are essential to every lodge. The tiler acts as janitor and keeps the door against intruders. The officers are elected annually by ballot. Each State of the Union possesses a grand lodge consisting of representatives elected to it by the subordinate lodges, over which it exercises a certain jurisdiction. The officers of each grand lodge bear the respective designations of *grand* and *deputy grand masters*, *grand wardens*, *grand treasurer*, *grand secretary*, *grand chaplain*, *grand deacons*, *grand marshal*, *grand pursuivant*, *grand sword-bearer*, *grand stewards*, and *grand tiler*. A still higher degree of the order, entitled *royal arch chapters*, confers upon the members thereof the distinctive appellation of *royal arch masons*.

Free'minded, *a.* Not perplexed in mind.

Freeness, *n.* State or quality of being unconstrained, unconfined, unincumbered, or unobstructed; openness; unreservedness; frankness; ingenuousness; candor; liberality; generosity.

Free Port, *n.* (*Com.*) A port or harbor free to ships of all nations to enter and load or unload, on payment of moderate duties. They also form depôts where goods may be deposited without payment of any duty, and afterwards either re-exported on payment of mere nominal duty, or admitted for consumption on paying the usual customs-dues.

Free'port, in *California*, a post-office of Sacramento co.

Free'port, in *Illinois*, a city, cap. of Stephenson co.; on the Pekatonica river, about 120 m. W. N. W. of Chicago. *Pop.* (1897) about 15,000.

Free'port, in *Indiana*, a village of Jackson co., about 22 miles S.W. of Columbus.—A village of Shelby co., on Blue river, about 9 miles N. by E. of Shelbyville.

Free'port, in *Iowa*, a post-village of Winneshiek co., on the Upper Ohio river, about 3 miles E. of Decorah.

Free'port, in *Maine*, a post-town of Cumberland co., on Casco Bay about 17 miles N.E. of Portland. *Pop.* (1897) about 2,600.

Free'port, in *Minnesota*, a post-office of Stearns co.

Free'port, in *New York*, a post-office of Queens co.

Free'port, in *Ohio*, a post-village and township of Harrison co., about 100 miles E. by N. of Columbus.—A village of Wood co., about 27 miles S. by E. of Toledo. Its P. O. name is PRAIRIE DEPOT.

Free'port, in *Pennsylvania*, a post-borough of Armstrong co., about 30 m. N.E. of Pittsburg. *Pop.* 1,720.—A village of Blair co.

Free'port, in *Washington*, a village, formerly the cap. of Cowlitz co.

Free'port, in *West Virginia*, a post-office of Wirt co.

Free'shade, in *Virginia*, a post-office of Middlesex co.

Free'-school, *n.* A school in which the pupils are free from the payment of fees; a school open to admit pupils without restriction.

Free'soil, in *Michigan*, a township of Mason co.

Free'soiler, *n.* (*Amer. Hist.*) An adherent of a former political faction in the United States, opposed to the extension of slavery. See FREE-SOIL PARTY.

Free'-spoken, *a.* Accustomed to speak without reserve or restraint.

Free State, in *South Carolina*, a P. O. of Marion co.

Free States, *n. pl.* The name formerly applied to the States of the American Union in which slavery did not exist. The term is now obsolete.

Free'stone, *n.* [A. S. *stan*, stone.] (*Build.*) The name generally given to any soft stone that can be readily sawn and worked with a mallet and chisel.

Free'stone, in *Ohio*, a post-office of Scioto co.

Free'stone, in *Texas*, a N.E. central co.; *area*, about 870 sq. miles. *Rivers.* Trinity river, and Pecan creek. *Surface*, uneven; *soil*, *fertile*. *Cap.* Fairfield. *Pop.* (1890) 15,987.

Free'-stuff, *n.* Timber without knots.

Free'thinker, *n.* One who indulges thoughts or opinions without control; a deist; an unbeliever; one who discards revelation.

Free'thinking, *n.* Scepticism in matters of religion; deism.—*a.* Deistical.

Free'-tongued, *a.* Having licence of speech; free-spoken.

Free'town, or **St. George,** the capital of the British settlement of Sierra Leone, in Upper Guinea, W. Africa, Lat. 8° 28′ N., Lon. 13° 14′ W. *Pop.* (1895) 3,140, which, exclusive of the authorities and garrison, consists almost entirely of liberated negroes.

Free'town, in *Indiana*, a post-village of Jackson co., abt. 65 m. S. of Indianapolis.

Free'town, in *Massachusetts*, a post-township of Bristol co., abt. 40 m. S. of Boston.

Free'town, in *New York*, a township of Cortland co., abt. 11 m. S.E. of Cortlandville.

Free'town Corners, in *New York*, a post-village of Cortland co., abt. 135 m. W. by S. of Albany.

Free'-trade, *n.* Trade or commerce free from restrictions; a free interchange of commodities.

Free Union, in *Virginia*, a P. O. of Albemarle co.

Free'ville, in *New York*, a post-office of Tompkins co.

Free'-will, *n.* (*Ethics.*) *Free will*, *freedom and necessity*, *liberty and necessity*, are terms employed to denote one of the most difficult questions in the whole field of the mental sciences;—the power of a man over the determination of his own will. "If," says Reid, "in any action he had power to will what he did, or not to will it, in that action he is free. But if in every voluntary action the determination of his will be the necessary consequence of something involuntary in the state of his mind, or of something in his external circumstances, he is not free; he has not what I call the *liberty* of a moral agent, but is subject to necessity." Freedom has commonly been distinguished into freedom from coercion, and freedom from necessity. Freedom from coercion implies on the one hand, the absence of all impediment or restraint, and on the other, the absence of all compulsion or violence. Thus, if we are prevented from doing what is in our power when we desire or will to do it, as if we were compelled to do it when we desire and will not to do it, we are not free from coercion. Freedom from necessity, called also liberty of election, implies freedom from anything invincibly determining a moral agent. This freedom from necessity, however, does not mean that the agent has no motive or no more inclination towards one course of action than another; for he may have motives prompting him more urgently to act in one direction rather than in another, and still have liberty of election, if he has the power of determining in favor of another course of action. The universal language and practice of mankind is founded upon a belief in a kind of free-will. To choose, to deliberate, to determine, are expressions in every man's mouth; and the whole of our penal code is founded upon the conviction that men have the power of doing or abstaining from certain acts. But if we examine the matter more closely, and look at the particular acts of one's life, we shall find that this freedom of choice does not actually exist to the extent that we might at first sight be inclined to suppose. We find that if we know the circumstances and character of an individual, we can calculate pretty correctly how he will act in a given case. A man's habits, his education, his character, all go in some measure to determine his acting in a given case in a particular way. Hence, therefore, every act of the will, in some degree at least, depends upon something going before, or in the circumstances of the individual; and in so far it is not absolutely free. "What," says Coleridge, "determines the man to a good and worthy act, we will say, or a virtuous course of conduct? The intelligent will or the self-determining power? True, in part, it is; and the will is pre-eminently the spiritual constituent in our being. But will any man admit that his own will is the only and sufficient determinant of all he is and of all he does? Is nothing to be attributed to the harmony of the system to which it belongs, and to the pre-established fitness of the objects and agents, known and unknown, that surround him, as acting on the will, though doubtless with it likewise?" The whole question, however, is involved in difficulties which defy our limited faculties to solve. "How the will can possibly be free," says Sir W. Hamilton, "must remain to us, under the present limitation of our faculties, wholly incomprehensible." "The assertion of absolute necessity is virtually the negation of a moral universe, consequently, of the Moral Governor of a moral universe,—in a word, atheism." "It would have been better," he said, in speaking of the view of the question as taken by the Scottish school of philosophers, "to show articulately that liberty and necessity are both incomprehensible, and both beyond the limits of legitimate thought; but that, though the free agency of man cannot be speculatively proved, so neither can it be speculatively disproved, while we may claim for it, as a *fact* of real actuality, though of inconceivable possibility, the testimony of consciousness,—that we are morally free, as we are morally accountable for our actions."

Free'-woman, *n.* A woman not enslaved.—1 *Mac.* ii. 11.

Freez'able, *a.* That may be frozen.

Freeze, *v. n.* [A.S *frysan*; Dn. *vriezen*; Lat. *frigesco*, to grow cold, from *frigeo*, to be stiff with cold; Gr. *rhigeō*, to shudder with cold, from *rhigos*, frost, cold.] To be congealed by cold; to be changed from a liquid to a solid state, by the abstraction of heat; to be hardened into ice, or a like solid body; to be of that degree of cold at which water congeals; to chill; to stagnate, as the blood; to be chilled; to shiver or stiffen with cold.—*v. a.* To congeal; to harden into ice; to change from a fluid to a solid form by cold or abstraction of heat; to kill by cold; to chill; to give the sensation of cold and shivering to.—To become cold and constrained in manner; as, a *freezing* look.

Freez'ing, *n.* (*Chem.*) The solidification or congelation of water or atmospheric vapor by cold. Water begins to freeze when the temperature of the atmosphere is 32° Fahr., at which point ice begins to appear, and continues to be formed, unless some circumstance, such as the disturbance of the water, interferes. As the cold increases, other liquids, which are able to resist the temperature at which water congeals, begin to freeze, and pass into the solid form. During spring and the early months of summer, much harm is done to vegetation by frost; and during severe frosts almost all vegetables fall into a state of decay, and even a moderate frost is able to destroy tender plants. When there has been much rain, and when the plants are saturated with moisture, the occurrence of a frost is very disastrous; for as the water contained in the leaves begins to freeze, it expands, rupturing the vegetable fibres and destroying the plant. Fruits are destroyed by frost in a similar manner. When the morning dew freezes, it is called hoar-frost, or white-frost, and appears generally in spring and autumn. As the air begins to be warmed by the rising sun, the evaporation from the leaves of grass, plants, and shrubs, is accelerated, and the cold increased; hence the moisture which was only dew before the dawn, is often converted into hoar-frost shortly after sunrise. The disastrous effects of frost upon vegetation can only be averted in a very limited manner. That which will protect a plant from dew will protect it from frost; hence a covering of network or thin gauze will protect tender plants or the blossoms of wall-fruit. The most efficient mode, however, is to shield the plant from the clear sky, and thus prevent the radiation which must otherwise take place.

Freez'ing, *p. a.* Congealing with cold.—Chilling; cold.

Freezing Machines, *n. pl.* Apparatus for the artificial freezing of liquids. Sir John Leslie first made an apparatus of this kind, by introducing into the receiver of an air pump a shallow vessel containing highly concentrated sulphuric acid, above which he placed another vessel containing water. On the abstraction of the air the water evaporated rapidly, its vapor being immediately absorbed by the sulphuric acid. The abstraction of heat from the water by the vapor caused a rapid congelation. The same effect can be produced by the evaporation of sulphuric ether in a receiver containing water, the ether abstracting heat from the water and causing it to freeze. In the ice-making machines now employed, the refrigerating effect is produced by the employment of some volatile liquid such as ether, ammonia, or sulphur dioxide, whose evaporation is accompanied by a withdrawal of heat from surrounding substances. Anhydrous ammonia, a liquid which at ordinary pressure boils at —27° F., is usually employed. In usual practice, the ammonia is placed in a coil surrounding a tank containing brine, from which it extracts heat by its evaporation, while the chilled brine, circulating around the vessels containing the water to be frozen, robs this water of its heat and converts it to ice. In other cases the intermediate use of brine is not adopted, the ammonia abstracting heat directly from the fresh water. The ammonia is kept in an enclosed coil or chamber, so that the same material may be re-employed, by being again liquefied. The ammonia vapor is at low pressure; to liquefy it, it must be subjected to a high pressure. This pressure is produced by engine power, or the vapor is absorbed by cold water, and the aqueous ammonia introduced into a still, where it is heated and the gas driven off at the necessary pressure. The compressed vapor is now passed into a condenser, where it is reduced by cooling to the liquid state. It is then passed again into the coils, and the same process repeated, the same ammonia being used again and again with little loss. *Artificial Ice.*—The artificial ice of commerce is produced in two methods, known as the *can* and the *plate*. In the first-named method the water to be frozen is placed in cans, which are introduced into a tank of brine, chilled by ammonia vapor, the result being cakes of ice of 300 lbs. or less in weight. In brine of 16° to 18° temperature it requires about 60 hours to freeze a cake of ice. In the plate method, hollow plates of 10 by 14 feet in dimensions are employed, the cooling fluid circulating in the hollow interior of the plates, the water bathing their exterior. The ice gradually forms on the surfaces of the plates, from 9 to 14 days being required to produce ice of a thickness of about 14 inches. In the latter system ordinary water is employed, the ice being clear. In the can system, on the contrary, ordinary water yields ice of opaque appearance, and usually of brownish color, and it is necessary to distil the water to obtain transparent ice. This necessity has its advantage to consumers, in giving them assurance of ice of perfect purity. The distilled water is made by condensing the exhaust steam from the operating engines and live steam from the boilers. The exhaust steam is apt to contain oil, to get rid of which the condensed water is violently reboiled by means of live steam in an open tank, then cooled and run into an oil separator. It is then ordinarily filtered through charcoal. In cakes of ice a thin layer of air bubbles usually gathers near the center, producing opaqueness at that point, but the cake is otherwise transparent except a white area at the top where the water expands over the ice first formed. If all the oil has not been removed, its presence will be indicated by

a slight tar-like odor from the center of the cake when freshly broken open, this odor being a sure test of its presence even when it cannot be detected by the taste. In a more recent form of ice machine the water is frozen by its own evaporation. Water is injected into a chamber in which a high vacuum is maintained, a portion of it evaporating and the remainder freezing. The vacuum is maintained by engine power, or by the use of strong sulphuric acid, which absorbs the vapor as it rises. The acid can be repeatedly used, the absorbed water being driven off by heat. The ice produced in this manner is white and hard. For the production of chilled air for cold storage and other purposes, see REFRIGERATING MACHINES. *Condensation of Gases.*—On the principle above stated, of chilling by evaporation combined with high atmospheric pressures, remarkable effects have been produced of late years, in the liquefaction and in some cases the freezing of air, oxygen, nitrogen, &c.; while by continued evaporations under pressure, exceedingly low temperatures have been produced, the greatest reported being —210° C. or —410° F.

Freezing Mixtures, *n. pl.* Many salts, in the process of solution, exercise a refrigerating effect, and produce a very considerable reduction of temperature. The disappearing heat enters into what is known as the latent state, a condition in which, while it exists in the atoms or molecules of the substance, it produces no effect on the thermometer, it being in some way employed internally. If water at 79° C. be mixed with snow or pounded ice at 0° C. the ice will be converted into water, but the temperature will remain at 0°, the 79° heat of the water being rendered latent during the melting. If 4 oz. of nitre and 4 oz. of sal-ammoniac be mixed and thrown into water at 60° F., the temperature of the water will fall to 10°; and a mixture of equal parts of water, and crystallized nitrate of ammonia and carbonate of soda will manifest a reduction of temperature from 50° to –7°. The most effective salt in producing this effect is sulphocyanide of ammonium, which, when dissolved in equal weight of hot water at 204.8° F. (96° C) covered the outside of the vessel immediately with hoar-frost, and the temperature was found to be 28° F., about 176° of heat having vanished. Still greater effects are produced if acids be used instead of water. A mixture of sulphate of soda with dilute nitric acid will cause a reduction from 50° F. to –3° F., of phosphate of soda with the same acid from 50° F. to –12°, and of sulphate of soda and nitrate of ammonia with the same, from 50° to –14°. A mixture of 6 parts sulphate of soda with 5 parts hydrochloric acid is capable of freezing 5 parts of water; and if pounded ice be mixed with the salt still greater effects are produced. A mixture of pounded ice and common salt are employed in the freezing of ice-cream.

Frieberg (*frī'bairg*), a mining-town of Saxony, 19 miles from Dresden. It is the capital of the mining district of Saxony, and contains a mining academy founded in 1765, with 13 professors, fine scientific collections, among which is the celebrated collection of precious stones amassed by Werner, and a large library. It is an ancient imperial city, and is still surrounded by the old walls and ditch. The town owes its origin to the discovery of silver mines in the 12th century. In the 17th century it had great wealth and a pop. of 40,000. It is said to have about 150 mines of silver, copper, lead, and cobalt in its vicinity; but their product has fallen off. Here (Oct. 29, 1762), Prince Henry, of Prussia defeated the Austrian and Saxon armies. *Pop.* (1895) 27,565.

Frei'burg, or **Fribourg,** a canton of Switzerland, between the canton of Berne and the Pays de Vaud. *Area*, 564 sq. miles. *Rivers.* The Broie and the Sarine. The principal lake is Morat. *F.* is finely diversified with every kind of scenery, comprising wooded or grassy hills, Alpine mountains, and long and beautiful verdant valleys. It lies principally in the basin of the Aar, and in the S. and E. is traversed by branches of the Bernese Alps, in which are Mt. Moleson, Dent de Folligran, and Dent de Brenlaire, respectively 6,580, 7,710, and 7,720 feet above the level of the sea. Cattle-rearing and dairy-husbandry are extensively followed. The annual product of cheese is about 40,000 cwt., including about 25,000 cwt. of the famous Gruyère cheese. Peat and timber are important products. Of the population, seven-eights are Roman Catholics: the Protestants, about 8,400, reside principally in the district of Morat. *Pop.* (1897) about 112,500.—Its cap., of the same name, occupies a singularly wild and romantic situation on the Sarine, 16 miles from Berne. The best buildings are the Jesuits' church and the cathedral of St. Nicholas; the latter has a spire 376 feet in height, and an organ of 7,800 pipes, one of the finest on the continent of Europe. There are four bridges across the Sarine, one of which is a suspension bridge, 905 feet in length, one of the finest in Europe. *Manuf.* Straw hats, earthenware, tobacco; tanning and dyeing. *Pop.* 11,107.

Freight (*frāt*) *n.* [Du. *vragt;* Ger. *fracht*, probably from *fahren*, to convey or transport; perhaps allied to *bring, brought.*] (*Com.*) Originally, the money paid for the carriage of goods by sea, or the price paid by a merchant for the use of a ship to transport goods; now applied to goods transported by railroad or otherwise.—The word freight is also sometimes used as synonymous with *cargo.* When the entire vessel is engaged for the transport of goods there is usually an instrument executed known as a *charter-party,* in which the terms of the agreement and amount of freight are set forth. If, however, merely a part of the ship is engaged, or a certain amount of goods to be conveyed, there is usually a bill of lading made out where no formal agreement is entered into, the amount of freight is regulated by the custom or usage of trade. The freight is most commonly determined for the whole voyage without respect to time; but sometimes it is made to depend upon time. In the former case it is either fixed at a certain sum for the whole cargo, or at so much per ton, barrel, bulk, or other weight or measure, or so much per cent. on the value of the cargo. The time and manner of paying the freight are frequently regulated by express stipulations in the charter-party or other written contract. The master is entitled to detain the goods until the freight has been paid; but the master cannot retain the cargo on board till such payment, as the merchant would in that case have no opportunity of examining the condition of the goods. No right of lien for freight exists unless the freight be earned; but if a freighter or a stranger prevent the freight from becoming due, the owner or master has a remedy by action of damages. When goods are deteriorated during a voyage by fault of the master or mariners, the owner is entitled to compensation; but if from natural causes or perils of the sea, the owner must bear the loss and pay the freight. The merchant, however, cannot set off his claim for damage against the amount of the freight, which must first be paid; and the merchant may then substantiate his claim to compensation for the damage. If a portion of the cargo be thrown overboard for the necessary preservation of the ship, and the rest reach its destination, the owner is bound to answer to the merchant, by way of general average, for the value of that which was lost, as the freight is to be paid to the owner. Legally, no freight is due until the voyage is completed, which, however, may be overruled by express stipulation. If a merchant covenant to freight a whole or a certain portion of a ship, he is bound to pay the sum stipulated for, though his goods do not occupy the entire space. Where the freight is to be paid for the voyage, the owner takes upon himself the risk of its being long or short; whereby the risk as to time falls upon the merchant. As regards living animals, if the ship be freighted for *transporting* them at so much a head, freight is only due for such as are delivered alive; but if for *lading* them, it is due for all that were put on board. Where there is no express agreement, the law holds that freight is due for the dead as well as the living. — See AVERAGE; JETTISON, &c.

Freight, *v. a.* To load with goods, as a ship or vessel of any kind, for transporting them from one place to another.

Freight'age, *n.* Money paid for freight.

Freight'er, *n.* One who loads a ship, or one who charters and loads a ship.

Freight'ing, *p. a.* Loading or carrying, as a ship or vessel.

Freight'less, *a.* Without freight.

Frei'ligrath, FERDINAND, a German poet, b. at Detmold, 1810. His earlier years of manhood were passed in mercantile pursuits, until, in 1838, a volume of *Poems* from his pen placed him in the front rank of the poets of the "Fatherland." In 1842 the king of Prussia conferred upon him a pension, which, two years afterwards, his democratic opinions impelled him to resign, publishing at the same time a volume of political poems which brought upon him a government prosecution, and compelled him to flee the country. In 1846, *F.* was engaged in the capacity of a merchant's clerk in London, which position he quitted in 1848 to take part in the revolution then going on in Germany, and in the same year suffered imprisonment for publishing a poem entitled *Die Todten an die Lebenden* ("The Dead to the Living"). After two months' confinement, he was tried before a jury and acquitted, — this being the first instance in Prussia of a political "crime" being tried by jury. After undergoing still further persecution, he again retired to England and obtained mercantile employment. Besides the works above noted, Freiligrath is the author of a collection of English poems under the title of *The Rose, Thistle, and Shamrock* (1852), and of *Poesy and Poets, an Anthology* (1854); besides being a translator of Victor Hugo, and many of the more recent English and American poets. Several of *F.*'s poems have been translated into English by the American poet, Longfellow. Since 1868, he has resided at Stuttgart. D. 1876.

Frejus, (*frai'zhoo,*) a small town of France, dep. Var, 1 m. from the Mediterranean, and 40 m. from Toulon. It was formerly a place of importance, surrounded by strong walls, and had 40,000 inhabitants. Originally a colony from Marseilles, it was afterwards colonized anew by Julius Cæsar, who called it *Forum Julii.* About A. D. 970 it was destroyed by the Saracens. Bonaparte landed here on his return from Egypt in 1799; and also on his return from Elba, in 1814. *Pop.* about 3,000.

Fre'lighsburg, a post-village and port of entry of Quebec, in the co. of Missisquoi, about 28 m. S. E. of St. John's.

Fre'linghuysen, in *New Jersey*, a township of Warren co.

Fre'mont, JOHN CHARLES, a distinguished American explorer, known as "The Pathfinder of the Rocky Mountains," was B. in Savannah, Georgia, in 1813, of a mixed French and Virginian parentage. Though left an orphan in his 5th year, *F.* received a good education, having, at the age of 15, entered Charleston College, S. C., where he highly distinguished himself by his proficiency in mathematics and other kindred sciences. In 1833, after a period during which he had devoted himself to the duties of a private teacher, *F.* was appointed teacher of mathematics on board the U. S. sloop of war *Natchez,* with which he proceeded on a cruise to S. America. On his return he turned his attention to civil-engineering, and was recommended to government for employment in the exploration and survey of the mountainous region between S. Carolina and Tennessee. In 1838–9, *F.* undertook the exploration of the country between the Missouri River and the British frontier, and in 1838 received a commission as 2d lieutenant in the corps of topographical engineers. Shortly afterward, he proposed to the government to undertake the exploration of the Rocky Mountains — at that day a *terra incognita.* His plan being approved, he, in 1842, started with a handful of picked men, and reached and explored the South Pass. Not only did he fix the locality of that great defile through which thousands have since found their way to California, but he defined the astronomy, geography, botany, geology, and meteorology of that region, described the route since followed, and designated the points upon which a line of U. S. forts were subsequently erected. In 1845, after receiving a step in military rank, *F.* cleared the N. part of California of Mexican troops, and then, seeking a broader field of activity, planned an expedition to the distant territory of Oregon. He approached the Rocky Mountains by a new line, scaled the summits S. of the South Pass, deflected to the Great Salt Lake, pushed investigations right and left his entire course, and at the same time connected his survey with that of Com. Wilkes' exploring expedition. Later in the winter, without resources, adequate supplies, or so much as a guide, he traversed the wilderness to the Rocky Mountains. In this daring expedition he crossed 3,500 m. of country in sight of eternal snows, discovering the grand features of Alta California, its great basin, the Sierra Nevada, the valleys of San Joaquin and Sacramento, and determined the geographical position of the W. portion of the N. American continent. In 1846 *F.* was promoted to the rank of lieut.-col., and also military commandant and civil governor of the Territory of California, in which capacity he, in 1847, concluded those articles of capitulation by which Mexico conceded exclusive possession of that territory to the U. States. In the same year *F.* purchased in California the valuable Mariposa estate, upon which he settled in 1849. In 1853 Col. *F.* undertook a fifth expedition across the continent, made new discoveries, and reached California after enduring almost incredible hardships. In 1856 he was an unsuccessful candidate for the presidency in opposition to Mr. Buchanan; and in 1861, on the outbreak of the Civil War, was appointed a major-general in the national army. He then, as commander of the Western Union army, marched into Missouri with the view of encountering Gen. Price's Confederate force then in possession of that State, but an unfortunate dispute with a subordinate officer caused the War Department to relieve him of his command. In 1863 Gen. *F.* was nominated for the Presidency by the Cleveland Convention, which candidature was, however, ultimately withdrawn. He was appointed governor of Arizona in 1878, holding that position until 1881, after which he practised law for some time in New York City. Died July 13, 1890.

Fre'mont, in *California*, a village of Merced co., about 20 m. S. W. of Mariposa.
—A township of Santa Clara co.
—A village of Yolo co., on the Sacramento river, about 70 m. N. N. E. of Benicia.

Fre'mont, in *Colorado*, a S. central co.; *area*, about 1,600 sq. m. *Rivers.* Arkansas and Huerfaño rivers. *Surface*, mountainous, being traversed by the Rocky Mountains; *soil*, in some places fertile. *Min.* Gold and silver. *Cap.* Cañon city. *Pop.* (1890) 9,156.

Fre'mont, in *Illinois*, a township of Lake co.

Fre'mont, in *Indiana*, a post-town of Steuben co., 160 m. N. N. E. of Indianapolis. *Pop.* about 750.

Fre'mont, in *Iowa*, a S. W. co., bordering on Missouri and Nebraska; *area*, about 500 sq. m. *Rivers.* Missouri and Nishnabatona rivers, and Keg creek. *Surface*, diversified; *soil*, fertile. *Cap.* Siduey. *Pop.* (1895) 17,176.
—A township of Benton co.
—A township of Bremer co.
—A township of Buchanan co.
—A township of Butler co.
—A township of Cedar co.
—A township of Clarke co.
—A township of Fayette co.
—A township of Hamilton co.
—A township of Johnson co.
—A post-village of Mahaska co., about 70 m. S. W. of Iowa City.
—A township of Page co.
—A township of Winneshiek co.

Fre'mont, in *Kansas*, a thriving township of Lyon co.

Fre'mont, in *Michigan*, a township of Newaygo co.
—A township of Saginaw co.
—A township of Sanilac co.
—A post-village of Newaygo co.
—A township of Tuscola co.

Fre'mont, in *Minnesota*, post-office of Winona co.
—A village of Goodhue co., about 17 m. N. E. of Faribault.
—A village of McLeod co., about 60 m. W. of St. Paul.
—A township of Winona co.
—A village of Wright co.

Fre'mont, in *Missouri*, a village of Cedar co., about 110 m. W. S. W. of Jefferson City.

Fre'mont, in *Nebraska*, an important city, cap. of Dodge co., on Platte river, and the Union Pacific and 2 other railroads, 37 m. N. W. of Omaha. Here are extensive creameries, packing houses, brick works, and other manuf.; the trade center of a fine farming and stock region. *Pop.* (1897) about 9,500.

Fre'mont, in *New Hampshire*, a post-township of Rockingham co.

Fre'mont, in *New York*, a township of Steuben co.
—A township of Sullivan co.

Fre'mont, in *Ohio*, a thriving city, cap. of Sandusky co., on three railroads and Sandusky river at head of navigation, 30 m. S. E. of Toledo; in the natural gas region; has extensive manuf. of implements, machinery, flour, &c. *Pop.* (1897) about 11,000.

Fre'mont, in *Pennsylvania*, a post-office of Chester co.
Fre'mont, in *Wisconsin*, a village of Dodge co., about 10 m. S.E. of Horicon.
—A village of St. Croix co., about 15 m. N.E. of Hudson.
—A post-village of Waupaca co., on Wolf river.
Fre'mont Basin, or FREMONT'S BASIN, in *Utah*. See GREAT BASIN.
Fre'mont Center, in *Illinois*, a P. O. of Lake co.
Fre'mont Center, in *Michigan*, a P. O. of Newaygo co.; now called FREMONT.
Fre'mont Center, in *New York*, a post-office of Sullivan co.
Fre'mont's Ranch, in *California*, a district in Mariposa co., which consisted of about 48,000 acres, and was once considered the richest mineral estate in California.
Freneh, *a.* Pertaining to France, or to its inhabitants.
—*n.* The language spoken by the people of France.—See FRENCH LANGUAGE.
French'-bean, *n.* (*Bot.*) See BEAN.
French'-berry, *n.* (*Bot.*) A species of plants, genus *Rhamnus* (*q. v.*).
French Broad River, in *North Carolina* and *Tennessee*, rises on the N. slope of the Blue Ridge in Henderson co., in the former State, and after a tortuous N. and N.W. course through Buncombe and Madison cos., enters Tennessee in Cooke co.; thence passing through Jefferson and Sevier cos., it joins the Holston river in Knox co. *Length*, about 250 m.
Freneh'burg, in *Kentucky*, a post-village, cap. of Menifee co., about 54 m. E. of Lexington.
French Camp, in *California*, a P. O. of San Joaquin co.
French Chalk, *n.* (*Min.*) A kind of soapstone of a soft and greasy nature, known by that name, and sometimes called *Briançon chalk*, because it is obtained in great quantities near that town, and in other parts of France. It forms a white pigment when properly prepared, and is much used by tailors in marking the pattern of garments on cloth, before cutting them out, as the marks made can be easily obliterated, and cause no injury to the material.
French Cor'ral, in *California*, a post-village of Nevada co., about 12 m. N.N.W. of Nevada.
French Creek, in *Iowa*, a post-township of Allamakee co.
French Creek, in *New York*, a post-town and township of Chautauqua co. *Pop.* (1897) about 1,200.
French Creek, in *Pennsylvania*, enters the Allegheny river at Franklin, in Venango co. *Length*, about 150 m. The Indian name is VENANGO CREEK.
—Enters the Schuylkill at Phœnixville, in Chester co.
—A village and township of Mercer co.
—A village and township of Venango co.
French Creek, in *West Virginia*, a P. O. of Upshur co.
French Creek Church, in *North Carolina*, a former post-office of Bladen co.
French-grass, *n.* Sainfoin.
French Grove, in *Illinois*, a village of Bureau co., about 50 m. N. of Peoria.
Freneh Guia'na. See GUIANA.
Freneh Guleh, in *California*, a post-village of Shasta co., abt. 15 m. N.W. of Shasta.
Freneh Hay, in *Virginia*, a post-office of Hanover co.
French-hon'eysuekle, *n.* (*Bot.*) A species of plants, genus *Hedysarum*, q. v.
Freneh Horn, *n.* (*Mus.*) A wind-instrument, consisting of a long tube twisted into several circular folds, gradually increasing in size from the mouth-piece to the *bell*, or end at which the sound issues. As it is not provided with holes, like the flute, its sounds are varied by the lips of the player, the greater or lesser pressure of his breath, and the insertion of the hand into the bell, or end from which the sound issues; it may also be tuned to a variety of keys, by means of *crooks* and *shanks*, or movable pieces added to, or removed from, the top of the tube, as required. The introduction of the horn, in common with that of the trumpet, dates less than a hundred years ago. Since then it has undergone many changes, and within the last fifty years the whole of this class of instruments have been greatly improved by the addition of keys, valves, crooks, &c.
Freneh'ified, *p. a.* Conformed to French principles, manners, or habits.
Freneh'ify, *v. a.* To make French; to Gallicize.
French Is'land, in *Ind.*, a former P. O. of Spencer co.
Freneh Lake, in *Minnesota*, a P. O. of Wright co.
French Landing, in *Michigan*, a P. O. of Wayne co.
French'-like, *a.* Resembling the French; Frenchified.

Freneh Language and Literature. The origin of the French language is to be traced to three distinct sources — the *Celtic*, the *Latin*, and the *German*. Of the Celtic, or earliest of these, (the language of the country prior to the Roman invasion,) comparatively few traces are to be found in that of the present day. When the country came under the dominion of the Romans, the Latin, being the language of the conquerors, came, by degrees, to be that of the people generally. Not, however, the classic form of that language, which is met with in authors, but a corrupt dialect of it, known as the *lingua Romana rustica*. On the overthrow of the Western Roman Empire, this language became corrupted by the admixture of words and expressions from the Burgundian, Visigothic, Frankish, and other barbaric tongues. In the 7th cent., two forms of speech prevailed in the country — a corrupt dialect of the *lingua Romana*, and a form of German known as the *lingua Francisca*, or *Theotisca*, or the *Tudesque*. The latter prevailed in the N. and E. parts of the country, and the former was spoken S. of the Loire. The Council of Tours (A.D. 813) recommended the use of both the Rustic and Tudesque versions of the Homilies. In course of time these two became in some measure blended, the Latin element remaining the more prominent; and this corrupt language was called the *Romance*. It was divided into two branches, which took their names from their respective modes of expressing the word *yes*. The Visigoths and Burgundians S. of the Loire said *oc* (Latin *ac*, Ger. *auch*, also) for yes, while the Franks and Normans to the N. said *oil*; and hence the dialect of the former was called *la langue d'oc*, and of the latter *la langue d'oil*; the former of these, which came to receive the name of *Provençal*, from the kingdom of Provence, which at one time included the whole of the S. of France, was characterized rather by a modification of Latin words, than by the admixture of foreign words and idioms. Though much changed, it is still the dialect of the common people in Provence, Languedoc, Catalonia, Valencia, Majorca, Minorca, and Sardinia. Less troubled by wars, and of a more gay and sprightly turn of mind, the language of the Southerns speedily became polished, and its glory was spread over Europe by the labors of the Troubadours. The dialect of N. France had a much greater admixture of the Germanic element than the S., which was still further augmented by the establishment of the Normans in that part, in the beginning of the 10th cent. The Trouvères of the N., at a later period, in their ruder tongue, followed the example of the Tronbadours; — but while the latter sang the soft strains of love, the former celebrated deeds of war and chivalry. After the commencement of the Crusades, both languages approached towards a fusion. The cruel persecution of the Albigenses checked the development of the Provençal language; and the extending of the political rule of the N. southwards brought with it the language of that people. The real French language began to be developed about the time of the conquest of Constantinople by the French Crusaders, at the beginning of the 13th cent. Froissart's *Chronicles*, of the 14th cent., is the earliest work in genuine French, —French which is quite intelligible to the student of the present day. Francis I. greatly encouraged the development of the French, and substituted that language for Latin in public transactions. Rabelais greatly enriched it. Ronsard and Du Bellay, Amyot and Montaigne, and others, developed it still further. The religious reforms, political troubles, and the influence of the Italian wars and queens, modified it greatly. The introduction of Arabic words is chiefly due to the Crusades; and of Greek and Latin words, and of scientific terms, to the study of these languages and to the cultivation of the natural sciences. The Académie Française, established by Richelieu for the regulation of the national language (1635), the influence of the court, the labors of the Port Royalists, — especially Pascal (1656), and a galaxy of great writers, — purified, augmented, and diffused it more and more. It was first used as a diplomatic language at the conference of Nimegnen (1678). The French is the most generally known of all languages among civilized nations; and many illustrious foreigners, as Leibnitz, Humboldt, Gibbon, and Sir William Jones, have written some of their works in it. It is a very clear tongue, on account of the strictly logical order of its syntax, but incapable of the composition of words already fixed, as well as of bold poetic turns. The French language, in short, is like every other, the exponent of the nationality, vicissitudes, intelligence, culture, and taste of the people that speak it. The earliest literature of France is that of the Troubadours and Trouvères. The former flourished most during the 11th and 12th cent. Their productions were chiefly short lyrical effusions on love, or matters of trifling import, and they exhibit little play of the imagination, little depth of emotion, and very slight traces of learning. The Trouvères, on the other hand, in their narrative poems known as *Chansons de geste*, and written in the energetic *langue d'oil*, treated of great national subjects, and celebrated the heroic deeds of illustrious kings and knights. Some of their compositions, especially the earlier, have a striking character of grandeur, which may sometimes be not unfavorably compared with that of the ancient epic poems. These *chansons de geste*, also called *romances*, are very numerous, and have been classified into three cycles, bearing respectively the names of Charlemagne, King Arthur, and Alexander, — the first celebrating the deeds of the great Frankish emperor, his descendants and vassals; the second comprising traditionary legends regarding the achievements of King Arthur of Britain and the Norman warriors; the third consisting of poems in which events in the history of Greece and Rome are strangely mixed up with chivalric notions and legends of fairyland. These were succeeded by satirical and allegorical poems of equally vast proportions, some of which enjoyed unparalleled popularity; such as the *Roman de Renard*, and the *Roman de la Rose*. The former is the well-known story of "Reynard the Fox," the *Reinecke Fuchs* of the Germans; the latter is a poem of 22,000 verses, 4,150 of which were written by Guillaume de Lorris in the early part of the 13th century; and the work was completed fifty years later, by Jean de Meun. This is, perhaps, the most celebrated French production of the Middle Ages. It is a kind of didactic allegorical poem, which professes to teach the art of love, and embraces the most varied subjects. It contains a great deal of learned lore, scholastic subtleties, and scraps of ancient history, freely mingled with abstractions and allegories. Another kind of poetry of this period is the *fabliaux*, or tales, which are partly of Oriental origin, and were introduced by the Crusaders into Europe. They are usually written in verse, but sometimes in prose and verse alternately: and are generally based upon some well-known proverb, anecdote, or adventure, often containing a great deal of wit or fun, being generally satirical in their character; they are, however, frequently disfigured by a coarse licentiousness. Songs were not neglected; and those of the illustrious Abelard, in the 12th century, enjoyed a wide popularity. The progress of prose was slower than that of poetry but the 13th century presents two specimens, showing that it had already acquired a certain degree of power and polish. These are the *Chronicle of the Conquest of Constantinople*, by Villehardouin (1207), and the interesting and simple *Life of St. Louis*, written by Joinville, who tells us of the heroic deeds and private virtues of the good king, whom he had accompanied to the Holy Land. In the latter half of the 13th century we also find some tolerably good specimens of the drama in the Mysteries and Moralities of that period. The whole of the literature of the 14th century culminates in Froissart's *Chronicles*, which present the liveliest pictures of society and manners during that period of war and gallant enterprise. The greatest writer of the 15th century, also a chronicler like Froissart, is Philippe de Comines, who in his *Memoires* presents a striking delineation of the characters of Louis XI. and his contemporaries. To the same period also belong two of France's distinguished poets, who, strange to say, present a striking contrast to each other in their outward circumstances, — the one the princely Duke Charles of Orleans, the other the low-bred and lawless Villon, a strange compound of villany and inspiration. A new epoch in the history of French literature begins with the reign of Francis I. (1515). The study of the Greek and Roman authors now began to prevail in France; and writers, dazzled by the hitherto unknown beauties of the classical writers, despised the works of their forefathers, and applied themselves to the imitation of the ancients. Thus arose the so-called Modern Classical School; while that which, instead of imitating the ancients, derived its materials from national elements, has been designated by the appellation of "Romantic." Tolerably free from the classic element are the works of Clement Marot, the greatest French poet of the reign of Francis I., — while the leader of the new or classical school was Ronsard, an author long extolled far above his merits. A host of other writers characterize this century, chief among whom are Rabelais and Montaigne. In the 17th century Malherbe appeared as the reformer, or rather the regulator, of poetry, — a man of fastidious taste but meagre imagination, who despised the artistic luxuriance of Ronsard, introducing in its stead a style of grammatical correctness and dry elegance, which sometimes reached pomposity. Balzac devoted his attention to the improvement of prose, and his semi-philosophical works, especially his *Epistles*, were valuable at the time as models of careful and harmonious style. Such were also the frivolous but witty letters of his friend Voiture. In 1634 the French Academy was instituted, under the auspices of Cardinal Richelieu, "to establish certain rules for the French language, and to make it not only elegant but capable of treating all matters of art and science." Three writers of this period enriched French literature with important works, and did much toward the improvement of its language. Pierre Corneille brought tragedy to a degree of grandeur which has not been surpassed; *Le Cid*, *Horace*, *Cinna*, and *Polyeucte*, being among the best of his works. Descartes, in his *Discours sur la Méthode*, showed that the French language was equal to the highest philosophical subjects; and Pascal, in his *Lettres Provinciales*, in which comic pleasantry and vehement eloquence are happily blended, first formed a standard for French prose. Such was the opening of the splendid literary epoch which is generally styled the "Age of Louis XIV.," and which is distinguished by a galaxy of superior intellects, who, under the royal patronage, applied themselves to perfecting every branch of literature. The pulpit is set forth by the eloquence of such men as Bossuet, Flèchier, Bourdalone, and Massillon. Tragedy lost little of its power in the hands of Racine, whose *Andromaque*, *Iphigénie*, and *Phèdre* remind one of the productions of ancient Greece; while comedy reached its highest pitch with Molière, whose master-pieces, *La Misanthrope*, *Tartuffe*, *L'Avare*, and *Les Femmes Savantes*, are very humorous creations. In his *Fables*, La Fontaine showed himself the greatest master of that kind of composition in modern times. Didactic poetry was represented by Boileau, whose works are remarkable for symmetry and good sense, but are entirely deficient in poetical enthusiasm. Moral philosophy was cultivated by Malebranche, the disciple of Descartes, and author of *La Recherche de la Vérité;* by Bossuet, who wrote *Connaissance de Dieu et de soi-même;* by Fénélon, as in his treatise *De l'Existence de Dieu;* and by Pascal, in the fragments which have been collected under the title of *Pensées;* while De La Rochefoncauld, in his *Sentences et Maximes*, wrote a libel upon mankind, and La Bruyère, in his *Caractères*, drew vivid and amusing sketches of human characters and manners. In the field of history, we also meet with Bossuet, as the author of *Discours sur l'Histoire universelle*, and *Histoire des Variations des Eglises Protestantes*. Here, too, we have Mézerai, author of *Histoire de France*, and Fleury, author of *Histoire de l'Eglise*. In memoirs and letters there are the personal *Memoires of Cardinal de Retz;* Hamilton's *Mémoires du Comte de Grammont;* and the interesting letters of Madame de Sévigné to her daughter and friends. The 17th century had been, on the whole, a religious one; but the 18th was eminently an age of scepticism and infidelity. Literature now became a means of conveying bold opinions, or assaulting time-honored creeds and institutions. The persons who exercised the chief sway during this period, and who exerted a powerful influence upon their contemporaries, were Montesquieu,

Voltaire, J. J. Rousseau, and Buffon. Montesquieu, a writer of great force and brilliancy, and of unusual scope of mind, commenced his literary career by publishing *Les Lettres Persanes*, attacking French manners, institutions, and even religion. His principal works, however, are his *Considérations sur la Grandeur et la Décadence des Romains*, and his *Esprit des Lois*, an able and profound disquisition upon general legislation. Voltaire, the true personation of his age in disposition, as well as in talents, was for half a century the leader of public opinion in France. His wonderful versatility enabled him to treat successfully almost all branches of literature — tragedy, satire, romance, poetry, history, and philosophy. The passionate eloquence of Rousseau made him be listened to and believed in, even when he was declaring war against civilization, and attacking the social order of things. Buffon occupied a less agitated sphere, devoting himself to the study and description of nature; and by his *Histoire Naturelle* he introduced a new æra in the study of natural history. Diderot and D'Alembert founded the *Encyclopédie*, a vast review of human knowledge, but always hostile to religion. Helvetius, in his treatise *De l'Esprit*; D'Holbach, in his *Système de la Nature*; and Lametterie, by his *L'Homme Machine*, and *La Vie heureuse Sénèque*, far exceeded the encyclopedists in the destructive tendency of their doctrines. Among the few defenders of revealed religion during the period was J. Vernet. Among the metaphysical writers, the first place is due to Condillac, followed by Vauvenargues, Condorcet, and Bounet of Geneva, all of whom remained on the side of moderation, and gave little support to the tendencies of the age. One of the most learned historians of that period was Mably. Charles des Brasses, Goguet, Barthélemy, Raynal, De Mehegan, Velley, are also names of note in this department. The mathematical and physical sciences made great progress in France during the 18th century, as witness the names of D'Alembert, Lagrange, Lalande, Lacaille, Maupertuis, Clairaut, Lemonnier, Condamine, and others. In natural history, we have Buffon and Charles Bonnet, Brissot, Vicq d'Azyr; Jussieu in botany, and Saussure in geology. In poetry, the drama, and general literature, we may mention the names of Crebillon and Ducis, both tragic poets; Le Sage, author of *Gil Blas* and of *Turcaret*, perhaps the best comedy after those of Molière; Beaumarchais, author of the *Barbier de Séville*; Bernardin de St. Pierre, author of *Paul et Virginie*; St. Simon, whose *Mémoires* have gained a deserved celebrity; Marmontel, the author of *Bélisaire*, and Lebrun, the lyric poet. The period of the Revolution was by no means favorable to literature, and little more so was that of the empire which succeeded. Madame de Staël and Châteaubriand were the forerunners of a revival, which was, perhaps, less owing to their works, than to the influence upon public taste of the masterpieces of English and German literature, which found more and more admirers in France. A new romantic school now sprung up, and, through the exertions of many young and original writers, new life was infused into nearly every branch of literature, poetry, history, philosophy, and the drama. An animated controversy was maintained between the supporters of reform and the adherents of the classical school; and the contest reached its utmost fury when Frédéric Soulié, Alexandre Dumas, Victor Hugo, Alfred de Vigny, and others, produced on the stage dramas framed according to their ideas of the Shakspearean style. It was only after several years that the younger body of combatants came out victorious. Novels which, during the excitement of the contest, had been scarcely noticed, became the rage soon after it was settled. George Sand (Madame Dudevant), one of the most elegant writers of her country, established her character by her *Indiana*, which appeared in 1832, and has since published many popular works. Alexandre Dumas, the inexhaustible romancist, has won immense popularity by his works *Les Trois Mousquetaires*, *Le Comte de Monte Cristo*, and numerous other works. Eugène Sue also obtained great popularity by his works *Les Mystères de Paris*, and *Le Juif Errant*, which depict in glaring colors the miseries and depravities of society. Among other distinguished writers we may mention Honoré de Balzac, Frédéric Soulié, Alphonse Karr, Alfred de Musset, Prosper Mérimée, Madame Emile de Girardin, Théophile Gautier, Jules Sandeau, and Emile Souvestre. A new generation of story-tellers has been rising within the last few years, who, though their powers are scarcely to be compared with those of their predecessors, are, nevertheless, not devoid of talent. Some of them belong to what they themselves call the *realistic school*; they are Henri Murger, Alexander Dumas *fils*, Champfleury, Ernest Feydeau, Emile Zola, Octave Feuillet, and Edmond About. Poetry is far from being as popular in France as the novel, and the country has produced but few great poets during the present century. The four greatest lyrics are Béranger, Victor Hugo, Lamartine, and Alfred de Musset; besides whom, Casimir Delavigne, Auguste Barbier, and Victor de la Prade are the only names requiring to be mentioned. History is, undoubtedly, the most successful branch of modern French literature. A larger number of valuable historical works have been published within the last fifty years than during any other equal period of its history; and the taste for such performances is still on the increase. M. Guizot, the great philosophical expounder of social institutions, and Augustin Thierry, the artistic historian of the Middle Ages, stand foremost among the promoters of this movement. Sismondi, Michelet, and Henri Martin have each devoted their efforts to a full recital of the general history of France; while De Barante, after giving in his *Histoire des Ducs de Bourgogne* (1824), an attractive specimen of purely narrative history, has recently published *Histoires of the Convention and the Directory*, in which his monarchical tendencies are strongly apparent. The revolutionary period has engaged the attention of many historians; among whom the most prominent are Thiers, Mignet, Michelet, and Louis Blanc. Lamartine also figures among the historians, having produced several works of that class, which, however, are more remarkable for their showy language than for their accuracy or research. The elegant and accomplished Villemain, although better known in the field of general literature, has also produced several historical works, as his *Histoire de Cromwell*, and his *Souvenirs Contemporains*. As a lecturer and a critic, no man has contributed more to the diffusion of enlarged literary doctrines, healthy principles, and good taste. Archæology has not been neglected, as is evidenced by the works of Letronne, Raoul Rochette, and Beulé. Champollion, Sylvestre de Sacy, Ernest Renan, and Abel de Rémusat, have thrown great light upon Egyptian and Oriental langnages and literature. In philosophy, Victor Cousin and his disciples have, under the name of *Eclecticism*, brought back the materialism of the preceding age to spiritualist principles. Jouffroy, Damiron, and Jules Simon are among those who have contributed to this result. Writers on politics and political economy are Joseph de Maistre, Bonald, Ballanche, Lamennais, Michel Chevalier, De Tocqueville, and Laferriere; while as socialists, figure the names of St. Simon, Fourier, and Pierre Leroux. Auguste Comte, in his *Cours de Philosophie positive*, offers a connected system of philosophy, embodying ideas derived from Hegel and sundry of the French socialists. The various branches of natural philosophy boast of many original and powerful writers. In natural history are Cuvier, Geoffroy St. Hilaire, Isidore St. Hilaire, and others; mineralogy boasts of Elie de Beaumont, Bendant, and Dufresnoy; and chemistry and physics, of Thénard and Dumas, Gay-Lussac and Pasteur. In medical literature we have the names of Bichat, Broussais, Corvisart, Magendie, Trousseau, and many others. The mathematical sciences have distinguished representatives in Lagrange, La Place, Ampère, Biot, and Arago. The French essayists and literary critics are legion, and some of them have attained great eminence, among whom we may mention Silvestre de Sacy, St. Marc Girardin, Philarète Chasles, Ernest Renan, Hippolyte Rigaud, Gustave Planche, Ste. Beuve, Charles de Rémusat, Emile Littré, Edmond About, Théophile Gautier, Leon Delaborde, Jules Janin, the dramatic feuilletonist, and Taine and Lemoinne. For the last few years, however, French literature has been falling off. The literary movement, which commenced with the Restoration, seems to be now nearly exhausted; and though there has been little falling off in intellectual activity, the rising generation of writers are not on the whole equal to their predecessors. See Van Laun's Hist. French Lit.

French Lick, in *Ind.*, a post-township of Orange co.

French'man, *n.*; *pl.* FRENCHMEN. A native or inhabitant of France.

Frenchman's Bay, in *Maine*, an arm of the Atlantic ocean in Hancock co.; Lat. 44° 15′ N., Lon. 68° 25′ W.

French Mills, in *Missouri*, a P. O. of Madison co.

French Mountain, in *New York*, a post-office of Warren co.

French'-pie, *n.* (*Zoöl.*) The great spotted Woodpecker, *Picus major*.

French'-plum, *n.* (*Bot.*) See PRUNUS.

French'-polishing, *n.* (*Arts* and *Manuf.*) A method of polishing flat surfaces with a solution of gum or gum-resin in spirits For this purpose the polish is made more fluid than the hard-wood lacquer used in polishing turned surfaces, in order that it may spread easily and dry less rapidly. As the friction is derived entirely from the motion of the hand in French-polishing, more time is required than in polishing turned works. There are a great many recipes for making French-polish, which vary greatly, as some prefer it very thin, and others tolerably thick. One of the simplest methods is to dissolve 1½ lbs. of shel-lac in one gallon of spirits of wine without heat. Copal, sandarac, mastic, and gum-Arabic are sometimes employed. It is usual to make the varnish thicker than is required for use, and to thin it down with spirit when being used.

French'port, in *Arkansas*, a P. O. of Ouachita co.

French Rapids, in *Minnesota*, a village of Crow Wing co., about 15 m. N.E. of Crow Wing.

French River, a river of Ontario, taking its rise in Lake Nipissing, and flowing W. into Georgian Bay, in Lat. 45° 53′ N., Lon. 81° 5′ W.

French River, a river of N.W. Territory, enters Hudson's bay in Lat. 51° 8′ N., Lon. 81° W.

French Set'tlement, in *Louisiana*, a post-office of Livingston parish.

French'ton, in *West Virginia*, a post-village of Upshur co., about 100 miles S. by E. of Wheeling.

French'town, in *Michigan*, a township of Monroe co.

Frenchtown, in *New Jersey*, a post-village of Hunterdon co., on the Delaware river, about 16 miles above Lambertville.

Frenchtown, in *Pennsylvania*, a village of Bradford co., 135 miles N. of Harrisburg. The P. O. is HORNET'S FERRY.

French Village, in *Illinois*, a post-village of St. Clair co., about 8 miles E.S.E. of St. Louis.

French Village, in *Minnesota*, a post-village of St. François co., about 47 miles S. of St. Louis.

French'ville, in *Maine*, a P. O. of Aroostook co.

Frenchville, in *Pennsylvania*, a post-village of Clearfield co., about 14 miles E.N.E. of Clearfield.

French'ville, in *Wisconsin*, a P. O. of Trempealeau co.

French'-white, *n.* Finely pulverized talc.

French'-willow, *n.* The rosebay-willow-herb.

Frenetic, (*fre-net'ik,*) *a.* [Fr. *frénetique.*] Frantic; frenzied: mad; distracted; raving.

Frenet'ical, *a.* Mad; frenetic.

Freneuse, (*freh-nuz',*) or GRAND LAKE, a lake of New Brunswick, about 9 m. E. of Fredericton.

Fren'zical, *a.* Partaking of frenzy.

Fren'zied, *a.* Affected with frenzy or madness.

Fren'zy, *n.* [Fr. *phrénésie*; Gr. *phrenēsis*, or *phrenitis*, inflammation of the brain, from *phrēn*, the mind. See FRANTIC.] Disorder of the mind; delirium; madness; distraction; franticness; rage: — any violent agitation of the mind approaching to distraction.

Fre'quency, Fre'quence, *n.* [Fr. *fréquence*; Lat. *frequentia*, from *frequens.*] A return or occurrence of a thing often repeated at short intervals. — Concurrence; full assembly.

Frequent, (*frē'kwent,*) *a.* [Fr. *fréquent*, from Lat. *frequens.* Etymol. uncertain.] Taking place frequently or often; often seen or done; often happening at short intervals; often occurring; taking place time after time, or on many occasions.

—*v. a.* [Lat. *frequento*, from *frequens.*] To visit often; to resort to often or habitually.

Frequenta'tion, *n.* [Fr., from Lat. *frequentatio.*] A crowding together; frequent use; act or habit of visiting often.

Frequent'ative, *a.* [It. *frequentativo*: Lat. *frequentativus.*] Denoting the frequent repetition of an action. —Applied to verbs.

—*n.* A verb which denotes the frequent occurrence or repetition of an action.

Fre'quented, *p. a.* Often visited.

Fre'quently, *adv.* Often; oft; oftentimes; many times; at short intervals; commonly.

Fre'quentness, *n.* Quality of being frequent or often repeated.

Fre'richs, FRIEDRICH THEODOR, an eminent German physician and professor of medicine, B. at Berlin, 1819. In 1838 he entered the university of Göttingen, where he devoted himself to the study of medicine and natural sciences. After his graduation in 1840, and attendance at the lectures of Schönlein and Dieffenbach in Berlin, he addressed himself to practical chemistry, and made a reputation as an oculist. After visiting the schools and hospitals in Prague, Vienna, Holland, Belgium, and France, to further his studies in pathological anatomy, he settled in Göttingen as lecturer on medicine, and achieved great popularity. In 1851 he went as Professor of Pathology and Therapeutics to Breslau, where he became also Director of the Medical Clinic. In 1859 *F.* was called to succeed Schönlein in Berlin as Director of the Medical Clinic in the Charité Hospital. His principal work, however, is *Klinik der Leberkrankheiten*, with atlas — which has been translated into the French, English, and Italian languages.

Fres'co, *n.* [It., fresh.] Coolness; freshness.

(*Paint.*) A method of painting by incorporating the colors with the fresh or wet wall-plaster, or *sul fresco intonaco*, upon the fresh coat. When dry, such paintings become as permanent as the wall itself. This method is very ancient. It was used by the Greeks, and can be traced even to Egypt, for ordinary purposes of mere wall-coloring or staining; but for works of high art, it was not developed until after the time of Giotto; and the first genuine fresco-painting, called *buon fresco*, is supposed to be the work of Pietro d'Orvieto, executed in the Campo Santo at Pisa, in 1390. The earlier wall paintings are executed in what the Italians, to distinguish it from *buon fresco*, now call *fresco-secco*, or dry fresco, literally a contradiction. But in the case of *secco* painting, the dry wall was well saturated with water, and the tints, all mixed with lime, were applied while the wall was wet, and when drying were, through the admixture of lime, incorporated with it. *Buon fresco* can only be executed in small portions, just as much as the painter can execute in a single day; the parts, therefore, marked out for the day's work are distinct portions of figures or objects, which are not injured by being surrounded by a sharp outline. — A new mode of creating durable pictures upon walls has been lately invented, to which has been applied the name of STEREOCHROMY.

Fres'co, (**Al,**) *adv.* In the cool, fresh air; as, an *al fresco* entertainment.

Fresh, *a.* [Sax. *ferse*; Ger. *frisch*; Ital., Sp., Port. *fresco*; Fr. *frais*, *fraîche.*] Having the color and appearance of young, thriving plants; not impaired or faded; having the appearance of a healthy youth; florid; ruddy; recently grown, made, or obtained; new; recent; active; lively; vigorous; brisk; not forgotten or obliterated; not salt; pure and cool; not warm or vapid; free from decay; unfaded; sweet; not stale. — Unpractised; raw; unskilled.

Fresh'en, *v. a.* To sweeten; to separate, as water from saline particles; to take saltness from anything.

—*v. n.* To grow fresh; to lose salt or saltness; to grow brisk or strong.

Fresh'ening, *p. a.* Making or growing fresh.

Fresh'ly, *adv.* With freshness; newly; in the former state renewed; in a new or fresh state; with a healthy look: ruddily; briskly; strongly; coolly.

Fresh'man, *n.* A novice; one in the rudiments of knowledge. — A student during his first year's residence at a college or university; as, an Oxford *freshman*.

Fresh'ness, *n.* State or quality of being fresh; newness: vigor; spirit; liveliness; renewed vigor; coolness; invigorating quality or state; ruddiness; freedom from saltness; rawness; briskness, as of wind.

Fresh Pond, in *New York*, a P. O. of Suffolk co.
Fresh'-water, *a.* Used only to fresh water; as, *fresh-water* fish. — Raw; unskilled; unacquainted; as, *fresh-water* soldiers.
Fres'nel, Augustin Jean, an eminent French natural philosopher, b. 1788. He was educated at the École Polytechnique, and early devoted himself to the practice of civil-engineering. In 1815 he became distinguished as the discoverer of the polarization of light, and in 1823 was elected a member of the Academy. The result of his great discovery is shown in the system of lens-lighting apparatus, which has changed the mode of light-house illumination over the whole world, and is universally known as the "Fresnel system." In 1825 *F.* was elected F.R.S. of London, and in 1827 received the Rumford medal of the Society. D. 1827.
Fres'no, in *California*, a S. central co.; *area*, 8,010 sq. m.; *surface*, greatly diversified and largely mountainous; *soil*, fertile in valleys. *Pop.* (1890) 32,026. *Cap.* Fresno.
—A city, cap. of above co., on S. Pac. R.R., 206 m. S.E. of San Francisco; has extensive manuf., and a large trade with the rich agricultural region surrounding. *Pop.* (1897) about 12,600.
Fret, *v. a.* [A.S. *fretan*, to eat or gnaw; Ger. *fressen*, allied to Fr. *frotter*; Lat. *fricare*, to rub.] To eat away; to gnaw; to corrode; to wear away; to hurt or impair by attrition; to chafe.
"They would grate and *fret* the object metal." — *Newton.*
—To tease; to irritate; to vex; to make angry.
"Injuries from friends *fret* and gall." — *Arbuthnot.*
—To agitate violently by external impulse or action; as, to *fret* the surface of water. — To diversify; to variegate.
—[A. S. *fretrjan*, to adorn.] To form into raised work; to adorn with raised work.
"The roof was *fretted* gold." — *Milton.*
—To furnish with frets, as an instrument of music.
—*v. n.* To make way by attrition or corrosion; as, to *fret* into wood, metal, &c. — To be vexed, chafed, irritated, or angry.
"His heart *fretteth* against the Lord" — *Prov.* xix. 3.
—To be agitated, or in a violent commotion; as, rancor *frets* ignoble minds.
—*n.* Agitation of the mind; irritation; ill-humor; peevishness; vexation. — Any agitation of liquors or other fluid, by fermentation, confinement, or other cause. — A frith or strait.
(*Arch.*) An ornament (Fig. 1072) used in classical architecture, formed by small fillets intersecting each other at right angles. The varieties are very numerous.

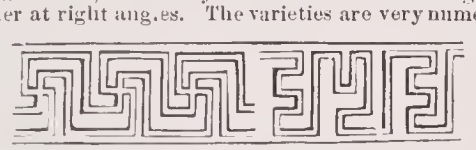


Fig. 1072. — FRETS.

(*Med.*) Chafing; herpes.
(*Mus.*) One of the cross bars on the finger-boards of stringed instruments of ivory or brass, wherewith by pressure of the finger the string is stopped to produce a certain note in the scale. The use of frets is still continued on the Spanish guitar, and they were formerly in constant use for learners upon what is called the bass-viol; they were taken off when the pupil had learned by practice to measure the accurate distance of the stops. On lutes and viols they were always permitted to remain.
(*Her.*) A figure resembling two sticks laid saltier-wise, and interlaced with a muscle (Fig. 1073). When 6, 8, or more pieces are represented crossing and interlacing like lattice-work, the shield is said to be *fretty*.



FRET.



Fig. 1073. FRETTY.

—*pl.* (*Mining.*) The sides of river-banks, &c., worn by attrition, and presenting a detritus of ores, stones, &c., washed down from higher localities, and thus affording an indication to the miners of the direction in which veins, lodes, &c. run
Fret, *n.* Same as Frith, *q. v.*
Fret'ful, *a.* In a state of vexation; peevish; ill-humored; irritable; captious; petulant; angry; as, a *fretful* disposition.
Fret'fully, *adv.* Peevishly; angrily.
Fret'fulness, *n.* Peevishness; ill-humor; disposition to fret and complain.
Fret'ted, *p. a.* Corroded; rubbed or worn away. — Agitated; vexed. — Made rough on the surface; variegated; ornamented with fretwork. — Furnished with frets, as a musical instrument.
(*Her.*) Interlaced one with the other; fretty. See Fret.
Fret'ten, *a.* Rubbed; marked.
Fret'ter, *n.* One who, or that which frets.
Fret'ting, *p. a.* Wearing away; agitating; vexing. — Making rough on the surface; variegating.
—*n.* A state of vexation; chafing; peevishness.
Fret'ty, *a.* Adorned with fretwork. — See Fret.
Fre'tum, *n.* [Lat.] A strait; an arm of the sea.
Fret'work, *n.* Work adorned with frets.
Freudenstadt, (*froi'den-stat,*) a town of Würtemberg, on the Murg, 24 m. from Strasburg. *Manuf.* Prussian-blue, white lead, and woollens. *Pop.* 4,130.
Freudenthal, (*froi'den-tal.*) a town of Austrian Silesia, on the borders of Moravia, 20 m. from Troppau. *Manuf.* Woollens and linens. *Pop.* 4,000.
Frews'burg, in *New York*, a P. O. of Chautauqua co.
Frews'ville, in *New York*, a village of Chautauqua co., abt. 24 m. E.S.E. of Maysville.
Frey'burg, in Saxony. See Freiberg.
Frey'burg, in Switzerland, and in Baden. See Freiburg.
Freys'bush, in *New York*, a post-village of Montgomery co., abt. 340 m. W. by S. of Albany.
Frey'tag, Gustav, a popular German author, b. 1816. He is best known in this country by his admirable novel, *Debit and Credit*, which passed into a 7th edition in 1858.
Friabil'ity, Fri'ableness, *n.* [Fr. *friabilité.*] Quality of being easily rubbed down, broken, crumbled, and reduced to powder.
Fri'able, *a.* [Fr., from Lat. *friabilis*, from *friare*, to rub or break into small pieces.] Easily crumbled or pulverized.
Fri'ar. [Fr. *frère*; Lat. *frater*, brother.] (*Eccl. Hist.*) A common term applied to monks of all orders, founded on the supposition that there is a kind of brotherhood existing between the religious persons of the same monastery. More particularly, it was applied to those of the mendicant orders of which the principal were the four following: — Franciscans, Minors, or Gray Friars; Augustines; Dominicans, or Black Friars; and Carmelites, or White Friars. In a more peculiar sense, friar is restricted to such monks as are not priests; the latter being usually dignified with the appellation of *father*.
(*Print.*) Any part of a page which has not received the ink in printing.
Fri'arly, *adv.* After the manner of a friar.
Fri'ar's-bal'sam, *n.* (*Med.*) The compound tincture of benzoin of the pharmacopœia. It is an alcoholic solution of benzoin, styrax, tolu-balsam, and aloes; it is used as a stimulating application to wounds and ulcers.
Fri'ar's-lan'tern, *n.* (*Meteor.*) Same as Castor and Pollux (*q. v.*).
Friar's Point, in *Mississippi*, a post-town, cap. of Coahoma co., about 150 m. N.N.W. of Jackson. *Pop.* 700.
Fri'ary, *n.* A monastery or convent of friars. (R.)
—*a.* Pertaining to friars, or to a convent.
Fria'tion, *n.* [Lat. *friatio*, from *friare*, to rub away.] The act of breaking up, or reducing to powder.
Frib'ble, *a.* [Fr. *frivole*: Lat. *frivolus*, silly, empty, trifling.] Frivolous; trifling; silly.
—*n.* A frivolous, contemptible fellow.
—*v. a.* To trifle; to act frivolously.
Frib'bler, *n.* A tritler.
Fri'bourg, in Switzerland. See Freiburg.
Fricandeau, Fricand', (*fri'can-do.*) *n.* [Fr. *fricandeau*, from *friand*, tor *fricand*, dainty.] (*Cookery.*) A ragout of veal.
Frie'assée, *n.* [Fr. *fricassée*, from *fricasser*, to fry; from Lat. *frigere*, *frixum*, to roast or fry.] (*Cookery.*) A dish made by cutting chickens, rabbits, or other small animals into pieces, and dressing them in a *frying-pan*, or a like utensil, with a thick sauce.
—*v. a.* To dress in fricassee.
Frie'ative, *a.* [Lat. *fricativus*, from *fricatio*, a rubbing, from *fricare*, to rub.] (*Pronunc.*) Produced by the friction or rustling of the breath, intonated or unintonated, through a narrow opening between two of the mouth-organs; uttered through a narrow approach, but not with a complete closure of the organs of articulation, and hence, capable of being continued or prolonged; — said of certain consonantal sounds, as *f*, *v*, *s*, *z*, &c.
Frick, (Lower,) a village of Switzerland, in the canton of Aargau, in the Frickthal, to which district it gives its name. *Pop.* 1,900. — The District of Frickthal extends on the south side of the Rhine, from Augst to Botzberg, and has an area of abt. 100 sq. m. The pop., numbering 20,000, is employed chiefly in cotton-spinning, and trading in wine, cattle, and timber.
Frie'kle, *n.* A bushel-basket.
Frick's Gap, in *Georgia*, a post-village of Walker co., abt. 200 m. N.W. of Milledgeville.
Frie'tion, *n.* [Fr., from Lat. *frictio*, from *frigere*, *frictum*, to rub.] (*Mech.*) The resistance which a moving body meets with from the surface of the body on which it moves. As no surfaces are perfectly smooth, the imperceptible asperities, which may be supposed to exist on all surfaces, however highly polished, become to some extent interlocked, and a certain amount of force is requisite to overcome the mutual resistance to motion of the two surfaces, and to maintain the sliding motion even when it has been effected. By increasing the pressure, the resisting power of *F.* is increased; while, on the other hand, by rendering the surfaces more smooth, and by lubrication, the resistance to motion is diminished, although it cannot be entirely avoided. Strictly, *F.* should be called a *force*, except in a negative sense. In a general sense, the tendency of force is to produce motion, or, if it does oppose motion, it is only in virtue of a tendency to produce motion in the opposite direction. The peculiarity, however, of *F.* is, that it tends to destroy motion in every direction. *F.* is essentially a passive resistance, a negative force, produced by pressure, to which it bears such relation that its amount may be measured by the same unit, and be enunciated in the same terms. The principal laws with regard to *F.* are as follows: — *Law* 1. The *F.* bears to the pressure upon the surfaces in contact a ratio which is constant for the same materials with the same condition of surfaces. Thus, if the surface of one body be pressed upon that of another with a certain force, and if the force be doubled, the friction will be doubled; if the pressure be tripled, the *F.* will be tripled, &c. *Law* 2. The measure of *F.* is independent of the extent of surface, the pressure and the condition and character of the surfaces remaining the same. *Law* 3. The *F.* is entirely independent of the velocity of continuous motion. These laws, although stated in reference to the movement of two smooth surfaces, are equally true with regard to the rubbing parts of every machine. It is always found that the friction is greater between substances composed of the same material than between the surfaces of heterogeneous bodies.
—The act of rubbing two bodies together: attrition; abrasion; confrication; — used in medicine as a means of exciting the vital properties of the skin.
Fric'tional, *a.* That relates to, or is caused by friction.
Fric'tion-clutch, *n.* (*Mach.*) A shell or box fixed on the end of a driving-shaft, fitted by a conical piece which slides on a feather, or raised part, at the end of another shaft, so that it can be engaged at pleasure by the cone being forced into the shell by a lever or screw. This apparatus is very useful for driving machines, the parts of which are subjected to violent strains, as the pressure upon the clutch can be regulated so as to allow it to slide when the strain is too great to be borne safely by the machine.
Frie'tionless, *a.* Having no friction.
Fri'day, *n.* [A.S. *frig-dag*, from *Frigga*, the goddess of marriage, wife of Odin or Wodan, and *dag*, a day; Ger. *Freitag.*] The sixth day of the week, formerly consecrated to the Scandinavian Venus, Friga, or Frigga, from whence it derives its name. — The *Dies Veneris*, or day of Venus among the Romans.
Fried, *imp.* and *pp.* of Fry, *q. v.*
—*p. a.* Heated; agitated.
Fried'berg, (*freed'bairg,*) a town of Bavaria, 28 m. from Munich; *pop.* 2,000.
Fried'berg, a town of Hesse-Darmstadt, 15 m. N. of Frankfort-on-the-Main. A seminary for teachers is located here. *Pop.* abt. 5,000.
Fried'berg, the name of several towns of Germany, none of them with a population of over 5,000. — *High F.*, 20 m. from Liegnitz, in Silesia, was the scene of the defeat of the Austrians by Frederick II., in 1745.
Friedensburg, (*free'denz-burg,*) in *Pennsylvania*, a post-village of Schuylkill co., abt. 10 m. S.S.W. of Pottsville.
Frie'densville, in *Pennsylvania*, a P. O. of Lehigh co.
Friedland, (*freed'land,*) a name common to many German towns, with populations varying from 1,500 to 5,000.
Friedland, a town of E. Prussia, 36 m. S.E. of Königsberg; Lat. 54° 26′ N., Lon. 21° E. It is famous for being the scene of the victory gained by Napoleon I. over the Russians and Prussians on the 14th of June, 1807, which led to the peace of Tilsit. *Pop.* 2,500.
Friedland, a town in Bohemia, on the Wittig, near the Prussian border. It is the capital of the district or duchy of the same name, from which the famous Wallenstein took his title of Duke of *F.* *Pop.* of town 4,400.
Friend, (*frend,*) *n.* [A. S. *freond*, pp. of *freon*, to love; Ger. *freund.*] One joined to another by mutual goodwill and esteem; a well-wisher; an intimate associate or acquaintance. — An attendant; a companion. — A favorer; one who is propitious; also, a favorite. — A term of salutation; a familiar compellation. — One of the religious sect popularly called Quakers.
—*v. a.* To favor; to befriend; to countenance; to support.
"I know that we shall have him well to *friend*."—*Shaks.*
Friend'grove, in *Illinois*, a post-office of Wabash co.
Friend'less, *a.* Wanting countenance or support; destitute; forlorn.
Friend'lily, *adv.* In a friendly manner.
Friend'liness, *n.* Friendly disposition; exercise of benevolence or kindness.
Friend'ly, *a.* Having the temper and disposition of a friend; kind; favorable; benevolent; disposition to promote the good of another. — Disposed to peace; amicable; social; not hostile; neighborly; as, on *friendly* terms. — Favorable; propitious; salutary; promoting the good of; as, a *friendly* breeze.
Friend'ly (or Tonga) **Islands,** a group in the S. Pacific Ocean, forming an archipelago of very considerable extent, and consisting of more than 150 islands, the greater part of which are either mere rocks or shoals, or desert spots. Most of them are of coral formation; but some of them are volcanic in their origin, and in Tofua there is an active volcano. Lat. between 13° and 25° S., Lon. between 172° and 177° W. The principal member of the group is *Tongatabu* or *Sacred Tonga*, which contains abt. 7,500 inhabitants. The *F.* Islands were discovered by Tasman in 1643, but were named by Captain Cook, from the firm alliance that seemed to subsist among the natives, and from their courteous behavior to strangers. Among the products of the islands are yams, plantains, cocoa-nuts, hogs, fowls, fish, and all sorts of shell-fish. The *F. I.* were first visited by missionaries in 1797. In 1827 the Wesleyan Methodists succeeded in the work of evangelization, and their labors were finally crowned with such success that most of the inhabitants are now Christians. Nearly all the islands are under the rule of one Christian chief called King George. *Pop.* abt. 25,000.
Friends, or **"Quakers."** The Religious Society of Friends, from its rise under George Fox (*q. v.*) in the 17th cent., has always maintained its belief in the divine authority of the Holy Scriptures, acknowledging them to be the only fit outward test of Christian doctrines. They do not call them the Word of God, because this appellation, they believe, is applied by the writers of the Scriptures to that eternal power by which the worlds were made.—*Immediate Revelation.* The highest privilege granted to man is that of holding communion with the Author of his being; there can be no saving knowledge of Christ but from immediate revelation. — In the approved writings of Friends there is a clear distinction observed between the Divine Light, which is the medium, and the conscience, which is the organ of

spiritual perception. It is the doctrine of Friends that the light of Divine truth, or Spirit of Christ, appears to all men; to the wicked he comes as a reprover for sin, but to the obedient as a comforter in righteousness. — *The Original and Present State of Man.* It is a Scriptural doctrine, among Friends, that neither righteousness nor unrighteousness can be transmitted by inheritance, but every man will be judged "according to his deeds."— *The Divine Being.* The unity, omnipresence, omniscience, and omnipotence of God, the only fountain of wisdom and goodness, are fully set forth in the Scriptures of both the Old and the New Testament. . . . "I, even I, am the Lord, and besides me there is no saviour." . . . In the Sermon on the Mount we are taught to address the Most High by the endearing appellation of our Father in Heaven, and to place our trust in him alone who feeds the fowls of the air and clothes the lilies of the field. That spiritual influence by which the Most High communicates his will to man is called His Word. The term *Christ* is applied by the apostles to the Spirit of God as manifested in man. It is written that "when the fulness of time was come, God sent forth his son, made of a woman, made under the law to redeem them that were under the law, that we might receive the adoption of sons, and because ye are sons, God hath sent forth the *Spirit of His Son* into your hearts, crying Abba, Father." (*Gal.* iv. 4.) The Spirit of God and the Spirit of Christ are the same, as further appears by the following text: "Ye are not in the flesh, but in the spirit, if so be that the *Spirit of God* dwell in you. Now, if any man have not the *Spirit of Christ*, he is none of his." (*Rom.* viii. 9.) The most full and glorious manifestation of the Divine Word, or Logos, was in Jesus Christ, the immaculate Son of God, who, according to the Scriptures, was miraculously conceived and born of a virgin. In him the manhood was entirely subject to the Divinity. "He took not on him the nature of angels, but he took on him the seed of Abraham." There was in him no corruption, and the spirit of evil had no power over him. Being "in all points tempted like as we are, yet without sin," (*Heb.* iv. 15,) "a man approved of God by miracles, wonders, and signs, which God did by him." (*Acts* ii. 22.) His powerful preaching, his wonderful miracles, his patience under suffering, and his triumphant resurrection, are to be attributed to the Divine Word, or "Spirit of the Lord," which dwelt in him, for He said, "The Father that dwelleth in me, he doeth the works." (*John* xiv. 10.) The Divinity of Christ is his life and light — the indwelling of Divine power — the Word or Spirit which was and is manifested in him, and which through him gives life to all his members, for "it pleased the Father that in him should all fulness dwell," and "of his fulness have we all received, and grace for grace." The life is often called, in the Scriptures, the blood, for "the blood is the life," or "the life is in the blood," and as in the natural body the blood conveys nourishment to every part and sustains life in it, so in the spiritual body, every living member is sustained by the life or blood of the Son of God. "To us there is but one God, the Father, of whom are all things, and we in him; and one Lord Jesus Christ, by whom are all things, and we by him." (1 *Cor.* viii. 6.) As Moses was a mediator, to ordain the legal dispensation (*Gal.* iii. 19), so Jesus Christ was and is the mediator of the New Covenant: first, to proclaim and exemplify it in the day of his outward advent, and 2dly, through all time in the ministrations of his spirit. — *Salvation by Christ.* The great work of the Messiah for the salvation of the world is beautifully portrayed in the passage which he read from Isaiah in the synagogue at Nazareth. "The Spirit of the Lord is upon me because he hath anointed me to preach the Gospel to the poor; he hath sent me to heal the broken-hearted, to preach deliverance to the captives, and recovering of sight to the blind, to set at liberty them that are bruised, to preach the acceptable year of the Lord." "And he began to say unto them, This day is this scripture fulfilled in your ears." (*Luke* iv. 18–21.) He came to establish a spiritual kingdom of Truth and Love in the hearts of mankind, and thereby to put an end to the kingdom of evil. Then was laid the foundation on which succeeding generations have built, and no moral reform of value or permanency can take place unless it be founded on Christian principles. It is the life of God, or "Spirit of Truth," revealed in the soul, that purifies and saves from sin. When Jesus told the people, "Except ye eat the flesh of the Son of man, and drink his blood, ye have no life in you," he did not allude to the flesh and blood of his outward body, but to the life and power of God which dwelt in him and spake through him. — *Regeneration.* It was declared by our Lord, "Except a man be born again he cannot see the kingdom of God." (*John* iii. 3.) This new birth is the development of the spiritual nature in man through the operation of the Holy Spirit, and it is subsequent to that of the carnal nature, for "that was not first which is spiritual, but that which is natural; and afterward that which is spiritual." (1 *Cor.* xv. 46.) — There is implanted in every soul a germ of divine life, compared by the blessed Jesus to a grain of mustard-seed, which is among the smallest of seeds. By yielding obedience to the gentle intimations of Divine grace, or to those stronger convictions, called "the reproofs of instruction which are the way of life," a vital change takes place.— *Christian Perfection* is neither more nor less than unreserved obedience to the divine will, through perfect love to God, which preserves the soul from the practice of sinning.—*Baptism.* It appears to have been the great work of George Fox and the early Friends, to draw the attention of mankind from a reliance upon the outward form, to an experience of the inward power of religion. They believed that the kingdom of Christ is the reign of God established in the soul, and that his baptism and supper are not material, but spiritual; being the substance typified by the "divers washings" under the law, the water-baptism of John, and the Jewish passover. — The principal testimonies of Friends are the following, viz.: A pure spiritual worship. A free gospel ministry. Religious liberty. A testimony against war; oaths; slavery; the use, as a beverage, of spirituous liquors; and against vain fashions, corrupting amusements, and flattering titles. *S. M. J.— Extracts from Rules of Discipline.* If any in membership with us shall blaspheme or speak profanely of Almighty God, Christ Jesus, or the Holy Spirit, he or she ought early to be tenderly treated with. . . . But should any persist in their error, or deny the divinity of our Lord and Saviour Jesus Christ, the immediate revelation of the Holy Spirit, or the authenticity of the Scriptures, it is manifest they are not one in faith with us. . . . (p. 27.) We earnestly advise . . . the reading of the Scriptures, which set forth the miraculous conception, birth, holy life, wonderful works, blessed resurrection, ascension, and mediation of our Lord and Saviour Jesus Christ, and that Friends educate their children in the belief of those important truths, as well as of the inward manifestation and operation of the Holy Spirit, (p. 100.) — For further exposition of the doctrines of Friends, the reader is referred to the following: *George Fox's Works*, 8 vols.; *Barclay's Apology; Barclay's Catechism; William Penn's Works; Isaac Penington's Works; Bownas on the Ministry; Friends' Miscellany*, by J. & I. Comly, 12 vols.; *Thos. Story's Conversations*, by N. Richardson; *History of Friends*, by S. M. Janney, 4 vols.; *Life of George Fox*, by S. M. Janney; *Life of Wm. Penn*, by S. M. Janney; *Discipline of Friends; Conversations on Religious Subjects*, by S. M. Janney.

FRIENDS, or QUAKERS, ("*Orthodox.*") The organization of the Friends as a distinct society or church was not the result of any deliberate design to form a sect. They did not profess to establish a new religion, or claim to have discovered any new truth. Their object was the revival of primitive Christianity. Especially they were led to call the attention of the people to the Holy Spirit as the living and infallible Guide, as a precious and glorious reality. They never held the doctrine of the Spirit as a mere theory, or ignored the great truth that this unspeakable gift proceeded from the adorable Giver, and was consequent upon the death and vicarious sacrifice of Him who for our sakes laid down his life upon Calvary. They always regarded the close connection of cause and effect as described in our Lord's words: "I tell you the truth; it is expedient for you that I go away; for if I go not away, the Comforter will not come unto you; but if I depart I will send him unto you." (*John* xvi. 7.) This truth George Fox began to teach and preach, not as an invention of his own, but as a priceless jewel thrown aside, and hidden under the rubbish of dogmas and forms. The Divine Spirit asserted Himself almost simultaneously in the hearts of many contemporaries, who were ready to respond to the preaching of Fox, "It is the very truth." — Christ the object of faith, the Spirit the transforming power, was the doctrine of the first Friends, as it has ever been that of their true successors. The Divinity of our Lord was not called in question by the teachers of that day, whilst the guidance of His Spirit, the light of Christ in the conscience, was denied or ignored; and hence the prominence given to the latter truth, and the comparative silence respecting the other, in the controversial writings of the early Friends. The epithet "*Quakers*" was given in derision, and has been rather submitted to than accepted by them; their name, as a body, is *The Religious Society of Friends.* The Society embraces a membership of about 80,000, and consists of twelve Yearly Meetings, which are, in a sense, diocesan, having each a defined territorial jurisdiction. The oldest of these is that of London, the records of which are preserved from the year 1672. There are settlements of Friends in France, Germany, Norway, and several parts of Australasia, all acknowledging subordination to the London Yearly Meeting. In the ministry of the Word, no Friend, who is true to the principles of the Society, will speak without feeling a direct call and movement of the Holy Spirit for the service. Elders are appointed, who are believed to be prudent persons, and it is their duty to counsel, foster, and aid the ministers, and either to encourage or restrain the vocal offerings of those who attempt to speak in this capacity, according as they are or are not believed to be called of God to the work. No system of theologic training as a preparation for the ministry is known or could be permitted among the Friends. They are favorable to education, and provide for its free extension to the children of poor members; but they regard it as the exclusive province of the Holy Spirit to select His own ministers, and to instruct them what they shall say. It is, however, considered the duty of all, and especially of those who stand as ambassadors for Christ, to be diligent and prayerful in the perusal of the Holy Scriptures. The privilege and duty of prayer, both secretly and vocally, under a reverent and filial sense of the character of the engagement, are regarded as of the very highest importance. It is believed that "men ought always to pray," but a jealousy is felt lest any should, in a light and flippant way, rush into this exercise. A practical recognition of the presidency and headship of Christ in His church characterizes their meetings. Before any one shall pray vocally in their meetings, it is requisite that a direct movement of the Holy Spirit should prompt the offering. — The Society of Friends is not at issue with other orthodox churches on the general points of Christian doctrine. Avoiding the use of the word Trinity, they reverently believe in the Holy Three: the Father, the Lord Jesus Christ, the only-begotten of the Father, by whom are all things, who is the mediator between God and man, and in the Holy Spirit, who proceedeth from the Father and the Son — ONE GOD, blessed forever. They accept in its fulness the testimony of Holy Scripture with regard to the nature and offices of Christ, as the promised Messiah, the Word made flesh, the atonement for sin, the Saviour and Redeemer of the world. They have no reliance upon any other name, no hope of salvation that is not based upon his meritorious death on the cross. The charge that they deny Christ to be God, William Penn denounced as "most untrue and uncharitable," saying, "We truly and expressly own Him to be so, according to the Scripture." As fully do they admit his humanity, and that he was truly man, "sin only excepted." They so fully believe in the Holy Spirit of Christ, that without the inward revelation thereof they feel that they can do nothing to God's glory, or to further the salvation of their own souls. Without the influence thereof they know not how to approach the Father through the Son, nor what to pray for as they ought. Their whole code of belief calls for the entire surrender of the natural will to the guidance of the pure, unerring Spirit, "through whose renewed assistance," says one of their writers, "they are enabled to bring forth fruits unto holiness, and to stand perfect in their present rank." As it was the design of Christ, in going to the Father, to send as a comforter His Spirit to His disciples, so it is with His Spirit that He baptized and doth baptize them, it being impossible, in the estimation of the Friends, that an outward ablution should wash from the spirit of man the stains of sin. And it is by His Spirit, also, that his followers are enabled to partake of the true supper of the Lord. They have ever regarded war as inconsistent with Christianity. For this they refer to the teachings of Christ and His apostles, to the example of the early Christians, and to the witness for truth in their own consciences, tested and confirmed by the Sacred writings. They consider oaths to be inadmissible, as being positively forbidden by our Lord in language not to be mistaken, and this testimony was made the occasion of inflicting severe penalties upon the first Friends. When their persecutors failed to convict them upon false charges, it was customary to administer the test-oaths to them, on refusing to take which they were thrown into prison. They decline to employ the complimentary and false language of the world, and to apply to the months and days the names given in honor of pagan gods, preferring the numerical nomenclature adopted in the Scripture. In dress they aim at plainness and simplicity, avoiding the tyranny of an ever-changing fashion. As a natural result, a degree of uniformity of dress prevails among them, bearing much resemblance to the style in vogue at the rise of the Society. This approach to uniformity, which at first was unintentional, came to be cherished as a hedge of defence against worldly and ensnaring associations, and a means by which they recognized each other. The principle at stake is not in the fashion of a garb, but in simplicity and the avoidance of changes of fashion. — Whilst Friends, as good citizens, have cheerfully paid all legal assessments for the support of public schools and of the poor, and have contributed abundantly to the various charities and general claims of benevolence, they have always been characterized by their scrupulous care in relieving their own poor, so that none of their members come upon the public for maintenance, or for gratuitous education. A dangerous tendency to "hold the truth in parts" led a portion of the Society, in the early part of the present century, into the error of insisting too singly upon the precious doctrine of Christ within, the hope of glory, and of denying, or at least holding lightly, a belief in His true Divinity whilst incarnate, and in the atoning, cleansing, saving efficacy of His blood which was shed for us. Thus Socinianism gained a footing in the Society, to the grief of many, and in 1827 an extensive and much-to-be-regretted secession occurred, in which doctrinal and personal considerations were mingled; and, in the excitement of the division, it is believed that many failed to comprehend the true issues, and that not a few who were essentially one in faith, were dissevered for life as regards church-fellowship. Thus two entirely distinct societies now exist, each claiming exclusive right to the same name, and causing confusion among other professors as to their identity. At the present day they, with the other body of similar name, are performing eminent service to the freed people of color, and to the Indian races — the latter in pursuance of a trust reposed in them by the General Government. In all the Yearly Meetings the system of Scriptural, or First-day, schools is cherished, and in a number of them these are under the official care of the Church, and the subject of annual statistical reports to the Yearly Meetings. In one Yearly Meeting there are 115 such schools, with 6,953 pupils; in another, 63 such schools, with 6,170 pupils. For religious and secular education combined, there are a number of large boarding-schools under the care of the Society, and the important colleges of Haverford and Earlham.

FRIENDS, or "QUAKERS," (*Orthodox.*) believe in one God, the creator of all things; and in one Lord Jesus Christ, by whom are all things, the mediator between God and man; and in the Holy Spirit which proceedeth from the Father and the Son; one God blessed for ever. They believe that Jesus Christ was made a sacrifice for sin, who knew no sin; that he was crucified for mankind, in the flesh, without the gates of Jerusalem; that he was buried and rose again the third day, by the power of the Father, for our justification, and that he ascended up into heaven, and now sitteth at the right hand of God,

our holy mediator and intercessor. They have uniformly declared their belief in the divinity and manhood of the Lord Jesus: that he was both true God and perfect man, and that his sacrifice of himself upon the cross was a propitiation and atonement for the sins of the whole world, and that the remission of sins which any partake of, is only in, and by virtue of, that most satisfactory sacrifice. They believe in the Holy Spirit, the promise of the Father, whom Christ declared he would send in his name, to lead his followers into all truth. A manifestation of this Spirit is given to every man to profit withal; that it convicts for sin, and, as obeyed, gives power to the soul to overcome and forsake it; it opens to the mind the mysteries of salvation, enables it savingly to understand the truths recorded in the holy Scriptures. They believe that the saving knowledge of God and Christ cannot be attained in any other way than by the revelation of this spirit. But while the Society believes the lost and undone condition of man in the fall, it does not believe that mankind are punishable for Adam's sin, or that we partake of his guilt, until we make it our own by transgression of the divine law. As many as resist not the light of Christ Jesus, but receive and walk therein, it becomes in them a holy and spiritual birth, bringing forth righteousness, by which holy birth, viz. Jesus Christ formed within us, and working his works in us, as we are sanctified, so we are justified in the sight of God. Therefore, it is not by our works wrought in our will that we are justified, but *by Christ*, who is both the gift and the giver, and the cause producing the effects in us. If justification be considered in its full and just latitude, neither Christ's works without us, in the prepared body, nor his work within us, by his Holy Spirit, is to be excluded; for both have their place and service in our complete justification. By the propitiatory sacrifice of Christ without us, we, truly repenting and believing, are, through the mercy of God, justified from the imputation of sins; and by the mighty work of Christ within us the power of sin is destroyed. The Society of Friends believes that there will be a resurrection both of the righteous and the wicked; the one to eternal life and blessedness, and the other to everlasting misery and torment. *F.* have always believed that the holy Scriptures were written by divine inspiration, and contain a declaration of all the fundamental doctrines relating to eternal life; and that whatsoever doctrine is contrary to them, is to be rejected as false; that they are a declaration of the will of God. Though they do not call them "the Word of God," believing that epithet applicable to the Lord Jesus, yet they believe them to be the words of God, written by holy men as they were moved by the Holy Ghost. As there is one Lord and one faith, so there is but one baptism, of which the water-baptism of John was a figure. Respecting the communion of the body and blood of our Lord Jesus Christ, the Society of Friends believes that it is inward and spiritual. They believe that worship must be in spirit and in truth; an intercourse between the soul and its great Creator; it is their practice to sit down in solemn silence to worship God, that each one may be engaged to gather inward to the gift of divine grace. In relation to the ministry, they hold that the authority and qualification for this important work are the special gift of Christ Jesus, bestowed both upon men and women, and must be received immediately from him, through the revelation of his spirit in the heart. Viewing the command of our Saviour, "freely ye have received, freely give," as of lasting obligation upon all his ministers, the Society has, from the first, steadfastly maintained the doctrine that the gospel is to be preached without money and without price, and has borne a constant testimony against a man-made hireling ministry, which derives its qualification and authority from human learning and ordination. The Society of Friends believes that war is wholly at variance with the Spirit of the gospel, which continually breathes peace on earth and good-will to men. In the same manner the Society believes itself bound by the express command of our Lord, "Swear not at all," and therefore its members refuse, for conscience' sake, either to administer or to take an oath. The Society has long borne a testimony against Slavery; and likewise against the unnecessary use of intoxicating liquors. *F.* believe civil government to be God's ordinance. While they feel themselves restrained by the pacific principles of the gospel from joining in any warlike measures to pull down, set up, or defend any particular government: they consider it a duty to live peaceably under whatever form of government it shall please Divine Providence to set up over them. In conformity with the examples of the apostles and primitive believers, the Society enjoins upon its members an unostentatious mode of living; moderation in the pursuit of business, and that they discountenance all unprofitable amusements, as well as the changeable fashions of the world; that, daily living in the fear of God and under the power of the cross of Christ, they may show forth a conduct becoming their Christian profession. — *Extract from Thos. Evans, by T. W.*

Friends, or "Quakers" — (*original*, or *primitive* "*orthodox*,") sometimes styled "of the *Smaller Bodies*," from their being greatly outnumbered by those whom they have testified against as having departed from the original principles of the profession. This body of *F.* occupies a position between those called "Hicksites" and those acknowledging connection, as "Friends," with the adherents of Joseph John Gurney, or *modernized* "orthodox." They allege that they stand on the original ground of the society; believing, without reserve, in all that our blessed Lord Jesus Christ, who is One with the Father, did and suffered outwardly for mankind in the prepared body; his miraculous birth, divine sonship, and propitiation for our sins; and also in his needful work of sanctification through the inward effectual cleansing operations of his Spirit, by which alone we can be enabled to lay hold of the benefit of his atoning sacrifice for sin; in his immediate guidance of his followers into all truth, by his inward light and grace, as their primary rule of faith and practice; in the divine authority of the Holy Scriptures, as a true record of the ways of the Lord with his people in days past, and a secondary rule for our instruction in righteousness, subordinate to His Spirit which gave them forth; and in all the other Christian doctrines held by Fox, Penn, Barclay, Penington, and the other early *F.*: — while both of the other classes claiming the name of *F.* have departed from some of the essential grounds of their profession by officially sanctioning, or conniving at, the promulgation of views at variance with those held by *F.* in the beginning. Thus, they charge those called "Hicksites" with being, as a body, involved in the unsound doctrines of Elias Hicks, such as his views on the divinity and miraculous birth and atonement on the cross of our Lord Jesus Christ; the authority of the Bible, &c., as developed in his *Sermons* and printed *Letters*; they having separated in 1827 and 1828, on the ground of disunity with the opposition made to him, and having never disavowed his well-known doctrines. (See *Declaration of Philad. Yearly Mg. &c.*, 1828.) On the other hand, these *F.* charge the generality of those called "orthodox." with being implicated in a no less fundamental departure, by being engaged, or remaining in connection with those engaged, in the promotion of the modernized views and practices originally and mainly developed in the Society, by the publications of J. J. Gurney and others in England. The tendency of his writings was to bring in an easy, self-pleasing and popular system, discarding the clear and unequivocal belief of the ancient *F.* in the universal and saving light of Christ, as stated by Barclay and others; making justification to depend very much on a superficial or historical belief in Christ's incarnation and crucifixion, to the disparagement of the absolute necessity of an experience of His inward work also, to make the former individually availing; setting up the Scriptures as the primary rule of faith and practice (contrary to their own testimony); designating faith as a "faculty of the human mind," and the first day of the week as "*the* Christian Sabbath;" advocating the notion of a resurrection of the same bodies; charging the early *F.* with various mistakes of interpretation of Scripture involving important doctrines; and generally promoting in the society a system of religion founded on intellectual study, instead of the thorough humiliation and purification of the soul, and its enlightenment by the inward light and grace of Christ; a system of self-activity, "always ready," instead of self-abasement and waiting on the Lord; of "religion made easy" to the carnal mind, instead of a constant bearing of the cross of Christ. Thus, these "Smaller Bodies" of *F.* believe it needful to maintain, without any modification, the primitive and ancient ground, acknowledging Christ both in his outward and inward work for man's salvation; while the "Hicksites" are defective as to the outward, and the "Gurney" party as to the inward; each thus, on opposite sides, falling short of a living, acceptable, and full "confession of Jesus Christ come in the flesh." These things, they say, have been clearly and publicly proved, and the proofs have never been invalidated, but only ignored or evaded. The Yearly Meeting of Philadelphia at first opposed the innovations in doctrine; (see its *Appeal for the Ancient Doctrines*, &c., 1847, and its *Report of Facts and Causes of the Division in N. E.*, 1849;) but at length, through the influence of a party resolved at all hazards to prevent division, it compromised its position, succumbed to the pressure from within and without, declined to take any practical steps to stay the progress of the "Gurney" defection, and, contrary to its own discipline, officially permitted an interchange of membership between itself and the lapsed bodies, except those called "Hicksites." This occasioned the isolation of those who could not conscientiously join in measures which they knew would compromise the fundamental truths of their profession. They have accordingly met apart from the others, in Pennsylvania and parts adjacent, since 1860. (See *Epistle of the General Meeting, held at Fallsington*, 1860.) But the separations in other parts occurred at various times, commencing in New England, about 1845, with attempts to suppress all opposition to Gurney's doctrines. (See *John Wilbur's Journal*, Providence, 1859; and *Epistolary Declaration, &c., of New England Yearly Meeting*, 1845.) At present, this body of *F.* consists of small congregations for worship and discipline, and various scattered individuals, in New England, New York, Ohio, Pennsylvania, and New Jersey, and a few in England. Their meetings are in mutual correspondence.

Friend's Grove, in *Virginia*, a village of Charlotte co., abt. 104 m. S.W. of Richmond.

Friend'ship, *n.* The state of minds united by mutual benevolence; an attachment to a person, proceeding from intimate acquaintance and a reciprocation of kind offices, or from a favorable opinion of the amiable and respectable qualities of his mind; mutual attachment. — Intimacy; favor; personal kindness. — Friendly aid: help; assistance.

Friend'ship, in *Indiana*, a post-office of Ripley co.

Friend'ship, in *Maine*, a post-township of Knox co., abt. 35 m. S.E. of Augusta.

Friend'ship, in *Maryland*, a post-village of Anne Arundel co., abt. 25 m. S. of Annapolis.

Friend'ship, in *Mississippi*, a post-office of Franklin co.

Friend'ship, in *N. Carolina*, a post-village of Guilford co., abt. 95 m. W. by N. of Raleigh.

Friend'ship, in *New York*, a post-village and township of Alleghany co., about 375 m. N.W. of New York City.

Friend'ship, in *Ohio*, a post-office of Scioto co.

Friend'ship, in *Texas*, a post-office of Harrison co.

Friend'ship, in *Wisconsin*, a post-village, capital of Adams co., abt. 72 m. N.N.W. of Madison.

—A township of Fond du Lac co.

Friend's Station, in *Tennessee*, a post-office of Jefferson county.

Friends'ville, in *Illinois*, a post-village of Wabash co., about 8 m. N. by W. of Mount Carmel.

Friends'ville, in *Maryland*, a village of Alleghany co., about 40 m. W. of Cumberland.

Friends'ville, in *Ohio*, a post-office of Medina co.

Friends'ville, in *Pennsylvania*, a post-borough of Susquehanna county, about 140 miles N.N.E. of Harrisburg.

Friends'ville, in *Tennessee*, a post-village of Blount co

Friends'wood, in *Indiana*, a P. O. of Hendricks co.

Frī'er, *n.* One who fries.

Friesic, Friesish, (*frēe'zic, frēe'zish,*) *a.* (*Geog.*) Of, or pertaining to, Friesland.

Friesland, (*frēez'land,*) a prov. of the Netherlands, on the N.E. of the Zuyder-Zee. It is bounded N. by the German Ocean, and W. and S.W. by the Zuyder-Zee; *area*, 1,260 sq. m. The land is flat; and some of it being below the level of the sea, is protected by dykes. It is intersected by many canals and streams, and abounds in lakes and marshes. There are some forests; but peat is the chief fuel used by the inhabitants. *Manuf.* Linen and woollen fabrics. *Cap.* Leeuwarden. *Pop.* (1895) 341,050.

Friesland, (East,) an old principality of Hanover, now almost included in the dist. of *Aurich*, q. v.

Frieze, (*frīz.*) *n.* [W. *ffris*, a nap of cloth.] The nap on woollen cloth; a kind of coarse woollen cloth or stuff, with a nap on one side.

—(*frēz.*) [Fr. *frise;* It. *fregio*, perhaps from Lat. *Phrygius*, because the ornaments of friezes resemble the embroideries which came from Phrygia.] (*Arch.*) That portion of the entablature which is between the architrave and the cornice. (See Fig. 650.) It was generally adorned with triglyphs in the Doric order, the intervening spaces, called *metopes*, being filled with sculptured figures in *alto-relievo*, or with the skulls of oxen and wreaths alternately; while in the Corinthian and Composite orders it was ornamented with figures or scroll-work in low relief, extending along its entire length. The term frieze was also applied to a broad band of sculpture, in low relief, that was frequently placed round the *cella* of a Grecian temple, immediately under the ceiling of the portico, and completely surrounding the exterior. In modern domestic architecture a *F.* is frequently introduced immediately below the cornice of an apartment.

Frieze, *v. a.* To form a nap on cloth; to frizzle; to curl.

Friezed, (*frēzd,*) *a.* Napped; shaggy with nap or frieze.

Friez'er, *n.* He who, or that which, friezes.

Friez'ing, *n.* The forming of the nap of woollen cloth into a number of little hard burs or prominences.

Frigate, (*frig'ăt,*) *n.* [Fr. *frégate.*] (*Naval.*) A ship of war having two gun-decks, classed between a sloop-of-war and a ship-of-the-line, or line-of-battle ship, and carrying an armament varying from 20 guns up to 50,



Fig. 1074.—steam-frigate of 1850.

which latter number is seldom exceeded. In naval operations frigates were peculiarly useful vessels, being generally swift sailers and capable of easy tacking during action, besides bringing to bear on an enemy a heavier battery than sloops or brigs. Frigates were, until the last half of the present century, almost exclusively sailing vessels; few or none of this character now remain. Steam frigates were in use later, but the term *frigate* has now almost entirely disappeared from naval nomenclature, the terms *cruiser*, *gunboat*, &c., being substituted for the old terminology.

Frig'ate-bird, Man-of-war Bird, *n.* (*Ornith.*) The *Tachypedes aquila*, a bird common on the intertropical American coasts, and in the Atlantic and Pacific oceans. It belongs to the order of the *Natatores*, and is allied to the Cormorants, but differs from them by having a forked

tail, short feet, the membranes of which are very deeply notched, an extraordinary spread of wing, and a beak, both mandibles of which are curved at the tip. The plumage is on the upper parts purple-black, the throat and belly white, and the beak red. The frigate-bird is incapable of either swimming or diving; yet it manages to satisfy its natural appetite for fish with tolerable certainty; this is accomplished by a system of highway robbery, perpetrated on such gannets and sea-swallows as may be returning with full pouches to their nests in the rocks. The common mode is for the *F.-B.* to soar above its victim, and then, plunging down, to strike it on the head with its beak, — the result is an instant disgorging of the day's fishing, which, as it falls, is followed by the robber, who invariably overtakes and secures it before it reaches the water. The nest of this bird is usually built among the rocks, on solitary islands, or in high trees in retired situations near the sea. It lays 2 pinky-white eggs.



Fig. 1075. — FRIGATE-BIRD. (*Tachypedes aquila.*)

Frigatoon′, *n.* (*Naut.*) A small Venetian vessel, built with a square stern, without any foremast, having only a mainmast and bowsprit.

Frigento, or **Fricento,** (*fre-tshen'to,*) a town of S. Italy, prov. Avellino, 17 m. E.N.E. of Avellino. It has a fine cathedral, containing some excellent paintings. Its inhabitants subsist by the sale of sheep, hogs, and corn. Near it is a valley, supposed, apparently on good grounds, to be identical with the *Amsancti vatles* of Virgil. It is narrow, and pressed in on both sides by high ridges thickly covered with oak-copses. The bottom of the dell is bare and arid. In the lowest part, and close under one of the hills, is an oval pool, not 50 feet in diameter, in which the water boils and spouts up, at irregular intervals, to a height of several feet, with a hissing noise, accompanied by strong sulphurous and mephitic exhalations. It was through this orifice that the Fury Alecto descended to Tartarus; and the appearance of the place corresponds perfectly with the admirable description given by Virgil (*Æneid*, vii. 563):

> "Est locus Italiæ in medio sub montibus altis,
> Nobilis, et famâ multis memoratus in oris,
> Amsancti valles."

Frig′eratory, *n.* A refrigeratory. (R.)

Frig′ga, Fri′ga. (*Scand. Myth.*) See ODIN.

Fright, *n.* [A. S. *fyrhto;* Ger. *furcht;* Dan. *fryght;* Goth. *faurht;* allied to Gr. *phritto,* to shiver or tremble with fear, *phrī-kē,* a shivering or shuddering from cold or fear, and to *rhigos,* frost, cold, and Lat. *rigeo,* to be stiff or numb.] Sudden and violent fear, a passion excited by the sudden appearance of danger; affright; alarm; terror; consternation; dismay.

Fright, or **Fright′en,** *v. a.* [A. S. *frihtan;* Ger. *fürchten;* Goth. *faurhtan.*] To alarm suddenly with danger; to shock suddenly with the approach of evil; to affright; to terrify; to scare; to intimidate.

Fright′ed, or **Fright′ened,** *p. a.* Terrified; suddenly alarmed with danger.

Fright′enable, *a.* That may be frightened or alarmed.

Fright′ful, *a.* Full of fright; full of something which causes fright or terror; exciting alarm; impressing terror; terrible; dreadful; alarming; fearful; awful; horrible.

Fright′fully, *adv.* In a frightful manner; terribly; dreadfully; shockingly.

Fright′fulness, *n.* The quality of being frightful, or of impressing terror.

Fright′less, *a.* Without fright.

Frig′id, *a.* [Lat. *frigidus,* from *frigeo,* to stiffen with cold: akin to *rigeo,* to be numb, also to Gr. *phrissō,* to shiver with cold.] Cold; cool; chill; wanting heat or warmth.—Wanting warmth of affection; unfeeling.—Wanting vigor; impotent.—Unanimated; wanting vivacity or spirit; wanting the fire of genius or fancy; dull; wanting zeal; lifeless.—Stiff; formal; forbidding.

Frigida′rium, *n.* [Lat.] (*Antiq.*) The cold bathing-room in the Roman baths, as well as the vessel in which the cold water was received. The cold bath, the reservoir of cold water in the hypocaustum or stove-room, was termed *ahenum frigitarium.*

Frigid′ity, *n.* [Fr. *frigidité,* from L. Lat. *frigiditas.*] State or quality of being frigid; coldness; want of warmth.—Impotency; imbecility; dulness.—Coldness of affection; want of animation or intellectual fire.

Frig′idly, *adv.* Coldly; dully; without affection.

Frig′idness, *n.* Frigidity.

Frig′id Zone, *n.* See ZONE.

Frigorif′ic, or **Frigorif′ical,** *a.* [Fr. *frigorifique;* Lat. *frigorificus* — *frigus, frigoris,* cold, coldness, coolness, and *facio,* to make.] Causing cold; producing or generating cold; cooling.

Frill, *n.* [From *frizzle,* to curl, to crisp.] A crisped or plaited edging of fine linen on the bosom of a shirt or other similar thing; a ruffle.

—*v. a.* To decorate with frills or ruffles.

—*v. n.* [From Fr. *frileux,* chilly.] To quake or shiver with cold.

Frilled, *p. a.* Decorated with frills or ruffles; having frills; as, a *frilled* night-gown.

Frill′ing, *n.* Ruffles, gathers, &c.

Frimaire, (*fre′mar,*) *n.* [Fr.] See CALENDAR.

Fringe, (*frinj,*) *n.* [Fr. *frange, frange;* Sp. *franja;* It. *frangia;* Ger. *franse;* Dan. *fryndse;* L. Lat. *frangia,* probably, by transposition, from Lat. *fimbria, fimbriæ,* fibres, thread, fibrous part, fringe.] A border; an ornamental appendage to the borders of garments or furniture, consisting of loose threads; something resembling fringe; an open, broken border; the edge; margin; extremity.

(*Opt.*) One of the colored bands resulting from diffraction.

—*v. a.* To adorn or border with fringe or a loose edging.

Fringed, *p. a.* Bordered with fringe.

Fringe′less, *a.* That has no fringes.

Fringe′-like, *a.* Resembling fringe in shape or appearance.

Fringe′-maker, *n.* A manufacturer of fringes.

Fringil′la, *n.* (*Zoöt.*) A genus of incessorial birds; the CHAFFINCH, *q. v.*

Fringilla′ceous, *a.* (*Zoöl.*) Belonging or relating to birds of the family *Fringillidæ.*

Fringil′lidæ, *n. pl.* (*Zoöl.*) The Finch and Sparrow family, an extensive family of birds, order *Incessores,* often described under the general name of *Finches,* and including various minor groups, consisting of several genera more or less closely related to one another, as the Grosbeaks, Buntings, Crossbills, Sparrows, and the like. None of them are of large size; and in their habits and general appearance they bear a very strong relationship.



Fig. 1076. — ARKANSAS FINCH, (*Carpodacus psaltria.*)

They feed chiefly upon various kinds of grain and seeds; occasionally also upon insects. They are for the most part hardy birds, and do not quit this country during the winter; but some few are driven hither at that season from more northern climates. Many of the *Fringiltidæ* are remarkable for their powers of song: others are highly prized for the delicacy of their flesh. They frequent fields, groves, hedgerows, and woodlands; while many, in a state of captivity, are rendered subservient to the amusement and gratification of man. The most important members of this innumerable family will be found in this work under their proper names. In this place we shall only give two species, as illustrations of the family. The Arkansas Finch (*Carpodacus psattria*), (Fig. 1076), of the Southern Rocky Mountains to the coast of California, is 4¼ inches long; the wing, 2⅔ inches; the upper parts olive-green, the head, wings, and tail black; beneath, bright yellow. The common Sparrow (*Pyrgita domestica*), (Fig. 1077), the true type of the Finch tribe, is a European bird, one of the most omnivorous of all birds, and has been lately successfully introduced into this country. It is nearly six inches in length, of a robust form; bill dusky; eyes hazel; the top of the head and back part of the neck ash gray; the throat, fore part of the neck, and space around the eyes black; the cheeks whitish; the breast and all the under parts pale ash; the back, scapulars,



Fig. 1077. — COMMON SPARROW, (*Pyrgita domestica*).

and wing-coverts are reddish-brown, mixed with black, the latter tipped with white, forming a light bar across the wing; tail brown, edged with gray, and rather forked; legs pale brown. The plumage of the female is plainer and duller than that of the male; beyond each eye there is a line of white, and she has no black patch on the throat. Sparrows are bold and crafty; and their partiality to the vicinage of man does not originate from any social affection on their part, but because their chief subsistence is there most abundantly to be found.

Fringy, (*frin′je,*) *a.* Adorned with fringes.

Frio (*free′o*), in *Texas,* a S. co.; *area,* about 1,010 sq. m. *Rivers.* Frio, Leona, Hondo, and San Miguel. *Surface,* level; *soil,* fertile. *Cap.* Pearsall. *Pop.* (1890) 3,112.

Frip′per, Frip′perer, *n.* [Fr. *fripier.*] A dealer in frippery: one who repairs apparel.

Frip′pery, *n.* [Fr. *friperie,* from *friper,* to wear to rags.] Old, worn-out clothes; clothes thrown aside after wearing; waste matter; the place where old clothes are sold; the trade or traffic in old clothes.

—Useless things; trifles; trumpery.

—*a.* Trifling; contemptible.

Frischehaff, (*freesh′e-half,*) a bay of the Baltic Sea, between Elbing and Königsberg, 58 m. long, and averaging 5 in breadth. It receives the Passarge and Pregel rivers, and two arms of the Vistula.

Friseur, (*frez′úr,*) *n.* [Fr.] A hair-dresser.

Frisians (*friz′shans*), or **Frisii** (later called *Frisones*) were an ancient Germanic people, who inhabited the extreme northwest of Germany, between the mouths of the Rhine and Ems, and were subjected to the Roman power under Drusus. They were subdued by the Franks, and, on the division of the Carlovingian empire, their country was divided into W. Frisian (W. Friesland), and E. Frisian (E. Friesland). The language of the Frisians is intermediate between the Anglo-Saxon and the Old Norse. Our knowledge of the old Frisian is derived from certain collections of laws; as the "Asegabuch," composed about 1200; the "Brokmerbrief," in the 13th century; the Œpnsiger Domen," about 1300, and some others. (See Richthofen's *Fries. Rechtsquetten,* Gött. 1840.) The modern Frisian is now spoken only in a few districts, and even in these only by the peasantry; not being used either in the churches or schools. It is further divided into a number of local dialects. Attempts have recently been made to revive an interest in the Frisian, and various specimens of its earlier literature have been published. An excellent Dictionary of the old Frisian, by Richthofen, was published in 1840.

Frisk, *v. n.* [Allied to *brisk;* A. S. *frician,* to dance; Ger. *frisch,* brisk, strong, fresh; O. Fr. *frisque;* Dan. *frisk;* radically the same as *fresh.* See FRESH.] To leap; to skip; to spring suddenly one way and the other; to dance, skip, and gambol in frolic and gayety.

—*n.* A frolic; a fit of wanton gayety.

Frisk′er, *n.* One who frisks; a wanton.

Fris′ket, *n.* [Fr. *frisquette,* from O. Fr. *frisque,* gay, brisk, frisky, so named from the velocity or frequency of its motion.] (*Print.*) A light iron frame by which the sheets of paper are successively confined to the tympan, to be laid on the form for impression.

Frisk′ful, *a.* Brisk; lively.

Frisk′ily, *adv.* Gaily; in a frolicsome manner.

Frisk′iness, *n.* Gayety; liveliness.

Frisk′y, *a.* Gay; frolicsome; wanton.

Fris′let, *n.* A kind of small ruffle.

Frist, *v. a.* To sell goods upon credit. (R.)

Frisure′, *n.* [Fr.] A curling or crisping of the hair.

Frit, *n.* [Fr. *fritte,* from Lat. *frigo, frictus,* to fry.] The calcined matter of which glass is made, consisting of silex, fixed alkali, &c.

—*v. a.* To fuse partially; to mix together and heat the materials of glass, so as to expel water, and induce fusion.

Frith, *n.* [Lat. *fretum,* a strait, sound, channel; Gr. *porthmos,* a ferry, a strait, from *peiro,* to pierce quite through; *perao, poros,* to pass right across.] An arm of the sea; a narrow channel; a narrow passage of the sea; a strait; the opening of a river into the sea; as, the *Frith* of Forth, in Scotland. This term corresponds to the *Fiord* of the Danes and Norwegians. The German *fahren* has the same root, whence *ferry, ford, furt,* as in Frank*furt,* Er*furt,* &c.

Frith, WILLIAM POWELL, R. A., a distinguished historical and *genre* painter, B. 1819. Of his innumerable works, many of the very highest class of art, we need but mention his latest productions, *The Derby Day, The Railway Station* (for which he received $40,000), and *The Marriage of the Prince of Wales,* painted for Queen Victoria.

Frit′ter, *n.* [Fr. *friture,* anything fried; It. *fritelta,* a pancake, from Lat. *frigere, frictum,* to fry.] A kind of small pancake fried; a small piece of meat fried; any small piece cut to be fried. — A fragment; a shred; a small piece; a shiver; as, to break into shivers and *fritters.*

—*v. a.* To cut meat into small pieces to be fried. — To break into small pieces or fragments; to diminish; to take away, or waste by degrees; as, to *fritter* away anything.

Fritz′town, in *Pennsylvania,* a post-village of Berks co., abt. 9 m. W.S.W. of Reading.

Friuli, (*free-oo′le.*) [Ger. *Friaul;* anc. *Forum Jutii.*] Formerly the name of a district in the extreme N.E. of Italy. It constituted one of the 36 duchies into which the Longobards divided the north of Italy. From an early period, *F.* was divided into *Tyrolese* and *Venetian F.,* the former of which came into the possession of the Emperor Maximilian in 1500, while the latter remained attached to Venice till the peace of Campo-Formio (1797), when it was given to Anstria. The inhabitants, called *Furlani,* are for the most part Italian, but make use of a peculiar dialect.

Fritilla′ria, FRITIL′LARY, *n.* [Lat. *frititus,* a chess-board; alluding to the checkered petals.] (*Bot.*) A genus of plants, order *Liliaceæ.* They are perennial plants, perianth campanulate, with a broad base and nectariferous cavity above the claw of each segment

stamens as long as the petals. The Crown Imperial, *F. imperialis*, a native of Persia, is a fine showy flower of easy culture.



Fig. 1078. — CROWN IMPERIAL, (*Fritillaria imperialis.*)

Friv'olism, *n.* Same as FRIVOLITY, q. v.

Frivol'ity, *n.* [Fr. *frivolité*, from Lat. *frivolus*, trifling.] The state or quality of being frivolous; acts or habits of trifling.

Friv'olous, *a.* [Fr. *frivole*; Lat. *frivolus*, trifling. Cf. Gr. *phluaros*, a prater.] Trivial; trifling; slight; petty; silly; empty; as, a *frivolous* person. — Worthless; of little weight or importance; not worth notice; as, a *frivolous* remark, a *frivolous* objection.

Friv'olously, *adv.* In a trifling manner.

Friv'olousness, *n.* Quality of being trifling, or of very little worth or importance; want of confidence.

Friz, FRIZZ, *v. a.* [Fr. *friser*; It. *frisare*, to crisp, to curl. The word takes its origin from a certain tribe of the Frisians, whose maidens used to dress their hair in ringlets.] To curl; to twist; to form into small curls with a crisping-pin. — To form the nap of cloth into little hard burs, prominences, or knobs.

—*n.* Anything crisped or curled, as a wig.

Friz'ellburg, in *Maryland*, a post-office of Carroll co.

Friz'zle, *v. a.* [O. Fris. *frislen.*] To curl; to crisp, as hair.

—*n.* A curl; a lock of hair twisted.

Friz'zled, *p. a.* Curled; crisped.

"With *frizzled* hair implicit." —*Milton.*

Friz'zler, *n.* One who curls or crisps hair.

Friz'zly, FRIZZY, *a.* Crisped or curled, said of hair, or the nap of cloth.

Fro, *adv.* [A.S. *fra.* See FROM.] From; away; back or backward; —used only in opposition to the word *to;* as, *to and fro*, backward and forward.

Fro'bisher Strait, a passage between the west side of Davis' Strait and the north side of Hudson's Strait, is 140 miles long, with an average breadth of 20. It extends in Lat. from 62° to 64° N., and in Lon. from 65° to 73° or 74° W. It is not of any practical value as a channel of communication; and, in fact, it has been very seldom visited by vessels bound either westward or eastward. It was discovered in 1576 by Sir Martin Frobisher, an energetic English navigator.

Frock, *n.* [Fr. *froc*, a monk's habit; L. Lat. *frocus, froccus*, the cassock of a monk, with long sleeves, so called, quasi, *vestis floccosa*, from *floccus*, a lock of wool.] An upper coat or outer garment made of wool; as, a *frock* of livery, a shepherd's *frock.* — A loose garment or shirt worn by men over their other clothes to protect them while at labor; a blouse. — A gown worn by females and young children. — A monk's cassock.

Frock'-coat, *n.* A coat for men's wear cut and shaped like a surtout, but shorter and lighter.

Frocked, *a.* Clothed in a frock.

Frock'less, *a.* Destitute of a frock.

Frod'sham, a market-town of England, on the Mersey and Weaver rivers, 12 m. from Chester. *Manuf.* Cotton goods, and near it are some salt works

Froe, (*fro,*) *n.* Same as FROW, *q. v.*

Frog, *n.* [A.S. *froga, frogga;* Ger. *frosch.*] (*Zoöl.*) See RANIDÆ.

(*Farriery.*) The hard projecting substance in the hollow of a horse's foot.

(*Civil Engineering.*) A grooved piece of iron placed at the junction of the rails of a railroad where one track crosses another.

—An oblong button for coats or overcoats, swelling in the middle, and tapering to both ends, covered with netted thread, and fastening into a loop instead of a button-hole.

Frog'bit, *n.* (*Bot.*) See HYDROCHARIS.

Frog'-fish, *n.* (*Zoöl.*) See BATRACHUS.

Frogged, *a.* Provided with frogs; as, a *frogged* surtout.

Frog'gy, *a.* Abounding in frogs.

Frog'-hopper, *n.* (*Zoöl.*) See CERCOPIDÆ.

Frog Lev'el, in *S. Carolina*, a post-village of Newberry co., 40 m. N.W. of Columbia. Now PROSPERITY.

Frog'more, in *Louisiana*, a P. O. of Concordia parish.

Frog'town, in *Georgia*, a district of Lumpkin co.

Froh'na, in *Missouri*, a post-village of Perry co.

Froissart (*frwois'sart*), JEAN, a French chronicler and poet, B. 1337. He was the contemporary of Chaucer and Petrarch, and the author of the celebrated *Chronicles* which bear his name, and which present, perhaps, the most faithful and animated picture extant of the wars and political events of the Middle Ages. His *Chronicles* were first translated into English by Lord Berners (2 vols. fol., London, 1523–5), and reprinted in 1812 in 2 vols. 4to. A later edition is that of Bohn, London, 2 vols. royal 8vo., 1845.

Frol'ic, *a.* [Ger. *fröhlich*, from *froh*, glad, and *lich*, corrupted from *gleich*, like.] Full of levity; dancing, playing, or frisking about; full of wild pranks.

"We fairies now are *frolic.*" —*Shaks.*

—*n.* A wild prank; a flight of levity or gayety and mirth; a gambol; a freak; a scene of mirth and gayety, as in dancing or play.

—*v. n.* To play wild pranks; to play tricks of levity, mirth, and gayety.

Frol'icful, *a.* Same as FROLICSOME, *q. v.*

Frol'icking, *p. a.* Playing pranks; frolicsome.

Frolicsome, (*frol'ik-sum,*) *a.* Full of gayety and mirth; given to prauks.

Frol'icsomely, *adv.* With wild gayety.

Frol'icsomeness, *n.* Gayety; wild pranks.

From, *prep.* [A.S. *fram*, from; Fris. *fram;* Dan. *fra;* O. Ger. and Goth. *fram;* Sausk. *param*, the highest; Lat. *primus*, the first.] This preposition expresses the idea of distance or remoteness in relation to a source or beginning, and likewise of departure or procedure; as, man is descended *from* Adam, he went *from* Philadelphia to New York, matters proceeded *from* bad to worse. The sense of *from* is literal or figurative, but it is uniformly the same. In certain phrases, generally or always elliptical, *from* is followed by certain adverbs, denoting place, region, or position indefinitely, no precise point being expressed; as, *from above, from beneath, from before, from behind*, &c. *From* precedes another preposition followed by its proper object or case; as, *from amid, from among, from beneath, from beyond, from afar*, &c.

Frome, (*frōm,*) the name of several rivers in England. 1. An affluent of the Lugg in Herefordshire. 2. In the county Dorset, rising near Bedminster, and falling into the sea at Poole harbor. 3. A branch of the Avon at Bristol. 4. One of the Severn, near Berkeley. 5. A stream of Somersetshire, rising in the Mendip Hills, and joining the Avon between Bath and Bradford.

Frome, or **Frome-Selwood,** a town and parish of Somerset co., England, 11 m. S. by E. of Bath, and 115 m. W. of London. *Manuf.* Broad-cloths, kerseymeres, ale, &c. *Pop.* 11,732.

Frond, *n.* [Lat. *frons, frondis*, a leafy branch.] (*Bot.*) The leaf of a fern or other acotyledonous plant. *F.* are seldom articulated; they are either sessile or stalked; are frequently toothed or incised in various ways, and are often highly compound.

Fronda'tion, *n.* [Lat. *frondatio*, from *frons.* See SUPRA.] The act of denuding, or stripping of leaves or branches.

Fronde, *n.* [Fr., a sling.] (*Fr. Hist.*) The name of a political faction which played a conspicuous part in French history during the minority of Louis XIV., and which gave rise to the celebrated insurrectionary movement known historically as the *War of the Fronde.* The members of this party obtained the derisive name of *Frondeurs* (slingers), from the pertinacious lampoon warfare which they waged against both the powerful minister of that day, Cardinal Mazarin, and the Queen Regent, Anne of Austria. Mazarin, as a foreigner and a *parvenu*, enjoyed the detestation of the French people — both patrician and proletarian — and especially had incurred the opposition of the Parliament of Paris to his measures. In 1648 Mazarin ventured on the bold step of arresting two of the most popular members of the latter body, and on the next day (*la journée des barricades*) the Parisians rose in arms, dispersed some of the royal troops sent out against them, and barricaded the approaches to the Louvre, compelling the court party to retire to St. Germain, and thus leaving Paris in the hands of the insurgents. Upon the Prince de Condé advancing to besiege the capital, the parliament called the citizens to arms, when the Prince de Conti, the Duc de Beaufort ("Le Roi des Halles," and son of Henry IV.), and numerous others of the great nobles of the kingdom, came forward to head the insurrection. The famous Cardinal de Retz also joined the movement, nor was beauty wanting, in the persons of the Duchesses de Longueville and de Montbazon, to inspire the popular cause. The Prince de Condé, too, changed sides and went over to the malcontents, with whom the court party shortly afterwards patched up a treaty of peace of but brief duration. Fresh contentions arose, and Mazarin caused the arrest of Condé and Conti, two of the princes of the blood. This step on the part of the hated Italian excited a revolt in the provinces, and Marshal Turenne hastened to the rescue of the *frondeur* princes, but was routed in the battle of Rethel (1650). The Cardinal, however, enjoyed but a mere temporary supremacy; the parliament again agitated against him, and procured his banishment from France, leaving the Prince de Condé master of the situation. Subsequently, the contest degenerated into a war of intrigue. Some of the Frondeur leaders were influenced by the queen to desert their party, and others were bought over by the cardinal's gold. Ultimately, all parties being wearied with these dissensions, the court agreed to remove Mazarin, and a general amnesty was proclaimed. Condé, who refused to be a party to these terms, now finding his cause desperate, entered the Spanish service; while Mazarin, after a time, returned to Paris, and again obtained the reins of government.

Fron'dent, *a.* [Lat. *frondens*, from *frondere*, to bear leaves or branches.] Leafy; covered with leaves. (R.)

Frondesee, (*fron-des',*) *v. n.* [Lat. *frondescere*, incept. from *frondere*, to put forth leaves.] To begin to unfold leaves.

Frondes'eence, *n.* [Lat. *frondescens*, pp. of *frondescere.* See *supra.*] The precise time of the year and month in which each species of plants unfolds its leaves. — The act of unfolding the leaf.

Frondiferous, *a.* [Lat. *frons*, a leaf or branch, and *ferre*, to produce.] Bearing or producing fronds.

Frondose', *a.* (*Bot.*) Leafy; — or, more commonly now, frond-like, or producing a froud, instead of ordinary foliage.

Fron'dous, *a.* (*Bot.*) Applied to a flower which is leafy; or to one which produces branches charged with little leaves and flowers.

Frons, *n.* [Lat., front.] (*Anat.*) The region of the cranium between the orbits and the vertex. — In ornithology, the space between the base of the bill and the vertex.

Front, (*frunt.*) *n.* [Fr., from Lat. *frons, frontis*, the forehead; probably from Gr. *phrontis*, care, anxiety, the forehead being the index of these.] The forehead, or part of the face above the eyes; the whole face.

"They stand not *front* to *front*, but each doth view
The other's tail, pursued as they pursue." — *Creech.*

—The forehead or face, as expressive of the temper or disposition; as, a fierce *front*, a hardened *front.* — The fore part of anything; the van, as of an army or procession.

—The part or place before the face, or opposite to it, or to the forepart of anything.

"Shot thundered upon them from the rampart in *front.*" — *Bacon.*

—The most conspicuous part or particular.

"The head and *front* of our offending." — *Shaks.*

—Impudence; assurance; as, "men of *front.*" — That portion of a head-dress which covers the fore portion of the head; a partial wig worn by ladies.

(*Mil.*) That part of an army which directly faces the enemy's position; — opposed to *rear.*

—*v. a.* To stand with face toward or opposed to.

"I shall *front* thee like some staring ghost." — *Dryden.*

—To oppose face to face; to oppose directly: as, to *front* danger, to *front* an enemy. — To stand opposed or opposite, or over against anything; as, our house *fronts* the square, the church, &c.

—*v. n.* To have the face or front toward any point of the compass; to be opposite. — To stand foremost.

—*a.* Of or pertaining to the fore part; foremost; as, a *front* door, a *front* entrance.

Front'age, *n.* The front part of an edifice, structure, lot, quay, &c.

Front'al, *a.* [Fr., from Lat. *frontalis.*] Belonging to the forehead.

(*Anat.*) The *frontal bone of the skull*, the *Frons*, q. v., forms in the male the whole anterior portion of the cranium, extending laterally from the temples, and from the orbits to the parietal, or wall-bones of the skull; in females, however, this bone is generally divided into two by a seam or suture up the centre of the bone. — The *frontal sinus* is the space between the plates of the frontal bone extending over the eyes and nostrils, and in health adding to the reverberance of the voice; but when affected by inflammation or a severe cold, the thickening of its lining membrane causes that obstruction in speaking known as *talking through the nose.*

—*n.* [Lat. *frontale*, a frontlet.] A front piece; an ornament for the forehead; a frontlet; as, the *frontal* of a helmet.

(*Arch.*) The hanging with which the front of an altar is covered. —Also, an ornament over a door or pediment.

(*Med.*) A medicine applied to the forehead.

Fron'tated, *a.* (*Bot.*) Growing broader and broader, and at last perhaps terminating in a right line; — used in opposition to *cuspated*, which is when the leaves of a flower end in a point.

Front'ed, *a.* Formed with a front.

"Part *fronted* brigades form." — *Milton.*

Fronteira, (*fron-tai-eer'a,*) a town of Portugal, in the prov. of Alentejo, 14 m. from Estremos. Here, in 1663, the Spaniards were defeated by the Portuguese under Schomberg. *Pop.* 2,500.

Frontenac', Count, a French soldier, governor of New France, Canada, from 1672 to 1698; b. 1619; d. Quebec, 1698. Parkman's Count F. & New France.

Frontenac', a co. of prov. of Ontario, bordering on Lake Ontario; *area*, about 1,342 sq. m. *Cap.* Kingston.

Fronte'ra de Tabas'co, (**La,**) a town of Mexico, on the Tabasco river, abt. 3 m. from its mouth.

Frontier, (*fron-tēēr',*) *n.* [Fr. *frontière*, from Lat. *frons*, the front.] That part of a country which fronts or faces another country; the boundary of a state, or the territory adjacent to the boundary; marches; confine; border.

—*a.* Lying on the exterior part; bordering; conterminous; as, a *frontier* village.

—*v. a.* To compose or form a frontier.

Fron'tier, in *Michigan*, a post-office of Hillsdale co.

Frontier, in *New York*, a post-office of Clinton co.

Fron'tiered, *a.* Guarded on the frontiers.

Frontignan, (*frōn'tīn-yān,*) a town of France, dep. Hérault, 12 m. S.W. of Montpelier; *pop.* 2,000. Its territory produces a delicious, sweet, muscat wine, often incorrectly called *Frontignac.*

Front'ing, *a.* Standing with the front towards; front to front, or opposite.

Front'ingly, *adv.* In a facing position; opposingly.

Frontispiece, (*fron'tis-pees,*) *n.* [O. Fr. *frontispice;* L. Lat. *frontispicium*, from *frons*, the front, and *spicere*, to view.] An ornamental picture or engraving fronting

the first page of a book, or at the beginning. — That part of any body that directly meets the eye.

(*Arch.*) The principal face, or front view of a building; the face that directly presents itself to the eye.

Front'less, *a.* Wanting shame or modesty; not dilldeat; as, *frontless* flattery, *frontless* vice.

Front'lessly, *adv.* Shamelessly; impudently; immodestly.

Front'let, *n.* [Dim. of *front.* Lat. *frons, frontis.*] A fillet or band worn on the forehead.

"They shall be as *frontlets* between thine eyes."— *Deut.* vi. 8.

(*Zoöl.*) The margin of the head behind the bill of birds, generally clothed with rigid bristles.

Fron'ton, *n.* [Fr., from *front;* Lat. *frons, frontis.*] (*Arch.*) An ornament over a door or pediment; a frontal.

Fronton, in *Texas*, a village of Cameron co., about 30 m. E.N.E. of Brownsville.

Front Royal, in *Virginia*, a post-village, cap. of Warren co., abt. 140 m. N.N.W. of Richmond.

Front-view, (*front'vu,*) *n.* A view or representation of the fore part of an edifice or other object.

Frore, *a.* [A.S. *froren*, to freeze. Cf. Ger. *gefroren*, from *frieren.*] Frozen; frosty. (o.)

"The parching air
Burns *frore*, and cold performs the effect of fire."— *Milton.*

Froseh'dorf, a village in Lower Austria, rather more than 30 m. from Vienna, and not far from the frontiers of Hungary, on the right bank of the river Leitha; called by the French *Frohsdorf.* It is celebrated for its splendid castle, which in recent times has acquired a kind of political importance, from having been, since 1844, the residence of the Duchess d'Angoulême and the rendezvous of the elder Bourbon party. After the death of the duchess it came into the possession of the Comte de Chambord, *q. v.*, who has greatly beautified the interior.

Frosino'ne, (anc. *Frusino,*) a town of Italy, in the States of the Church, built on the slope of a hill above the junction of the river Cossa with the Sacco, about 48 m. E.S.E. of Rome, on the high-road between Rome and Naples. It is the capital of a delegation of the same name, which is notorious for brigandage.— The costumes of *F.* (Fig. 1079) are among the most admired of Italy.



Fig. 1079.
A WOMAN OF FROSINONE.

Frost, *n.* [A.S. *forst*, Ger. *frost*, respectively from *freosan* and *frieren*, to freeze.] The act of freezing; congelation of water or other fluid. "A killing *frost.*" (*Shaks.*)— Frozen dew; hoar-frost.— That state or temperature of the atmosphere which occasions the congelation of water; severely cold weather.

"The lagging rear of winter's *frost.*" *Milton.*

—The appearance of plants sparkling with icy crystals.

"Behold the groves that shine with silver *frost.*"—*Pope.*

—*v. a.* To cover with anything resembling hoar-frost.

Frost'-bearer, *n.* (*Physics.*) An instrument to exhibit the freezing of water in a vacuum.

Frost'-bite, *n.* (*Med.*) The freezing of any portion of the body by exposure to a high degree of cold. The parts of the body most exposed to the serious consequence of *F.* are those farthest from the seat of circulation, and the most exposed to a great degree of cold. These are, the toes and feet, fingers, ears, nose, and the cheeks below the eye. The effect of intense cold is, in the first place, to deaden the sensibility of the part most exposed, which it does by contracting the vessels and driving the blood from the surface; when the part, losing its healthy vitality, is unable to resist the specific influence of the surrounding cold, and quickly falls a prey to the potency of the frost, and, in a short time, a partial gives way to an absolute death, or mortification of the member or organ, which soon after separates or falls off. To guard against the danger of *F.*, the inhabitants of very cold countries, as the Russians and Esquimaux, cover both the cartilage of the ear and the nose. The treatment of *F.* consists in coaxing back by degrees the vitality of the part; this is most prudently effected by friction, at first with snow, then with water at ordinary temperature, no warmth being applied for some time. As the coldness subsides, the painful tingling returns, then redness and heat; in a short time the latter will be above the natural standard, and if not moderated, the part will inflame, and perhaps mortify.

Frost'-bitten, *a.* Nipped; affected or withered by frost.

Frost'-blite, *n.* (*Bot.*) The Orach, a plant of the genus *Atriplex.*

Frost'-bound, *a.* Bound or confined by frost.

Frost'burg, in *Maryland*, a post-village of Alleghany co., about 10 m. W. of Cumberland.

Frostburg, in *Pennsylvania*, a P. O. of Jefferson co.

Frost Village, a village of Lower Canada, co. of Shefford, about 40 m. N.W. of Stanstead.

Frost'ed, *p. a.* Covered with anything resembling hoar-frost in color or form.

Frost'-fish, *n.* (*Zoöl.*) See TOM-COD. *q. v.*

Frost'ily, *adv.* With frost or excessive cold. — Without warmth of affection; coldly. "To praise *frostily.*" *Ben Jonson.*

Frost'iness, *n.* The state or quality of being frosty; freezing cold.

Frost'ing, *n.* The sugary composition resembling hoar-frost, used to cover and ornament cakes, &c.

Frost'less, *a.* Free from frost.

Frost'-nail, *n.* A nail with a prominent head, driven into a horse's shoes that it may pierce the ice, and prevent the animal from slipping.

Frost'-smoke, *n.* An appearance resembling smoke, caused by the congelation of the vapor in the atmosphere in a time of severe cold.

Frost'-weed, Frost-wort, *n.* (*Bot.*) See HELIANTHEMUM.

Frost'-work, *n.* Work resembling hoar-frost on shrubs.

Frost'y, *a.* Having power to congeal water; containing frost; exceedingly cold; as, a *frosty* night, *frosty* weather. — Chill in affection; without warmth of affection or courage.

"What a *frosty*-spirited rogue is this?" —*Shaks.*

—Resembling hoar-frost; white; gray-haired; as, a *frosty* head.

Froth, *n.* [A.S. *freodhan*, to rub, to foam; Dan. *fraade*, allied to Gr. *aphros*, foam.] Spume; foam; the bubbles caused in liquors by fermentation or agitation. — Any empty, senseless show of wit or eloquence. — Light, unsubstantial matter.

—*v. a.* To cause to foam.

—*v. n.* To foam; to throw up spume, foam, or bubbles; as, *frothing* ale.

Froth'ily, *adv.* With foam or spume; in an empty, trifling manner.

Froth'iness, *n.* The state or quality of being frothy; emptiness; trifling matter.

Froth'less, *a.* Free from froth.

Froth'-spit, *n.* A white froth found on the leaves and in the axils of certain plants during the summer, being the fæces of the frog-hopper; cuckoo-spittle; wood-sare.

Froth'-worm, *n.* Same as frog-hopper. See CERCOPIDÆ.

Froth'y, *a.* Full of foam; consisting of froth or light bubbles.—Soft; not firm or solid.—Vain; light; empty; unsubstantial; as *frothy* language.

Froude, JAMES ANTHONY, an English historian, born 1818, and educated at Westminster and Oxford. He is the author of the *Shadows of the Clouds* (1847), and the *Nemesis of Faith* (1849); both of which elicited severe ecclesiastical censure. *F.*'s fame will, however, rest on his *History of England, from the Fall of Wolsey to the Defeat of the Spanish Armada*, completed in 1870; his lectures in the U. S. in 1872–73, on *The English in Ireland in the 18th Century*, 3 vols. (London, 1873–74); *Short Studies on Great Subjects*, third series (N. Y., 1878). Died Oct. 20, 1894.

Frounce, *v. a.* [Fr. *froncer*, to pucker; Sp. *fruncir*, to gather in plaits, from Lat. *frons*, the brow.] To form wrinkles upon; to curl or frizzle, as the hair about the forehead or face; to gather into plaits.

—*n.* A wrinkle, plait, or curl; an ornament of dress. — (*Falconry.*) A word used by falconers for a distemper, in which white spittle gathers about the hawk's bill.

Frou'zy, *a.* [Dn. *vrouw*, a woman; used in the N. of England in the sense of an idle, dirty woman.] Fetid; musty; rank; dim; cloudy. (Low.)

Frow, *n.* [A.S. *frea;* Ger. *frau*, a wife; Dn. *vrouw*, a woman.] A woman; — more especially a Dutch or German woman of the lower orders. *Beau. & Fl.* — In the N. of England, an idle, dirty woman. (Low.)

Frow, FROWER, (*fro, fro'er.*) *n.* An instrument used in splitting staves, laths, &c.

Fro'ward, *a.* [A.S. *framweard* — *fram*, from, and *weard*, ward.] Perverse; unyielding; ungovernable; refractory; peevish; disobedient; wayward.

"She 's not *froward*, but modest as the dove."— *Shaks.*

Fro'wardly, *adv.* Perversely; in a peevish manner.

Fro'wardness, *n.* Perverseness; reluctance to yield or comply; disobedience; peevishness; petulance.

Frowey, (*fro'a,*) *a.* (*Carp.*) Applied to timber that is evenly tempered, and works without splitting or tearing.

Frown, *v. n.* [O. Fr. *frogner*, found in *se renfrogner*, to knit the brows; L. Lat. *refrontinare*, from *frons, frontis*, the brow.] To express displeasure by contracting the brow and looking grim or surly; to look stern; to scowl, (with *on* or *at*); as, a *frowning* countenance.

"Heroes in animated marble *frown.*" — *Pope.*

—To manifest displeasure in any manner; to lower; to look threatening; as, Providence *frowns* on us.

—*v. a.* To repel by expressing displeasure in the countenance; to rebuke by a look: as, to *frown* one into silence.

—*n.* A wrinkled look, particularly expressing dislike; a sour, severe, or stern look, expressive of displeasure; a scowl; any expression of displeasure.

Frown'ingly, *adv.* With a look of displeasure; sternly.

Frow'y, Frowzy, *a.* Same as FROUZY, *q. v.*

Froyen, or **Frojen,** (*fro'yen,*) an island of Norway, 50 m. from Drontheim. It is abt. 20 m. long by an average breadth of 5. Lat. 63° 50′ N., Lon. 8° 40′ E.

Fro'zen, *a.* Congealed with cold. — Cold; frosty; chill. — Cold or chill in affection.

Fro'zen Creek, in *Kentucky*, a P. O. of Breathitt co.

Fro'zen Ocean, or the ICY SEA, a sea of Asia extending towards the N. into the unknown regions of the pole. Its boundaries on the E. and W. are considered to be Nova Zembla and Fohutski Noss.

Fro'zen Strait, between Southampton Island and Melville Peninsula, Lat. 66° N., Lon. 85° W.

Fro'zenness, *n.* The condition of being frozen.

F. R. S., Fellow of the Royal Society.

Fruet'ed, *a.* [Lat. *fructus*, fruit.] (*Bot.*) Bearing fruit, as trees.

Fructes'cence, *n.* [Fr., from Lat. *fructus*, fruit.] (*Bot.*) The precise time when the fruit of a plant arrives at maturity, and its seeds are dispersed; the fruiting season.

Fructic'ulose, *a.* Producing much fruit.

Fruc'tidor, *n.* [Fr., from Lat. *fructus*, fruit, and Gr. *doron*, a gift.] (*Hist.*) The name given in the republican calendar of France to the period extending from the 18th of Aug. to the 16th of Sept. The 18th Fructidor of the year 5 (or on the 4th of Sept., 1797) is celebrated as the day on which Barras, Rewbell, and Lepaux, members of the Directory, by a *coup d'état*, saved the republic from the machinations of the Royalists, who had got the upper hand in the Council of Five Hundred. The execution of the *coup d'état* was intrusted to General Augereau.

Fructif'erous, *a.* [Lat. *fructus*, fruit, and *ferre*, to bear.] Producing fruit.

Fructifica'tion, *n* [L. Lat. *fructificatio*, from *fructificare* — *fructus*, and *facere*, to make.] The act of fructifying, or rendering productive of fruit; fecundation.

(*Bot.*) A term frequently employed in cryptogamic botany, sometimes to denote the whole reproductive system, and sometimes the fruit itself.

Fruc'tify, *v. a.* [Fr. *fructifier;* L. Lat. *fructificare* — *fructus*, and *facere*, to make.] To make fruitful; to render productive; to fertilize.

"Showers to *fructify* the earth."— *Howel.*

—*v. n.* To bear fruit.

Fruc'tose, *n.* (*Chem.*) Fruit-sugar; the sugar contained in ripe fruits. It has been called, with reference to its characteristic feature, *uncrystallizable sugar*, and seems to occur in the transition of starch, cellulose, and cane-sugar, into grape sugar. If, in the manufacture of grape-sugar from starch, by boiling with dilute sulphuric acid, the ebullition be checked as soon as the liquid becomes sweet, fructose is formed and no crystals can be obtained. It forms the chief ingredient in molasses and treacle, for though it is not found in the fresh cane-juice, the extraction of the sugar occasions its formation at the expense of cane-sugar.

Fruet'uary, *n.* [Lat. *fructuarius*, from *fructus*, fruit.] One who enjoys the rents, income, profits, or increase of anything. (R.)

Fru'gal, *a.* [Fr., from Lat. *frugalis* — *frux, frugis*, the produce of the field.] Economical; careful; thrifty; provident; economical in the use or appropriation of money, goods, or provisions of any kind; saving unnecessary expense; sparing; not profuse, prodigal, or lavish: as, *frugal* of time.

Frugal'ity, *n.* [Fr. *frugalité;* Lat. *frugalitas.*] Prudent economy; thrift; good husbandry, or housewifery; a sparing and judicious use of money or anything to be expended; a prudent and sparing use or appropriation of anything.

Fru'gally, *adv.* With economy.

Fru'galness, *n.* Same as FRUGALITY, *q. v.*

Fru'gardite, *n.* [*Frugaard*, a district of Finland.] (*Min.*) A variety of VESUVIANITE, *q. v.*

Frug'gin, *n.* [Fr. *fourgon;* It. *forcone*, from Lat. *furca*, a fork.] An oven-fork. (Eng.)

Frugif'erous, *a.* [Fr. *frugifère;* Lat. *frugifer* — *frux, frugis*, the fruit of the earth, and *ferre*, to bear.] Producing fruit or corn.

Frugiv'orous, *a.* [Fr. *frugivore;* Lat. *frugivorus* — *frux, frugis*, the produce of the fields, and *vorare*, to devour.] Feeding on fruit, seeds, or corn, as birds.

Fruit, (*froot,*) *n.* [O. Fr. *fruict*, Fr. *fruit;* Lat. *fructus*, from *frui*, to enjoy. Cf. Ger. *frucht.*] Produce; whatever the earth produces for the nourishment of animals, or for clothing or profit; the produce of a tree or other plant; the seed of plants, or the part that contains the seeds; production, that which is produced; as, the rising *fruits*, the forbidden *fruit.*— Produce of animals; offspring; young; as, the *fruit* of the womb. — Effect or consequence; as, the *fruit* of folly or sin.

"She remembered the *fruits* of denying." — *Sidney.*

—Advantage; profit; good derived.

"The *fruits* of victory."—*Swift.*

(*Bot.*) The term fruit is applied to the ripened ovary and its contents, quite regardless of their being eatable or otherwise. In many instances, there are additions to the ovary in the form of the remains of some or all of the other parts of the flower. In the *strawberry*, the *calyx* remains, and is converted into a succulent substance, or that part of the fruit which is eaten. In the *apple*, both the *calyx* and the *corolla* are converted into fruit. The *pine-apple* (Fig. 423) is composed of *all the parts* entering into the composition of the *ovary*, namely, *bracts, calyx, corolla*, and *ovary.* The *orange* is a largely-developed ovary, containing the seeds, and a succulent mass in which the refreshing juice is placed. Fruit is divided into two distinct parts, the *seed* and the *pericarp*, or investing substance. The *pericarp* is composed of three parts, or layers, one within the other. For example, the *pericarp* of the *apple* consists of an external layer, or skin, *epicarp;* the internal layer, *endocarp;* and the fleshy substance, *sarcocarp*, lying between them. Thus, the outer skin is the *epicarp*, the pulpy substance the *sarcocarp*, and the tough, thick covering to the seeds, the *endocarp.* The same relation is found in *stone-fruit*, the shell of the nut being the *endocarp.* The *epicarp*, or outward covering, is less subject to variation than other parts; but the *sarcocarp* and *endocarp* assume every variety of form and consistence. In certain instances, the arrangement of the *flowers* indicates the arrangement of the *fruit*, as in the currant, gooseberry, etc. But the blossoms of the *apple, plum, pea*, etc., afford no indication of the various fruits that are to succeed them. The most common forms of

fruit are, the *pomum* or *apple*, the *drupe* or *peach* (Fig. 940), and *plum*; the *glans*, as the *acorn*; the *pine-apple*, the fruit of which is a *scaly berry*, surmounted by a crown of spinous leaves. This fruit may be considered one of the finest in the world. The *legume*, or *pea*; the *siliqua*, or *pod*, as in the mustard, and which differs from the *legume* chiefly in this, that the chamber containing the seeds is divided; the *capsule*, as in the poppy, larkspur, etc.; and the *bacca*, or common *currant*, *gooseberry*, etc. Besides these leading and distinctive forms of fruit, there are numerous minor variations in their external forms and internal structures, each of which is described under its proper head.

—*v. n.* To produce fruit.

Fruit'age, *n.* [Fr., from *fruit;* L. Lat. *fructagium.*] Fruit taken collectively; all manner of fruits; a repository for fruit.

Fruit'erer, *n.* [Fr. *fruitier.*] One who deals in fruit.

Fruit'eress, *n.* A woman who deals in fruit.

Fruit'ery, *n.* [Fr. *fruiterie.*] Fruit taken collectively; a repository for fruit.

Fruit'ful, *a.* Very productive; fertile; prolific; bearing children; not barren; abounding in anything; productive of anything; plenteous; abundant; plentiful; as, the *fruitful* earth, a *fruitful* garden, a *fruitful* wife, a *fruitful* imagination.

Fruit'fully, *adv.* In a fruitful manner; plenteously; abundantly.

Fruit'fulness, *n.* Quality of producing fruit in abundance; productiveness; fertility; fecundity; quality of being prolific; productiveness of the intellect; fertility of imagination; exuberant abundance.

Fruit'-grove, *n.* A plantation of fruit-trees.

Fruit'ing, *n.* The production of fruit.

—*a.* Belonging to, or yielding fruit.

Fruition, (*frū-ish'on,*) *n.* [Lat. *fruitio*, from *frui*, to use or enjoy.] Use accompanied with pleasure, corporeal or intellectual; enjoyment; gratification; the pleasure derived from use or possession.

"Where I may have *fruition* of her love."—*Shaks.*

Fruit'less, *a.* Destitute of fruit: barren; unproductive; unprofitable.—Abortive; ineffectual; useless; as, a *fruitless* attempt.—Destitute of offspring; as, a *fruitless* marriage.

Fruit'lessly, *adv.* Without any valuable effect; idly; vainly; unprofitably.

Fruit'lessness, *n.* Barrenness; unfruitfulness; unprofitableness.

Fruit'y, *a.* Like fruit, or having a taste similar thereto.

Frumenta'ceous, *a.* [Lat. *frumentaceus*, from *frumentum*, grain,—contr. from *frugimentum*, from *frux*, *frugis*, the produce of the earth.] Made from wheat or other grain, or similar thereto.

Frumenta'tion, *n.* [Lat. *frumentatio*, from *frumentari*, to supply with grain or corn. See SUPRA.] (*Rom. Ant.*) A general dole or distribution of corn.

Fru'menty, FURMENTY, FRUMETY, *n.* [Lat. *frumentum.*] Food made of wheat boiled in milk, and sweetened by sugar and spices.

Frush, *n.* [From Fr. *froisser*, to bruise.] Noise; crash; din, as of things violently dashed together.

(*Far.*) Same as FROG, *q. v.*

Frus'trable, *a.* [L. Lat. *frustrabilis*—*frustrare*, to render useless.] That may be defeated, overcome, or rendered of no effect.

Frus'trate, *v. a.* [Fr. *frustrer;* Lat. *frustrari*, from *frustra*, in vain.] To disappoint; to defeat; to balk; to bring to nothing; to foil; to make null; to render of no effect.

—*a.* [Lat. *frustratus*, from *frustrari*, to render null.] Vain; ineffectual; useless; unprofitable; null; void; as, a *frustrate* search, enterprise, or design.

Frustra'tion, *n.* [Lat. *frustratio*—*frustrari*, from *frustra*, in vain,—probably from *fraus*, deception.] Disappointment; defeat; as, the *frustration* of a scheme.

Frus'tulent, *n.* [Lat. *frustum*, a piece broken or cut off.] (*Bot.*) A term applied to the joints into which the *Diatomaceæ* separate. They contain a large proportion of silex, and hence, being capable of retaining their form after the vegetable constituents have fled, they are often found preserved in a fossil state.

Frus'tum, *n.* [Lat., probably allied to *frangere;* Gr. *rhegnuishai*, to break.] (*Geom.*) A piece or part of a solid body separated from the rest; the part which remains of a cone, pyramid, &c., when the top part is cut off by a plane parallel to the base. in Fig. 1080 the dotted line *c* shows the portion of the cone cut off to form the frustum *f*.

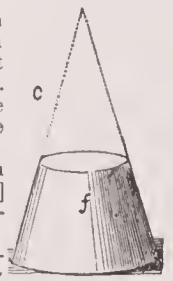


Fig. 1080. FRUSTUM.

Frutes'cence, *n.* [Fr., from Latin *frutescere*—*frutex*, a shrub or bush.] State of being frutescent, or of becoming shrubby.

Frutes'cent, *a.* [Fr., from Lat. *frutescens.* See SUPRA.] (*Bot.*) Shrubby, or having the appearance of a shrub.

Fru'tex, *n.* [Lat., a shrub.] (*Bot.*) A plant whose branches are perennial, and proceed directly from the surface of the earth without any supporting trunk; a shrub.

Fru'ticose, FRU'TICOUS, *a.* [Lat. *fruticosus.* See SUPRA.] (*Bot.*) Shrub-like; branching like a shrub.

Frutic'ulose, *a.* [Fr. *fruticuleux*, dim. of Lat. *fruticosus.* See SUPRA.] (*Bot.*) Like a small shrub; branching like a small shrub.

Fry, *v. a.* [Fr. *frire;* Lat. *frigere.*] To cook in a frying-pan; to dress with fat, by heating or roasting in a pan over the fire; as, to *fry* an omelet.

v. n. To be heated and agitated, as meat in a frying-pan; to suffer the action of fire or extreme heat; to be agitated; to boil.

"The frothy billows *fry*."—*Spenser.*

—*n.* A dish of anything fried; as, lamb's *fry.*

—[O. Fr. *frage;* Fr. *frai*, spawn of fish.] A swarm or crowd of little fish just produced from the spawn.

"He is the tyrant pike, and we the *fry*."—*Donne.*

—Any swarm of little animals; or class of people, in contempt.

"The young *fry* must be kept under the discipline of contempt." *Collier.*

—A kind of sieve.

Fry, ELIZABETH, an English philanthropist and prison reformer, B. 1780, was one of the Gurney family, the well-known bankers and merchants of London and Norwich. The Gurneys belonged to the Society of Friends, but without conforming to the stricter principles of that persuasion with respect to costume, form of language, and social usages. Elizabeth Gurney, accordingly, in the earlier part of her life, freely partook of the gayeties incidental to the circle of life in which she moved. In 1798, however, an American Friend, William Savery, then travelling in England on a religious mission, preached in the Friends' meeting-house at Norwich.


Fig. 1081.—ELIZABETH FRY.

E. Gurney formed one of his congregation, and became so influenced by the preacher's discourse, that she determined to change her mode of life to that prescribed by the more rigid and orthodox of the sect. This change was consummated by her marriage, in 1800, with Joseph Fry, himself a "plain Friend." In 1810 Mrs. Fry joined the ministry, and thenceforward devoted herself to offices of the purest benevolence and piety. Owing to her unwearied exertions, important reforms were effected in the prison systems, not only of Great Britain, but also in those of France and Germany. After years of indefatigable labor among the poor and the criminal, this estimable lady D., Oct. 12, 1845.

Fry, WILLIAM HENRY, a distinguished American composer and journalist, B. in Philadelphia, 1815, in which city his father was proprietor of the "National Gazette" newspaper. *F.* early showed a singular aptitude for music, and in 1835 produced 4 overtures which were performed by the Philharmonic Society of Philadelphia, who presented the composer with an honorary medal. He next wrote the operas of *Aurelia* and the *Bridal of Dunure*, two compositions which, though favorably known in the musical world, have hitherto received no stage representation. In 1844, *F.* became a contributor to the "Ledger" in his native city, and in the course of the year following he brought out his opera of *Leonora*, an Italian version of which was performed in 1858 in New York. In 1846, *F.* visited Europe, remaining there 6 years, as the correspondent of several American newspapers, and after his return in 1852 again gave his attention to music, producing several symphonies of great merit, besides composing the music to the inaugural ode for the Great Industrial Exhibition at New York in 1853. In 1855 appeared his next work, a *Stabat Mater*, brought out at the N. Y. Acad. of Music. He subsequently became attached to the editorial staff of the "N. Y. Tribune," and attained much popularity as a public lecturer. D. 1864.

Fry'burg, in *Ohio*, a post-village of Auglaize co., abt. 18 m. N. of Sidney.

—A village of Stark co., abt. 14 m. E. by N. of Canton.

Fry'burg, in *Pennsylvania*, a post-village of Clarion co., abt. 17 m. E.S.E. of Oil City.

—A village of Lehigh co., abt. 10 m. S.S.E. of Allentown.

Frye'burg, (*frī'burg.*) in *Maine*, a post-village of Oxford co., on the Saco River, abt. 58 m. W.S.W. of Augusta.

Frye'burg Centre, in *Maine*, a P. O. of Oxford co.

Fry'ing-pan, *n.* A pan with a long handle used for frying meat and vegetables.

Fry'ville, in *Kentucky*, a post-office of Clark co.

F. S. A., Fellow of the Society of Antiquaries. (England).

F. T. C. D., Fellow of Trinity College. Dublin.

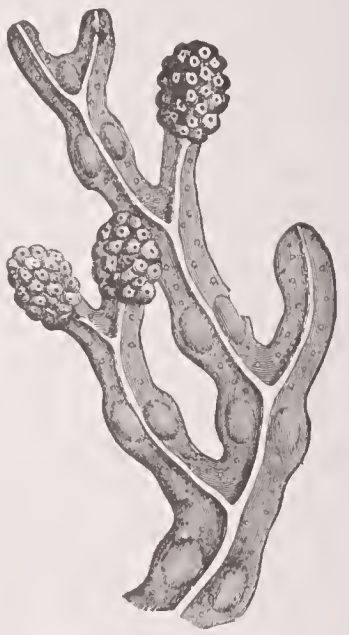
Fuad, (MEHMED,) PASHA, a distinguished Turkish statesman, B. 1814, was the son of a *mollah*, or judge, and of the celebrated Leila Khatoun, one of the few Ottoman poetesses whose works have been printed. *F.* successively studied medicine at Galata, served in the Turkish navy, and entered the government service as an interpreter. Subsequently he embraced diplomatic life, and, after filling minor positions, was sent, after the Hungarian war, 1848–9, as Minister to Russia. He afterwards became Minister of Foreign Affairs (1856), and Grand Vizier of the empire (1861); retiring from the latter post in 1863, he was then appointed Minister of War, and in 1867, Foreign Minister for the 2d time. *F.*, who published a poem entitled the *Alhambra*, which achieved great popularity, and who bore the reputation of being the most liberal and intellectual statesman Turkey has brought forth, D. 1869.

Fu'age, *n.* Same as FUMAGE (*q. v.*).

Fu'ar, *n.* Same as FEUAR (*q. v.*).

Fu'ca, Strait of, a passage separating Washington in the United States from Vancouver's Island, and connecting the Pacific Ocean with the Gulf of Georgia, has its outer or western entrance in Lat. 48° 10′ N., and Lon. 124° W. It communicates with the Gulf of Georgia through Rosario and Haro Straits. It is about 80 miles long, 11 miles wide at its west and 25 miles at its east end, and free of shoals. See SAN JUAN DE FUCA.

Fuca'ceæ, *n. pl.* (*Bot.*) An order of plants, alliance *Algales*. The species are numerous, about 500 being known, mostly growing in salt water. They are distinguished from the other algæ by their organs of reproduction, which consist of spores and antheridia, contained in common chambers or conceptacles, which are united in club-shaped receptacles at the end or margins of the fronds. The antheridia contain phytozoa. The frond is sometimes a stalk expanding into a broad blade, and sometimes exhibits no such expansion, and is either simple or variously branched. Many of the *F.* are provided with vesicles containing air, by the aid of which they are enabled to float in the water, as *Fucus vesiculosus* (Fig. 1082). Some attain a great size,


Fig. 1082.—FUCUS VESICULOSUS.

—*Macrocystis pyrifera* is said to have fronds of 500 to 1,500 feet in length; its stem not being thicker than the finger, and the upper branches as slender as packthread. Most of the *F.* contain iodine in very considerable quantity, and some of them are therefore much used for the manufacture of *kelp*, particularly different species of *Fucus*, or Wrack, and *Laminaria*, or Tangle. On account of the soda which they contain, they are also valuable as a manure. Some of them are eatable, containing large quantities of gelatinous matter, as certain species of *Sargassum*. The medicinal uses of some of them seem to depend upon the iodine which they contain, and which it is now considered preferable to exhibit in other forms, after it has been extracted. Several species of the genus *Fucus* contain mannite; as *F. vesiculosus*, *nodosus*, *serratus.*

Fu'cate, Fu'cated, *a.* [Lat. *fucatus*, pp. of *fucare*, to paint, to color, from *fucus*, a rouge for the cheeks, hence, any disguise or deceit.] Painted; disguised with paint.—Disguised by false show.

Fu-chow-foo', in China. See FOO-CHOO-FOO.

Fuchsia, (*fu'she-ă,*) *n.* [After Leonard *Fuchs*, a German botanist of the 16th century.] (*Bot.*) A genus of S. American plants, order *Onagraceæ*. They are distinguished by their long tunnel-shaped four-parted colored calyx, its four petals, its eight exserted stamens, and its long style. There are many distinct species. *F. coccinea* was the first introduced into this country, and is now one of our commonest greenhouse and window


Fig. 1083.—SEEDLING FUCHSIA, (*Colossus.*)

shrubs. It is a very elegant plant: the young wood and nerves of the leaves are tinged with purplish-red; the flowers are produced from the axils of the leaves, and

hang in a most graceful manner by thread-like peduncles; the calyx is tubular, scarlet, and 4-loped in the limb; the petals are of a rich purple color; the stameus are numerous, and, together with the style, form a pretty tassel. Many other species have been introduced into the U. States, one of the most beautiful and newest being Seedling *F.*, or *F. Colossus* (Fig. 1083); and an immense number of beautiful varieties have been developed by cultivation. The fruits of several fuchsias are somewhat acid, and may be eaten.

Fuch'site, *n.* (*Min.*) Chrome mica, or mica containing chromium. See MICA.

Fucino, (LAKE OF,) or LAGO DI COLANO, (*foo-che'uo,*) the principal lake of Naples, in the province of Abruzzo Ultra II. It is 10 m. long and 7 broad. In 1855 it was commenced to be drained, and upwards of 30,000 acres of soil have been reclaimed. It is the ancient *Fucinus Lacus.* See Torlonia's work on this subject (Rome, 1877).

Fu'coid, *n.* [Lat. *fucus*, see above, and Gr. *eidos*, form.] (*Pal.*) A fossil resembling a fucus.

Fu'coid, FUCOID'AL, *a.* Partaking of the nature of, or resembling, a fucus.

Fu'cus, *n.*; *pl.* FU'CI. [Lat., rouge, disguise, deception.] A paint; a dye; paint for the face; any deception or false pretence.

"Women chat — of *fucus* this and *fucus* that." — *B. Jonson.*

(*Bot.*) The typical genus of the order of *Fucacea*, q. v.

Fud'dle, *v. a.* [Etymol. unknown.] To make tipsy or drunk; as, *fuddled* brains.

—*v. n.* To drink to excess.

Fud'dler, *n.* One who habitually drinks to excess.

Fudge, (*fuj,*) *interj.* Stuff; nonsense; — an exclamation of contempt.

—*n.* A fabrication; a falsehood; a made-up story. (Low.)

—*v. a.* To fabricate; to devise. — To foist; to put in without warrant.

Fue'go, (Volca'no De.) [Sp., fire-volcano.] A volcano of Guatemala, abt. 20 m. W. of VOLCANO D'AGUA, the *water-volcano.*

Fu'el, *n.* [O. Fr. *fuayl;* Fr. *feu:* from Lat. *focus*, a hearth.] Any combustible substance which is used for the production of heat constitutes a species of fuel; and in this extended sense of the term, alcohol, wax, tallow, coal-gas, oil, and other inflammable bodies which are occasionally used, especially in the chemical laboratory, as sources of heat as well as light, might be included under it. But the term *fuel* is more properly limited to coal, coke, charcoal, wood, and a few other substances, which are our common *sources of heat*, and as such are burnt in grates, stoves, fireplaces, and furnaces. In this country, as in England, coal, from its abundance and cheapness, is the fuel commonly employed; but in other countries, as France, Germany, etc., wood is much used, either in its original state or in the form of charcoal. But whatever substance be used, the essential ultimate elements of fuel are carbon and hydrogen; and the heat which is evolved by their combustion is derived from their combination at high temperatures with the oxygen of the air: the principal results or products of this combustion are carbonic acid and water, these escaping into the atmosphere by the flue or chimney generally attached to furnaces and fireplaces. It is essential to good and profitable fuel that it should be free from moisture; for unless it be dry, much of the heat which it generates is consumed in converting its moisture into vapor: hence the superior value of old, dense, and dry wood, to that which is porous and damp; hence also the greater quantity of heat evolved during the combustion of charcoal as compared with that of wood, for even the dryest wood always retains a certain quantity of water: hence also coke gives out more heat than pit-coal, partly because it is absolutely dry, and partly because during the combustion or heating of coal, tar, oil, water, and inflammable gases are evolved, all of which carry off a certain proportion of the heat in a latent form. The different kinds of pit-coal give out variable quantities of heat during their combustion; upon an average, one pound of coal should raise 60 pounds of water from the freezing to its boiling point. The heating power of coke as compared with coal is nearly in the ratio of 75 to 61: a pound of good coke heating from 64 to 66 pounds of water from 32° to 212°. The value of dried turf and peat as fuel is liable to much variation, and depends partly upon their density, and partly upon their freedom from earthy impurities. A pound of turf will heat about 25 pounds of water from 32° to 212°, and a pound of dense peat about 30 pounds: by compressing and drying peat, its value as a fuel is greatly increased. The following table, by Dr. Ure, shows the quantity of water raised from 32° to 212° by one pound weight of the different combustibles enumerated in the first column; it also shows the number of pounds of boiling water which the same weight of fuel will evaporate, and the quantity of atmospheric air absolutely consumed during combustion.

Combustible.	*Pounds of Water which a Pound can raise from* 32° *to* 212°.	*Pounds of Boiling Water evaporated by One Pound.*	*Weight of Atmospheric Air at* 32° *required to burn One Pound.*
Dry wood . .	35·00	6·36	5·96
Common wood .	26·00	4·72	4·47
Charcoal . .	73·00	13·27	11·46
Pit coal . .	60·00	10·90	9·26
Coke . . .	65·00	11·81	11.46
Turf . . .	30·00	5·45	4·60
Coal-gas . .	76·00	13·81	14·58
Oil, wax, tallow	78·00	14·18	15·00
Alcohol . .	52·00	9·56	11·60

Fuel, *v. a.* To store with firing-material.

"Well watered and well *fueled.*" — *Wotton.*

Fu'eller, Fu'eler, *n.* One who, or that which supplies with firing-material.

Fuen'te de Ovejund, [Sp., the sheep-well,] a small walled town of Spain, prov. of Cordova. *Manuf.* Linens, woollens, and leather. *Pop.* 6,240.

Fuentes de Onore, (*foo-aiu'tais dai o-nor'ai.*) [Sp., the Fountains of Honor.] A small village of Spain, prov. Salamanca, on the Portuguese frontier, 16 m. W. of Ciudad Rodrigo. Here, on the 5th of May, 1811, took place between the Anglo-Spanish army under Wellington, and the French under Massena, a battle in which neither army could claim a decided advantage.

Fuero, (*fu-ai'ro.*) (*Spanish Hist.*) A Spanish term, derived from the Lat. *forum*, which signifies a place where justice is administered; and hence, jurisdiction. From this latter sense it came, in Spain, to be transferred to collections of laws: thus the Spanish edition of *Lex Visigothorum* was called the *Fuero juzgo.* From hence it came to be applied specially to the rights conferred by the crown on particular cities, the most famous of which were the Fuero of Leon, and that of Naxera. As these civic rights were chiefly liberties, concessions, privileges, the word *fuero* came to be specially used in this sense, and to denote, in particular, the entire body of immunities and privileges which composed the constitutions of Navarre, and the three Basque provinces of Biscay, Alava, and Guipuzcoa. It is in this last sense that the word is now almost exclusively used, the *fueros* of the other provinces and towns of Spain having long since become extinct. The subject has, in this century, acquired a fresh importance, from having given rise to the revolution of 1833, in the Basque provinces, which led to a series of sanguinary conflicts, and which was only terminated by Queen Isabella and her government, in 1844, entering into a formal recognition of the ancient rights and privileges of these provinces. These rights are based upon the ancient laws of the Visigoths, and were enveloped in the period between the fall of the Moors in the Spanish peninsula and the complete consolidation of the Spanish monarchy under the house of Hapsburg. The *fueros* thus owed their rise to the old Gothic laws, and as they took their form from the struggles between the people and their princes, they differ considerably in the different provinces. In Biscay, for example, the sovereign has only the power of nominating the *corregidor*, or chief magistrate; and even his nomination requires to be confirmed by the junta of the province, — a legislative body elected by almost universal suffrage, and intrusted with the chief management of public affairs. The inhabitants are exempt from all taxes and imposts, except such as they vote themselves; and claim, by virtue of pure Biscayan descent, the privileges of Spanish nobility. They are not obliged to appear before any tribunal beyond the bounds of their own territory, or to allow any royal monopoly, or admit royal troops within their territory, or to furnish recruits for the royal army.

Fuerte, (*fwer'ta,*) a small island in the Caribbean Sea, off the N. W. coast of Colombia, about 85 m. S.S.W. of Cartagena.

Fuer'te, (Rio de,) enters the Gulf of California from the dept. of Sinaloa, Mexico, Lat. 26° 50′ N., Lon. 109° 10′ W. See VILLA DEL FUERTE.

Fuer'te de San José, (*da san ho-sa',*) a town of the Argentine Republic, abt. 95 m. N.E. of Tucuman.

Fuga, (*foo'ga,*) an island of the Asiatic archipelago, 25 m. from Luzon. It is 35 m. in circumference. Lat. 19° N., Lon. 121° 20′ E.

Fu'ga, *n.* [It.] Same as FUGUE, *q. v.*

Fuga'cious, *a.* [Lat. *fugax*, from *fuga*, a flight.] Flying or fleeing away; volatile.

Fuga'ciousness, *n.* Same as FUGACITY, *q. v.*

Fugac'ity, *n.* [Fr. *fugacité*; Lat. *fugacitas* — *fugax*, fleeting, from *fugere*, to flee.] Act or quality of flying away; volatility; uncertainty; instability.

Fuga'ro, *n.* [It.] (*Mus.*) A stop of the flute kind in French organs of 4-feet pitch, and sometimes of 8-feet pitch, of a small scale, made of wood or tin; in tone it is as piercing as the *gamba*, but much clearer.

Fuga'to, *n.* [It.] (*Mus.*) A composition in the style of a fugue.

Fugger, (*fōōg'ger,*) the name of a rich and illustrious family of Suabia, descended from a weaver, who originally lived in the environs of Augsburg, about 1300. They were at first successful in selling clothes, but afterwards extended their dealings, and became merchants, accumulating an immense fortune. Reaching the height of their affluence at the commencement of the 16th century, they rendered considerable services to the emperors Charles V. and Maximilian, by making them large advances. These princes bestowed titles of nobility on the Fugger family, and they soon became connected with the best blood of Germany. Promoted to the highest dignities of the empire, they did not any the more neglect the pursuits of commerce. Their riches were always forthcoming for the improvement of their birthplace, Augsburg, where they erected some handsome monuments, and founded philanthropical institutions. The best known of them are the three brothers, Ulric, James, and George: and, afterwards, Raymond and Antony, both sons of George. Ulric received for his loans to Maximilian the countship of Kirchberg, and the seigniory of Weissenhorn, which afterwards remained in the possession of his family. He was a great encourager of learning. — Antony and Raymond bore, to a great extent, the expenses of the expedition of Charles V. against Algeria, obtaining from him the permission to coin money. One day, at an interview with the emperor, Antony, as a mark of his regard and esteem, threw into the fire all the title-deeds and securities which Charles had deposited with him. Several of this family still exist, and Augsburg owes its position on the continent, as a financial centre, to the energy and talent of the Fuggers.

Fugh, (*few,*) *interj.* [Gr. *pheu.*] An expression of abhorrence. (Generally written *foh.*)

"*Fugh!* how he stinks of Spain."—*Dryden.*

Fu'git, in *Indiana*, a township of Decatur co. *Pop.* (1890) 1,605.

Fu'gitive, *a.* [Fr. *fugitif*; Lat. *fugitivus*, from *fugere*, to flee, to escape.] Readily wafted by the wind; volatile; not tenable; easily escaping. "Tender and *fugitive* parts." (*Woodward.*) — Unstable; unsteady; fleeting; not fixed or durable; temporary; as, *fugitive* writings. — Fleeing; running from danger or pursuit; eloping; escaping.

"The *fugitive* Parthians follow."—*Shaks.*

—Wandering; vagabond; errant.

"A *fugitive* physician."—*Wotton.*

—*n.* One obliged to flee from his country, or remove from a place where he had some abode or establishment, on account of his crimes, debts, or other circumstances.

—One hard to be caught or detained.

"Or catch that airy *fugitive* called wit."—*Harte.*

(*Law.*) As one State cannot pursue those who violate its laws into the territories of another, the practice prevails among the more enlightened nations of mutually surrendering such fugitives to the justice of the injured State. This practice is founded on national comity and convenience, or on express compact. The U. States recognize the obligation only when it is created by express agreement. (See EXTRADITION.) As between the States of the American Union, extradition is made compulsory by the Federal Constitution, Art. iv. Sec. 2, which provides that "a person charged in any State with treason, felony, or other crime, who shall fly from justice and be found in another State, shall, on demand of the executive authority of the State from which he fled, be delivered up, to be removed to the State having jurisdiction of the crime." In the several States there are statutory provisions or established usages regulating the procedure in such cases.

Fu'gitively, *adv.* In a fugitive manner.

Fu'gitiveness, *n.* Readiness to fly away; instability; volatility; fugacity; want of perseverance or durability; unsteadiness.

Fu'gleman, *n.*; *pl.* FUGLEMEN. Same as FLUGELMAN, *q.v.*

Fugue, (*fewg.*) *n.* [Fr. *fugue*: Sp., It., and Lat. *fuga*, a flight.] (*Mus.*) A composition, vocal or instrumental, or both, in which a determined succession of notes, called the subject, passes successively, and alternately, from one part to the other, according to certain rules of harmony and modulation. There are four kinds of fugue; viz., the *strict fugue*, in which the subject is given out by one part and answered by another, the subject being again repeated in the third part; the *free fugue*, in which the composer is not so much restrained, but is allowed to introduce passages not closely related to the theme; the *double fugue*, in which there are two subjects occasionally intermingled, and moving together; and the *inverted fugue*, in which, as its name implies, the theme is inverted.

Fu'guist, *n.* [Fr. *fuguiste.*] One who composes fugues, or performs them extemporaneously.

Fuh'-keen, or **Fu-kiau,** a Chinese province. See FOH-KIEN.

Ful'crate, *a.* [Lat. *fulcrum*, a lever or support.] Supplied with fulcrums or props.

(*Bot.*) Applied to plants whose branches descend to the earth, as the banyan.

Ful'crum, *n.*; *pl.* FULCRA, or FULCRUMS. [Lat., a bed-post, from *fulcire*, to prop, to support.] A prop; a support.

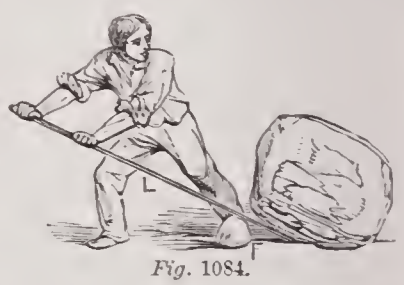


Fig. 1084.

(*Mech.*) The prop or other support (F, Fig. 1084) by which a lever is sustained.

(*Bot.*) A general name given to several of the appendages of the stem or leaves, which serve either for support or defence, as the prickle, hair, tendril, stipule.

Ful'da, a river of Germany, rising in the Rhöngebirge, and after a course of 90 m. falling into the Werra near Minden.

Fulda (*fool'da*), a walled town of Hesse-Nassau, on the Fulda, 69 m. from Mentz, and cap. of the prov. of the same name. It has a fine cathedral. *Manuf.* Woolen and linen fabrics, earthenware, leather, and tobacco. *Pop.* (1895) 10,950.

Fulda, in *Indiana*, a post-village of Spencer co.

Fulfil', Fulfill', *v. a.* [A. S. *fulfyllan.*] To complete; to accomplish; to perform; to answer in execution or event what has been foretold or promised; as, to *fulfil* a prophecy.

"And bears *fulfilled* her promise to the skies."—*Milton.*

—To accomplish or perform what was commanded, intended, or desired: to answer, as any desire, by compliance or gratification; to answer, as a law, by obedience; to carry into effect; to bring to pass; as, to *fulfil* a design.

Fulfil'ler, *n.* One who completes or accomplishes.

Fulfil'ment, FULFILL'MENT, FULFIL'LING, *n.* Accom-

plishment; completion, as of a prophecy. — Execution; performance, as of a promise or threat.

Ful'gency, *n.* [Lat. *fulgens*, pp. of *fulgere*, to shine.] Splendor; glitter; brilliancy.

Ful'gent, *a.* [See above.] Glittering; shining; dazzling; exquisitely bright.

"A *fulgent* illumination."—*Moore.*

Ful'gently, *adv.* Glitteringly; dazzlingly; with exquisite brightness.

Fulgor'idæ, *n. pl.* (*Zoöl.*) A family of hemipterous insects, popularly known as Lantern-flies, from their power of diffusing light in the dark, and belonging mainly to tropical and sub-tropical regions. The American Lantern-fly (Fig. 1085) may be taken as the type of this family. The form of this insect is very remarkable. The head is dilated in front, with porrected protuber-



Fig. 1085. — AMERICAN LANTERN-FLY.

ances; and it is from the hollow or lantern of the head that the light is said to proceed, and from no other part. "Two or three of these insects put into a glass vessel afford light sufficient to read by, without difficulty, if they be placed close to the bed. Even when the insects are dead, their bodies will afford considerable light, though less vivid than before; and if bruised and rubbed over the hands and face, they become luminous in the dark, like a beard smeared with English phosphorus." (*Nat. Hist. Guinea*, Bancroft.) — Madame Merrian, in her work on the insects of Suriuam, was the first to draw attention to this insect. "The Indians," says she, "once brought me, before I knew that they shone by night, a number of the lantern-flies, which I shut up in a large wooden box. In the night they made such a noise, that I awoke in a fright, and ordered a light to be brought. We soon found that the noise came from the box, and opened it, but were much alarmed, and instantly let it fall to the ground with affright, on perceiving flames of fire issue from it; for as many animals came out, so many flames appeared. When we found this to be the cause, we recovered from our terror, and again collected the insects, much admiring their splendid appearance."

Fulgura'tion, *n.* [Fr., from Lat. *fulguratio*, from *fulgur*, a flash of lightning, from *fulgere*, to shine, allied to *flagrare*, to burn.] (*Chem.*) A sudden brightening of melted gold or silver in the cupel of the assayer, when the last film of vitreous lead or copper leaves the surface.

Ful'gurite, *n.* [Fr., from Lat. *fulgurilus*, pp. of *fulgurire*, to strike with lightning — *fulgur*, lightning.] (*Miner.*) One of those tubes formed of vitrified sand, which are found in sand-banks, and in soils consisting chiefly of silicious sand, and are attributed to the action of lightning melting, and vitrifying the sand.

Ful'ham, a parish of England, co. Middlesex, on the Thames, 5½ m. from St. Paul's, London.

Fu'lica, *n.* [Lat., a coot.] (*Zoöl.*) The Coots, a genus of birds, order *Grallatores*, distinguished by having the bill straight, compressed, and extending into the feathers of the forehead, forming a wide and projecting frontal plate; and the toes margined with semicircular lobes.

Fulig'inous, *a.* [Fr. *fuligineux*; Lat. *fuligineus*, from *fuligo*, soot.] Sooty; dark; dusky; smoky, or resembling smoke.

Fulig'inously, *adv.* In a smoky, dusky, or sooty manner.

Fuliuart, *a.* Same as FOUMART, *q. v.*

Fu'lix, *n.* (*Zoöl.*) A genus of birds, order *Natatores*; has the bill as long as the feet; head, neck, body anterior to the shoulders, tail and tail-coverts, rump, and lower back, black; tail rounded, of fourteen feathers; under parts white, finely waved with black behind and on the sides. To this genus belong the species popularly known as Broad-Bill, Big Black-Head, or Scaup Duck, Little Black-Head or Blue Bill, and Ring-necked Duck.

Full, *a.* [A.S. *full*, from *fyllan*, to fill; Ger. *voll*. See FILL.] Filled to the utmost extent of capacity; replete; having within its limits all that it can contain; as, a *full* house. — Abounding with; having a large quantity or abundance; supplied; as, *full* of weeds. — Plump; fat; as, a *full* body, a *full* habit. — Saturated; sated.

"I am *full* of the burnt-offerings of rams." — *Isai.* i. 11.

— Having the mind or memory filled. — Complete; entire; not partial; not deficient; as, a *full* band. — That fills, as a meal. — Strong; not faint or attenuated; loud; distinct; clear, as a voice. — Mature: perfect; as, a person of *full* age. — Spread to view in all dimensions; exhibiting the whole surface or disk illuminated; as, the *full* moon. — Abundant; plenteous; sufficient; adequate; equal, as pay for work. — Well-fed; furnished; abounding; copious; ample.

Full age. (*Law.*) The age of twenty-one of both males and females, by common law, generally adopted in the U. States. In Vermont and Ohio, however, a woman is of full age at eighteen.

— *n.* Complete measure; utmost extent; the highest state or degree, as of the tide. — The whole; the total. — State of satiety. — The moon's time of having meridian light.

— *adv.* Quite; to the same degree; without abatement or diminution; with the whole effect; exactly; directly.

— *v. n.* To present a disk wholly illuminated; as, the moon *fulls* to-night.

Full, *v. a.* [A.S. *fullian*, to whiten, to make full; *fullere*, a fuller; Fr. *fouler*, to tread; L. Lat. *fullare*, to thicken cloth, from *fullo*, a fuller. Allied to Gr. *pilos*, wool or hair wrought into felt.] To thicken cloth in a mill; to make compact; to scour, cleanse, and thicken in a mill.

— *v. n.* To become scoured, cleansed, and thickened in a mill, said of cloth.

Full'age, *n.* The money paid for fulling or cleansing cloth.

Full'-blown, *a.* Fully expanded, as a blossom. — Fully distended with wind, as a sail.

Full'-bottom, *n.* A wig with a large bottom.

Full'-bot'tomed, *a.* Having a large bottom, as a wig.

Full'-butt, *adv.* Directly. (Vulgar.)

Full'-drive, *adv.* At a furious rate; as fast as possible.

Full'er, *n.* A person whose employment is to full cloth. (*Blacksmith's Work.*) A half-round set hammer, used for widening out a piece of iron, and condensing the particles thereof.

Fuller, THOMAS, one of the wittiest and most original of English authors, b. at Aldwinkle, Northamptonshire, in 1608. His first clerical appointment was that of minister of St. Benet's parish, Cambridge, where he acquired great popularity as a preacher. He afterwards obtained the rectory of Broad Windsor, Dorsetshire. His first literary production was a poem entitled *David's Hainous Sin, Heartie Repentance, and Heavie Punishment.* In 1640 he published his *History of the Holy War*; soon after which he removed to London, and was chosen lecturer at the Savoy church, in the Strand. On the departure of Charles I. from London, previously to the commencement of hostilities, *F.* delivered a sermon at Westminster Abbey, on the anniversary of his majesty's inauguration in 1642, from 2 Samuel xix. 30 — "Yea, let them take all, so that my lord the king return in peace," which greatly offended the popular leaders, and endangered the safety of the preacher. About this time he published his *Holy and Profane State.* In 1643 he went to Oxford, and joined the king, but having lost his living by sequestration, and also all his books, he became chaplain to Sir Ralph Hopton, and employed his leisure in making collections relative to English history and antiquities. He was present at the siege of Basing House, and also at that of Exeter. About 1648 he was appointed rector of Waltham. In 1650 appeared his *Pisgah Sight of Palestine*, and his *Abel Redivivus*; and six years later, his *Church History of Great Britain*; but it was not till after his death that his principal literary work was published, entitled *The Worthies of England* — a production valuable alike for the solid information it affords relative to the provincial history of the country, and for its profusion of biographical anecdote and acute observation on men and manners. At the Restoration he was made D.D. and chaplain to the king. Dr. *F.*'s writings possess much learning, wit, and humor, with an elaborate display of quaint conceit — a quality highly esteemed at the time he wrote, and one which appears quite natural to him. Many extraordinary stories are told respecting his prodigiously retentive memory; the following *punning* anecdote, old as it is, and though not strictly biographical, is worth repeating. Dr. *F.* was, it seems, an inveterate punster; but once attempting to play off a joke upon a gentleman named Sparrowhawk, he met with the following retort: "What is the difference," said the Dr. (who was very corpulent), "between an owl and a sparrow-hawk?" "It is," replied the other, "*fuller* in the head, *fuller* in the body, and *fuller* all over." D. 1661.

Ful'lersburg, in *Illinois*, a post-office of Du Page co.

Full'er's Earth, *n.* (*Min.*) An earthy, hydrated silicate of alumina, having, like other soft aluminous minerals, the property of absorbing grease. It is used to cleanse woollen fabrics by removing the grease and oily matter by capillary attraction. When pure, its *comp.* is silica 45, alumina 20, water 25.

Ful'ler's Station, in *N. Y.*, a post-office of Albany co.

Fuller's-thistle, FULLER'S WEED, *n.* The Teasel, a plant so called because its bristly head is used by fullers in dressing cloths.

Ful'lersville, or FULLERVILLE IRON WORKS, in *New York*, a post-village of St. Lawrence co., about 28 miles S.S.W. of Canton.

Ful'lerton, in *Alabama*, a P. O. of Cherokee co.

Fullerton, in *California*, a P. O. of Orange co.

Fullerton, in *Nebraska*, a post-village, the capital of Vance co. *Pop.* (1897) about 1,400.

Full'ery, *n.* The place where the trade of a fuller is exercised.

Full'-eyed, (*full'īde,*) *a.* Having large, prominent eyes.

Full'-faced, *a.* Having a broad face.

Full'-fraught, *a.* Laden or stored to fulness.

Full'ing, *n.* The art of cleansing, scouring, and pressing stuffs, cloths, stockings, &c., to render them stronger, firmer, and closer; it is also called *milling*, because these cloths, &c. are in fact scoured by a water-mill.

Full'ing-mill, *n.* An engine or mill, in which cloth is cleansed by being beaten with hammers.

Full'-length, *a.* Embracing the whole; extending the entire length; as, a *full-length* portrait.

Full'-manned, *a.* Completely furnished with men, as a ship.

Fullness, *n.* Same as FULNESS, *q. v.*

Ful'lonite, *n.* (*Min.*) Same as ONEGITE, *q. v.*

Full'-orbed, *a.* Having the orb fully illuminated, as the moon; like the full moon.

Full'-pay, *n.* (*Mil.*) The ordinary pay given in the army to officers, non-commissioned officers and men, without any deduction whatever.

Full'-souled, *a.* Magnanimous.

Full-wood Springs, in *Georgia*, a post-office of Polk co.

Ful'ly, *adv.* With fulness; completely; entirely; without lack or defect; maturely; abundantly: copiously; amply; sufficiently; clearly; distinctly; perfectly; as, to be *fully* persuaded of a fact.

Ful'mar, *n.* (*Zoöl.*) See PROCELLARIDÆ.

Ful'minant, *a.* [Fr., from Lat. *fulminans*, pp. of *fulminare*, from *fulmen*, a thunderbolt.] Thundering; making a noise like thunder.

Ful'minate, *v. n.* [Fr. *fulminer*. See SUPRA.] To lighten and thunder: to make a loud, sudden noise, or a sudden, sharp crack; to detonate. — To issue forth ecclesiastical censures, as if with the force of a thunderbolt.

— *v. a.* To utter or send out, as a denunciation or censure.

"I cannot *fulminate* or tonitruate words." — *Randolph.*

— To cause to explode.

Ful'minate, *n.* [Lat. *fulmen*, a thunderbolt.] (*Chem.*) A compound of fulminic acid with a base. They are all more or less explosive by the action of heat or friction. Of these, the *F.* of mercury and silver are the most important.

F. of Mercury (*Chem.*) is prepared by dissolving one part of the mercury in 12 of nitric acid, sp. gr. 1·42, aided by a gentle heat. As soon as the mercury is dissolved, add 11 parts of alcohol, sp. gr. ·87. A brisk action will ensue, and the solution will become turbid from the separation of crystals of the fulminate. Dense white clouds are also evolved at the same time, which have an agreeable odor from the presence of nitrous ether, aldehyde, and other products of the action of nitric acid upon alcohol. When the action has subsided, the vessel may be filled with water, and the fulminate allowed to settle, after which it is collected on a filter, washed and dried by exposure to the air. When dry it must be handled cautiously, as it explodes by friction or percussion, especially when in contact with particles of sand or glass. It must be kept in corked bottles, lest it be exploded between the neck and stopper. It is also exploded by heating to about 360°, by the electric spark, and by contact with concentrated nitric or sulphuric acid. This fulminate is used for the filling of percussion-caps. For this purpose it is necessary to moderate its explosive property, since it is too rapid and violent for the purpose. It is mixed with chlorate or nitrate of potash, and ground glass is often added to increase the sensibility of the mixture to explosion by percussion. The composition is made in but small quantities at a time, since it is so liable to explode under friction. After being placed in the cap, it is made to adhere and rendered water-proof by a drop of the solution of shellac in alcohol. *Form.* $C_4Hg_2N_2O_4$.

F. of Silver is prepared by a process similar to that for *F.* of mercury, but as its explosive properties are far more violent, it is advisable to prepare it only in minute quantities. When dry, it must be handled with the greatest caution. Nothing harder than paper should be used in manipulating it, and it should be kept in small quantities wrapped in paper in a card-board box. It is used in detonating crackers, which are made by twisting up a particle of the *F.* in a piece of their paper with some fragments of crushed pebble. If a particle of the *F.* be placed on a glass plate and touched with a glass rod dipped in sulphuric acid, it will detonate and leave a deposit of silver on the glass. The explosion of this *F.* may be compared with that of mercury by heating equal quantities upon thin copper or platinum foil, the *F.* of mercury will explode with a slight puff, and not injure the foil; that of silver will give a loud crack and rend a hole in the metal.

Ful'minating, *p. a.* Thundering; crackling; exploding: detonating.

— Hurling menaces or censures.

F. Gold (*Chem.*) is obtained as a buff precipitate when ammonia is added to a solution of terchloride of gold. It explodes violently when heated. *Form.* AnO_3 $2NH_3HO$. — *F. Platinum* is obtained by dissolving binoxide of platinum in dilute sulphuric acid, and mixing the solution with excess of ammonia, when it falls as a black precipitate, which detonates violently at abt. 400° Fahr. *Form.* NH_3Pt_4HO. — *F. Silver.* When moist oxide of silver is covered with a strong solution of ammonia and allowed to stand for some hours, it becomes black and acquires dangerous explosive properties. It is supposed to be a nitride of silver. *Form.* Ag_3N. These compounds must not be confounded with the fulminates, which are compounds of the metals with a true acid.

Fulmina'tion, *n.* [Fr., from Lat. *fulminatio*. See SUPRA.] A thundering; a detonation. — Denunciation of censure or threats, as by Papal authority; anathema or excommunication. — The explosion of certain chemical preparations.

Ful'minatory, *a.* [Fr. *fulminatoire.*] Thundering; striking terror or horror.

Fulmin'eous, *a.* Belonging to thunder.

Fulmin'ic Acid, *n.* [Lat. *fulmen*, a thunderbolt, from the noise produced by the explosion of its compounds.] (*Chem.*) An acid corresponding in its ultimate composition with cyanic acid, but never obtained in a separate state. Combined with the oxides of the metals it forms a series of very explosive compounds called *fulminates.*

Ful'ness, Fullness, *n.* State of being filled so as to

leave no part empty or vacant; state of abounding or being in great plenty; abundance; copiousness; plenitude; completeness; perfection; repletion; satiety; plenty; wealth; affluence; swelling, as of the soul; largeness; extent; loudness; force of sound, such as fills the ear; as, *fulness* of joy, *fulness* of body, &c.

Fulsome, (*ful'sum,*) *a.* [A.S. *ful, foul,* and the term *some.*] Rank; gross; disgusting; nauseous; as, *fulsome* flattery.

Ful'somely, *adv.* Rankly: nauseously: grossly.

Ful'someness, *n.* Nauseousness; offensive grossness.

Ful'ton, Robert, an American inventor and engineer, celebrated as being the introducer of steam-navigation, was b. of Irish descent, in Lancaster co., Penna., in 1765. Early in life he manifested a taste for painting, and purposing to adopt it as a profession, he repaired to England to study under Benj. West. In that country, however, he became acquainted with the Duke of Bridgewater,



Fig. 1086. — ROBERT FULTON.

(*q. v.*), the founder of the canal system of Great Britain, who induced *F.* to abandon art, and take to the study of mechanical science. This nobleman was at the time engaged in a scheme of steam-navigation, which he imparted to *F.* The latter visiting Birmingham was brought into communication with the celebrated James Watt (*q. v.*), who had just succeeded in his great improvement of the steam-engine, with the construction of which *F.* made himself thoroughly familiar during his stay. About this time he invented a machine for spinning flax, and another for making ropes, for which he obtained patents in England. In 1796 he published a treatise on the improvement of canal-navigation. From 1797 to 1804 he resided in Paris with Mr. Joel Barlow, the American representative at the French court. During this period he invented a submarine or plunging boat, called a *Torpedo,* designed to be used in naval warfare. He invited the attention of the French government to his invention, and Bonaparte, then First Consul, appointed Volney, La Place, and Monge, as a commission to examine it. Several experiments were made in 1801 in the harbor of Brest. He could easily descend to any depth, or rise to the surface; and where there was no strong current, the boat was quite obedient to her helm while under water. On one occasion, he remained in the torpedo several feet below the surface for more than four hours; but the motion of the boat while submerged was very slow, and it was clearly unequal to the stemming of a strong current. The French government declined to patronize the project, and *F.* accepted an invitation from the English ministry, who also appointed a commission to test the merits of his torpedo. He appears, however, to have received but little encouragement, and in 1806 he returned to the United States. Having been supplied with the necessary funds by Robert Livingston, who had been American ambassador at Paris, *F.* had the satisfaction of proving, in 1807, that steam could be applied to the propulsion of vessels with entire success. His achievement excited universal admiration, and from that time steamboats were rapidly multiplied on the waters of the United States. His first steamboat, called *The Clermont* (of 140 feet keel and 16½ feet beam, see Fig. 1087), made a progress on the Hudson of 5 miles an hour. His second large boat on the Hudson was the *Car of Neptune,* and was built in 1807. He afterwards built other steam-vessels, one of them a frigate which bore his name. His reputation became established, and his fortune was rapidly increasing, when his patent for steam-vessels was disputed, and his opponents were in a considerable degree successful. Though an amiable, social, and liberal man, the anxiety and fretfulness occasioned by the lawsuits about his patent rights, together with his enthusiasm, which led him to expose himself too much while directing his workmen, impaired his constitution, and he died at the early age of 49 in 1815. His death was recognized as a public calamity, and occasioned extraordinary demonstrations of national mourning. In 1846 Congress passed an Act appropriating $76,300 in full of the claims of *F.* against the United States for inventing floating steam-batteries, superintending the construction of the steam-frigate *Fulton,* and for the great benefits conferred on the country by his improvements in the application of steam to navigation.

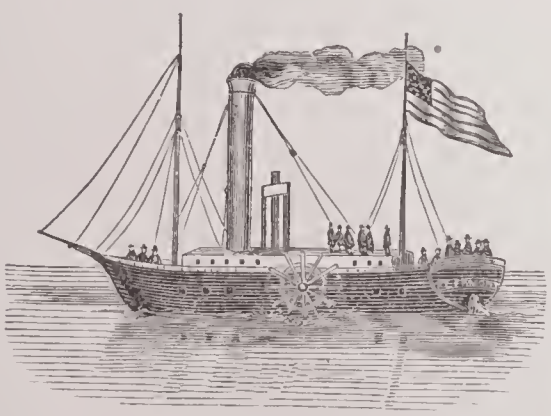


Fig. 1087. — THE CLERMONT.
(The first steam-packet in the world.)

Ful'ton, in *Arkansas,* a N. co., bordering on Missouri; *area,* 649 sq. m. *Rivers.* White river and its tributaries. *Surface,* hilly; *soil,* fertile. *Cap.* Salem. *Pop.* (1890) 10,984.
—A post-town of Hempstead co., on the Red river, about 140 m. S.W. of Little Rock. *Pop.* (1890) 337.

Ful'ton, in *Georgia,* a N.W. co.; *area,* about 166 sq. m. *Rivers.* Chattahoochee river, and several smaller streams. *Surface,* diversified; *soil,* fertile. *Cap.* Atlanta. *Pop.* (1897) about 124,000.

Fulton, in *Illinois,* a W. co.; *area,* about 870 sq. m. *Rivers.* Illinois and Spoon rivers, Otter, Putnam's, and Copperas creeks. *Surface,* undulating; *soil,* very fertile. *Min.* Coal. *Cap.* Lewistown. *Pop.* (1890) 43,110.
—A village of Fulton co.
—An important town of Whitesides co., on the Mississippi river, 2 m. above Clinton, Ia. *Pop.* (1897) about 2,600.

Fulton, in *Indiana,* a N. co.; *area,* about 380 sq. m. *Rivers.* Tippecanoe rivers. *Surface,* generally level; *soil,* fertile. *Min.* Iron. *Cap.* Rochester. *Pop.* (1890) 16,746.
—A township of Fountain co.
—A post-village of Fulton co., about 15 m. N.N.E. of Logansport.

Fulton, in *Iowa,* a post-village of Jackson co., about 28 m. S. of Dubuque.
—A post-office of Jackson co.
—A township of Muscatine co.
—A township of Webster co.

Fulton, in *Kansas,* a post-office of Bourbon co.

Fulton, in *Kentucky,* a S.W. co., bordering on Missouri and Tennessee; *area,* about 190 sq. m. *Rivers.* Mississippi river, and some small streams. *Surface,* diversified; *soil,* fertile. *Cap.* Hickman. *Pop.* (1890) 10,005.

Fulton, in *Michigan,* a village of Barry co., about 130 m. W. by N. of Detroit.

Fulton, in *Mississippi,* a post-village, capital of Itawamba co., on the Tombigbee river, about 210 m. N.N.E. of Jackson.

Fulton, in *Missouri,* a city, capital of Calloway co., about 20 m. N.E. of Jefferson City. It contains the State Institute for education of Deaf and Dumb, and the State Lunatic Asylum. *Pop.* (1890) 4,324.

Fulton, in *North Carolina,* a post-township of Davie co., on the Yadkin river, about 110 m. W.N.W. of Raleigh.

Fulton, in *New York,* an E.N.E. co.; *area,* about 567 sq. m. *Rivers.* Sacandaga river, and E. Canada creek. *Surface,* uneven; *soil,* tertile. *County-seat,* Johnstown. *Pop.* (1890) 37,650.
—A former post-office of Orange co.
—A post-village of Oswego co., on the Oswego river, about 25 m. N.W. of Syracuse.
—A township of Schoharie co.

Fulton, in *Ohio,* a N.W. co., bordering on Michigan; *area,* about 402 sq. m. *Rivers.* Bean creek, and other smaller streams. *Surface,* level; *soil,* fertile. *Cap.* Wauseon. *Pop.* (1890) 22,023.
—A township of the above co.
—A village and township of Hamilton co., on the Ohio river, just above Cincinnati, of which it was a suburb and now forms the 17th ward.
—See Canal Fulton.

Fulton, in *Pennsylvania,* a S. co., bordering on Maryland; *area,* about 435 sq. m. *Rivers.* Conoloway and Licking creeks. *Surface,* mountainous; *soil,* in the valleys fertile. *Cap.* McConnelsburg. *Pop.* (1890) 10,137.
—A township of Lancaster co., containing the post-office known as Fulton House.
—A village of Westmoreland co., 22 m. S.E. of Pittsburg.

Fulton, in *South Carolina,* a post-township and hamlet of Clarendon co., 40 m. E.S.E. of Columbia.

Fulton, in *Tennessee,* a post-village of Landerdale co., abt. 35 m. N. of Memphis.

Fulton, in *Wisconsin,* a post-village and township of Rock county, about 35 miles S.E. of the city of Madison.

Fulton, in *W. Virginia,* a village of Ohio co.

Ful'ton Cen'tre, in *Wisconsin,* a village of Rock co., abt. 27 m. S.E. of Madison.

Ful'tonham, in *New York,* a post-village of Schoharie co., abt. 35 m. W. by S. of Albany.

Ful'tonham, or **Uniontown,** in *Ohio,* a post-village of Muskingum co., abt. 57 m. E. of Columbus.

Ful'ton House, in *Pennsylvania,* a post-village of Lancaster co.

Ful'ton Lakes, in *New York,* a chain of small lakes in Hamilton and Herkimer cos., connected with Moose River by short outlets.

Ful'ton Sta'tion, in *Kentucky,* a P. O. of Fulton co.

Ful'tonville, in *New York,* a post-village of Montgomery co., abt. 45 m. W.N.W. of Albany.

Ful'via, an ambitious woman of Rome, who, after being twice married, became the wife of Mark Antony. When Cicero's head had been cut off by order of Antony, she ordered it to be brought to her, and with the greatest barbarity bored the orator's tongue with her golden bodkin. Antony divorced her to marry Cleopatra, upon which she attempted to persuade Augustus to take up arms against her husband. When this scheme did not succeed she retired into the East, where Antony received her with great coldness. This totally broke her heart; and she soon after died, about 40 B. C. — See Antony.
—Also, a woman who discovered to Cicero the designs of Cataline and his brother conspirators.

Ful'vid, Ful'vous, *a.* [Lat. *fulvidus, fulvus.*] Tawny; dull yellow, with a mixture of gray and brown.

Ful'vius, a name common to some eminent Romans, the most remarkable of whom was a senator, intimate with Augustus. He disclosed the emperor's secrets to his wife, who made them public to all the Roman matrons; and for this he received so severe a reprimand from Augustus, that he and his wife hanged themselves in despair. — Nobilior, Ser., a Roman consul, who went to Africa after the defeat of Regulus. He was successful in several conflicts with the Carthaginians, but was shipwrecked on his return with 200 Roman ships.

Fuma'cious, *a.* Smoky; — hence, fond of, or given to, smoking; addicted to the use of tobacco in smoking.

Fuma'do, *n.* [Sp., *pp.* of *fumar;* Lat. *fumare,* to smoke, from *fumus,* smoke.] A smoked fish.

Fu'mage, *n.* [Fr., from L. Lat. *fumagium,* from *fumus,* smoke.] Hearth-money; a tax formerly chargeable on every fireplace in a house.

Fu'marate, *n.* (*Chem.*) A salt resulting from the union of fumaric acid with a base.

Fuma'ria, *n.* [Lat. *fumus,* smoke.] (*Bot.*) A genus of plants, type of the order Fumariaceæ, *q. v.*

Fumaria'ceæ, Fume'-worts, *n. pl.* (*Bot.*) The Fumitory family, an order of plants, alliance *Berberales,* consisting of 15 genera and about 110 species, principally occurring in thickets and waste places in the temperate latitudes of the northern hemisphere. They are smooth herbs, with a watery juice, and alternate, exstipulate, much-divided leaves; flowers very irregular and unsymmetrical, purple, white, or yellow; sepals 2, deciduous; stamens hypogynous, usually 6, diadelphous, or 4 distinct, always opposite to the petals; ovary superior, with parietal placentas; ovules horizontal, amphitropal. The *Fumariaceæ* possess slightly bitter, acrid, astringent, diaphoretic, and aperient properties. Some species are cultivated in our gardens and greenhouses. Of these the most important are *Corydalis nobilis* and *Dicentra spectabilis,* which have very showy but scentless flowers. The common Fumitory (*Fumaria officinalis*) is a very frequent weed in gardens and corn-fields, and of rather delicate and beautiful appearance. It was formerly much used in medicine as a remedy in scorbutic affections, chronic eruptions, &c.

Fumar'ic Acid, *n.* (*Chem.*) An acid found in the plant called Fumatory (*Fumaria officinalis*). Obtained also by decomposing malic acid.

Fu'marole, *n.* [It. *fumarola,* from *fumo;* Lat. *fumus,* smoke.] A hole from which smoke issues in a sulphur-mine or volcano.

Fu'matory, Fu'miter, Fu'mitory, *n.* [Fr. *fumeterre;* Lat. *fumusterræ* — *fumus,* smoke, and *terra,* the ground.] (*Bot.*) See Fumariaceæ.

Fum'ble, *v. n.* [Dan. *fommelen;* Sw. *fomla,* to handle feebly.] To grope about; to attempt or handle awkwardly, inefficiently, or bunglingly; to act with imbecile efforts; as, "to *fumble* in a notion." (*Cudworth.*) — To seek or grope about awkwardly, or in perplexity; as, "to *fumble* for an excuse." (*Dryden.*) — To handle much; to play childishly; to turn over and over.

"I saw him *fumble* with the sheets."—*Shaks.*

—*v. a.* To manage awkwardly.

Fum'bler, *n.* One who gropes or manages awkwardly.

Fum'bling, *p. a.* Groping; managing awkwardly.

Fum'blingly, *adv.* In an awkward manner.

Fume, *n.* [Fr. *fumée;* Lat. *fumus,* smoke.] Vapor from combustion, as from burning wood or tobacco; volatile matter ascending in a dense body: exhalation from the stomach, as of liquor. — Rage; heat, as of passion. — Idle conceit; vain imagination.

"All that may seem to have a shew of *fumes* and fancies."—*Bacon.*

—*v. n.* To throw off vapor, as in combustion; to yield vapor or visible exhalations; to pass off in vapors. — To be in a rage; to be hot with anger.

—*v. a.* To dry in smoke; to fumigate; to perfume; to disperse or drive away in vapors.

"She *fum'd* the temples with an od'rous flame."—*Dryden.*

Fume'less, *a.* Void of fume.

Fu'met, *n.* [Lat. *fimus,* dung.] The dung of the deer.

Fu'met, Fumette', *n.* [Fr., odor, fume of wine or meat.] The stench of meat when over-long kept.

Fu'mid, *a.* [Lat. *fumidus,* from *fumus,* smoke.] Vaporous; smoky.

"A crass and *fumid* exhalation."—*Browne.*

Fumid'ity, Fu'midness, *n.* Smokiness; tendency to smoke.

Fumif'erous, *a.* [Lat. *fumus,* smoke, and *ferre,* to bear.] Smoke-producing.

Fumif'ugist, *n.* [Fr. *fumifuge;* Lat. *fumus,* smoke, and *fugare,* to drive away, to dissipate.] Whoever, or whatever, dissipates smoke or fumes.

Fu'migate, *v. a.* [Fr. *fumiger;* Lat. *fumigare* — *fumus,* smoke, and *agere,* to drive.] To perfume.

"With fragrant thyme, that city *fumigate."*—*Dryden.*



Robert Fulton

1765–1815

—To apply smoke to: to expose to smoke or gas; to purify from infection, &c.; to medicate or heal by vapors.

Fumiga'tion, *n.* [L.Lat. *fumigatio.*] (*Hygiene.*) A process by which the foul gases or impure air of a room are disinfected or purified. Any substance burnt, or generated by heat, fume, or smoke, is a *F.;* in this manner the burning of incense, pastils, the vapors of vinegar given off by a hot shovel, the igniting of feathers or brown paper,—each and all belong to the class of what are called agents of fumigation. Such things, however, in general only overpower a previous odor by another more potent or unwholesome than the first, and are, consequently, less perfect than those agents which decompose the gases on which the noxious smell depends. See DISINFECTANTS.

Fu'mily, *adv.* In a smoky manner.

Fu'ming, *p. a.* Emitting vapors; as, a *fuming* dunghill.—Raging; as, to be in a *fuming* passion.

F. liquors. (*Chem.*) Certain compounds which exhale visible fumes, or in common language *smoke*, when exposed to air, were so called by the old chemists. *Boyle's fuming liquor* is sulphuret of ammonium; *Cadet's fuming liquor* is an arsenical compound, now termed *oxide of kakodyle;* the *fuming liquor of Libavius* is the anhydrous bichloride of tin.

Fu'mingly, *adv.* In a rage; angrily.

Fu'mishness, *n.* Anger; rage; vexation; passion.

Fu'miter, FU'MITORY, *n.* Same as FUMATORY, *q. v.*

Fum'mel, *n.* The offspring of a stallion and a she-ass; a hinny or mule.

Fumos'ity, *n.* The state of being fumid.

Fu'mous, FU'MY, *a.* [Fr. *fumeux;* Lat. *fumosus.*] Producing fumes; vaporous.

"And puffed the *fumy* god from out his breast."—*Dryden.*

Fun, *n.* [A. S. *fean, gefean,* joys, pleasures, *pl.* of *fea, gefea,* from *fegan, fagan,* to be glad.] Sport; the perception or enjoyment of drollery and oddity; frolic; mirthful drollery; merriment. (Colloq.)

"Don't mind me, though, for all my *fun* and jokes,
You bards may find us bloods, good-natur'd folks."—*More.*

Funam'bulate, *v. n.* [Lat. *funis,* a rope, and *ambulo,* to walk.] To walk on a rope.

Funambula'tion, *n.* The act of walking a rope.

Funam'bulatory, *a.* Pertaining to the act of walking a rope.

Funam'bulo, Funambulus, *n.* [See SUPRA.] One who walks or dances upon a rope.

Funchal, (*foon'shal,*) the capital and seaport of the island of Madeira, situated in the centre of a large bay on the S. coast; Lat. 32° 7′ N., Lon. 16° 54′ W. It is irregularly built; the streets are narrow, winding, ill-paved, and dirty. An old castle, which commands the roads,

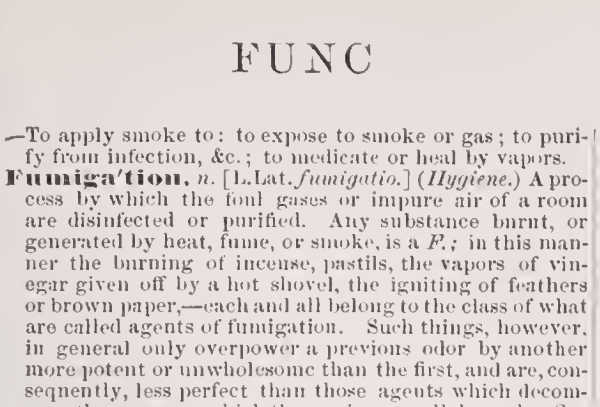


Fig. 1088.—FUNCHAL.

stands on the top of a steep, black rock, called *Loo Rock,* surrounded by the sea at high water. The entire produce of the island, consisting mostly of wine and sweetmeats, is exported from *F. Pop.* 20,000, among whom are many English, French, Portuguese, and mulatto and negro freedmen.—See MADEIRA.

Function, (*funk'shon,*) *n.* [Fr. *fonction*: Lat. *functio,* from *fungi,* to perform, to accomplish.] Discharge; performance; execution.

"A commoner in the *function* of his public calling."—*Swift.*

—Office or employment; duty; business: charge; post; place.

"The double *function* of the goddess."—*Addison.*

—Power or faculty, animal or intellectual.

"The common *functions* of life."—*Arbuthnot.*

(*Physiol.*) The proper office of any organ in the animal or vegetable economy. Thus the function of the lachrymal gland is to secrete tears; of the liver, to secrete bile; of the stomach, gastric juice, the fluid to digest the food. The three most important of all the functions, as those of the heart, lungs, and brain, are called the vital functions, from being necessary for the support of the living body.

(*Math.*) One quantity is said to be a *F.* of another, or of several others, when its value depends upon those of the latter. Thus the area of a triangle is a *F.* of its 3 sides, and $y = a + bx + cx^2$ is a *F.* of $a, b, c,$ and x. Functions receive distinctive names according to the *nature* of the dependence above referred to. Thus the *F.* above written is said to be an *algebraical F.* of x, since y is obtainable from x by the performance of a limited and definite number of algebraical operations. Log x, sin x, a^x, on the other hand, are said to be *transcendental* functions of x, and for obvious reasons receive the distinctive names of *logarithmic, trigonometrical,* and *exponential* functions.

Func'tional, *a.* Relating to some office or function; official.

—Performed by the functions, as of animal or vegetable bodies.

Func'tionalize, *v. a.* To assign to some duty or office.

Func'tionally, *adv.* By means of the functions.

Func'tionary, *n.* [Fr. *fonctionnaire.*] One who discharges any duty or service; one who holds a public office of trust.

Fund, *n.* [Fr. *fond;* It. *fondo;* Lat. *fundus,* ground, bottom, foundation,—allied to Lat. *funda,* a sling, a casting-net, a money-purse, and Gr. *sphendone,* a bandage.] A stock or capital. "He performs all this out of his own *fund.*" (*Dryden.*)—Money lent to government, constituting the stock of a national debt, for which interest is paid; (mostly in the plural;) as, the *funds* have fallen.—Money or income destined to the payment of the interest of a public debt, or for the support of some permanent object.—Abundance; ample stock or store.

Funds, (*Public.*) See NATIONAL DEBT.

—*v. a.* To provide and appropriate a fund for paying the interest of, as a debt.—To place, as money in a fund.

Fund'able, *a.* That may be converted into a fund, or interest-bearing investment.

Fun'dament, *n.* [Fr. *fondement;* Lat. *fundamentum,* from *fundare,* to found, from *fundus,* the bottom.] The seat; the lower part of the body, or its aperture; the anus.

Fundament'al, *a.* [Fr. *fondamental.* See above.] Serving for the foundation; essential; important: necessary; primary; leading; as, a *fundamental* cause, *fundamental* laws.

(*Mus.*) A term applicable to either a chord or to a note: to the former, when its lowest component part is the note on which the harmony is founded; and to the latter, when it is both the lowest constituent part of a chord and the note from which the harmony is really and nominally derived.

—*n.* A leading or primary principle, rule, law, or article, which serves as the groundwork of a system; an essential; as, the *fundamentals* of faith.

"Men who agree in all *fundamentals.*"—*Swift.*

Fundamen'tally, *adv.* Primarily; originally; essentially; at the foundation.

Fund'ed, *p. a.* Placed in the public funds; as, *funded* property.—Furnished with funds for the regular payment of the interest of; as, a *funded* debt.

Fund'holder, *n.* One who has property invested in public securities.

Fun'di, or FUNDUNGI, *n.* (*Bot.*) See RASPALUM.

Fund'ing, *p. a.* Providing funds for payment of the interest upon; as, a *funding* system.—Investing in public securities.

F. system. (*Pol. Economy.*) See NATIONAL DEBT.

Fund'less, *a.* Destitute of funds.

Fun'dus, *n.* [Lat., a basis.] (*Anat.*) The base of any cone-shaped organ.

Fun'dy, (Bay of,) an arm of the Atlantic Ocean between Nova Scotia and New Brunswick. It is abt. 170 m. long, and from 30 to 50 m. wide. Opening into it are Chignecto Bay and Mines Channel at the N. extremity, and Passamaquoddy Bay near its mouth. It receives the St. John and St. Croix rivers, and though very deep, navigation is dangerous. The tide rises here to the height of 71 ft., rushing with great and dangerous rapidity.

Fünen, [Dan. *Fyen,*] an island of the Danish archipelago, separated from Jütland by the strait called Little Belt; Lat. bet. 55° 1′ and 55° 38′ N., Lon. bet. 9° 44′ and 10° 53′ E. *Area,* 1,123 sq. m. Its shores are deeply indented; its interior is undulating, and there are numerous lakes, streams, and marshes. The soil is productive. *Products* are corn, flax, hemp, and fruit. *Exp.* Corn, cattle, horses, honey, fruit, lard, butter, leather. It trades principally with Sweden and Norway. It forms with other islands a prov. of Denmark, *q. v.* Its chief towns are Odensee, the cap., Svendborg, and Nyeborg. *Pop.* 200,000.

Fu'neral, *n.* [Fr. *funérailles;* L. Lat. *funeralia,* ceremonies observed at an interment, from *funus, funeris,* the procession formed to escort the corpse to the tomb, from *funale,* a wax-torch, from *funis,* a rope,—torches or links being made of rope with wax or resin about it. These were necessary, the funerals among the ancient Romans being observed at night.] The solemnization of a burial; a funeral procession: burial: interment; the ceremony of burying a dead body; obsequies; as, to see a *funeral* pass by.—See SEPULTURE.

—*a.* Used at the interment of the dead; as, *funeral* rites.

Fune'real, *a.* Pertaining to burial; as, a *funereal* procession.

—Dark; dismal; mournful. "*Funereal* tapers."—*Longfellow.*

Fune'really, *adv.* Dismally; darkly: mournfully.

Fu'nest, *a.* [Lat. *funestus,* from *funus.* See above.] Dreadful; lamentable; direful.

Fünfkirchen, (*foonf'keer-shen,*) a town of Hungary, between the Drave and the Danube, 140 m. from Belgrade. Its cathedral is the oldest religious edifice in Hungary, and occupies the site of a Roman fortress. It has manufactures, and considerable trade in wine, tobacco, and gall-nuts. It has warm mineral baths, and about 7 m. distant from it is a remarkable stalactitic cavern.

Fungales, *n. pl.* (*Bot.*) An alliance of plants, class *Thallogens,* corresponding to the Fungi of de Jussien, and distinguished at certain points from the sea-weeds more by habit than by general character. They agree with them in their cellular structure and the almost constant absence of vascular tissue; while they differ, according to our best authorities, in their scarcely ever being aquatic, in deriving nutriment from the substance on which they grow, and in the far lower degree of development of the organs of impregnation. They are also nearly allied to the *Lichens,* the latter being distinguished by producing gonidia and by deriving their nourishment from the air and not from the matrix on which they grow.—The *F.,* observes Berkeley, may be recognized either as the creatures of corruption—*i. e.* springing from various bodies, whether animal or vegetable, in a more or less advanced stage of decomposition—or as parasites of living bodies, producing an injurious change. The ephemeral toadstools of the hot-bed, the mushrooms of our rich pastures, the sap-balls on decaying trees, the moulds which infest our food, and even the tissues of living animals, the mildew blunt and smut of our corn crops, with many other more or less familiar objects, are so many *fungals,* all agreeing in the main particulars which we have indicated; and so differing from the green scum of our brooks, and the weeds of the sea, though distinguished from each other by essential differences of structure. In some, no indications of sexual differences have been found, while in others there are bodies which in all probability have an especial sexual function, though at present we are without actual proof of the fact. *F.* are divided into two great sections, characterized by the mode in which the reproductive bodies are formed. In the one, they are simply the terminal joint or joints of the component threads or cells, altered in form from those which precede them, and at length falling off and reproducing the plant, in which case they are called *spores.* In the other they are formed from the contents of certain sacs or asci, and are usually definite in number, in which case they are called *sporidia.* Both spores and sporidia may be multicellular, and in germination give rise to as many threads of spawn as there are cells. These curious plants are ranged in six principal divisions, variously regarded as natural orders, or tribes, namely: HYMENOMYCETES, *q. v.*, of which mushrooms and sap-balls are well-known examples; *Gasteromycetes,* or LYCOPERDACEÆ, *q. v.*, represented by the puff-balls; *Coniomycetes,* or UREDINACEÆ, *q. v.*, of which the rust and blunt of corn afford ready instances; HYPHOMYCETES, *q. v.*, to which belong the naked-seeded moulds; ASCOMYCETES, *q. v.*, of which morels and the truffle are examples; and PHYSOMYCETES, *q. v.*, represented by the common bread-mould.—The use of *Fungi* in the organized world is to check exuberant growth, to facilitate decomposition, to regulate the balance of the component elements of the atmosphere, to promote fertility, and to nourish myriads of the smaller members of the animal kingdom. They occur in every part of the world where the cold is not too intense to destroy their spawn, or where there is sufficient moisture, though they abound the most in moist temperate regions. A vast number of species are known, and many of these are of great importance to man, either from their useful or their mischievous properties. The mushroom (see AGARICUS), truffle, and morel, delicacies well known at table, and the ergot, so useful in obstetric practice, are illustrations of the former; the fly agaric and other poisonous species, as well as blight, mildew, rust, and brand, and the merulius and others which induce dry rot, are examples of the latter.

Fun'gia, *n.* (*Zoöl.*) A genus of Polypes, of which there are several species, both recent and fossil, principally from the Indian seas. They belong to the *Madrephyllina* of De Blainville, and consist of animals in nearly the lowest state of organization; for, although they are universally allowed to be animals, they are completely without the power of motion, consisting simply of a living gelatinous film, which is endowed with the capability of constructing for itself a stony support or framework, derived from the surrounding water. In form it is generally orbicular or oval; mouth superior, transverse in a large disc, which is covered by many thick cirriform tentacula; and the disc is solidified internally by a calcareous solid *polyparium,* of a simple figure.



Fig. 1089.
THICK-TENTACLED FUNGIA.
(*Fungia crassitentacula.*)

Fun'gible, *n.* [L. Lat. *res fungibilis,* from *fungi,* to perform, and *res,* a thing]. (*Civil Law.*) A term applied to things that are consumed by their use, as wine, oil, &c.; the loan of which is subject to certain rules, and governed by the contrast called *mutuum.*

Fun'gic Acid, *n.* (*Chem.*) An acid contained in the juice of most fungi. It is said to be a mixture of citric, malic, and phosphoric acid.

Fun'giform, *a.* (*Bot.*) Mushroom-headed,—applied to any bodies having a short thick figure, one end of which is much more dilated than the other.

Fun'gine, *n.* (*Chem.*) The fleshy part of mushrooms purified by digestion in hot water.

Fun'gite, *n.* (*Bot.*) A sort of fossil coral.

Fungiv'orous, *a.* [Fr. *fungivore;* Lat. *fungivorus,* from *fungus,* a mushroom, and *vorare,* to devour.] Feeding on mushrooms.

Fun'goid, *a.* [Lat. *fungus,* and Gr. *eidos,* shape.] Looking like a mushroom; shaped like a fungus.

Fungos'ity, *n.* [Fr. *fungosité.*] The quality of being fungous, soft, insubstantial, or non-endurable, like a mushroom; unsolid excrescence.

Fun'gous, *a.* [Lat. *fungosus,* from *fungus,* a mushroom.] Excrescent; spongy; soft; growing suddenly, but not substantial or durable; as, the *fungous* lips of a wound.

Fun'gus, *n.; pl.* FUNGI, FUNGUSES. [Lat., allied to Gr. *sponggos*, a sponge.] (*Bot.*) One of the *Fungi*, or FUNGALES, *q. v.*

(*Surg.*) A term applied with several significations. Thus, any excrescence from a surface of skin, or mucous membrane, or even from deeper parts, is sometimes called a fungus, more especially if it have a soft, mushroom-like character, and a broad short pedicle. When the pedicle is long and narrow, it is called *polypus*. The growths to which the term fungus is chiefly applied are those which have the characters of *cancer;* especially *fungus hæmatodes*, a very dangerous variety. But fungus has yet another application in pathology, to those minute incrustations and alterations of the skin which are dependent upon the growth of vegetable parasites.

Fun'gus Melitен'sis, *n.* [Lat.] (*Med.*) The name used by the pharmacologists to designate a parasitic plant which formerly had a great reputation as a styptic. Its botanical name is *Cynomorium coccineum*, and it belongs to the order *Balanophoraceæ*.

Fu'nicle, *n.* [Lat. *funiculus*, dim. of *funis*, a rope.] A small cord: a small ligature; a fibre.

(*Bot.*) The stalk by which the ovule or the seed is attached to the placenta. When this stalk is absent, the seed is said to be sessile. — See OVULE, SEED.

Funic'ular, *a.* [Fr. *funiculaire.* See *supra.*] Consisting of a small cord or fibre, or of an assemblage of ropes.
—Resulting from the tension of a cord.

Funic'ulate, *a.* Forming a sharp, narrow ridge.

Funil'iform, *a.* [Lat. *funis*, a rope, and *forma*, shape.] (*Bot.*) Of a cord-like toughness and flexibility, as certain roots of trees.

Fu'nis-umbi'licus, *n.* [Lat.] (*Anat.*) The navel-string; the cord: that congeries of vessels, of artery, vein, nerve, and lymphatic, which the placenta throws out, and from the extremity of which the child, or fœtus, is developed. The connecting link of nutrition and life between mother and embryo, and which on the birth of the child — a new circulation being established by the lungs — is tied and cut.

Funk, *n.* [Ger. *funken*, a spark; Icel. *fûki*, rottenness. *fûna*, to grow rotten.] A stink; a stench. (Vulgar.)

Funk, Funk'ing, *n.* Great fear accompanied by bodily manifestations thereof. (A word originating and still used at the English public schools.)

Funk, *v. a.* To infect with a stink or stench. (Vulgar.)
—*v. n.* To emit or expose a stench or stink. (Vulgar.)
—To be in great bodily or mental fear; to shrink from anything.

Funk'ite, *n.* (*Min.*) A dark, olive-green coccolite (*q. v.*) from Boksäter in Gothland.

Funk's Grove, in *Illinois*, a township of McLean co., about 11 m. S.W. of Bloomington.

Funks'town, in *Maryland*, a post-village of Washington co., on Antietam Creek, about 77 m. N.W. of Annapolis.

Funks'town, in *Pennsylvania*, a village of Franklin co., about 10 m. S.E. of Chambersburg.

Fun'nel, *n.* [Lat. *infundibulum*, from *in*, and *fundere*, to pour. Cf. W. *ffynel*, an air-hole, a chimney.] A vessel or utensil for conveying liquids into close vessels; a tunnel. The shaft or hollow channel of a chimney through which smoke ascends. (Called also *smoke-stack.*)

(*Naut.*) The chimney for carrying the smoke from the furnace to a convenient height above the deck, and at the same time the channel for securing a draught for the flues. It is ordinarily of thin iron, and of considerable diameter. They are generally made telescopic, so that when no great draught is necessary, they can be drawn beyond the reach of wind or shot.

Fun'nel-form, *a.* (*Bot.*) Applied to the calyx, corolla, or other organ, when their tube is like a funnel or inverted cone.

Fun'nily, *adv.* In a droll or comical manner.

Fun'ny, *a.* [From FUN, *q. v.*] Droll; comical; ridiculous; ludicrous; mirthful.

Fun'ny Louis, in *Louisiana*, now CENTERVILLE, a village of Catahoula parish.

Funs'touville, in *Pennsylvania*, a village of Lycoming co., on Little Muncy creek, about 60 m. N. of Harrisburg. For many years past has been called LAIRDSVILLE.

Fu'or, *n.* (*Carpentry.*) A piece nailed upon a rafter to strengthen it when decayed.

Fur, *n.* [Fr. *fourrure*, lining; L. Lat. *furra;* Ger. *futter.*] The coated skins of wild animals, especially of those of high northern latitudes; such as the wolf, bear, beaver, &c. The hair of fur is cleansed, and the skin is generally slightly tanned. The most valuable furs, such as ermine and sable, come chiefly from Russia. When unprepared, or merely dried, the fur-skins go under the name of *peltry.* — See FURRIERY.

(*Her.*) Shields being often covered with the skins of wild animals, on which the fur was left, there came to be certain kinds of fur which were used in coat-armor, as well as in trimming and lining the robes of knights and nobles, and the mantles which were represented as surrounding their shields. The principal heraldic furs are: 1. *Ermine* and *erminois* (see ERMINE). 2. *Vair*,



Potent. Counter-vair. Vair.

Fig. 1090. — FURS.

(Fig. 1090,) which consisted of pieces of the shape of little glass pots, (Fr. *verres*, of which the word is a corrupt spelling.) It is said that the furriers used such glasses to whiten furs in, and because they were commonly of an azure (blue) color, the fur in question came to be blazoned *argent* and *azure;* whilst *counter-vair*, in which the cups are represented as placed base against base, in place of edge to base, as in vair, was *or* and *azure.* 3. *Potent* and *counter-potent*, which are supposed to resemble the heads of crutches, placed differently, but having the same tinctures — viz., azure and argent.

(*Chem.*) The term applied to the incrustation which is formed in the interior of vessels (tea-kettles, boilers of steam-engines, &c.,) when calcareous water has been for a considerable time boiled in them. Many spring-waters contain carbonate of lime held in solution by carbonic acid. When this water is boiled, the acid is expelled, and the carbonate is deposited, often in association with a little sulphate, forming a lining more or less coherent upon the sides of the vessel. In steam-boilers this may be prevented by the addition of a small quantity of sal-ammoniac (hydrochlorate of ammonia) to the water; double decomposition takes place, carbonate of ammonia being formed and volatilized, while chloride of calcium remains in solution.
—A coating of morbid matter collected on the tongue in persons affected with fever.
—The downy covering on the skin of certain fruits, as a peach, &c.
—*a.* Pertaining to, or made of, fur.
—*v. a.* To line, face, or cover with fur.
—To cover with morbid matter, as the tongue.

(*Arch.*) To nail slips of wood to joists, rafters, &c., to bring them to an even surface, as for lathing.

Fur'below, *n.* [Fr. *falbala;* Sp. and Pg. *faibalá;* Ger. *fald-plat, falbel.*] A piece of stuff plaited or puckered on a gown or petticoat; a flounce; the plaited border of a petticoat or gown.

"To change a flounce, or add a *furbelow*."—*Pope.*

—*v. a.* To put a furbelow upon; to adorn with ornamental appendages of dress, or speech.

"And *furbelow* the plain discourse."—*Prior.*

Fur'bish, *v. a.* [Fr. *fourbir*, allied to Lat. *purus*, clean, and Eng. *rub.*] To rub or scour to brightness; to polish; to burnish; as, to *furbish* a spear or sword.

Fur'bisher, *n.* [Fr. *fourbisseur.*] One who polishes or makes bright by rubbing; one who cleans.

Fur'cate, Fur'cated, *a.* [L. Lat. *furcatus*, from *furca*, a fork.] Forked; branching like the prongs of a fork.

Furca'tion, *n.* A forking; a branching like the tines of a fork.

Furciferous, *a.* [Lat. *furcifer*, a yoke-bearer, a knave, a scoundrel, from *furca*, a fork, a partially split stick, and *ferre*, to bear.] Culprits among the ancient Romans were frequently punished by having the neck inserted in a forked piece of wood, while the hands were fastened to both ends or prongs.] Scoundrelly; knavish; rascally.

Fur'cula, *n.* [Lat. dim. of *furca*, a fork.] (*Anat.*) The clavicle.

Fur'cular, *a.* Furcate; branching like the tines of a fork.

Fureedpoor, (*foo-reed-poor'*,) or FURIDPUR, a town and dist. of British India, pres. Bengal; Lat. between 23° and 24° N., Lon. bet. 89° 30′ and 90° 15′ E. Its surface is low, barely rising above the level of the sea, and intersected by numerous branches or feeders of the Ganges. *Area* of dist. 2,052 sq. m.

Fur'fur, *n.* [Lat., bran.] Scurf or dandruff that grows upon the skin, more especially on the head, with some likeness to bran.

Furfura'ceous, *a.* [Lat. *furfuraceus*, from *furfur*, bran.] Scaly; branny; scurfy.

(*Med.*) Applied to certain eruptions in which the cuticle peels off in scales; also to a bran-like sediment which is sometimes observed in the urine.

Furfu'ramide, *n.* (*Chem.*) A whitish, crystalline, insoluble substance formed by the action of ammonia on furfurole.

Furfura'tion, *n.* The falling of dandruff from the head.

Fur'furine, *n.* (*Chem.*) A substance formed by boiling furfuramide with potash. It appears in white, silky needles, and is a powerful base, forming, with acids, a series of beautiful salts. It is isomeric with furfuramide.

Fur'furole, *n.* [Lat. *furfur*, bran.] (*Chem.*) A pale yellow oily substance with the odor of bitter almonds, slightly soluble in water, and becoming brown on exposure to the air. It accompanies the formic acid made by distilling starchy matters with binoxide of manganese and sulphuric acid, but is prepared in quantity by distilling the bran with half its weight of dilute sulphuric acid, and forcing a current of steam through the mixture. The *F.* distils over with water. *Form.* $C_{10}H_4O_4$. It is also called *oil of ants.*

Fur'furous, *a.* [Lat. *furfur*, bran.] Made or composed of bran. "*Furfurous* bread."—*Sydney Smith.*

Furibun'dal, *a.* [Lat. *furibundus*, from *furia*, rage, and *abundare*, to abound.] Full of rage.

Fu'ries, *n. pl.* [Lat. *Furiæ.*] (*Myth.*) The three daughters of Nox and Achero, or of Pluto and Proserpine, also called the *Eumenides.* Sometimes they were represented young and beautiful, with or without serpents twining about their heads. These avenging deities of the ancients were called *Alecto, Megara*, and *Tisiphone*, to which some add *Nemesis.* They were supposed to be the ministers of the gods, to execute their irrevocable decrees; hence their stern aspect and inexorable will. Their sphere of action was consequently both in the infernal regions, to punish condemned souls, and on the earth, to rack the guilty conscience and chastise by mental torments. The most usual mode of typifying the Furies was by giving them a grim and frightful aspect, black and bloody garments, serpents, instead of hair, twining round their heads, with a burning torch in one hand and a whip of scorpious in the other, and always attended by Terror, Paleness, Rage, and Death.

Furi'ua. (*Myth.*) The goddess of robbers, worshipped at Rome. Some say that she is the same as the Furies. Her festivals were called *Furineia.*

Furios'ity, *n.* [Lat. *furiositas.*] The state of being in a rage, or of being stark mad.

Furio'so, *adv.* [It.] (*Mus.*) Vehemently.

Fu'rious, *a.* [Fr. *furieux;* Lat. *furiosus*, from *furere*, to rage, *furia*, violent passion.] Raging; fierce; violent; transported with passion. — Impetuous; vehement; as, a *furious* tide. — Frantic; frenzied.

"The actions of *furious* men and idiots."—*Hooker.*

Fu'riously, *adv.* With impetuous motion or agitation; violently; vehemently.

Fu'riousness, *n.* Impetuous motion or rushing; violent agitation. — Madness; frenzy; rage.

Furl, *v. a.* [Fr. *ferler, freler* — allied to Eng. *furdle;* Ger. *fardel.*] (*Naut.*) To roll the sail up and confine it closely to the yard; the sail being gathered up by the men on the yard, the leech or edge is passed along the yard to the middle or *bunt*, where the body of the sail, the foot and clews, are collected. In this way the sails of a man-of-war are removed nearly out of sight in an almost incredibly short space of time.

Fur'long, *n.* [A.S. *furlang*, from *fur*, a furrow, and *lang*, length.] A measure of length; the eighth part of a mile; forty poles or perches.

Furlough, (*fur'lo.*) *n.* [Dan. *forlov;* Dut. *verlof;* Ger. *verlaub, urlaub.*] (*Mil.*) Leave of absence from duty or service granted by a commanding officer to a non-commissioned officer or private of his command, for a limited time.
—*v. a.* (*Mil.*) To grant leave of absence for a limited time to a non-commissioned officer or private in the army.

Fur'nenty, *n.* Same as FRUMENTY, *q. v.*

Furnace, (*fur'ness,*) *n.* [Fr. *fourneau, fournaise;* It. *fornace;* Lat. *fornax*, from root *fer*, found in *furnus*, an oven, *fervere*, to be hot.] An apparatus to contain combustible matter, and supplied with air in various ways to facilitate its combustion. Furnaces are extensively used in manufactories where great heat is required for the reduction of ores, the working or fusion of metals, and for many other purposes. They, of course, vary greatly in size, shape, and construction, according to the purposes for which they are used. In glass-works, potteries, and similar manufactories, furnaces are required that give a steady heat, and a fire sufficiently large to keep a great quantity of material at a high temperature. In furnaces for steam-boilers, intensity of heat is not so much wanted as a great quantity for a rapid production of steam. For the smaller operations in chemistry a variety of furnaces are in use.

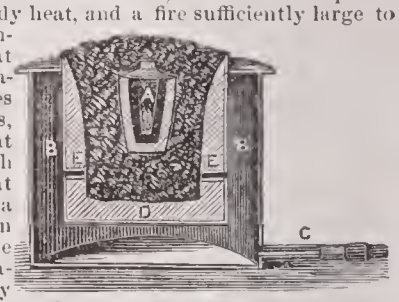


Fig. 1091. — SEFSTROM FURNACE.

Fig. 1091 represents a convenient one called the Sefstrom furnace, with which iron may be extracted from hæmatite. It consists of two iron cylinders with a space (B) between them, into which the air is forced through the tube (C) by a double-action bellows. The inner cylinder has a fire-clay lining (D), through which 4 or 6 copper tubes (E) admit the blast to the fuel. The fire-clay crucible (A) contains the substance to be heated, and imbedded in the fuel. For most purposes of the laboratory, however, various forms of gas-furnaces are in use, which in many respects are greatly to be preferred to any other kind. Furnaces are divided into two kinds, *air* or *wind furnaces*, and *blast furnaces.* In the former the air is conducted through the fire by the draft of a funnel or chimney, and in the latter the action of bellows, fans, or some other pneumatic apparatus supplies the air. In all ordinary furnaces a large amount of heat is wasted in the current of heated products escaping from the chimney. A portion of this heat is necessary for the draft, and in boiler-furnaces it is found that the temperature of the air escaping from the chimney must not be less than from 500° to 600° F. In practice it is found that twice as much air must be supplied as is necessary for combustion in order to effect the removal of the products of combustion with sufficient rapidity. See BLAST *F.*, PUDDLING *F.*, REVERBERATORY *F.*

Fur'nace, in *Maryland*, a post-office of Harford co.

Furnace, in *Massachusetts*, a village of Worcester co.

Fur'nace Creek, in *Pennsylvania*, enters the Clarion River in Elk co.

Furnace Hollow, in *Connecticut.* See STAFFORD.

Fur'nace Village, in *Connecticut*, a village of Litchfield co., abt. 50 m. W.N.W. of Hartford.

Furneaux, (*foor'no,*) the name of a group of islands in Bass Strait, between Australia and Tasmania, discovered in 1773 by the English navigator Furneaux. The largest is Great Island, 35 m. long and 10 m. broad, Lat. 40° S., Lon. 148° E. — A single island in the Pacific Ocean, Lat. 17° S., Lon. 143° 6′ W.

Furneaux Strait, separates the middle and S. islands of the New Zealand chain.

Furnes, (*foorn,*) a town of Belgium in West Flanders, 4 m. from the sea, 15 m. from Ostend. Four important lines of canal meet at this town.

Fur'nish, *v. a.* [Fr. *fournir*, to provide, from Lat.

furnus, an oven, because by it bread is provided.] To supply or provide with anything wanted or necessary. — To supply; to store, as with knowledge. — To equip; to fit up, as a house, with furniture. — To fit for an expeditiou; to equip, as an army, a fleet, etc.

Fur'nished, *p. a.* Supplied; garnished; fitted with necessaries.

Fur'nisher, *n.* [Fr. *fournisseur.*] One who supplies or fits out.

Fur'niture, *n.* [Fr. *fourniture.* See FURNISH.] Goods, vessels, utensils, and other appendages, necessary or convenient for house-keeping; chattels; movables; effects. — The necessary appendages to various employmeuts or arts; as, the *furniture* of a printing-press. — Appendages; equipage; as, horse-*furniture*, table-*furniture*. — Ornaments; decorations.

"See the barge be ready,
And fit it with such *furniture* as suits." — *Shaks.*

(*Mus.*) An organ-stop or register, consisting of two or more ranks of pipes to each note, all of a higher pitch than the 15th stop.

Fur'nius, a friend of Horace, who was consul, and distinguished himself by his elegant historical writings.

Fu'ror, Furo're, *n.* [Fr., from Lat. *furere*, to rage.] Fury; rage; madness; frenzy; enthusiasm.

Furred, *p. a.* Covered with fur.
—Thickened by the addition of strips of boards.

Fur'rier, *n.* A dealer in furs.
—One who dresses furs.

Fur'riery, *n.* Furs in general; the trade in furs; dressing of furs. — Fur, on accouut of its warmth, its durability, and its beauty, is well adapted for winter clothing. In cold climates men would naturally avail themselves of the warm covering with which nature had provided the animals around him; and before they had learned the manufacture of textile fabrics, the skins of beasts furnished a convenient and easily prepared material for clothing. We find, consequently, that, excepting the sin-confessing garments of fig-leaves, the first articles of clothing mentioned in the history of the race, are the coats of skins with which Adam and Eve were clothed on their expulsion from the garden, (Gen. iii. 21.) The Israelites used badgers' skins, and rams' skins dyed red, as hangings for the tabernacle, (*Ex.* xxxix. 34.) Ancient heroes among the Greeks and Romans are represented as clothed in skins, and though the Romans at a later date regarded skins as the clothiug of barbarous times and races, yet in the 2d or 3d century of the Christian æra, fur dresses appear to have been held in high estimation among them. There is frequent mention in ancient histories of the use of furs for clothing by various nations. The fur of the beaver, which animal was known as the Pontic dog, was in use in the 4th century; and the productiveness of Siberia in furs was the chief inducement to the Russians to make its conquest. In early times furs appear to have constituted the whole riches of some northern countries; they were the chief articles of export, taxes were paid in them, and they were the medium of exchange. Such is still the case among the Indians of our own territories. In the 11th century furs had become fashionable throughout Europe, and the practice was adopted of dyeing them, generally of a red color. In the time of Louis IX. of France the use of furs was carried to a great pitch of extravagance, and it is said that 746 ermines were required for the lining of one of his surcoats. The use of the choicer furs, as the ermine, &c., was restricted to the royal families and the nobility, and served as badges of rank. In 1337 the use of furs had become common in England. Edward III. prohibited their use to those who were not able to expend £100 per annum. In the 16th century a fur-trade was opened between the English and Russians, but Queen Elizabeth prohibited the wearing of foreign furs, and the trade was abandoned. The collection of furs early engaged the attention of the first settlers of the northern provinces of our own country. For trifling compensation the Indians were induced to part with their stores of furs, and stimulated to exertion in the chase. The French themselves became expert hunters and explorers. Forts were established in the Indian territory to control and protect the trade, and the one at Mackinaw soon became an important central point. The importance of the trade soon engaged the attention of influential parties connected with the English government. In 1670 a charter of incorporation was granted by Charles II. to Prince Rupert, the Duke of Albemarle, and others, giving them possession of the unoccupied territory within the entrance of Hudson's Straits. This was the origin of the Hudson's Bay Company, and their charter gave them the monopoly of all the trade in those regions. The Company claimed the entire territory north of a line from Hudson's Bay west to the Pacific, excepting the portions occupied by the Russians and French, and were soon in successful and vigorous operation. Notwithstanding the persistent opposition of the French and others, who resisted their claims, they continued to prosper, their forts were extended into the interior, and their power throughout their territory was supreme. In the latter part of last century, a new company was organized of Canadian merchants, under the name of the North West Company, with their head-quarters at Montreal. They extended their operations west to the rivers that flow to the Pacific, and erected forts or factories there about the year 1805. This company became a formidable rival of the Hudson's Bay Company in the fur-trade. They acquired possession of Astoria, at the mouth of the Columbia River, in 1813. In 1821 the two companies were united in one, under the name of the Hudson's Bay Co. In 1855 their capital of $2,000,000 yielded a profit of about 6 per cent. Their great sales of furs take place in London in March and September of each year. Leipsic is a famous mart in this trade, and a great annual sale is held there. The prosecution of the fur-trade led to the early settlement of the western territories of the U. S. In 1762 a company was formed at New Orleans, which, in 1763, founded an establishment on the site of St. Louis, and gave it the name it now bears. It soon became a place of importance in the trade. The fur-traders explored the vast regions lying west of the Mississippi, and no obstacles or dangers were sufficient to long check their enterprise. Their furs, collected from the most distant sources, were run in canoes down the rapids of the streams, and when necessary packed upon men's backs for transportation around falls and shoals. At New Orleans they were exchanged for groceries, or at Mackinaw for English goods, — but little money being seen in the transactions. In 1804 the average annual value of furs collected at St. Louis, for the 15 preceding years, was $203,750. The number of deer-skins was 158,000; bear, 5,100; otter, 8,000; beaver, 36,900 lbs. Of the buffalo, which is now the most important, only 850. In 1808 the Missouri Fur Company was established in St. Louis, and by them the first post was established on the Columbia River. This Company was dissolved in 1812. For 40 years, down to 1847, the annual value of the fur-trade to St. Louis is estimated to have been from $200,000 to $300,000; but its importance to the country at large in developing the western territories was much greater. In 1784 John Jacob Astor embarked in the fur-trade. He first purchased furs in Montreal, but in 1808 he obtained a charter from the N. Y. legislature for the American Fur Co., founded with a capital of $1,000,000. In 1811 this corporation was merged in the South West Company. In 1810 Mr. Astor was associated with the Pacific Fur Company, and an expedition was sent out by sea to the mouth of the Columbia, and another across the continent to the same point. Similar expeditions were to be sent each year, Mr. Astor bearing the expense, and his associates who devoted themselves to the enterprise receiving half the profits. Misfortunes attended the enterprise, and in 1813 his principal Canadian partner treacherously disposed of the property and settlement on the Pacific coast to the North West Company. Mr. Astor's operations were, after this, confined to the country east of the Rocky Mountains, his principal establishment being at Mackinaw. Up to 1848 the fur-trade of Minnesota was its principal business. In 1856 the value of skins exported from St. Paul was $97,253.56. It has greatly increased since, and St. Paul is becoming a great outlet and depot for the fur-trade. The fur-trade of Alaska, transferred from Russia to the U. S. on the purchase of this region in 1867, owes its chief value to the fur-seals of the Pribyloff Islands, which were leased to the Alaska Company in 1870, the annual catch being limited to the number of 100,000. (For further details on this subject, see BERING SEA QUESTION.) There is no restriction on the hunting of other fur-bearing animals in Alaska, this being open to individual enterprise. The following are the animals whose skins are principally used for furs. The raccoon (*procyon lotor*) is found in America. The fur of the beaver (*castor Americanus*) was formerly prized in the manufacture of hats. Cheaper materials have been substituted, and the demand has nearly ceased. It is still used for collars and gantlets. The chinchilla (*chinchilla lanigira*), an animal between the squirrel and the rabbit, is found in S. American countries. The skins of the black bear (*ursus Americanus*), and the grizzly bear (*ursus horribilis*), are used for sleigh-robes, &c., and of the brown bear (*U. Isabellinus*), for articles of ladies' dress. The fisher is a N. American animal larger than the sable, with longer and fuller fur. Foxes, of which the most valuable is the black or silver. The lynx (*felis Canadensis* and *F. rufa*). The marten or sable; of these the most valuable is the crown or Russian, the skin of the *Mustela zibellina*, the use of which is monopolized by the imperial family of Russia. The Hudson Bay sable is considered another species (*M. Canadensis*). The pine marten (*M. abietum*), and the stone marten (*M. saxorum*), are European sables. The French excel in dyeing the latter, hence it is often known as French sable. The mink (*M. vison*) is found in N. America, and sometimes passed off for a real Russian sable. The ermine (*M. erminea*) is a small animal only 10 or 12 inches in length, resembling the common weasel. In the winter season its fur changes from a dingy brown to a pure white. It is found only in Russia, Sweden, and Norway. The lower part of the tail is jet black. Its use in some countries is restricted to the royal family. The musk-rat or musquash (*fiber zibethicus*); its fur is used principally by hatters. The otter (*Lutra vulgaris, L. Canadensis*) is found mostly in America. The sea-otter (*enhydra marina*), found in the N. Pacific Ocean, and many varieties of the seal (*phoca*), furnish useful furs. The squirrel (*sciurus vulgaris*) furnishes a vast amount of fur. It is estimated that Russia furnishes annually 23,000,000 skins. The fitch or European polecat (*mustela putorius*), the skunk (*meplutis Americana*), the glutton (*gulo luscus*), the rabbit, the hare, the badger, the cat, the black Astrakhan lamb, and many other animals, afford furs valuable for various purposes of use or ornament. Skins are commonly only dried in the sun or before the fire, before being sent to market; sometimes they are steeped in a solution of alum. They must be perfectly dry before packing, to prevent putrefaction. When stored, they must be protected from dampness, and frequently overhauled and packed with camphor to save them from injury by moths. To dress the finer furs, they are usually placed in tubs with rancid butter, and trampled upon by the feet. The bits of flesh are removed by rubbing with a strip of iron, and the grease removed by again trampling them with sawdust. The cutter then selects from a great number of skins parts of the same shades of color, so that when put together each article may present a uniform color. Furs for felting are cleansed of flesh, damped and pressed straight, and then sheared, by which operation the long coarse hair is cut off close to the fur. The fur is then cut off with broad knives. In the case of the fur of the beaver, it is cut with a machine, but most pelts are too uneven to permit its use. Skins taken in winter are known as *seasoned*, and are far superior in quality to those taken at other times, which are known as *unseasoned*. During the year ending June 30, 1896, the value of furs and dressed fur-skins received from foreign countries into the U. S. amounted to $9,303,398, while our exports were valued at 3,800,168. Most of the furs of commerce are collected from the U. S. and Canada. The chief fur market of the world is London.

Fur'ring, *n.* (*Carp.*) A term for slips of wood nailed to joists, rafters, &c., to bring them to an even surface by lathing, &c.

Fur'row, *n.* [A. S. *fur, furh, fyrh*; Ger. *furche*. Cf. Lat. *porca*, the ridge between two furrows, so called from its resemblance to the back of a sow.] A trench in the earth made by a plough.

"Then plows for seed the fruitful *furrows* broke." — *Dryden.*

—A long narrow trench or channel in wood or metal; a groove. — A hollow made by wrinkles in the face; as, the *furrows* of age.

—*v. a.* To cut a furrow; to make furrows in; to plough. — To make long, narrow channels or grooves in; to channel. — To wrinkle, as the face.

Fur'rowed, *p. a.* Cut in furrows; having longitudinal channels, grooves, or ridges.

Fur'rowy, *a.* Full of furrows; furrowed; as, the *furrowy* billows.

Furruckabad', ("Happy Residence,") a fortified town, and cap. of a dist., pres. Bengal, in Hindostan, abt. 1 m. from the Ganges; Lat. 27° 33′ N., Lon. 70° 33′ E. It is a neat, healthy place. *Pop.* 70,000. — The DISTRICT has an area of 1,909 sq. m. Products are principally cotton, tobacco, and indigo.

Fur'ry, *a.* Covered with fur; dressed in fur; as, a *furry* mantle.
—Consisting of fur or skins.

"To seize their *furry* spoils." — *Dryden.*

Fürst, WALTER, (*foorst,*) one of the founders of Swiss freedom and independence. Heading some brave men, he took and destroyed some forts belonging to the Austrians; which was the first step, in 1307, to the restoration of Switzerland as an independent nation. See TELL, and MELCHTHAL.

Fürst, DR. JULIUS, a learned Judaistic author, b. in Posen, 1805. Belonging to a Jewish family, he is one of the best read men of the present day in Hebrew and Rabbinical lore, as well as a proficient in Gentile classical literature. *F.* is Professor of Hebrew, Syriac, and Talmudical literature at Leipzig University, and has written many learned treatises on subjects connected with the religion, literature, and history of his people. His chief works are the magnificent *Hebrew Concordance* (thick fol., 1,428 pp.), and his *Biographical Dictionary of Eminent Hebrew Literati and Sarans.* Died in 1873.

Fürst'enberg, the name of several towns in Germany, none of them with a pop. above 2,500.

Fürst'enwalde, a town of Prussia, on the Spree, 30 m. S.E. of Berlin. *Manuf.* Woollens and linens, with an active river-trade.

Fürth, (*foort.*) a town of Bavaria, in Middle Franconia, on the Regnitz, 5 m. N.W. of Nuremberg. The town is irregularly built, but contains many good houses. It has numerous factories of glass, mirrors, chandeliers, and fancy articles.

Fur'ther, *a.* [A. S. *furthra*, comp. of *forth*, far. See FORTH.] More or most distant; farther; as, the *further* end of the lane. — Ulterior; additional.

"What *further* need of witnesses?" — *Matt.* xxvi. 65.

—*adv.* [A. S. *furthor.*] To a greater distance. — In addition; moreover.

—*v. a.* [A. S. *fyrdherian;* Ger. *fördern.*] To help forward; to promote; to advance onward; to forward; to help or assist.

"*Further* my design." — *Dryden.*

Fur'therance, *n.* A helping forward; promotion; advancement.

Fur'therer, *n.* One who helps to advance; a promoter.

Fur'thermore, *adv.* Moreover; besides; in addition to what has been said.

Fur'thermost, *a.* Most remote.

Fur'thest, *a.* [A. S. *fordhest; forthest,* sup. of *forth,* far.] Most advanced, either in time or place.
—*adv.* At the greatest distance.

Fur'tive, *a.* [Fr. *furtif;* Lat. *furtivus,* from *fur,* a thief.] Obtained by theft; stolen; sly; as, *furtive* glances.

Fur'tively, *adv.* By stealth; in a furtive manner.

Fu'runcle, *n.* [Lat. *furunculus,* dim. of *fur,* a thief. It is used also in the sense of a running sore or boil.] (*Med.*) An inflammatory tumor commonly known as a BOIL, *q. v.*

Fu'ry, *n.* [Lat. *furia,* most frequently *furiæ,* violent passion, from *furor,* a rage, from *furere,* to rage.] A violent rushing; an impetuous motion; as, the *fury* of the waves. — Rage; a storm of anger.

"I oppose my patience to his *fury*." — *Shaks.*

—Madness; frenzy. — Turbulence; fierceness; as, the *fury* of wild beasts. — Enthusiasm.

"Inspired with a divine *fury*." — *Sidney.*

(*Myth.*) One of the *Furies*, q. v. — Hence, a stormy, turbulent, and violent woman.

Fu'ry-and-Hec'la Strait, in British N. America, between Cockburn Island and Melville Peninsula, connecting Fox Channel with the Gulf of Boothia; Lat. 70° N., Lon. 85° W.

Fu'ry Point, on the W. coast of N. Somerset Island, in British N. America; Lat. 70° 40′ 30″ N., Lon. 91° 52′ W.

Furze, *n.* [A. S. *fyrs.*] (*Bot.*) See ULEX.

Furze'-chat, *n.* (*Zoöl.*) See SAXICOLA.

Fur'zeu, Fur'zy, *a.* Overgrown with furze; full of gorse.

Fusagasu'ga, a river of the Republic of Colombia, enters the Magdalena river, about 52 miles W.N.W. of Bogota.

Fusanus, (*fu-zai'nus.*) *n.* (*Bot.*) A genus of plants, order *Santalaceæ*. The species *F. acuminatus* yields the Quandang nut of Australia, an edible fruit resembling the almond in flavor.

Fu'sarole, *n.* [Fr., from It. *fusaruola*, a spindle, or the shaft of a column, dim. of *fuso*; Lat. *fusus*, a spindle.] (*Arch.*) A moulding or ornament placed immediately under the echinus in the Doric, Ionic, and Composite capitals: the shaft of a column, pilaster, or pillar, or that part comprehended between the shaft and the capital.

Fusca'tion, *n.* [Lat. *fuscatio*, from *fuscus*, dark, or dark-brown.] Act of blackening, darkening, obscuring, or rendering swarthy or dusky.

Fusci'ne, (*fus'sin*,) *n.* [Lat. *fuscus*, dusky.] (*Chem.*) A brown coloring-matter obtained from empyreumatic oils.

Fuscite, (*fus'site,*) *n.* [Fr. *fuscite*, from Lat. *fuscus*, dark.] (*Min.*) Same as WERNERITE, *q. v.*

Fuscobal'tia, *n.* (*Chem.*) See COBALT.

Fus'cous, *a.* [Lat. *fuscus*, dark.] Dark; swarthy; dusky; brown.

Fuse, (*fūze,*) *v. a.* [Lat. *fundere*, *fusum*, to pour out.] To liquefy by heat; to render fluid; to dissolve.

—*v. n.* To be reduced from a solid to a fluid state by heat.

—*n.* (*Gun.*) A case of wood or metal, containing an arrangement for igniting the bursting charge in a shell. For smooth-bored guns the fuse is ignited by the gas from the powder passing round the shell; but for rifled guns by a percussive arrangement, set in action by the shock of the discharge. The fuse fits into the fuse-hole of the shell, which is sometimes furnished with a socket or pouch.

Fused, *p. a.* Melted; liquefied.

Fusée, *n.* [Fr. *fusée*, a spindle-full, from *fuseau*, a spindle: Lat. *fusus.*] (*Horology.*) In watch-making, that part of the machinery about which the chain is wound, and which is immediately acted upon by the main-spring (Fig. 1092). The use of the fusee is to equalize the action of the spring. In proportion as the spring becomes unwound, its effort continually relaxes; so that if the first wheel were attached to the barrel, as is often the case in common watches, the inequality of the impelling power would produce a corresponding inequality in the rate of going. In order to correct this, one end of the chain is attached to and wound round the barrel in which the main-spring is contained; while the other end is coiled about the fusee, which has a conical shape, and is fixed on the axis of the first wheel. The principle generally adopted for determining the figure of a fusee is, that its radius, at any point to which the chain is a tangent, should be inversely as the tension of the chain in that position. Within certain limits this is nearly true; and if we assume with Hooke that the force of a spring is proportional to the distance to which it is drawn from the position of rest, and also lay aside all consideration of the length of the chain wrapt about the fusee, it would be easy to show that the fusee should be the solid generated by the revolution of the equilateral hyperbola about its asymptote. This conclusion is, however, by no means correct; but though the subject has been treated by several eminent mathematicians, very little practical advantage has been derived from their theoretical investigations. In fact, a moderate approximation to the true figure (whatever that may be) is all that can be attained in practice, and indeed all that is necessary.

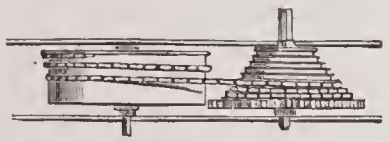


Fig. 1092. — FUSÉE.

Fusée, *n.* [Fr. *fusil*, a gun, from *feu*, fire.] (*Mil.*) A light musket or firelock; a fusil. *Johnson.* — A fuse.

—The track of a buck.

Fu'sel-oil, or **Fousel-oil,** *n.* (*Chem.*) The hydrated oxide of amyl. — See AMYL.

Fusibil'ity, *n.* [Fr. *fusibilité*, from Lat. *fusibilis.* See below.] Quality of being convertible from a solid to a fluid state by heat. With few exceptions, all solids which can bear a high temperature without undergoing chemical change, may be melted. Many substances which are popularly regarded as infusible — as, for example, platinum and flint — readily fuse before the oxy-hydrogen blow-pipe, or between the poles of a powerful galvanic battery; even carbon has been partially fused by the last-named means. There are many substances which cannot be melted because they are decomposed by the action of heat. Thus, wood and many other organic compounds are decomposed into certain gases, which escape, and into carbon and fixed salts, which are left. Similarly, carbonate of lime (chalk) is decomposed into carbonic acid gas and lime at a temperature below its fusing-point. If, however, we prevent the gas from escaping by confining the carbonate of lime in a hermetically closed gun-barrel, it can be melted at a high furnace-heat.

Fu'sible, *a.* [Fr., from Lat. *fusibilis*, from *fundere*, *fusum*, to pour out, to melt.] That may be melted or liquefied.

Fusible Metals. (*Chem.*) Many of the alloys fuse at a temperature less than that required to melt the most fusible of their constituent metals. Thus a mixture of 8 parts bismuth, 5 of lead, and 3 of tin, melts below 212°. One of 3 parts cadmium, 15 bismuth, 8 lead, and 4 of tin, fuses at 140° F. As they expand on cooling, they are of great use to the die-sinker, who is enabled to take a sharp cast of his work at a comparatively low temperature. The first of these alloys has been obtained in crystals, thus proving that it is a true chemical compound.

Fu'siform, *a.* [Fr. *fusiforme*, from Lat. *fusus*, a spindle, and *forma*, shape.] (*Bot.*) Shaped like a spindle.

Fu'sil, Fusile, *a.* [Fr. *fusile*; Lat. *fusilis*, from *fundere*, *fusum*, to melt.] Capable of being melted; liquefiable by heat.

"A kind of *fusil* marble." — *Woodward.*

—Running by the force of heat.

"And the stubborn flint turn into a *fusil* sea." — *Philips.*

Fu'sil, *n.* [Fr. *fusil*, a rifle; It. *focile*, from Lat. *focus*, a hearth, in L. Lat., a fire.] A small light musket or firelock.

—[See FUSÉE.] (*Her.*) A bearing of a rhomboidal figure, longer and more acute than a lozenge.

Fusilade', *n.* [Fr. *fusillade*, from *fusil.* See SUPRA.] (*Mil.*) A discharge of muskets; a shooting or firing.

—*v. a.* To shoot down by a simultaneous discharge of firearms.

Fusileer', Fusilier', *n.* [Fr. *fusilier*, from *fusil.* See SUPRA.] (*Mil.*) Originally, a soldier armed with the *fusil.* Nowadays, all regiments of foot carry the musket, or rifle, and the term *Fusilier* is simply an historical title borne by a few English regiments.

Fus'ing, *p. a.* Melting: liquefying.

Fusing-point. The degree of temperature at which solids assume the liquid form.

Fusion, (*fu'zhon,*) *n.* [Fr., from Lat. *fusio*, from *fundere*, *fusum*, to pour out or melt.] Act of melting or rendering fluid by heat, without the aid of a solvent; as, the *fusion* of ice. — State of being melted or dissolved by heat; a state of fluidity or flowing in consequence of heat. — "Metals in *fusion* do not flame." (*Newton.*) — The blending or uniting two or more things into one; state of being blended or united; as, the *fusion* of various tribes.

Fu'some, *a.* [A. S. *fûs*, ready, *fysan*, to hasten.] Handsome; neat. (Prov. Eng.)

Fuss, *n.* [A. S. *fûs*, ready, quick, from *fysan*, to hasten.] Undue haste, bustle, or importance; tumult; much ado about trifles.

—*v. n.* To make a bustle, or ado; to be unduly anxious about trifles; as, to *fuss* over one's work.

Fus'sily, *adv.* In a busy manner; with overmuch noise or anxiety.

Fuss'ville, in *Wisconsin*, a P. O. of Waukesha co.

Fus'sy, *a.* Moving and acting with fuss; bustling.

Fust, *n.* [It. *fusto*, from Lat. *fustis*, a stick or staff; Fr. *fût.*] (*Arch.*) The trunk or shaft of a column.

—A strong smell, as that of a mouldy barrel.

Fus'tet, *n.* [Fr. *fustet*; Sp. *fustete*; L. Lat. *fustetus*, from Lat. *fustis*, stick, staff,—sometimes, though rarely, and in baser Lat., a tree.] (*Chem.*) A fugitive yellow dye obtained from the wood of *Rhus cotinus.*

Fust'ian, *n.* [Fr. *futaine.*] (*Manuf.*) A species of cotton cloth somewhat similar in manufacture to velvet, having, in addition to the warp and weft, a species of pile, consisting of other threads doubled together, which are thrown up in ridges and conceal the original warp and weft, which are the groundwork of the fabric. When in the loom, this *pile* presents the appearance of a set of loops; but these are afterwards cut in two and sheared down. The fustian, when polished and finished, presents an evenly-ribbed surface on the exterior. The best descriptions of this class of goods are those known as *cotton-velvet* and *velveteen*: but besides these there are *moleskin*, *corduroy*, and several other kinds. For further information on the subject see WEAVING.

(*Lit.*) A forced, bombastic style of writing, abounding with metaphors or other rhetorical figures.

—Mere stuff; bombast; an inflated style of writing; a swelling style.

"Chance thoughts, when govern'd by the close,
Oft rise to *fustian*, or descend to prose."—*Smith.*

—*a.* Made of the stuff called fustian.

—Swelling in style above the dignity of the thoughts or subject; too pompous; ridiculously tumid; bombastic; as, a *fustian* description.

Fust'ianist, *n.* A bombastical and inflated writer.

Fus'tic, *n.* [Sp. *fuste.*] (*Chem.*) A yellow dye-stuff. Two kinds are used. *Old F.* is the wood of the Maclura Tinctoria of the West Indies; it gives a dingy yellow, and is mainly used in the preparation of compound colors. *Young F.* is obtained from the Rhus Cotinus, or Venice Sumach, a shrub found in Italy and the S. of France. The terms *old* and *young F.* were used from the mistaken notion that the one in large pieces was the wood of the grown tree, and the other, in smaller pieces, the wood of the young tree.

Fustiga'tion, *n.* [Fr., from L. Lat. *fustigatio*, from *fustigare*, to beat with a club, from *fustis*, a cudgel, and *agere*, to drive.] Act of beating with a club: a cudgelling; a beating with a stick or cane.

Fus'tiness, *n.* [See FUST.] An ill smell from mouldiness, or mouldiness itself.

Fus'ty, *a.* [See FUST.] Mouldy; ill-smelling: rank; rancid. "The *fusty* plebeians." — *Shaks.*

Fu'sure, *n.* [Lat. *fusura*, from *fundere*, *fusum*, to melt.] Same as FUSION, *q. v.* (R.)

Fu'tak, a town of Lower Hungary, co. of the Lower Bacs, on the Danube; Lat. 45° 15′ N., Lon. 19° 42′ W. It has great trade in grain, and is frequented by merchants from Turkey, Greece, and Armenia. *Pop.* (1895) 5,100.

Fu'tile, *a.* [Fr., from Lat. *futilis*, *fundibilis*, easily poured out, from *fundere*, *fusum*, to pour out.] Pouring forth nonsense; loquacious; talkative; tattling; silly; as, a *futile* tongue. — Trifling; trivial; frivolous; unimportant; useless; worthless: as, *futile* arguments.

Fu'tilely, *adv.* In a futile manner.

Futil'ity, *n.* [Fr. *futilité*; Lat. *futilitas.* See SUPRA.] Quality of being trivial or trifling; unimportance; emptiness; worthlessness; uselessness.

Futtehghur', or **Futtygur',** (*Futaghur*, the fort of victory,) a town of Hindostan, and a military station on the Ganges, 3 m. from Furruckabad; Lat. 27° 22′ N., Lon. 79° 41′ E.

Futtehpoor', or **Futtehpur',** a large inland town of Hindostan, prov. of Allahabad, cap. of district of same name, 60 m. N.W. of Allahabad: Lat. 25° 56′ N., Lon. 80° 45′ E. It contains an elegant mosque. *Pop.* 17,000. — The district extends the entire breadth of the Doab from the Jumna to the Ganges. *Area*, 1,583 sq. m. It is a cotton-growing district.

Futtipoor Sik'ra, an inland town of Hindostan, prov. Agra, 19 m. from the city of Agra. It was a favorite residence of the Emperor Akber. The town is built of stone, and contains the remains of Akber's palace, and the tombs of several of his family.

Fut'tock, *n.* [Probably *foot-hock*, or corrupted from *foot-lock.*] (*Ship-building.*) The name given to the midule timbers between the floor and the upper timbers. — *F. shrouds* are small shrouds leading from the shrouds of the main-, mizzen-, and fore-masts of ships to the shrouds of the top-masts. In Fig. 1094, *a a* are dead-eyes, *b b* futtock-plates, and *c c* futtock-shrouds.

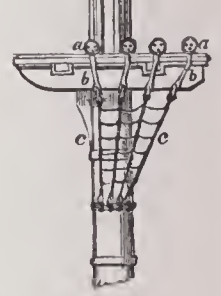


Fig. 1094.

Fut'ure, *a.* [Fr. *futur*; Lat. *futurus*, pp. of *esse*, to be.] That is to be or come hereafter.

"See *future* sons and daughters yet unborn."—*Milton.*

Future tense. (*Grammar.*) The tense of a verb which expresses a future act or event.

—*n.* Time subsequent to the present.

Fut'urist, *n.* One who looks forward to the future, with expectation of benefit or advantage.

(*Theol.*) One who holds that the prophecies of the Bible are yet to be fulfilled.

Futuri'tial, *a.* Same as FUTURE, *q. v.* (R.)

Futurition, (*fū-tū-rish'un,*) *n.* The condition of being to come to pass hereafter.

"To hang loose in respect of *futurition*."—*South.*

Futu'rity, *n.* [Fr. *futurité*: Lat. *futuritas*, from *futurus.*] State of being yet to come. — Time to come; events to come.

"Skilled in dark *futurity*."—*Pope.*

Fut'wa, a town of Hindostan, in the prov. of Bahar. It stands at the confluence of the Ganges and Punpun; Lat. 25° 30′ N., Lon. 85° 28′ E. The Ganges is here deemed peculiarly sacred, and great numbers of pilgrims resort to the town.

Fuur, (*foor.*) an island of Denmark, prov. of Jütland, 30 m. from Viborg, in the Limfiord; *area*, 11 sq. miles. *Pop.* 1,000.

Fuze, *n.* Same as FUSE, *q. v.*

Fuzz, *n.* [Dut. *voos*, spongy; Ger. *fasig*, fibrous, from *fase*, a fibre.] Fine, light particles; loose, volatile matter.

—*v. n.* To fly off in light or minute particles.

Fuzz-ball, (*fuz'bawl.*) *n.* A kind of fungus, which, when pressed, bursts and scatters a fine dust; a puff-ball; a blind-ball.

Fuz'zy, *a.* [From FUZZ, *q. v.*] Rough and shaggy: light and spongy. (Prov. Eng.)

Fy, or **Fie,** *interj.* [A. S. *fian*, to hate. Cf. Ger. *pfui*; Fr. *fi.*] A word which expresses abhorrence, dislike, disgust, disapprobation, or contempt.

"A bawd, sir? *fy* upon him!"—*Shaks.*

Fy'ers, or **Foyers,** (*foi'ers,*) a small river of Scotland, in Invernesshire, falling into Loch Ness. It has 2 fine falls — one 70, the other 207 feet high.

Fyke, *n.* [Dut. *fuik*, a bow-net.] A bow-net for catching fish.

Fyne, (Loch.) (*fine.*) a lake or inlet of the sea in Argyleshire, Scotland, beginning between the islands of Arran and Bute, and for about 40 m. separating the districts of Cowal and Kintyre.

Fyvie, (*fi've,*) a town and parish of Aberdeenshire, Scotland, 25 m. from Aberdeen: *pop.* 4,400.

Fyzabad', ("a beautiful residence,") a city of Hindostan, in the prov. of Oude, on the Gogra, 4 m. from the city of Oude: Lat. 26° 47′ N., Lon. 82° 10′ E. Formerly the cap. of Oude.

F.—SECTION II.

Fa'bian Soci'ety. A socialistic organization in England which advocates "the reorganization of society by the emancipation of land and industrial capital from individual and class ownership, and the vesting of them in the community for the general benefit."

Fac'titive, *a.* (*Gram.*) Denoting a verb, or an adjective or noun in predicate, when the action of the verb produces an effect upon the direct object that is expressed by that adjective or noun; as, It makes me glad; they elected him president.

Fac'tor of Safe'ty. (*Engineering.*) The ratio of the breaking strength of a structure or substance to the contemplated strain or pressure to which it is to be exposed. For buildings subjected to quiet loads, this is taken at about 15 for stone and brick work, 8 for timber, 6 for cast iron, 5 for steel, and 4 for wrought iron. Much higher ratios are used for bridges and machinery subject to shocks. The *F.* of *S.* varies greatly on account of differing qualities in materials and the varying judgment of designers, and is often so uncertain that it has been called a factor of ignorance.

Fac'tory Sys'tem. (*Manuf. and Econ.*) During the 18th and preceding centuries, systems of manufacture were largely individual, being confined to the houses of artisans, or carried on in workshops of small size, with few hands. The invention of the steam-engine has changed all that, and in the latter part of the 18th and throughout the 19th century a new system has grown up, in which manufacturing is carried on in large workshops or factories, with powerful engines and labor-saving machines: the result being a great reduction in cost of operation, with which hand-work cannot compete, and a vast increase in output, sufficient to meet the greatly augmented demand, which the domestic system of production would be quite inadequate to meet. The rapid extension of the *F. S.*, with its absorption of small enterprises and breaking up of the preceding system, has not been accomplished without considerable suffering and bitter opposition; nor without the development of serious abuses, which are, fortunately, being rapidly reduced. As regards the domestic system, it has not yet quite passed away, though now carried on to supply stores and factories rather than customers; and from the recent exposure of its conditions, as existing among the clothing makers of New York, its immediate abolition would be much more of a blessing than a misfortune.—*Early Conditions.* The *F. S.* had its origin about 1760–70, this being the period in which the use of power machinery began actively to supplant that of hand implements. In the U. S. the domestic system of labor prevailed during the Colonial period and until after the Revolution. In the succeeding years the introduction of the spinning and other machines of England stimulated invention, and considerable activity in this direction began. The *F. S.* in the U. S. was thus later in origin than that of Great Britain, but its development was much more rapid and many more industries have come under its operations. Power spinning machines were first introduced in Massachusetts and Rhode Island, the first American cotton factory being erected in the former State, while the use of English inventions began in a Rhode Island cotton factory in 1790. Since then the *F. S.* has had very rapid development and the productive capacity of the U. S. has grown enormously great.—*Evils of the System.* The *F. S.*, as we have said, has not been free from evils, though its advantages have been many and great. The evils ordinarily charged against it—charges which cannot all be substantiated—are the following: It is charged with the employment of young children to an injurious extent, and of women to a degree that tends to destroy family ties and domestic habits; it is further claimed to be injurious to health; to be productive of intemperance, thriftlessness and poverty; to foster prostitution and encourage crime, and to tend to intellectual degeneracy. Of these charges the first is the one that has most cogency. The employment of children of tender age, during long hours, was one of the most serious evils of the *F. S.* It was, however, in no sense a necessary element of the situation, but arose from the cupidity of mill owners and the sharpness of competition. It needed only an awakening of public opinion and the passage of restrictive laws for its amelioration. Such laws have been passed and child-labor in factories is now strictly limited to those beyond a certain age, and the hours of labor have been considerably reduced. This system is not yet, by any means, all that it should be; but the crying evil, which it formerly constituted, no longer exists. The employment of women in factories is injurious to the home only in the case of married women, much infant mortality seeming to have arisen from the neglect of children, while domestic duties are necessarily sadly neglected. This evil, however, is in some measure curing itself, the number of married women employed in factories showing signs of decrease. The home seems to have suffered more in the U. S. than in Europe from the *F. S.*, the tenement house and factory boarding house of this country being two features of the system which are quite unknown in Europe. These are gradually disappearing in the U. S., and the individual home is increasing in influence. It is pleasant to be able to state that in the city of Philadelphia, long the leading manufacturing city of the U. S., these institutions have gained no footing, the workingman's home having from the first been an established institution. At present that city stands first in the world for its great number of small, well-built and comfortable workmen's residences, many of them provided with the principal modern household conveniences.—*Injury to Health.* The charge that the factory is injurious to health cannot well be maintained, as compared with the domestic workshop of the past. No doubt, there have been many unsanitary conditions connected with the factories of the past; but official inspection has removed many of these and the modern, well-managed factory, with its large, light and well-ventilated rooms, seems immensely in advance of the close, dark, uncleanly, and unventilated household workroom of the past, which certainly must have been far more injurious to health than the factory of to-day. Intemperance can in no sense be claimed as a resultant of the *F. S.*, further than the bringing together of many workmen in contracted localities may be conducive to it. Certainly intemperance has greatly decreased within the past century, its culminating point having been reached in the 18th century. Thriftlessness and poverty are constant accompaniments of ignorance and lack of forethought, and owe their prevalence to no industrial system. They have long been rather diminishing than increasing, and abject poverty has never been more prevalent than during the period of domestic manufacture. The charge that the *F. S.* conduces to crime and prostitution is unfounded. Statistics indicate the contrary, and the regular employment and settled habits of life to which it gives rise are strong influences in opposition to the growth of these evils. The charge of intellectual degeneracy is equally unfounded. The education of children employed in factories has not been neglected, but is probably considerably superior to that which they received under the preceding system. This is steadily becoming more markedly the case, while certainly the workmen in factories are not deficient in mental powers. The confining of operatives to the control of a single machine, or some special process in a series of operations, is of course not conducive to mental activity, as compared with the former system, in which each man comprehended the whole art and mystery of his trade. But the surroundings of the factory, the libraries and reading rooms, the workmen's clubs, and other organizations which have grown up in factory towns, go far to counteract this influence, and to make the workman wide awake to the modern movements of thought and events. One evil result of the *F. S.* has been the reduction of the workman from the independent position which he once occupied as a manufacturer and merchant, to the dependent one of an employee in a great system of labor. But the development of Labor Unions and the effect of strikes have in a measure overcome this evil, making the workman once more in some degree master of the situation, and lifting him largely from the condition of semi-serfhood which he occupied in the early days of the system.—*Economic Advantages.* The economic advantages of the *F. S.* arise from the increase of wages, the great augmentation of production, the decrease in the price of goods, and the diminution in the hours of labor, with the greater regularity of employment due to the ability of capitalists to store goods while waiting for a market. The hours of labor have been reduced from 13 or 14 hours a day to 10, and in some lines of labor to 8 or 9; while the average rate of wages has considerably increased. The stringent system of factory inspection now inaugurated in many of the States is going far to overcome the evils of lack of sanitation, undue child labor, &c., formerly prevailing; and the *F. S.* may be held to have fairly passed through its early imperfect stages of development and to have reached a position of general superiority to the preceding system—one which promises a future of marked advantage to the industrial interests of mankind.

Fac'ultative, *a.* Producing faculty or efficiency; enabling; empowering.

(*Law.*) Pertaining to a right or authority which can authorize or permit the exercise of other rights or privileges.

Fad, *v. i.* To act idly; to busy one's self with trifles; to potter.

—*n.* Something that temporarily engages the attention of an individual or of society; a popular whim; a hobby.

Faed, John, painter, born at Burlay Mill, Kircudbright, Scotland, in 1820; resided in Edinburgh, 1841–62; associate of the Royal Scottish Academy. His best pictures were of domestic life and rural scenes. Exhibited in the Royal Academy, London, 1861; the following year he removed to that city, but in 1880 returned to his native town in Scotland.

Faed, Thomas, painter, brother of the foregoing, born at Burlay Mill, in 1826; associate of the Royal Scottish Academy, an honor conferred upon him after the exhibition of his picture of *Sir Walter Scott and his Friends at Abbotsford.* In 1861 he was made A. R. A., and in 1864 R. A. Resided in London after 1852.

Failly, Charles Achille, de, soldier, born at Rozoy-sur-Serre, Aisne, France, Jan. 21, 1810; was commander of a brigade in the Crimean war, and in the war against Austria; received the grand cross of the Legion of Honor; subsequently deprived of his command of the Fifth army corps for not going to the support of MacMahon at Wörth and for alleged general incompetency. In his *Operations et Marches du Cinquième Corps,* he attempted to justify his position. Died in 1892.

Fair'bairn, Andrew Martin, theologian, born near Edinburgh, Nov. 4, 1838; graduated from Edinburgh University (1860); student of theology at Evangelical Union Hall, Glasgow (1856–61); pupil of Dorner in Germany; was pastor of an Independent Church in Scotland, and principal of Airedale College, England (1877–86). In the latter year became first principal of Mansfield College, Oxford; was appointed Muir lecturer in the University of Edinburgh (1878). His works include: *Studies in the Life of Christ; Religion in History and Life of To-day; The Place of Christ in Theology; The City of God,* &c.

Fair'bairn, Sir William, Bart., civil engineer, born at Kelso, Scotland, Feb. 19, 1789. He was the first of his countrymen to construct an iron ship, his firm eventually building over a hundred, from the smallest war vessel to those of 2,600 tons. In co-operation with Robert Stephenson he designed and constructed the great tubular bridge across the Menai Strait; was one of the founders of the British Association for the Advancement of Science, of which he was afterward president, and published a number of important works and papers, including: *Useful Information for Engineers; Mills and Mill Work; Iron, its History and Manufacture,* &c. He was chevalier of the Legion of Honor and member of many other societies. Died Aug. 18, 1874.

Fair'banks, Erastus, politician and manufacturer, born at Brimfield, Mass., Oct. 28, 1792; educated in the common schools; settled at St. Johnsbury, Vt., where, with his brother, he engaged in the manufacture of cast-iron plows and stoves, out of which grew the immense factory devoted to the making of platform and other scales. *F.* became prominent in local politics serving in the legislature, and being twice elected Governor of Vermont (1851 and 1860). Died Nov. 20, 1864.

Fair'bury, in *Nebraska,* a city, capital of Jefferson co., on C., R. I. & P. and St. J. & G. I. R.Rs., 60 m. S.S.W. of Lincoln; has flour mills, foundry, soap works and nurseries. *Pop.* (1897) about 3,500.

Fair'chance, in *Pennsylvania,* a post-borough of Fayette co., on B. & O. and Penna. R.Rs.; has furnaces and manufactures of bricks and coke. *Pop.* (1890) 1,092.

Fair'child, Charles Stebbins, lawyer, politician and financier; born at Cazenovia, N. Y., April 30, 1842; graduated from Harvard (1863) and Harvard Law School, and began the practice of law (1865); became Attorney-General of his native State (1876–77) after serving one year as deputy; in 1880 engaged in law practice in New York City; became Assistant Secretary of the U. S. Treasury in 1885, succeeding to the portfolio upon the resignation of Secretary Manning, April 1, 1887. At the close of his term *F.* returned to New

York, where he has since been engaged in banking operations, being also an important factor in the so-called "sound money" wing of the Democratic party.

Fairchild, James Harris, D.D., theologian and author, born at Stockbridge, Mass., Nov. 25, 1817; graduated from Oberlin College (1838), of which he was afterward president. He is the author of: *Moral Philosophy; Oberlin, the Colony and the College,* &c.; *The Elements of Theology, Natural and Revealed;* and has edited the *Memoirs of Finney*, and Finney's *Systematic Theology.*

Fairchild, Lucius, soldier, statesman and diplomat, was born at Kent, Portage co., Ohio, Dec. 27, 1831; educated at Cleveland, and removed with his family to Madison, Wisconsin, about 1846; crossed the plains, with an ox-team, to California in 1849, and spent six years in and around the mines without notable success; returned to Madison (1855) studied law, became court clerk in 1858 and was admitted to the bar in 1860. Upon the outbreak of the Civil War he entered the Federal service as captain in the 1st Wisconsin; after 3 months service reënlisted as major of the 2nd Wisconsin volunteers and captain in the 16th Infantry, U. S. A., being the first regular army officer who was given permission to serve with the volunteers. In August, 1862, he became colonel of the 2nd Wisconsin regiment, and left a sick bed to take part in the battle of Antietam. At Gettysburg (July 1, 1863) he lost his left arm at the head of his command, and on October 19 was promoted brigadier-general. The following month was elected Secretary of State of Wisconsin, and resigned to accept that office. *F.* was elected governor of Wisconsin (1864) and served six full terms; was U. S. consul at Liverpool (1872), and consul-general at Paris (1878); was subsequently U. S. minister to Spain, resigning that post in 1882. He was chosen commander-in-chief of the Grand Army of the Republic in 1886, serving one year, and commander-in-chief of the Military Order of the Loyal Legion in 1894; also held many other positions of honor and trust. Died May 23, 1896.

Fair'child, in *Wisconsin,* a post-village of Eau Claire co., on two lines of railroad; has manufacturers of lumber, &c. *Pop.* (1897) about 800.

Fair'fax, Donald McNeil, rear admiral U. S. navy; born in Virginia, Aug. 10, 1823; entered the navy as midshipman Aug. 12, 1837. While in command of monitor *Nantucket* took part in the first attack upon Fort Sumter, and as commander of the monitor *Montauk* was engaged in all the fights with the forts and defenses of Charleston Harbor which occurred during July and August, 1863; became rear-admiral in 1880. Died at Hagerstown, Md., Jan. 10, 1894.

Fair'mount, in *Nebraska,* a city of Fillmore co., on C., B. & Q. and St. J. & G. I. R. Rs., 53 m. W.S.W. of Lincoln; has elevators, flour mills and other important industries. *Pop.* (1897) 1,029.

Faith'-cure, *n.* A problematical system under which it is claimed that ailments can be cured without remedies, and through the exercise of faith alone. The faith seems to be in the power of certain individuals to produce this result, or in certain objects, such as an image of the Virgin or other religious emblems. Numerous remarkable results are stated to have occurred, though it has not been scientifically demonstrated that any serious ailments have been in this way removed. Other systems, known as Christian Science, Metaphysical Healing, &c., seem based on the same principle, though the advocates of these hold that faith is not necessary. It is an undoubted fact that the mind has a vigorous influence over the condition of the body, and that a strong belief in the probability of a cure has often been followed by a cure, without medicine or through the use of an inactive substitute for medicine. But, though a person by exertion of his own mental powers may exercise a curative influence over the disorders of his body, it does not follow that another person can do so; and the claim that one person can, by mental exertion, affect the mind, and through it the body of another, needs much additional evidence before it can be accepted as an established fact.

Faith'full, Emily, philanthropist, born at Hedley rectory, Surrey, England, in 1835; educated at Kensington. Much of her time has been devoted to the advancement of women, and despite many difficulties she succeeded (1860) in establishing a printing house in which women were employed. In 1863 the *Victoria Magazine* appeared, and continued for eighteen years to urge the right of women to remunerative employment. Miss *F.* has lectured extensively in the U. S., and wrote a characteristic novel entitled *Change upon Change.* Died June 3, 1895.

Fake, *n.* [Swed. *veck*, fold.] A coil or turn of a cable or hawser.

—*v. a.* To coil or fold, as a line or cable; to stow in a faking-box.

Fake, *n.* [Possibly from Lat. *facia*, make.] (*Slang.*) Anything prepared with intent to deceive, especially a false article in a newspaper; any swindle, or the author of one.—A poor or fraudulent article or worthless thing offered for sale at the price of an article of value.

—*v. a.* To misrepresent with a purpose to deceive.

—*v. n.* To contrive falsely or fraudulently.

Fa'ker, *n.* One who fakes or deceives. A street-vender who sells trashy articles.

Fal'con, Jean Chrisostomo, general and statesman; born on the peninsula of Paraguaná, province of Coro (now Falcon), 1820. He commanded the revolution of the federalists in Coro (1858); was at first repulsed, but was afterwards successful. He was made president of Venezuela, but deprived of the office in the Azul revolution, when he retired to Europe. His party again coming into power, he was recalled, but died on his way home, April 29, 1880.

Fal'coner, Hugh, F.R.S., botanist and palæontologist; born at Ferres, Scotland, September 29, 1808; graduated from Aberdeen and Edinburg, receiving the degrees of M.A. and M.D. While practicing as a surgeon in India, he began palæontological explorations in the Siwalik Hills, and was made superintendent of the botanical garden at Seharanpoor and afterwards of the botanical garden at Calcutta; received the Woolaston medal (1837). He published *Fauna Antiqua Sivalensis; Selections from the Bostân of Saadi,* &c. Died in London, July 31, 1865.

Fal'coner, in *New York,* a post-village of Chautauqua co., on D., A. V. & P., and Erie R.Rs., 32 m. S.E. of Dunkirk. *Pop.* (1890) 574.

Falguire, Jean Alexander Joseph, sculptor and figure painter, born at Toulouse, France, Sept. 7, 1831; pupil of Jouffry and winner of the Grand Prix of Rome (sculpture). His work, both in painting and sculpture, is of high grade. Of the former are *Susanna; Wrestlers;* and *Fau and Poignard;* and of the latter, *Christian Martyr; Diana,* &c. *F.* is an officer of the Legion of Honor and a member of the Institute; his studio is in Paris.

Fall Riv'er, in *S. Dakota,* a S. W. co.; *area,* 1,770 sq. m. Intersected by south fork of Cheyenne river. *Surface,* broken and rugged in the north, high upland and river valleys in the south. *Soil,* rich. *Cap.* Hot Springs. *Pop.* (1895) 4,168.

Falloux (*fäl-lu'*) Frédéric Alfred Pierre, Vicomte de; author and politician, born at Angers, France, May 7, 1811; was made the leader of the Catholic party; withdrew from political life in 1851. He was the author of *Histoire de Pie V.; Madame Swetchine, sa vie et ses œuvre;* two volumes of political speeches and writings, &c. Died Jan. 6, 1886.

Fal'lows, Samuel, D.D., theologian, author and soldier; born at Pendleton, near Manchester, Eng., Dec. 13, 1835; has resided in the U. S. since 1845; graduated from University of Wisconsin (1859); was ordained a minister of the Methodist Episcopal Church. Entered the Civil War as chaplain, subsequently engaging in active service and attaining the rank of brigadier-general; held several important educational positions; was made bishop of the Reformed Episcopal Church on July 15, 1876, since which time he has resided in Chicago.

Fan, Pow'er, (*Mech.*) A form of blowing machine in which the air blast is produced on the principle of the ordinary fan. The common blast fan consists of a wheel whose arms are free, or not joined by a circular rim, and whose sides are tipped with vanes or blades for catching the air. This is usually placed in an eccentric position inside a chest or wind-tight covering, with central openings on each side for the admission of air and an exit pipe in its outer portion. The fan, made to revolve swiftly by steam or other power, sucks in the air at the central openings, draws it toward the tips of the blades, and impels it forcibly forward, driving it through the exit pipe. These fans are used for such purposes as the melting of iron in foundry cupolas and for forge fires, also for the winnowing of corn, and as an exhaust to withdraw foul air from mines, buildings and ships. For mines they are occasionally made of a very large size. *P. F.* of different formation are also in use to create a gentle breeze in stores and other large rooms, for purposes of ventilation and cooling. These are composed of two long narrow blades, driven by steam or electric power, and revolving freely at moderate speed, keeping the air of the room in constant motion. See Fan, Section I.

Fan'wood, in *New Jersey,* a post-town of Union co., on C. R.R. of N. J., 20 m. W.S.W. of Jersey City; has manufactures of fur and paper board. *Pop.* (1897) about 2,500.

Far Rock'away, in *New York,* a post-village and bathing place of Queens co., on Long Island, 20 m. from New York City, on Long Island R. R.; has manufactures of ice and furniture. *Pop.* (1890) 2,288.

Farada'ic, *a.* Pertaining to Michael Faraday, the English electrician.

Farad'ic, *a.* Pertaining to the phenomena of induced electric currents, as investigated by Faraday.

Far'del, *n.* [Old Fr. *fardel*, a little pack.] A bundle or pack; anything burdensome.

Far'go, in *North Dakota,* a city, cap. of Cass co., on Red River at the head of navigation, and C., M. & St. P., N. P., and G. N. R. Rs., 253 m. W. of Duluth; has mills, breweries, oil warehouses, manufactures of carriages, plows, reapers and mowing machines. The State Agricultural College is situated here. *Pop.* (1890) 5,664.

Fari'na, in *Illinois,* a post-town of Fayette co., on Ill. Cent. R. R., 65 m. E. of St. Louis, Mo.; has flour mills and manufactures of fruit boxes. *Pop.* (1890) 618.

Far'jeon, Benjamin Leopold, novelist, born in England in 1833; was for some years engaged in journalism in Australia and New Zealand. He has written a number of novels representing life among the lower classes. These include: *London's Heart; Grif; Toilers of Babylon,* &c.

Far'mer, in *New York,* a post-village of Seneca co., on Lehigh Val. R. R., 75 m. S. E. of Rochester; has large neck-yoke factory, creamery, canning factory and manufactures of fruit baskets and barrel heads. *Pop.* (1897) about 750.

Farmer City, in *Illinois,* a post-village of DeWitt co., 25 m. S. E. of Bloomington, on C., C., C. & St. L., and Ill. Cent. R. Rs.; has flour, lumber and planing mills, manufactures of brick and tiles, and is a shipping point for grain and live stock. *Pop.* (1890) 1,367.

Far'mers' Alli'ance. (*Am. Hist.*) This is the general term for an association of agriculturists which, with various designations, has existed since 1873. Antedating this was the secret order of the Patrons of Husbandry, formed in Washington in 1867, with a National Grange, and which established over 27,000 subordinate Granges in 44 States and territories, with a membership numbering hundreds of thousands. The first *F. A.* appears to have been organized in Texas in 1873, for the purpose of coöperation against cattle-thieves; but as its members increased its scope was widened. In 1887 its membership was over 100,000, and it consolidated with the Farmers' Union, of Louisiana, becoming incorporated under the laws of the District of Columbia as the National Farmers' Alliance and Coöperative Union. In 1880 the National Agricultural Wheel was formed in Arkansas, and soon spread into other States. These two organizations were consolidated at St. Louis, Mo., Oct. 1, 1889, under the name of the National Farmers' Alliance and Industrial Union, with a membership then estimated at from 1,600,000 to 2,500,000. This society is in active operation in all the southern and western States (except Ohio and Wyoming) and in New York, New Jersey and Pennsylvania. Another organization called the National Farmers' Alliance was formed in Chicago in 1880, and is now the general representative of State alliances organized in Illinois, Indiana, Iowa, Minnesota, Missouri, Montana, Nebraska, New York, North and South Dakota, Ohio, Pennsylvania, Washington and Wisconsin. These associations claim to be non-partisan and non-political, and aim to secure the general welfare of the farmer. Their conventions, however, have adopted platforms that by no means ignore political questions, and they have, no doubt, been influential in shaping legislation, both State and national, in the interest of the farmer and the agricultural sections of the country.

Far'mers' In'stitutes. Periodical meetings of farmers, under the auspices, direct or indirect, of a State government, for the consideration of questions relating to agricultural affairs. There is usually a central organization, vested in some agricultural college or society of the State, which arranges the meetings and sends lecturers to the local institutes to coöperate with the neighborhood speakers. The meetings, usually held in the winter, last from one to several days, and yield opportunities for a thorough discussions of all agricultural problems interesting to the farmers concerned. Funds for the support of these institutes are appropriated by about thirty of the States, New York being the highest, with $15,000 annually. About $100,000 are expended annually for this purpose in the U. S. and Canada. The first active effort to establish a system of itinerant agricultural lectures was made by the New York State Agricultural Society, in 1842–43, followed by a similar movement by the Massachusetts State Board of Agriculture, in 1859, and by the State Board of Agriculture of Michigan, in 1861. The growth of *F. I.* has been most pronounced since 1880, and has stimulated the organization of many county institutes and farmers' clubs, in this manner reaching nearly every farming community of the North and to a less extent those of the South.

Farn'ham, Roswell, soldier and politician, born in Boston, July 23, 1827, removed to Bradford, Vt. (1840); graduated from Vermont University (1849), studied law and was admitted to the bar (1857); lieutenant in 1st Vermont infantry (1862), captain of Bradford Guards (1862), lieutenant-colonel of 12th Vermont infantry (1863); State Senator (1868–69); delegate to Republican national convention and a presidential elector (1876); Governor of Vermont (1880–82).

Farr, William, physician; born at Kenley, Shropshire, England, November 30, 1807; studied at the Universities of Paris and London, and graduated from University College; made a specialty of the study of statistics of epidemics and the length of human life, and is the author of many valuable reports on these subjects; was a frequent contributor to the *British Annals of Medicine* and McCulloch's *Statistical Account of the British Empire;* was elected Fellow of the Royal Society, and received from the University of Oxford the degree of D.C.L. Died April 14, 1883.

Far'rar, Frederick William, D.D., divine and author, born in Bombay, India, Aug. 7, 1831; graduated from Cambridge (1854). He was master of Marlborough College, canon, and later archdeacon, of Westminster, chaplain of the House of Commons, also chaplain-in-ordinary to the Queen; became dean of Canterbury in 1895. He has written some novels and several notable philosophical and theological works. These include: *St. Winifred's; Darkness and Dawn; Origin and Language; Greek Grammar Rules; The Early Days of Christianity,* &c. He lectured in the U. S. in 1885.

Far'rer, Henry, artist; born in London, England, March 23, 1843; removed to New York in his youth; made a specialty of etching and water colors; has been secretary of the American Water Color Society, and president of the New York Etching Club. Some of his landscapes and twilight effects are of surpassing beauty.

Far'well, in *Michigan,* a post-village of Clare co., on F. & P. M. R. R., 55 m. W. N.W. of Saginaw; has a flour mill, several saw and shingle mills, and manufactures of pail, tub and peavy handles. *Pop.* (1895) 568.

Fash'ion-plate, *n.* A pictorial representation of the prevailing styles, or newly adopted styles, of dress.

Fast-staying, Fast-in-stays, *a.* (*Yachting.*) Quick in going about.

Fatigue' of Mater'ials. (*Engineering.*) Injury arising from stresses which exceed the elastic limit. A bar of iron, for instance, may have an elastic limit of 20,000 lbs. per sq. inch and a breaking resistance of 50,000 lbs.; but if stresses in excess of 20,000 lbs., be

often applied a change takes place in the molecular structure, brittleness supervenes, and the iron may break at as low a pressure as 30,000 lbs. Architects make it a rule that the materials in permanent structures shall not be strained beyond the elastic limit, and fix the factor of safety with this in view. Formulas exist under which engineers make allowance for the *F.* of *M.* due to repeated stresses.

Faulk, in *South Dakota*, a central co.; *area*, 1,010 sq. m. Drained by Snake river and its N. and S. fork. *Surface*, rolling. *Soil*, fertile. *Cap.* Faulkton. *Pop.* (1895) 3,365.

Faulk'ner, in *Arkansas*, a N. cen. co.; *area*, 623 sq. m. Partly bounded by the Arkansas river. *Surface.* Undulating. *Soil.* Fertile. Cotton, corn, and pork are the staples. *Cap.* Conway. *Pop.* (1897) about 20,000.

Faulk'ton, in *South Dakota*, a city, cap. of Faulk co., 33 m. W. of Redfield, on Chic. & N. West. and Chic., Milw. & St. P. R. Rs. *Pop.* (1895) 434.

Favon'ian, *a.* Pertaining to *Favonius*, the west wind; hence, mild, gentle, auspicious.

Faw'cett, EDGAR, novelist and poet, born in New York city, May 26, 1847; graduated from Columbia College. His poetical works include: *Poems of Fantasy and Passion; The Buntling Ball*, &c., and among his novels are: *The House at High Bridge; A Hopeless Case*, &c. He has also written a successful play: *The False Friend.*

Fawcett, HENRY, political economist and reformer, was born at Salisbury, England, in 1833; graduated from Trinity Hall, Cambridge, with honors (1856); lost his eyesight by accident (1858), but pursued his economic studies and (1863) became professor of Political Economy at Cambridge. He entered Parliament in 1865, remaining until 1874; in 1880 became Postmaster-General, under Gladstone. His efforts were largely directed toward improving the condition of government employees, the abolition of religious tests at universities, compulsory education, and other politico-social problems. His works include a *Manual of Political Economy*, which has passed through several editions: *The Economic Position of the British Laborer; Pauperism;* a volume of *Speeches;* &c. Died November 6, 1884.

Feath'er, *n.* A fin or wing in the shaft of an arrow, or the end of the arrow where these are fastened.—A rib for stiffening a casting.—(*Carp.*) A tongue on the edge of a board, fitting into a channel on the edge of another.—(*Mach.*) A slip inserted longitudinally into a shaft or arbor and projecting as a fin so as to fit a groove in the edge of a wheel, which may have a longitudinal motion in the shaft, but no rotation.

—*v. a.* (*Carp.*) To join boards together by tonguing or grooving.

Feath'ering, *n.* Small branches of the elm tree.

(*Art.*) A deep etching, in the aquatint process, where the impression is to be very dark.

Feath'erstonhaugh, GEORGE WILLIAMS, British traveler and author, born in 1780; was the commissioner appointed by Great Britain to settle the northern boundary of the U. S. under the Ashburton treaty. Traveled widely in the U. S., describing his journeys in: *Excursions Through the Slave States; Geology of Green Bay and Wisconsin; Canoe Voyage to the Minnesota*, &c. Died Sept. 28, 1866.

Feath'erweight, *n.* (*Sports.*) A boxer weighing 118 lbs. or less, being the class next below the middleweight; also, a wrestler of about the same weight.—A jockey weighing not more than 77 lbs.

Fech'ner, GUSTAV THEODOR, scientist, born at Gross, Särchen, Germany, April 19, 1801; studied at Sorau-Dresden and Liepzig; professor of physics at Liepzig (1834–39); was an able writer on chemistry, medical science, antiquities, &c. His important works are: *Ueber das Höchste Gut; Elemente der Psycophysik*, &c. Under the pen-name *Dr. Mises*, he wrote poetry, criticisms, and humorous literature. Died Nov. 18, 1887.

Fech'ter, CHARLES ALBERT, actor, born in London, Oct. 23, 1824; was educated in England and France, and gave some attention to the study of sculpture, which pursuit he abandoned for the stage. On the French stage his first success was as *Duval*, in *La Dame aux Camélias;* he leased the London Lyceum Theater, in 1863, and subsequently played in the principal cities of the U. S.; was for a season manager of the Globe Theater, in Boston. Died at Quakertown, Pa., Aug. 5, 1879.

'elch, ALPHEUS, LL.D., lawyer, born in Limerick, York co., Me., Sept. 28, 1806; graduated at Bowdoin College; entered the practice of law in Michigan, and became judge of the State Supreme Court; governor of Michigan (1846–47), and U. S. Senator (1847–53); was also a Commissioner of the California land claims, and professor of Law in Michigan University. Died June 13, 1896.

Fence-liz'ard, *n.* The common lizard (*Sceloporus undulatus*) of the United States, of various hues, usually greenish and dark above, with wavy cross-bands.

Fen'ton, REUBEN EATON, statesman; born at Carroll, N. Y., July 4, 1819; educated at the academies of Pleasant Hill and Fredonia; began the practice of law at Jamestown, N. Y., but subsequently became a merchant. He was a member of Congress (1857–65); governor of New York (1865–69); and was chairman of the U. S. Commission at the International Monetary Conference in Paris (1878). Died at Jamestown, N. Y., August 25, 1885.

Fen'wick, JOHN R., soldier; born at Charleston, S. C., in 1780; educated in England; entered the military service of the U. S. in 1799; was promoted to the captaincy of the marine corps, and afterward appointed lieutenant-colonel of artillery, serving with honor in the war of 1812–15. He reached the rank of brevet brigadier-general, March 18, 1823, and died at Marseilles, France, March 19, 1842.

Fer'gus, in *Montana*, a central co.; *area*, 6,762 sq. m. *Rivers.* Judith, Musselshell and Big Box Elder creek. *Surface*, undulating and mountainous. *Products*, live stock, wool, gold, silver, wheat, oats, barley and corn. *Cap.* Lewistown. *Pop.* (1890) 3,514.

Fer'gus Falls, in *Minnesota*, a city, cap. of Otter Tail co., 215 m. S. W. of Duluth, on Nor. Pac. & Gt. Northern R. Rs.; has wagon factory, a cigar factory, a woollen mill and flour mills. *Pop.* (1895) 4,497.

Fer'guson, JAMES, astronomer and mechanician; born near Rothiemay, Banffshire, Scotland, April 25, 1710; was self-educated and started in life by drawing portraits, the sale of which yielded him a livelihood, he residing in Edinburgh and London during this period. In 1748 he began lecturing upon astronomy and mechanics; was elected a fellow of the Royal Society, and a member of the American Philosophical Society. Author of: *Astronomy Explained; Lectures on Subjects in Mechanics; Hydrostatics, Pneumatics and Optics*, &c. Died in London, Nov. 16, 1776.

Ferguson, JAMES, astronomer; born in Perthshire, Scotland, Aug. 31, 1797; became a resident of New York in 1800. He was made assistant civil engineer on the Erie Canal (1817); afterward employed in various surveys. During his service as assistant astronomer at the U. S. Naval Observatory, he discovered the asteroids Euphrosyne, Virginia, and Echo. The Academy of Science of France awarded him the astronomical prize medal in 1854, and again in 1860. He contributed to several journals and magazines. Died Sept. 26, 1867.

Fernan'dez de Cas'tro, MANUEL, geologist, born at Madrid, Spain, Dec. 25, 1825; graduate of the School of Mines, Madrid (1844); subsequently travelled and made a study of the railroad systems of various countries, his system of railroad signals having since been widely adopted. He was made professor in the Madrid School of Mines, and elected to the Spanish Senate to represent the Cuban province of Santa Clara. The government published his *La electricidad y los caminos de hierro;* and he has published a treatise on hurricanes, and many geological papers.

Fer'now, BERNHARD EDWARD, forester, born Jan. 7, 1851, in Inowraclaw, province of Posen, Prussia; studied at the Forest Academy of Münden and the University of Königsberg, making a specialty of forestry and law; was employed by the government in its forestry department; engaged in the Franco-German War, and came to the U. S. in 1876, where he was made (1886) head of the forestry division of the U. S. Department of Agriculture. He has published numerous reports, bulletins and addresses.

Fern'wood, in *Illinois*, a suburb of Chicago, 12 m. S. of Madison St., annexed to the city in November, 1890; on Chic. & E. Ill. R. R. *Pop.* (1890) 818.

Fern'wood, in *Pennsylvania*, a post-village of Delaware co., 4½ m. W. of Philadelphia, on Phil., Wilm. & Balt. R. R.; has a cotton mill and woollen mill. *Pop.* (1890) 612.

Ferra'ri, PAOLO, dramatist, born at Modena, Italy, in 1822. His *Goldoni e le sue sedici Commedie*, and *Parini e la Satira* hold high rank among modern Italian comedics. He was professor of history at Modena and also at the Academy of Milan. Died March 10, 1889.

Fer'rier, DAVID, neurologist; born at Aberdeen, Scotland, in 1843. Graduated with honors from the Universities of Aberdeen and Edinburgh, and was awarded the gold medal for his thesis entitled *Comparative Anatomy of the Corpora Quadrigemina.* Besides other appointments, he was made physician to King's College hospital for the paralyzed and epileptic. He is the author of: *The Functions of the Brain; Localization of Cerebral Disease*, and numerous valuable papers on cerebro-spinal diseases.

Fer'ris, GEORGE W., engineer, born at Galesburg, Ill., Feb. 14, 1859; his early life was spent in Carson City, Nevada, and San Francisco; graduated in engineering from Rensselaer Polytechnic Institute, Troy, N. Y. (1881); was employed in mining and railroad work in West Virginia, and then as engineer in a bridge works at Louisville; went to Pittsburg (1892) to superintend the structural work being made for the bridge across the Ohio at Henderson, Ky., and while thus engaged designed the gigantic revolving wheel which he subsequently built and exhibited at the Columbian Exposition, and which was one of the mechanical wonders of that great exhibition. Died at Pittsburg, Nov. 22, 1896.

Fer'ry, JULES FRANÇOIS CAMILLE, journalist and statesman; born at St. Dié, France, April 5, 1832; began the practice of law (1851); was returned to the Corps Legislatif from Paris (1869); was minister of Public Instruction and Fine Arts (1879–80 and 1882). His education bill, forbidding Jesuits to teach in the schools, caused great excitement in France, and his enforcement of the law led to the downfall of the ministry. The war in Tonquin, which was the result of his colonial policy, was so managed that he was forced to resign. He was candidate for the Presidency in 1887, but was defeated; was re-elected to the Chamber in 1890, and subsequently made senator; elected president of the Senate on February 25, 1893; but died on March 17, following. *F.* was a brilliant journalist and influential leader in French politics.

Fer'ry, ORRIS SANFORD, soldier and statesman, born at Bethel, Conn., Aug. 15, 1823; graduated from Yale (1844), and was admitted to the bar (1846); was a lieutenant-colonel of Connecticut militia (1847), probate judge, district of Norwalk (1849), State senator (1855–56), member of Congress (1859); served in the Federal army during the Civil War, rising from the rank of colonel to that of brigadier-general; U. S. Senator from 1867 until his death, Nov. 21, 1875.

Ferry, THOMAS WHITE, statesman; born at Mackinaw, Mich., June 1, 1827; afterwards resided in Grand Haven; was a member of the State legislature (1850) and senate (1856); member of Congress (1864–71); U. S. Senator (1871–83); was several times president pro tem. of the Senate, and became acting Vice-President of the U. S. (Nov. 22, 1875), on the death of Henry Wilson. Died October 14, 1896.

Fer'tilizers, *n. pl.* (*Agric. Chemistry.*) Substances which, when applied to the soil of any locality, supply it with the elements in which it is deficient and which are necessary for the growth of agricultural crops. Such substances may be of organic or inorganic origin, the adaptability of any fertilizer depending chiefly upon the nature of the soil treated, but in some measure upon that of the crop to be raised. The fruits, vegetables and cereals which are grown for human food found in the original soil an abundance of the proper elements for their growth; but each year's crop took from the soil some of these elements, mineral and organic, which nature did not replace, the crops being harvested and removed, instead of being returned to the ground in the natural method. The result was a gradual impoverishment, the soil losing much of its nitrogenous and other materials. These needed to be replaced, and the employment of *F.* for this purpose is almost as ancient as agriculture itself. The first fertilizer employed—and the only one which is to-day of universal application—is that arising from the operation of the farm itself, that known as manure. In this may be included every form of decomposing vegetable and animal matter, brought to a condition that adapts it to ready mingling with the the soil. But, as study of the nature of soils went on, they were found to need other ingredients than these of the stable compost heap; some demanding phosphorus, others lime, others potash, while nitrates in some form were demanded by all soils. The farm itself supplies the basis of nitrates in the ammonia of the manure heap, while another source of nitrogen is obtained by many farmers through the plowing under of fields of clover, a plant known to be rich in nitrogenous material. But the farm itself is incapable of supplying all the fertilizing material needed in the exhaustive agriculture of modern times, and part of the requisite ingredients must be obtained from some outside source. The *F.* thus used may be divided into two classes, the natural and the artificial; that is, those used directly in their natural state, and those produced by mechanical or chemical processes. Knowledge of the needs of soils has greatly progressed within the 19th century, through a study of the chemical constituents of soil and plants, and experiments in supplying different plant foods to soils. Soils are not only very complex in their natural makeup, but different crops assimilate different proportions of their constituents; so that each soil and each crop needs some special treatment. *F.* are for this reason often misapplied. The soil may have an excess of nitrogenous and phosphatic matter, while the crops will be starved from the lack of one of the minor elements of plant food, such as lime or potash. Such *F.* as guano and bone-dust do not supply a sufficiency of potash to the soil, and soils fertilized with these materials for a number of years will become so poor in this element that, though rich in nitrogen and phosphorus, they will no longer yield a good crop. The addition of a potash fertilizer in such a case will cause an immediate increase of product. Lime and gypsum, which are usually mixed with potash manures, do not act directly as nutriment, but aid growth by indirect action. The same is the case with most marls. Their action is to dissolve and set free substances which were already present in the soil, but in a condition unavailable for plant food. Thus, carbonic acid has a solvent effect on silicates and nitrates; and when a soil contains potash in an insoluble condition, lime will act to set free part of the potash, taking its place. Other salts are also thus set free, and these, being carried down by rains, served to feed plants having deeply penetrating roots. Other substances act in a similar indirect manner. Among these, of late discovery, are the minute organisms known as bacteria, which exist abundantly in all rich soils, and exert a most beneficial effect in bringing nitrogen into a condition to serve as plant food. See NITRIFICATION.

NATURAL FERTILIZERS.—Of the fertilizers provided by nature, *guano* has long been one of the most valuable. This is the result of the droppings of birds for ages on certain oceanic islands, together with fragments of their foods and their dead bodies. It occurs in many localities, but the richest known bed is that of the Chincha islands, off the coast of Peru, which are situated in a rainless region, and thus retain the nitrogen and phosphorus of their guano much more fully than other guanos. This deposit is practically exhausted; but guano of inferior condition is obtained from various other localities.—*Nitrate of soda* exists native in Chili, as part of an earth called *caliche* or *terra salitrosa*—perhaps the result of a former guano bed. It is abundant in quantity, and contains from 50 to 75 per cent. of the nitrate, with a considerable proportion of common salt. It is exported under the name of "Chili saltpetre."—*Phosphates.* Of phosphatic fertilizers, the most abundant sources are the phosphate rocks of South Carolina and Florida. Those of South Carolina cover an area of 70 by 30 miles but are most accessible at a radius of about 8 miles from Charleston, where they are largely worked. The beds of Florida also yield an abundant store of this valuable fertilizer. The rock known as *apatite*, a phosphate of lime, is also employed to some extent for fertilizing purposes.—Of other natural *F.* may be named *coprolites*, or fossilized animal excrements, of which con-

siderable deposits exist in some localities; *gypsum*, or sulphate of lime, which supplies soils with lime and sulphuric acid, of use principally for their indirect action on the insoluble constituents of the soil; *salt*, which has its value as a stimulant; *marls*, the green-sand or glauconite beds which occur near the U. S. seacoast, from New Jersey to Louisiana, and which contain potash and phosphoric acid; and *kainate*, potash salt derived from the salt mines of Stassfurth, Germany.

Artificial Fertilizers.—These are made from various kinds of organic waste, and also from the natural *F.* A valuable one, from the amount of nitrogen it contains, is *fish guano*, obtained both from fish refuse, and from fish taken from the sea for direct conversion into this material. Other nitrogenous fertilizers are the skins, horns, flesh, bones, blood, &c., of cattle and other animals, which are largely worked into fertilizers in South America, where numbers of cattle are killed for their hides alone. *Poudrette*, or human excrement, is a fertilizer largely used in France, and in smaller quantities in some other countries. For ages this fertilizing material has been returned directly to the soil in China and Japan, and has gone far to keep the soil of those countries in a constantly rich state. *Phosphatic blood guano* is a moisture of dry powdered blood with dissolved bones, potash and soda. Such vegetable refuse as cotton seed, oil-cake, the waste from breweries, starch and sugar works, &c., is also used for fertilizing purposes; while of the phosphatic fertilizers one of the chief is made from the bones of animals, which are rich in lime phosphate. These are used in the form of bone dust, or are treated with acids, which change their phosphate into superphosphates, which are very beneficial to pastures and to crops cultivated for their roots or tubers. Wood ashes contain about 5 per cent. of potash; and unleached ashes, from timber grown on strong soils, contain still more. Such ashes are also rich in lime, phosphoric acid, silica, magnesia, and iron, and are very useful as fertilizers. Leached ashes have no potash, yet their phosphoric acid gives them a value as plant food. See Agricultural Chemistry.

Fes'senden, William Pitt, lawyer and statesman, born at Boseawen, N. H., Oct. 16, 1806; graduated from Bowdoin College (1823) and began the practice of law (1827) at Bridgeton, Me., soon afterward removing to Portland; was elected to the State legislature in 1832, 1840, 1845 and 1852; to Congress in 1840. In 1854 he entered the U. S. Senate, and was reëlected for a full term in 1859. In 1864–5 he was Secretary of the Treasury, resigning that position to begin a third term in the Senate, of which he was one of the strongest leaders on the Republican side. Died Sept. 8, 1869.

Fest'us, in *Missouri*, a city of Jefferson co., about 30 m. S. of St. Louis, on Crystal and Miss. River & Bonne Terre R. Rs.; has manufactures of plate glass. *Pop.* (1890) 1,335.

Fetch'ing, *a.* (*Colloq.*) Attractive; calculated to attract attention and elicit admiration; as, a *fetching* costume.

Feydeau (*fā-dō'*), Ernest, French novelist; born in 1821; his stories are descriptions of life in the time of the Empire and depict its worst features. His best work was *Sylvie*. Died in 1873.

Fi'at Mon'ey. (*Fin.*) Any currency, whether of paper or metal, that is placed in circulation and maintained as legal tender by the command (fiat) of a government or other competent power. The term is generally, though loosely, applied to a paper currency the substance of which is valueless, and for which redemption in a specified commodity is not promised, but which has been endowed by law with the legal tender quality; as distinguished from legal tender coins composed of metal supposedly equal in value to the face of same, or a paper currency bearing on its face a credible promise of redemption on demand in a so-called precious metal. See Money.

Fid'dle, *n.* (*Naut.*) A frame of bars and strings to keep things from rolling off the cabin table in rough weather.

Field, Cyrus West, whose name is identified with submarine telegraphy, was born in Stockbridge, Mass., in 1819; became a clerk and afterward a merchant in New York city, and grew prosperous in business. In 1853 he became interested in the work of a company which was engaged in building a telegraph line across Newfoundland, with the purpose of making submarine connection with the mainland. Conceiving the larger purpose of connecting America and Europe by telegraph, *F.* organized, in conjunction with Peter Cooper, Moses Taylor, and other capitalists, the New York, Newfoundland & London Telegraphic Co., and in 1856 the Atlantic Telegraph Co. Devoting himself entirely to the work thus projected, he crossed the ocean nearly 30 times in its prosecution, and in 1857 made the first effort to lay a cable under the Atlantic. This failed, as did a subsequent attempt in the spring of 1858, but in August of that year a cable was successfully laid, and for the first time man sent his thoughts beneath the sea. This cable ceased to work while its success was being celebrated in New York, but *F.* continued his exertions during the American civil war, and in 1865 a new attempt to lay a cable was made. This failed through the parting of the cable in mid-ocean. In 1866 the effort was renewed, as before with the aid of the steamship *Great Eastern*, and this time with success. The result was received with the greatest enthusiasm on both sides of the Atlantic, and *F.* received a gold medal at Liverpool, a vote of thanks from the Congress of the U. S., and marks of honor from various European institutions. In 1871 he was one of the originators of a company which proposed to lay a cable across the Pacific, via the Sandwich Islands, to Japan and China. He became afterward earnestly engaged in the rapid-transit problem of New York, and worked with energy in promoting the building of the elevated railway system in that city. He died in New York, July 12, 1892.

Field, David Dudley, LL.D., jurist; born at Haddam, Conn., Feb. 13, 1805; educated at Williams College, and studied law. After his admittance to the bar he practiced in New York, soon gaining prominence in his profession, the study of law reform occupying the time not given to active practice. He was one of the Commission appointed (1857) by the Legislature of New York to revise and codify the legal procedures of that State, and his code of civil procedure, partly adopted by the State of New York, has since been adopted by twenty-seven States and Territories. An International Association of which he was one of the founders has for its object the reforming and codifying the laws of nations and the substitution of arbitration for war. He was a member of Congress (1877), and published *The Electoral Votes of 1870*, and *Speeches and Arguments before the Supreme Court of the U. S.* Died April 13, 1894.

Field, Eugene, journalist and poet, born in St. Louis, Mo., Sept. 2, 1850; studied at the University of Missouri. His chief journalistic work was done as a member of the staff of the Chicago *Daily News*. His books of verse have been widely read, the poems on child-life being deservedly popular. They include: *A Little Book of Western Verse; A Little Book of Profitable Tales; With Trumpet and Drum*, &c. Died November 4, 1895.

Field, Henry Martyn, D.D., theologian and author; born at Stockbridge, Mass., April 3, 1822. Graduated from Williams college (1838), and studied theology at East Windsor and New Haven. His first charge was in St. Louis, Mo. He became pastor of a congregational church in West Springfield, Mass. (1851), removed to N. Y. (1854) and became one of the editors of the *Evangelist*, of which he was afterward sole proprietor. He has contributed to literature a number of volumes of travel, which include: *From Egypt to Japan; Old Spain and New Spain; Among the Holy Hills*, &c. Other works are: *The Irish Confederates, and the Rebellion of 1798*, and a *History of the Atlantic Telegraph*.

Field, Kate, journalist, born in St. Louis, Mo., about 1840; educated in Massachusetts and in Europe; was European correspondent of the New York *Tribune* and other journals; also contributed to magazines, including the *Atlantic Monthly;* gave lectures, and 1874 went upon the stage, appearing as *Peg Woffington* at Booth's Theater, New York. In 1889 she established, at Washington, D. C., a weekly journal entitled *Kate Field's Washington*, which was discontinued in 1895. She was the author of *Planchette's Diary; Ten Days in Spain*, &c. Died at Honolulu, May 19, 1896.

Field, Stephen Johnson, jurist, born at Haddam, Conn., Nov. 4, 1816; graduated from Williams College, studied law, and became partner of his brother, David Dudley *F.*, in New York; went to California in 1849 and became prominent in the political life of that State, being elected the first alcalde of Marysville (1850); member of the legislature (1850); judge (1857) and chief-justice (1859) of the State Supreme Court. In 1863 he was appointed a justice of the U. S. Supreme Court, which position he has honorably filled and still retains (1897). Judge *F.* was prominently before the Democratic convention of 1880 as a candidate for the presidency.

Fields, James Thomas, LL.D., author and publisher; born at Portsmouth, N. H., Dec. 31, 1817; was editor of the *Atlantic Monthly* (1862–1870), and was connected with the publishing firms of Ticknor, Reed & Fields, Ticknor & Fields, and Fields, Osgood & Co. He wrote: *Yesterday with Authors; Hawthorne; In and Out of Doors with Charles Dickens*, &c. Died at Boston, April 24, 1881.

Fi'field, in *Wisconsin*, a post-village of Price co., 13 m. N. of Phillips, on Wis. Cent. R. R.; has lumber mills. *Pop.* (1890) 646.

Figueras, Estanislao, statesman, born in Barcelona, Spain, Nov. 13, 1819; was one of the leaders of the liberal party in Catalonia, and elected to the Cortes in 1850. After the dethronement of Queen Isabella, he took a prominent part in organizing the republican party; and on the abdication of King Amadeo (1873) held the office of provisional president for about 4 months, after which he retired from public life. Died Nov. 11, 1882.

Fil'ler, *n.* (*Special.*) A composition for filling small holes or pores in wood to prepare it for painting or varnishing.

—*n. pl.* Lower grades of tobacco used in the manufacture of plug-tobacco and for the inside of cigars.

Fill'more, in *Nebraska*, a S. E. co.; *area*, 576 sq. m. *Rivers.* W. Fork of Big Blue river, and Turkey creek. *Surface*, nearly level, and soil fertile. *Cap.* Geneva. *Pop.* (1890) 16,022.

Filtra'tion of Water. (*Sanitary Eng.*) The water which was long furnished to many cities for drinking purposes, and which is still supplied in various instances, was and is unsuited for the purpose intended, being in some cases actually poisonous from the deleterious character of its contents. Originally, as a rule, it carried nothing more injurious to health than the mineral ingredients washed down from its sources and held in solution. But as the area of settlement grew, and towns and villages arose on the banks of streams supplying water to cities lower down, sewage and the liquid waste of manufactories became mingled with the water, and it grew more and more dangerous to drink, largely from the germs of certain epidemic diseases which it bore. As an example of this evil, it will suffice to mention the cholera epidemic at Hamburg (1892), which was traced very directly to the use of impure river water. How best to overcome this unsafe state of affairs is one of the leading problems in modern city management. Few cities can wait upon the slow process of reservoir subsidence, even if that could be trusted to remedy the evil. To bring water from new and pure sources at great distances is a costly process, with the danger of after-contamination of these sources. This being the case, filtration is looked to as the quickest, cheapest and most practical method of overcoming the difficulty; and, in consequence, many cities have provided themselves with filtering plants on a scale sufficient for the purpose. The methods of filtration resorted to are practically two in number—sand filtration and iron filtration—the character of each of which may be briefly described.

In advance, it may be said, that deposition and filtration, if properly conducted, give us clearer and purer water than can ordinarily be had from natural sources; for not only is the suspended matter removed, but it is now known that filtration removes from water most—and in some instances all—of its pathogenic germs.

Sand Filters.—In the construction of a sand filter bed, the kind ordinarily used, a water-tight tank of some 12 feet in depth is provided, of an area in accordance with the quantity of water to be treated, an acre being sufficient for about 2,000,000 gallons a day. In the method now employed in London, Berlin, and some other cities, the concrete floor of the tank is covered with round tiles of three to four inches diameter, laid closely together. These are covered with about a foot of coarse gravel or broken stone, above which is a layer of sand 3 or 4 feet deep. Above the sand the water to be filtered stands at a depth of three or four feet. The bottom of the tank slopes downward in all directions toward a draw-off outlet. Through this the filtered water passes at the speed necessary to carry the water through the sand at the required rate, this being controlled by devices for adjusting the "head" at which the water flows off. The rate varies considerably in different cases, a good average being 50 gallons per sq. foot in 24 hours. The quantity passing per foot being known, it is easy to calculate the area necessary to filter any fixed volume of water, though an extra filtering area must be provided to permit an occasional removal and washing of the upper layer of sand. Experiment has shown that it is in this upper layer that the most essential duty of the filter is performed. There gradually gathers upon it a deposit which has a remarkable power of preventing the passage of microbic germs. Investigation has shown that from 96 to 99 per cent. of the bacteria disappear. By this removal from the water of its mechanical impurities and its organic and microbic contents, it is left clear, pure, and wholesome for drinking purposes. Where available, the water should first stand in a subsiding reservoir until it has deposited the bulk of its coarser materials, and then be drawn or pumped to the filter bed for the final process of cleansing.

Iron Filtration.—The first employment of iron as a filtering agent was by Prof. Bischof, who combined sand and iron filtration in the following manner: Under a layer of sand, for the removal of mechanical impurities, was placed a mixture of 3 parts of gravel to 1 of iron. When this was examined, after employment as a filter, no discoloration was visible in the sand except near the iron, where it became thickly coated and mixed with a reddish, slimy product. Lower down the mixture was of a black color. The slimy coating was removed and washed every six months. This method of using iron has since been considerably improved upon. The iron is now placed in a large, slowly revolving cylinder, suspended on horizontal trunnions, through one of which the water enters, escaping through the other. The iron commonly used consists of the burrs or punchings from plates, about 2 tons being needed to treat a million gallons a day. Inside of the cylinder are curved shelves, which scoop up the iron and shower it through the water as they revolve. In this case no slimy product gathers, it being washed off as it forms, and the iron kept bright. A small quantity of the iron is dissolved, forming ferrous hydrate at the expense of a part of the dissolved oxygen. After leaving the cylinder the water regains the oxygen it had lost and the ferrous hydrate is further oxidized to ferric hydrate. This, being insoluble, settles, carrying with it most of the suspended organic matter. It is probable that a small portion of the organic impurities may be attacked chemically, but the chief action seems to be mechanical; the gelatinous precipitate entangling the germs and other foreign contents of the water and settling with them to the bottom. The purified water now passes to a sand filter, on whose surface a film of oxide is deposited, which seems to have the power to retain microbes. One advantage of the employment of the iron filter is that this layer is formed immediately; while in the case of ordinary sand filtration, days pass before the layer is fully formed and the work of purification grows complete. The first employment of iron filters on a large scale was in 1881, at the Antwerp water-works, to deal with the highly contaminated water of the river Nethe. It here proved very successful, converting this liquid filth into a transparent and pure drinking water. It has since been employed in other parts of Europe, in the U. S., and India. Other methods of filtration have been employed, alum being one of the ingredients used; but sand filtration is the method most commonly adopted, and, wherever properly tested, with highly favorable results. The one chief difficulty in the way is the considerable area needed to filter the water for a large city. The subject is still in the experimental stage, and new experience is being annually gained concerning it

Fin de siecle (*făng deh sē-ākl'*). [Fr., end of the century.] (Used adjectively.) Appropriate to the period; up to date; advanced; progressive.

Fi'nal, *n.* A last thing; that which makes an end; a final cause; in college, a last examination before graduating. (Frequently used in the plural.)

(*Mus.*) In the Gregorian modes, the note corresponding to the tonic in the modern scale.

Fineer', *v. i.* (*Com.*) To get goods made up in a way unsuitable for any other purchaser, and then refuse to take them except on credit.

Fink, Albert, civil engineer, born near Frankfort-on-the-Main, Germany, Oct. 27, 1827; studied at the Polytechnic School in Darmstadt, subsequently emigrating to the U. S.; was inventor of the "Fink truss," and builder of the great bridge over the Ohio at Louisville, Ky.; was superintendent of the Baltimore and Ohio and the Louisville and Nashville railroads; president of the American Society of Civil Engineer, &c. Died in 1897.

Fin'lay, George, LL.D., historian, born of Scottish parents near Faversham, England, Dec. 23, 1799; educated at Glasgow and Göttingen; aided the Greeks (1823) in their struggle for independence, and for the rest of his life resided in Greece, making a study of its history and antiquities. He has published: *History of Greece from its Conquest by the Crusaders to that by the Turks, 1204–1566 A. D.; History of the Byzantine Empire, 716–1057 A. D.; The Empire of Trebizond, 1204–1461,* &c. Died at Athens, Jan. 26, 1875.

Fin'ley, John Park, author, born at Ann Arbor, Mich., April 11, 1854; student of the State Normal School and State Agricultural College of Michigan; awarded the degree of M. S. from the latter; was officer in charge of the Pacific coast division of the Weather Service, &c., and is the author of papers on *Tornadoes; Sailors' Handbook of Storm-track, Fog, and Ice Charts of the North Atlantic and Gulf of Mexico;* has given special attention to the study of tornadoes.

Fin'ney, Charles G., clergyman and educator, born in Conn., 1792. He abandoned law for the pulpit, was president of Oberlin College from 1852–66. He was a noted revivalist, and author of several volumes of lectures, &c. Died in 1875.

Fin'ney, in *Kansas,* a S. W. co.; *area,* 864 sq. m. *Surface,* undulating prairie; *soil,* very fertile under the system of irrigating canals in operation. A fine stock country. *Products,* wheat, oats, sweet and Irish potatoes, alfalfa, wool and live stock. *Cap.* Garden City. *Pop.* (1895) 3,553.

Finsch, Friederich Herrmann Otto, Ph.D., ornithologist and explorer; born August 8, 1839, at Warmbrunn, Silesia, Prussia; was assistant in the Museum of Leyden, Holland, and afterward director of the Museum of Natural History and Ethnology at Bremen. During his travels, which have been extensive, he has made large collections for natural history. The result of his exploration of the coast from Vulcan Island to Humboldt Bay, was the establishment of the German protectorate over what is known as Kaiser Wilhelm Island. His numerous publications include *Anthropologische Ergebnisse einer Reise in der Südsee; Verzeichniss einer Sammlung von Maori Antiquitaten auf Neuseeland,* &c.

Fiorel'li, Giuseppe, archæologist, born at Naples, Italy, June 8, 1823. Gained distinction as director of the Pompeiian explorations; was made (by Victor Emanuel) chief director of the excavations of the whole kingdom, and professor of archaeology in the University of Naples; was editor of the *Giornale dei Scavi;* published important maps and reports of his work. Was elected senator in 1865.

Fire Depart'ment, *n.* A division of the public service whose duty it is to provide the necessary force and apparatus for the prevention and extinguishing of fires.

Fire-armor, *n.* A device to protect firemen and others against the effects of smoke, gas, etc. The first patent given for a device of this kind in the U. S. was granted to W. H. James, in 1828, for a diving dress which he stated could be used "in mines and other places filled with deleterious gases." Air was supplied from a receiver worn around the waist to a mask which enclosed the wearer's face, devices to prevent too great pressure from the compressed air being added. Other and simpler apparatuses on the same principle were afterward produced, of which one named the "eye and lung protector," was first used in 1873. This was adapted to protect the eyes from the effects of smoke, dust, &c., with plates of transparent mica for vision. To protect the lungs a certain kind of porous cloth covered the lower part of the face, which held a wet sponge against the mouth and nostrils. This kept out all dust, smoke, noxious gases, &c., and also cooled the air respired. It has been used with very satisfactory effect. At a trial in Toronto, Canada, persons remained for nearly a half-hour in an atmosphere of smoke from damp straw and tobacco stems, which could not be endured for more than a minute without the protector. In the handling of grain while loading vessels from elevators, a dust muzzle or respirator is used to keep out the fine dust which arises. This consists of a perforated metallic chamber holding some filtering material against the respiratory passages. With suitable eye-protection this would make a simple and useful fireman's mask. An elastic band passing around the head holds these devices in place. In 1888 a method of supplying a fireman with fresh air was devised by forcing air to the fireman's mask through a pipe carried along the hose. Improvements on this plan have since been made, with various methods of keeping up a supply of respirable air.

Fire'boat, *n.* A small steamboat equipped with apparatus for extinguishing fires that may occur on the shipping or wharves.

Fire'bug, *n.* (*Colloq.*) An incendiary; one who deliberately sets fire to property.

Fire'-drill, *n.* A drilling of firemen, or of children at school, or of employees in a building, to prepare them for proper action in case of a fire.—A contrivance used by savages for producing fire by friction, consisting of two pieces of soft dry wood, one of which is made to revolve rapidly on the other, evolving fire in less than two minutes.

Fire-kind'ler, fire-light'er, *n.* An inflammable composition for quickly starting fires.

Fire'-making, *n.* (*Anthrop.*) The art of producing fire. The connection between the use of fire and human culture, civilization, and progress, would be interesting to trace. There is no well authenticated instance on record of the existence of a tribe absolutely ignorant of the use of fire; yet it is believed by some that there was a time when man was without fire. In Greek mythology, Promethens is represented as bringing fire from the sun, teaching man the use of it and the arts depending or its use, thus becoming the benefactor of the human race. By some philologists the name Promethens is derived from a word meaning "fire-stick." If this be correct, it may signify the method of producing fire by means of a stick and groove—the oldest method known and still, or until recently, in use in the South Sea Islands—a blunt-pointed stick being run along a groove of its own making in a piece of wood lying on the ground. A modification of this is the fire-drill (*q. v.*). These methods of getting fire by friction were followed by the method of concussion, which may have been suggested in the process of making implements of stone; as in the chipping of the stone, sparks would be elicited. The ancients used a piece of pyrites—firestones—striking it with a flint or with a piece of steel. The Greeks, in the time of Aristophanes, knew how to concentrate the sun's rays with a burning glass; and the Romans in the age of the Pliny (A.D. 23–79), effected the same results by means of concave mirrors. The tinder-box, with flint and steel, has been used within the memory of the present generation, till superseded by the friction match, now universally employed. See Match.

Fire'-proof, *a.* Proof against destruction by fire; incombustible; as, a *fire-proof* building.—Designed to protect from fire; as a *fire-proof* dress.

—*v. a.* To render fire-proof; as, to *fire-proof* a dress material. See Fire-proofing.

Fire'-proof Build'ings. (*Arch.*) Structures that are, as nearly as possible, rendered free from danger of destruction by fire. However desirable it is that dwelling-houses, warehouses, stores, &c., should be made absolutely proof against fire, the problem has not yet been solved, though many so-called *F. B.* are constructed and are approximately such. No building material has been found that will entirely withstand the energy of intense heat. The problem is two-fold: protection must be afforded both within and without. To prevent a building from taking fire without, the walls should be of brick or stone, with iron doors, stone or iron lintels, casings, &c., with iron window-shutters, and the roof of iron or arched bricks or stone-work, no wood being anywhere used. Prevention within should be secured by iron doors, iron or stone stairways, stone or concrete floors; and if any wood is used, it should be coated with silicate of soda. The greatest care should be exercised in the construction of the apparatus for heating and lighting.

Fire-proof Safe. A safe for the protection of valuables in case of the burning of the building containing it. While not absolutely fire-proof, it is practically so, being made to withstand a very intense heat. It is an American invention of recent date. Sometime about 1830, James Conner, a New York type-founder, conceived the idea of making an iron box fire-proof by lining it with plaster of Paris, but did not patent his invention. About a dozen years later the idea began to be developed by others. Many substances have been used for lining, the most approved, probably, being ground alum mixed with some absorbent medium like sawdust, powdered plaster of Paris, or infusorial earth. Sealed tubes containing water or some vapor-producing substance that would give off steam when heated, have also been tried. Large safes, imbedded in brick, put in when a building is made, are doubly protected, and have proved most effective.

Fire'-proofing, *n.* The process of rendering material of any kind incombustible or incapable of taking fire easily. For wood, a solution of silicate of soda is used, which, when strongly heated, fuses into a kind of glass, forming a shield against fire. Several coats should be given the wood, so that not only the surface but also a portion of the interior may be affected. Textile fabrics may be impregnated with borax, alum, phosphate of soda, or ammonia. By treating cloth with graphite in a bath in which the mineral is suspended, and then subjecting it to the action of the electro-metallic bath, the cloth may be coated with metal. A weak solution of chloride of zinc has been employed for fire-proofing light fabrics.

Fire'-spot, *n.* (*Archæol.*) A bowl-shaped depression in the ground, common in Scandinavian countries, containing calcined bones, ashes, &c., supposed to be the vestige of an ancient funeral pyre.

Fire'-trap, *n.* A building known to be dangerously inflammable, or difficult to escape from in case of fire.

Fire'water, *n.* Intoxicating drink of any kind; so called by the North American Indians.

Fisch'er, Ernst Kuno Berthold, German philosopher; born at Sandewalde, Silesia, July 23, 1824; educated at Posen, Leipsic, and Halle; graduate of the latter University; lectured on philosophy at Heidelberg; was professor of philosophy at Jena, meeting with marked success as a lecturer. His most important work is *Geschichte der neuern Philosophie;* he also wrote *Logik und Metaphysik, oder Wissenschaftslehre,* &c.

Fish, Hamilton, lawyer and statesman, born in New York, in 1808, the son of Nicholas *F.*, an officer of the Revolution and president of the N. Y. Society of the Cincinnati. Graduating at Columbia College in 1828, he was admitted to the bar in 1830, and in 1834 began his political career as a member of the Whig party. Having served for several years as commissioner of deeds, he became a member of the State legislature in 1837, of Congress in 1842, was elected lieutenant-governor of New York in 1847, governor in 1849, and U. S. Senator, 1851–57. In 1862 he served as a commissioner with Bishop Ames to visit Union soldiers in Confederate prisons, and negotiated a general exchange of prisoners. In 1869 he was appointed Secretary of State by President Grant and was re-appointed in 1873, serving through the whole administration. Mr. *F.* became a member of the Republican party on its formation, opposed the repeal of the Missouri Compromise, and after the Civil War is credited with suggesting the Joint High Commission for the settlement of difficulties between Great Britain and the United States. In 1871 he was one of the commissioners who negotiated the treaty of Washington. He also settled the dispute, of long standing, with Great Britain concerning the U. S. northwestern boundary, and the complication with Spain arising from the *Virginius* affair. Died Sept. 7, 1893.

Fish Commis'sion. The U. S. Fish Commission, established in 1871, has for its purpose an investigation into the food, habits and localities of edible fishes and their propagation and distribution. Under the presidency of Spencer F. Baird (and of George Brown Goode and Marshall M. Donald, since Prof. Baird's death in 1887) its work has been of the highest importance. Besides its investigations of rivers, lakes, and coast waters, it has made valuable deep-sea explorations, and performed work of the utmost value in the propagation of fish. (See Fish Culture.) The work of the Commission is supplemented by that of State fish commissions, which have done efficient service more locally.

Fish Cul'ture or **Pis'ciculture,** *n.* The artificial propagation of fish, as a means of counteracting the destructive effect of fisheries. Nature has provided a sort of balance between the predatory onslaughts of the more powerful carnivorous fishes and the great powers of reproduction of the weaker kinds; but this balance has been seriously disturbed by man with his nets and lines, which have placed many of the weaker food fishes at a disadvantage in the struggle for existence. It is not easy to exterminate a species, but its numbers may be so reduced as to destroy the value of the fishery; while certain species have probably quite disappeared through man's persistent and ill-considered onslaughts. The destruction which has taken place is not due alone to over-fishing, but much of it has taken place in rivers and lakes by turning into them the acid and other deleterious products of mines, factories and sewers. These destroy the fish directly, by poisoning; or indirectly, by destroying the small organisms which form their food supply. Another method of destruction is through the building of dams upon rivers, thus preventing many valuable species of fish reaching their spawning grounds and checking their natural propagation. The art of *F. C.*, taken in its broadest sense, demands attention to all these influences of destruction, and requires the prohibition of too destructive methods of fishing, the preservation of the purity of interior waters and the prevention of injurious dam-building, the destruction of the more dangerous enemies of food fishes, the encouragement of the growth of plants and animals which serve them for food, and the artificial breeding and distribution of fishes. Efforts have been made, with more or less success, in all these directions; but the most notable and important have been those in artificial propagation—*F. C.* properly so-called. The art of fish-fertilization by artificial means is comparatively new. The Chinese, though they have long cultivated the eggs and fry of fishes, failed to arrive at the conception of stripping the ova from the female fish and mingling them with milt taken from the male, now so largely practiced and with such important results. This art was first devised by Stephen L. Jacobi, of Westphalia, in 1763, and was carried on to some small extent in England and France until 1850, when the first government *F. C.* station was established at Huningue, in Alsace. As experience added to knowledge of the best methods of operation, the art developed; wide distribution of ova and young fry was made, various species of food fishes being thus distributed to new waters in their own country and in some instances sent to far distant lands.—*United States Fish Culture.* The art of *F. C.*, although not originated in the United States, has attained greater development here than in any other country, through the energetic labors of the Fish Commission and of the commissions appointed by many of the States. The apparatus for hatching fish ova and for caring for the fry until old enough to plant in streams, has gradually been perfected, and only a small percentage of loss is now experienced. To prevent destruction of the ova by fungi, a constant motion of the water is necessary. In this direction M'Donald's fish-hatching jar has proved very successful. This sends a current among the eggs which keeps them in regular, gentle motion, and is provided

with an exit tube by which dead fish can be readily removed. Other devices based on the same principle have been tried, and also for the prevention of loss of fry from the same cause, with good results. The process of fertilization consists in gently pressing a female fish, which is in condition for spawning, with the thumb and forefinger backward along the abdomen, causing the eggs to flow from her ovaries into a clean, dry pan. The milt is obtained from the male fish in the same manner, and the pan is given a slight swaying movement until fertilization is effected. A little water may be added to expedite the process, and new water is added until the eggs show signs of growth and become hard. The young fish, when hatched out, are kept in suitable receptacles, in which the water is frequently changed, and are transferred to new receptacles as their development continues, until ready to plant in free waters, which is not done until they are large enough to shift for themselves.—*State Stations.* The first practical application of the art of pisciculture in the U. S. was made by Dr. T. Garlick, in the development of the eggs of brook trout; and in 1865 New Hampshire began to import salmon eggs from Canada to hatch in the waters of the State. Massachusetts followed with the appointment of a State fish commission, and one was established in Vermont in the same year. Of public fish-hatcheries in this country, the first was established by the Massachusetts commission at Hadley Falls, on the Connecticut, for the propagation of shad. The U. S. Fish Commission, established in 1871, began its practical work in 1872. Since then about three-fourths of the States and territories have appointed fish commissions, some of which are inactive, others are doing efficient work. The U. S. Commission has some twenty-five stations in operation in various parts of the country, and receives an annual appropriation from Congress of about $150,000.—*Species Propagated.* Of the food fish thus cultivated, none have received more attention then the shad, of whose eggs many millions are taken annually, and whose fry have been largely planted in new streams, such as those of Georgia and California. The result has been a remarkable increase in the catch of shad in its native streams, and a rapid development of this favorite fish in new streams. Its introduction into the Sacramento, of California, has been attended by marked success. Of the other species that have been propagated and planted in new waters may be named the salmon, the Eastern and the California brook trout, the whitefish, the black bass, the pike, perch, cod, &c., there being in all nearly 40 species thus cultivated. The carp has been introduced from Europe into the waters of this country, and has largely increased, though for several reasons the experiment has proved the reverse of satisfactory. In the first ten years of the U. S. Fish Commission it distributed over 340,000,000 fish; in the second decade nearly 2,400,000,000, and its work in this direction is steadily increasing. Of the States, Wisconsin distributed 50,000,000 young fish in 1891; New York, more than 38,000,000; Pennsylvania, 51,000,000; Michigan, 136,000,000; and other States in large numbers. Cars specially constructed for the transportation of eggs to the hatcheries and the young fish to the waters are in use. *F. C.* has not been as actively prosecuted in most of the countries of Europe as in the U. S. and Canada, though much important work has been done. Among the successful results may be named the introduction of the American brook trout to the waters of Europe and Japan, the acclimation of the black bass in Germany and Great Britain, the introduction into American waters of several species of European trout, and of the salmon and trout of Europe into the streams of Australia and New Zealand. As an illustration of the comparative attention given to this important subject, it may be stated that Canada spends as much annually for fish-propagation as all Europe, and the U. S. many times as much as Canada and Europe combined.—The term AQUICULTURE is now employed in France instead of pisciculture, in view of the fact that the art is not confined to fishes, but has been extended—as, indeed, it has in this country—to include lobsters and other crustaceans, oysters, and various other denizens of the ocean waters. The artificial cultivation of the oyster has attracted considerable attention from its commercial importance, but has not yet yielded large results, though it has been the subject of numerous experiments. Prof. John A. Ryder made successful efforts to effect the artificial fertilization of oyster spawn, but no practical application has been made of this process, it being easy to propagate oysters on a large scale by simpler methods. The oyster produces eggs in vast numbers, and the first requisite for their increase is the provision of suitable substances to which the young may cling, after their brief interval of swimming life. This is largely done in French waters, old shells, brush, wooden slats and other materials being used. In this country the abundance of the naturally-propagated oyster has rendered these methods of much less importance. The young fry is planted in new grounds when of sufficient growth, this system of transplanting being widely practiced by oyster culturists. The youthful oyster, however, is the prey of many enemies, and few of them survive their first stage of life. The mature oyster also has its enemies, the most destructive of which is the star-fish. To avoid these destructive influences, the cultivation of oysters in inland ponds, for which the low coast swamps of New Jersey and elsewhere afford abundant locations, has been resorted to. In these, artificial methods of supplying the minute animal and plant life, on which the oyster feeds, could be adopted and the tidal waters be permitted to flow in and out through the ponds; while, by the use of suitable sluice-gates, the enemies of the succulent mollusk could be kept out. As yet little has been done in this direction, though any approach to exhaustion of the natural oyster beds would probably be followed by the adoption of some such method as this on an extended scale.

Fish'-ball, fish'-cake, *n.* A cake or ball of fish and potatoes fried in lard or oil.

Fish'er, GEORGE PARK, theologian, born in Wrentham, Mass., Aug. 10, 1827; graduate of Brown University and Andover; studied theology at New Haven, and in Germany; was professor of divinity in Yale College, and later was appointed to the chair of ecclesiastical history. He is the author of *History of the Reformation; Discussions in History and Theology; Outlines of Universal History,* &c.; became (1892), one of the editors of the *Yale Review,* and was for several years one of the editors of the *New Englander.*

Fisher, in *Texas,* a N. W. county; *area,* 900 sq. m. Traversed by the Brazos river and Elm and Sweet water creeks, its confluents. *Surface,* undulating; no timber but mesquite; large beds of gypsum. Agriculture and stock raising the principal industries. *Cap.* Roby. *Pop.* (1890) 2,996.

Fishing-rod, *n.* A long, slender, tapering-rod, to which a fishing-line carrying a hook is to be attached.

Fish'ing-tackle, *n.* The apparatus required for fishing—rods, lines, hooks, bait, &c.

Fish'-pond, *n.* A pond for keeping or raising fish.

Fish'-story, *n.* (*Colloq.*) An extravagant or incredible narration; a story difficult of belief.

Fisk, CLINTON BOWEN, soldier, statesman and philanthrophist; born in Griggsville, N. Y., Dec. 8, 1828; entered the Civil War as a private, and attained the rank of brevet major-general of volunteers; was assistant commissioner of the Freedman's Bureau and a firm friend of the colored race. He held a number of important offices. In 1886, was the Prohibition candidate for Governor of New Jersey, and in 1888, the Prohibition nominee for President of the U. S.; was one of the founders of Fisk University, Nashville, Tenn. Died in New York City, July 9, 1890.

Fisk, JOHN, historian; born in Hartford, Conn., March 30, 1842; graduated from Harvard, and was afterward engaged in that college as lecturer on philosophy, instructor in history, assistant librarian, and finally as overseer of the institution. Has since been professor of American History at Washington University, St. Louis. He has achieved fame as a lecturer and writer; his works include: *Myths and Myth-Makers; The Unseen World; Darwinism, and other Essays; The Critical Period of American History; The Beginnings of New England; The Discovery of America,* &c.

Fissenia (*fis-seen'yah*), *n.* (*Bot.*) A genus of plants, order *Loasaceæ,* found in Arabia and the interior of South Africa, remarkable as being the only representative of the family in the eastern hemisphere. It differs from other genera in having a 3 celled fruit, with one seed in each cell. The only species, *F. spathulata,* is a branching bush with straw-colored stems, alternate stalked lobed leaves not unlike those of the gooseberry but larger, and pale-green flowers four to six together at the ends of the twigs; the flowers have ten petals, five large and rounded, and five small and narrow, very numerous stamens, and three styles. The little ten-ribbed fruits or nuts crowned with the five long narrow calyx lobes, look like minature shuttlecocks.



Fig. 2877.—FISSENIA SPATHULATA.

Fitz'roy, ROBERT, British naval officer; born at Amton Hall, Suffolk, July 5, 1805; entered the navy; was engaged (1828–30) in surveying the coasts of Patagonia, and later in making a thorough survey of the southern and western coasts of South America. He was at successive periods member of Parliament, Governor of New Zealand, and chief of the meteorological department of the Board of Trade; received the gold medal of the Royal Geographical Society; published works on navigation and meteorology, *viz.: Barometer Manual; Weather Book* and *Narrative of the Surveying Voyages of H. M. Ships, Adventure* and *Beagle.* The third volume of the last-named work was written by Charles Robert Darwin, who was the naturalist of the expedition. Died May 7, 1896.

Fix'ature, *n.* A gummy preparation for the hair, like bandoline.

Flag'-day, *n.* In the United States, the anniversary of the adoption of the national ensign, June 14, 1777, observed in some of the public schools with appropriate patriotic exercises, recitations and singing, display and distribution of flags, &c.

Flagel'lum, *n.* (*Biol.*) A slender, lash-like appendage, in bacteria and flagellate infusorians, which serves as a means of locomotion.

(*Bot.*) A runner, as of the strawberry plant, which takes root at its joints.

Flagg, ISAAC, educator, born at Beverly, Mass., Sept. 7, 1843; graduated from Harvard with degrees of A.B. and A.M., and received the degree of Ph. D. from Göttingen; began his career as tutor at Harvard, and was later professor of Greek at Cornell and associate professor of Classical Philology in the University of California. His published works include: *Versicles; Demosthenes' Hellenic Orations,* &c.

Flagg, WILSON, naturalist, was born at Beverly, Mass., Nov. 5, 1805; studied at Phillips Academy and Harvard; was a careful student of nature, and early began contributions to the *Atlantic Monthly* and other periodicals. His earlier works were revised, enlarged, and republished under the titles: *Halcyon Days; A Year with the Birds;* and *A Year with the Trees.* Died May 6, 1884.

Flag'-station, *n.* A railway station at which trains stop only on signal of a flag displayed.

Flameng', FRANÇOIS, figure painter, born in Paris in 1859; pupil of his father, Leopold F., and also studied with Cabanel, Hedouin, and Jean Paul Laurens; received the second-class medal at the Salon of 1879; a medal of honor, Paris Exposition of 1889; and was decorated with the cross of the Legion of Honor. His important pictures are: *The Girondins Summoned; The Bowlers; Grolier and Aldus.*

Flamma'rion, CAMILLE, astronomer, born at Montigny-le-Roi, Haute-Marne, France, Feb. 25, 1842; studied in the imperial observatory; editor of *Cosmos;* scientific editor of the *Siècle;* made several balloon ascensions to study the atmosphere at great altitudes (1868). He is the author of a number of works, including: *Les Mondes Imaginaires et les Mondes Réels; Dieu dans la Nature; Histoire du Ciel; Uranie,* &c., and of recent years has contributed to American monthlies. Is highly imaginative in his descriptions of nature, and perhaps none too safe as a scientific guide.

Flam'mule, *n.* [Lat. *flammula,* a little flame.] A small flame, or flamelet. In a specific sense, the little jet of flame which is used in representations of Japanese and Chinese gods to typify their celestial attributes.

Flan'nel-mouthed, *a.* (*Colloq.*) Having a thick, clumsily-formed mouth.—Speaking with a thick brogue.

Flan'nery, in *North Dakota,* a N. W. county; *area,* 1,800 sq. m. Stock raising the leading industry. Unorganized. *Pop.* (1890) 72.

Flash-light, Flashing-light, *n.* A light so contrived and managed as to be seen only at intervals, whether regular or irregular; used in light-houses and for military signalling.

(*Photog.*) An instantaneous, brilliant light, commonly produced by the ignition of powdered magnesium.

Flash-point, Flashing-point, *n.* That temperature, below the burning point, at which sufficient vapor is given off by a volatile liquid to burn with a mild explosion upon the application of a flame. In several States this is employed as a standard in the testing of illuminants, the law requiring that the *F.-P.* shall be above a certain degree—say 100° F.

Flat, or **Flat-house,** *n.* See APARTMENT HOUSE.

Flato'nia, in *Texas,* a city of Fayette co., 84 m. S. E. of Austin, on Southern Pac. and San Ant. & Aransas Pass. R. R.; has a door and cistern factory. *Pop.* (1890) 1,304.

Flaubert (*flō-bār'*), GUSTAVE, novelist, born in Rouen, France, 1821. His *Madame Bovary* (1857) involved him in legal troubles, from its alleged immorality, resulting, however, in a unanimous verdict of acquittal. *Salammbo* (1862), a learned essay, embodied the result of his studies of Carthage. He also wrote *L' Education Sentimentale: Historie d'un Jeune Homme. Tentation de Saint Antoine, Trois Contes, Bouvard et Pécuchet,* &c. Died in 1880.

Fla'voring, *n.* (*Cooking.*) A substance for giving an agreeable flavor to food, especially an extract, as of lemon, vanilla, &c., used in puddings, cake, ice cream, &c.

Fleck, *n.* A spot or streak of color; dot, stain.

Fleet'wood, in *Pennsylvania,* a post-borough of Berks co., 11 m. N.E. of Reading, on Phila. & Reading R.R.; has a grist-mill, foundries and manufactures of cigars and furniture. *Pop.* (1890) 878.

Fle'gel, ROBERT EDWARD, African explorer, born in Wilna, Russia, 1855; explored the Niger-Benuë basin. His efforts were the means of directing attention to the Benuë, the only river of the country which affords steam navigation from the sea to the central portions of the continent. The funds for his expedition of 1880 were supplied by the German African Association. Died in Aug., 1885, while on an exploring trip.

Fleury, EMILE FELIX, soldier, born at Paris on Dec. 23, 1815; entered the army (1837) and served with distinction in Algeria, earning rapid promotion; returned to France (1848), serving the Bonapartist cause; became an officer (1849) and grand officer (1859) of the Legion of Honor; senator (1865); went to Italy on a diplomatic mission (1866), and to St. Petersburg as an ambassador (1869–70). On the downfall of Napoleon III., in 1870, *F.* retired to Switzerland; he was placed on the retired list of the army in 1879, and died in Paris on Dec. 11, 1884.

Flied'ner, THEODOR, D.D., philanthropist, born at Eppstein, Prussia, Jan. 21, 1800. The most important of his charitable projects was the institution of Evangelical Deaconesses, founded (1836) at Kaiserswerth; sixty similar institutions were reported in 1890. The house at Kaiserwerth serves as a training school for women in the care of the poor and suffering. Died in 1864.

Flim'flam, *n.* A deception; cheat.—The *F. game* is a piece of trickery by which a sharper confuses a person who is making change, so that he pays out more money than he received.

—*v. a.* To deceive or confuse.

Flindersia (*flĭn-der'zhah*), *n.* (*Bot.*) A genus of plants, order *Cedrelaceæ*, having a calyx of five short teeth; five white, ovate, plane petals, slightly hairy on the exterior; ten stamens of which only five are fertile, the alternate ones being sterile; and a simple erect obtusely five-angled style, with a peltate five-lobed stigma. The capsule is woody, oblong, obtuse, five-valved, the exterior thickly covered with sharp-pointed tubercles. They are lofty trees, having alternate pinnate leaves; found in New South Wales and the Moluccas. The natives of these islands use the rough tuberculated fruit as rasps in preparing roots, &c., for food.

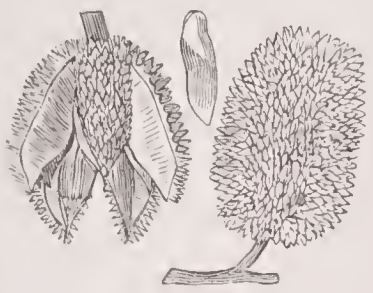


Fig. 2878.—FLINDERSIA AUSTRALIS.

Flink'ite, *n.* (*Min.*) A hydrous manganese arsenate, crystallizing in the orthorhombic system, having a green or greenish-brown color and the formula $As_4Mn_3AsO_8$).

Flint, Austin, M.D., born in Massachusetts in 1812; graduated from Harvard (1833); professor of the Practice of Medicine in Rush College (1844), Buffalo Medical College (1847–52), the University of Louisville (1852–56), New Orleans Medical College (1858–61), and Bellevue Medical College, New York, from 1861 until his death in 1886. Was author of several standard medical text books. His son, Austin *F.*, born in 1836, has been closely associated with his father in all the latter's undertakings, and has contributed largely to medical literature. His specialty is human physiology.

Flint'-mill, *n.* (*Mining.*) A device formerly used for illuminating a mine by means of a shower of sparks produced by striking steel points continuously upon flints fixed on a revolving wheel; such sparks not being capable of igniting fire-damp.

(*Pottery.*) A grinding machine for powdering flints to mix with the clay.

Float'er, *n.* (*American Polit.*) An irregular or purchasable voter; one who votes fraudulently outside of his own district.

Float'ing-is'land, *n.* A dessert of custard with white of eggs or other light substance floating on top.

Flong, *n.* A term used by stereotypers to designate the sheets of prepared paper used in the papier-mache process to make matrices; also, a paper matrice so made.

Flood'-plain, *n.* (*Geol.*) A plain formed by successive river overflows, extending to a considerable width on each side of a stream and made up of layers of mud, sand and gravel deposited by the subsiding waters. The *F.* of some streams is very wide and presents so level a surface that the stream winds through it in a serpentine course, its curves increasing in radius with increase of volume. By cutting away the bank on the concave side of the curve and depositing material on the other bank, the stream frequently shifts its channel, the curves occasionally forming nearly a circle, with a narrow neck of land intervening between their extremities. Such a neck is at times cut through by an overflow, and the river pursues a new "cut-off" channel; its abandoned channel becoming a stagnant "ox-bow" lake. Tributary streams coming from higher lands often follow the *F.* downward for miles before entering the main river. Plains of this character belong to many streams, notably the Mississippi, the Amazon, the Nile, and the Ganges. They are highly fertile, and are usually covered by swamp forests until cleared for cultivation. When occupied by man, overflow is provided against by dykes or levees.

Floods, *n. pl.* River overflows, or ocean invasions of the land. Floods are due to the unusual rise of streams from long-continued rains and melting snows; the sudden and severe rains known as cloudbursts; the breaking of dams, natural or artificial, with the outflow of reservoir waters; the breaking of ocean dykes; and the overflow of lowlands by ocean waters during severe storms or through earthquake convulsions.—*Coastal floods.* Of coastal floods, many destructive instances are on record. The breaking of the dykes of Holland has frequently caused much destruction, the most fatal disasters being those of 1228, 1446, 1521, and 1646, in each of which about 100,000 people were drowned. The earthquake flood at Lisbon, in 1775, sent ashore a wave 80 feet in depth, destroying hosts of the inhabitants. In 1876 a cyclone wave in Bengal caused the loss of 200,000 lives. The wave accompanying a volcanic explosion of Krakatoa, in 1883, caused great loss of life on the neighboring coast of Java. These are but a few of a long list of such disasters due to oceanic waters.—Of *F.* due to the breaking of dams, and the outflow of the waters of a reservoir, one of the most destructive on record was that at Johnstown, Pa., May 31, 1889, the water rushing down the river channel with a depth of 100 feet, and drowning more than 5,000 people. *F.* of this kind frequently occur in the spring by the temporary damming up of a stream by floating ice, the water backing up behind this temporary dam, and occasionally pouring forth destructively when the ice gives way. Much more serious effects have arisen from the occasional crossing of the course of a stream by a glacier, and the sudden yielding to the great body of water collected behind it. Such an ice dam was formed in the valley of Bagnes, south of Martigny, Switzerland, in 1818, the Gintroz glacier advancing during a very severe winter and blocking up the Dranse river, which formed a lake a mile long and 200 feet deep. By making a tunnel through the ice the lake was half drained, but the breaking of the ice caused a great flood with the remainder.—*River floods.* These are of very frequent occurrence in some parts of the world. Such *F.*, of narrow area and rapid decline, sometimes result from a very heavy downpour of rain, especially in mountain districts. The great and long-continued river floods are due to extensive and persistent areas of rain in the valleys of the tributaries of a great trunk stream. One of the most disastrous forms of river flood is that which, on nine known occasions, occurred in the lower valley of the Hoang-Ho, of China, which cut through its banks and took a new course to the sea. In 1853 such an overflow occurred, the stream forming a new outlet 350 miles from its old. The loss of life by this disaster was enormously great. Immense levees or banks are built to restrain the water within its channel, but these are apt to give way in a rise of unusual height, with the inundation of great areas of the flood-plain. Many such overflows have taken place in the Mississippi. In the spring of 1897 this stream rose to its greatest recorded height and overflowed thousands of square miles, though the strength of the levees prevented the disaster becoming as great as was threatened. *F.* of this kind are believed to be due in a considerable measure to the destruction of the forests, which, when intact, greatly lessen the rapidity with which the rain waters drain off; though some question the truth of this theory. At all events, forests have the effect of causing greater outflow at rainless periods, and act to prevent the occurrence of abnormally low stages or the drying up of streams.

Floor'-walker, *n.* A person employed in a large retail store to walk about and give information to customers, watch the conduct of employees, detect thievery, &c.

Flop, *v. n.* (*Colloq.*) To change suddenly one's opinions or political affiliations.

Flop'per, *n.* (*Colloq.*) A political turncoat; one who frequently or suddenly changes his opinions or party.

Floquet (*flō-kā'*), Charles Thomas, politician, born at St. Jean-de-Luz, France, Oct. 5, 1828; studied at the College St. Louis, and was admitted to the bar (1852); was successively member of the National Assembly and of the Chamber of Deputies; Prefect of the Seine; president of the Chamber, and (1888–89) Prime Minister. Became implicated in the Panama scandal (1892–93). Died Jan. 18, 1896.

Flor'a, in *Indiana*, a post-town of Carroll co., 19 m. S.S.W. of Logansport, on the Vandalia R.R.; has carriage shop, furniture factory and lumber mills. *Pop.* (1890) 639.

Flor'ence, William Jermyn (real name Bernard Conlin), comedian, born in Albany, N. Y., July 26, 1831; married Mrs. Malvina Littell, a dancer. In 1856 they went to England, travelling and acting together in the British provinces. On their return to the U. S. they appeared every season until Mrs. *F.* retired from the stage; her husband continuing to play, and joining Joseph Jefferson in some of the old comedies. His noted characters were; *Captain Cuttle*, in *Dombey and Son*; *Bardwell Slote*, in *The Mighty Dollar*, and *Robert Brierly*, in the *Ticket-of-Leave Man*. Died in Philadelphia Nov. 20, 1891.

Florence, in *Arizona*, a post-town, cap. of Pinal co., 75 m. N.N.W. of Tucson. Nearest R.R. station, Casa Grande, on So. Pac. R.R.; has a smelting furnace for silver. A U. S. Land Office is located here. *Pop.* (1897) about 1,500.

Florence, in *California*, a post-town of Los Angeles co., 6 m. from city of Los Angeles. *Pop.* (1890) 750.

Florence, in *Kansas*, a city of Marion co., 45 m. W.S.W. of Emporia, on Atch., Top. & S. Fé R.R.; has quarries of building stone. *Pop.* (1895) 1,454.

Florence, in *South Carolina*, a N. E. county; *area*, 578 sq. m. Drained by Lynch and Great Pee Dee rivers. *Surface*, level; *soil*, a sandy loam. *Products*, cotton, tobacco, corn, sugar cane, rice and potatoes. *Cap.* Florence. *Pop.* (1890) 25,027.

Florence, in *Wisconsin*, a N. E. county; *area*, 498 sq. m. Drained by Menominee river and small streams. *Soil*, fertile. Mining and lumbering are the chief industries. *Cap.* Florence. *Pop.* (1895) 2,850.

Flores, Antonio, statesman, born at Quito, Ecuador, in 1833. Studied in Paris, and graduated in Law at Lima; was minister to U. S. in 1861, and again in 1868–69; was president of Ecuador in 1888–92, his administration being one of peace and comparative prosperity.

Flo'resville, in *Texas*, a post-town, cap. of Wilson co., 30 m. S.E. of San Antonio, on San Ant. & Aransas Pass R.R. *Pop.* (1890) 913.

Flore'tum, *n.* A flower garden; specifically, that part of a botanical garden especially set apart for the culture of flowering plants.

Flo'tow, Friedrich von, Baron, an eminent German operatic composer, was born at Teutendorf, in Mecklenburg, April 12, 1872. Seeking Paris at the age of 16, he engaged in study under Reicha, and while quite young entered the field as composer, producing operas which were at first refused by the managers of the Paris theaters, he first winning a hearing in 1839 by his *La Naufrage de la Méduse*, which achieved great success. It was followed by *Stradella* in 1844, and the highly popular *Martha* in 1847. In 1856 he was appointed superintendent of the theater at Schewerin, which position he resigned in 1863, returning to Paris. In 1864 he was elected a corresponding member of the French Institute, and in 1870 was appointed director of the opera at Vienna. Of his later operas three attained marked success, *Indra* (1853), *La Veuve Grapin* (1809), and *L'Ombre* (1869). Died in 1883.

Flour, *n.* This word, unprefaced with the name of any cereal, is understood to mean the ground and bolted substance of wheat (*q. v.*), distinguished from rye *F.*, buckwheat *F.*, Graham (unbolted wheat) *F.*, &c.

Flour, Manufac'ture of. As bread and other preparations of the flour of wheat constitute the staple food of the most enlightened nations of the world—only rice, perhaps being used by a greater number of people—it follows that the production of wheat and the manufacture of flour are among the most important industries of the world. The earliest records of the human family show that wheat was cultivated and made into flour in those remote ages. The method of preparation was rude indeed, and slow compared with the complicated and rapid milling processes of the present time; and yet it is less than a quarter of a century since the general introduction of machinery that entirely displaces methods that savor of remote antiquity, viz.: the crushing of the wheat between two stones. The first process was probably that of pounding with one stone upon another, which was followed naturally by the use of a larger stone that was pushed back and forth on a lever; and from this came the quern, the earliest form of what may be called a mill, in which the lower stone was stationary and the upper, with a hole in the center for feeding the wheat, was rotated upon it by means of a stick inserted near the edge. Remains of primitive grain-crushers have been found in the ancient lake dwellings of Switzerland; we read in the Pentateuch of "the upper and nether millstone," and elsewhere in ancient literature are similar allusions. The work of preparing the flour, among the Hebrews, the ancient Romans, and even the early inhabitants of Britain, appears to have been altogether done by women. At a later period the Romans employed their slaves at this labor, and afterward animal power and water power were applied. A rude form of water-mill was used in England for several centuries. Wind-mills for grinding wheat were common in England and in some portions of the U. S., as also were water-mills, in the early part of this century, the farmers taking their grain to the mill and giving a certain portion of it as toll for grinding; but, except in a few primitive districts, wind and water power have been superseded by steam. Modern milling produces a great variety of flour, according to the system of grinding and separating, as well as from the different varieties of wheat used. As intimated above, until very recently stones were universally employed in crushing the grain, and are still found in small establishments. The ordinary buhr-stones are a little over 4 ft. in diameter and one foot in thickness, the surface being grooved; the grooves of the upper exactly corresponding with those of the lower, so that when the upper is rotated over the lower—which is fixed—the sharp edges of the grooves meet and the grain is cut, squeezed and powdered. Formerly the product of this grinding was at once separated by bolting into flour, middlings and bran. But some time in the early part of this century what was called high-milling began to be practiced in Germany and Hungary, which was then the center of the flour manufacture of the world. This consists in putting the ground product through a process of several reductions and separations, avoiding the rasping of the bran—particles of which, mingled with the flour, gives it a dark color—and at the same time securing a larger proportion of fine white flour from the middlings. About 1840, at Budapest, Count Szechenyi invented the roller-mill, which was destined to revolutionize the business of flour-making. For some time it was kept a secret, but when once introduced to public notice, about 1879, it came rapidly into favor and has in large establishments already banished the use of stones. The rollers of this modern mill are made, some of porcelain, some of steel, but mostly of chilled iron; and are smooth or corrugated according to the use required of each kind. There are commonly two pairs to each machine, fed from opposite sides of the same double hopper. The wheat as it comes to the mill often has foreign substances mixed with it, as well as impurities on the surface of the grains, both of which must be gotten rid of; and therefore it is first subjected to a process of cleaning. This is commonly done by passing it through a cylindrical sieve of wire cloth, having internal partitions, and mounted in a sloping position; when this is set in motion, the grain tumbles from one division to another, losing through the meshes particles of sand or small seeds, and is exposed to a blast of air from a fan for removing dust and all light substances. It is then subjected to some kind of a scouring process, either by a decorticator for removing a portion of the outer covering, or by a brush machine, which scrubs and polishes the surface, when it is ready to be ground. Here it should be noted that a berry of wheat consists of an outer layer of epidermal cells, then two or three layers of cells enclosing a layer of larger cells containing the gluten or nitrogenous matter—the most nutritive portion of the wheat—within which is the perisperm or albumen, constituting the great mass of the berry, composed of numerous cells filled with grains of starch, and having at its lower end the minute embryo or germ of the plant which the seed is designed to produce. It is the object of the miller to grind all these inner portions of the grain in such a manner as not to break the minute granules, and to separate from them all the integumentary and flinty particles and produce a pure white powder, or one only slightly shaded or tinged with yellow, containing all the nutritive and none of

the indigestible substance of the wheat. To effect this it is first slightly broken between a pair of corrugated rollers—one of which revolves at a speed about three times as great as that of the other—and the product is conveyed to a bolter, or dresser, for removing a portion of the flour mixed with small wheat or middlings. This process is repeated several times until as much as possible of the flour has been disengaged from the bran, which is removed, and the flour and middlings are sifted to separate the flour, which is then ready for use. The middlings, or granules, are then passed to a "purifier," a reciprocating sieve with an air current, which removes the undesirable particles, and the purified granules are then crushed through a series of smooth rollers (one revolving about twice as fast as the other) and successively sifted, the resulting product being a fine—sometimes called "patent"—flour, and a portion of screenings. The bolters, or dressers, are cylinders of considerable length and usually about three feet in diameter, mounted horizontally on spindles for revolving, and covered with silk of different degrees of fineness. Brushes on the outside, either fixed or rotating, prevent the silk from being clogged, and in some there are frames that revolve inside to throw the material against the circumference. The flour and other products are conveyed through spouts to the packing room and emptied into barrels or bags as desired. A large part of the machinery of a flour-mill is automatic, and only requires careful supervision to have the work done rapidly and accurately. The great flour center of the U. S. is Minneapolis, the production of that city alone in one year being about 10,000,000 barrels. The value of the total annual flour product of the U. S. is estimated at about $600,000,000.

Flourens, Gustav, author and politician; born in Paris, Aug. 4, 1838; engaged in the war of the Cretans against the Turks; was minister plenipotentiary from Crete to the Greek Government (1855–68); took part in the electoral movement at Paris (1868), also in the commercial insurrection of 1871; was killed on April 3 of that year. He was the the author of *La Question d'Orient et l'Insurrection Crétoise; Paris Delivrée*, &c.

Flow'er, Roswell Pettibone, banker and politician, born at Theresa, Jefferson co., N. Y., Aug. 7, 1835; received a common school education, taught school, engaged in the jewelry and brokerage business at Watertown, N. Y.; became manager of the estate of his sister, widow of Henry Keep, valued at several millions, and removed to New York city, in 1869, to establish a banking house; was elected to Congress in 1880 and 1888; held local offices in New York city, and was elected governor of the State (1891–94) on the Democratic ticket.

Flower, Sir William Henry, anatomist, born at Stratford-on-Avon, England, Nov. 30, 1831; educated at University College, London; served as surgeon in the Crimean war (1854–55), and has held various important positions in connection with his profession. He has published: *Fashion in Deformity; The Horse: A Study in Natural History; Diagrams of the Nerves of the Human Body*, &c. He has the honorary titles of K.C.B., D.C.L., and F.R.S.

Floyd, John Buchanan, statesman, born in Montgomery co., Va., in 1805; graduated from South Carolina College, and studied law; was a member of the Virginia legislature (1847–49, and 1853); governor of the State (1850–53); U. S. Secretary of War (1857–60); entered the Confederate army as brigadier-general in 1861, but was not successful as a soldier. Died in 1863.

Floyd, William, an American patriot, born in Suffolk co., N. Y., 1734. Forty years afterward he was a delegate to the Continental Congress, and during 8 years had a seat in that body, and affixed his signature to the Declaration of Independence. Died in 1821.

Floyd, in *Texas*, a N. W. county; *area*, 1,100 sq. m. Intersected by Catfish creek. *Surface*, undulating; *soil*, fertile; no timber. Stock raising is the chief industry. *Cap.* Floydada. *Pop.* (1897) about 2,000.

Flu'orene, *n.* A white crystalline compound ($C_{13}H_{10}$), a product of coal-tar. When impure it has a beautiful violet fluorescence, whence its name.

Fluores'cence, *n.* (*Phys.*) A property, which is possessed by certain transparent substances, of giving off, when illuminated, light of a color differing from that of the incident ray and from their own color. The light given off is of greater wave-length than that of the incident ray, and is best excited by the violet and ultra violet rays; light rays above the range of visibility being made visible by reduction in the rapidity of vibration through fluorescent action. The coal-tar coloring product known as fluorescein when dissolved in water, is of an intense green hue; but if light be made to pass through this solution the color changes to a réddish-orange, the shorter rays being absorbed and re-emitted as longer rays. One part of fluorescein dissolved in alkali and diluted with 2,000,000 parts of water still shows a *F.* Sulphate of quinine and some few other substances are also strongly fluorescent, while many can be shown to be so by special methods. If a ray of reflected light be passed through a solution of ammonia-sulphate of copper, in a dark room, many substances, placed in the faint purple-blue beam that emerges, will glow brightly with tints of greater wave length. The electric ray sent through the same solution will yield similar effects. *F.* can also be excited by passing the electric discharge through the rarefied gas of the Geissler or Crookes tube. If portions of these tubes are made of the fluorescent "canary glass," or are surrounded with jackets of glass holding fluorescent liquids, interesting effects appear, the colored light of the discharge being varied by luminous colors of different shades, due to the action of the fluorescent material. The principle of *F.* was first announced by Prof. G. G. Stokes in 1852, to the effect that the wave-length of the light emitted by a fluorescent body is always greater than that of the incident light. For this reason, light waves which are too short to affect the eye may be lengthened and become visible through the action of a fluorescent body. In this way rays far beyond the ordinary limit of visibility may be seen and the lines of their spectrum mapped out, Stokes having obtained by this means spectra five times as long as the ordinary solar spectrum. In addition to fluorescent liquids, there are certain solids which possess this property, including fluor-spar (from which Stokes derived the name of the property), platino-cyanide of barium (which has striking fluorescent powers), thalline (a petroleum product of brilliant powers), and canary glass. The latter is a glass colored yellow with oxide of uranium, which fluoresces with a brilliant green tint. The salts of uranium yield fluorescent spectra of great variety and many of them very beautiful. In fluorescent liquids, and some solids, the effect ceases instantaneously on cutting off the light; but in most solids it continues from a very short period, in some instances, to many minutes in others. This persistence is often known as phosphorescence, and can be given to some solutions by solidifying them in a gelatine combination.

A highly important extension of the employment of fluorescent material has been made since the discovery of the Roentgen rays, which, in addition to their photographic power, can be made visible by the use of fluorescent screens. The rays, which may lie far beyond the ultra-violet end of the spectrum, are made visible by this process. By covering a photographic plate with fluor-spar, its sensitive surface being turned away from the source of the rays, the length of the light vibrations may be changed and a photograph be taken with the new rays, which affect the photographic plate much more strongly than did the Roentgen rays in passing.

In the opinion of Professor Dewar, whose experiments in the liquefaction of gases have attracted such wide attention, *F.* differs from phosphorescence only in the brevity of its duration, the latter being, in his view, simply a species of the former, in which certain substances give out light (usually in an altered form) which had been previously absorbed. In his experiments with very low temperatures he has greatly extended the list

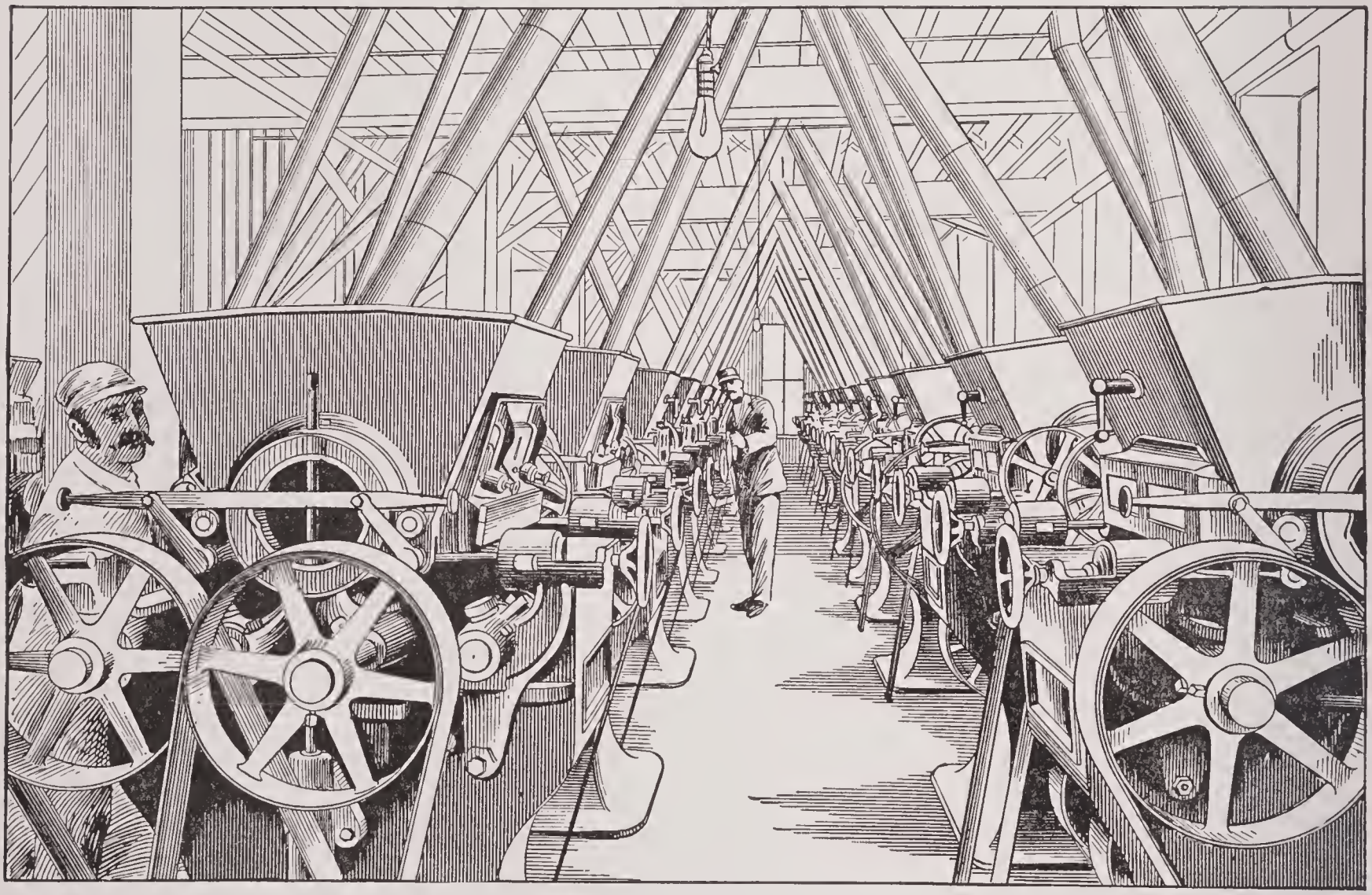


Fig. 2879.—FLOUR-MANUFACTURE—INTERIOR OF A MODERN ROLLER MILL.

of fluorescent bodies, even proving that oxygen has the property of *F.*, which is shown by all gases containing this element. The air used needs to be filtered, as any considerable proportion of organic material present destroys the fluorescent effect, which is also destroyed by ether or hydrogen.

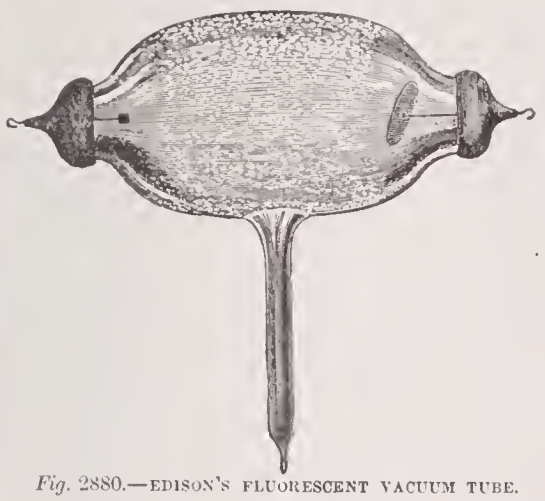


Fig. 2880.—EDISON'S FLUORESCENT VACUUM TUBE.

Flu'oroscope, *n.* The name given by Edison to an instrument which he designed in March, 1896, similar to the skiascope (*q. v.*). It consists essentially of an actinically darkened tube or box, having at one end a fluorescent screen on which shadow-pictures, made by the "X-ray," may be projected from without, thus becoming immediately visible to an observer looking within the instrument.

Fluti'na (*flu-tī'-na*), *n.* A musical instrument with lever or push-button finger-pieces, similar to an accordeon.

Flut'ing-iron, *n.* A laundry iron with corrugated surfaces for fluting ruffles.

Flut'ing-machine, *n.* A machine having grooved cylinders for fluting; sometimes called a *fluting-lathe.*

Fly, *n.* A fish-hook dressed in imitation of some kind of a fly, so as to attract attention.—That part of a flag farthest from the staff or halliards—the part beyond the canton.—The length of a flag from the staff to the farthest edge, in distinction from the *hoist*—its vertical width. See FLAG.

Fly'-fishing, *n.* Fishing with flies, natural or artificial.

Fly'ing-squir'rel, *n.* A squirrel of the genus *Pteromys*, inhabiting southern Asia and the East Indies; or of *Sciuropterus*, inhabiting the northern parts of Europe, Asia and America; having a parachute-like fold on each side, enabling it to take long leaps, as if flying.

Fly'-net, *n.* Any netting for excluding insects.

Fly'-paper, *n.* Paper coated with an adhesive substance for catching flies, or with poison for killing them.

Foard, in *Texas*, a N. county; *area*, 660 sq. m. *Surface*, hilly in the west, undulating in the east; gypsum plentiful. *Products*, wheat, oats and sorghum. Stock raising is a leading industry. *Cap.* Crowell. *Pop.* (1897) 1,500.

Fog'-horn, *n.* An instrument with a perforated, rotating disk or disks, through which steam or impressed air is driven so as to produce a loud, musical note or a whistle; it is used as a warning to ships in a fog. Sometimes termed a siren.

Fog Sig'nals. (*Naut.*) Signals used to prevent collisions between vessels in foggy weather. Signals of this kind are highly necessary in certain oceanic localities, as on the northeastern coast of the U. S., where fogs are frequent and persistent. Here also the shores are precipitous, rendering the indications of the land very uncertain; and safety is only to be had in the use of signals capable of penetrating the fog. The penetrating power of intense lights has been tried for this purpose in France and Great Britain, but without satisfactory result, and sound seems to be the only agent capable of penetrating any considerable depth of fog. Various sound-producing instruments have been tried for this purpose, such as cannon, bells, gongs, whistles, trumpets, and sirens. Of these, cannon have proved unsatisfactory, from the brief continuance of the sound, while the bell is usually too feeble in sound to be valuable except for short distances. Bells rung automatically by the action of the waves have been tried, but without satisfactory result, and the sound of the gong has proved to have too little power of penetration. Automatic whistles, actuated by wave motion, are also employed. The trumpet and the whistle have proved the most desirable implements for this purpose, the locomotive whistle being employed by the U. S. lighthouse board as the simplest of the more powerful *F. S.* The whistles employed are from 8 to 12 inches in diameter, and are blown by a steam pressure of 50 to 75 lbs. per sq. inch; the length of blast and the interval between two emissions differing from those of the ordinary locomotive signal, and being controlled by an automatic opening and shutting of valves. The *reed* or *Daboll trumpet* is the next most powerful instrument. This is actuated by compressed air, and while less powerful than the steam whistle, can be used in places where the latter is not available. The most powerful of all *F. S.* yet employed is the *siren trumpet*, its sound being audible in still air at a distance of from 20 to 30 miles, even through a dense fog. It is usually operated by a pressure of 75 lbs. of steam. By increasing the number of revolutions of the disk, the pitch of the sound may be heightened; and it has been found by experiment that a pitch of medium sound gives better penetration than one higher or lower. There are many interesting phenomena of variation of sound with change of distance, and in case of wind, in the use of *F. S.*, which are too complex to be treated here. For an interesting sound-receiving instrument, useful in fog, see EOPHONE.

Fol'derol, *n.* (*Colloq.*) Nonsense; foolishness.

Fold'ing-machine, *n.* (*Print.*) A machine for folding printed sheets for books or newspapers.

(*Metall.*) A machine for bending sheet metal to form.

Fo'ley, in *Texas*, a S.W. co.; *area*, 2,100 sq. m.; bounded on the south by the Rio Grande del Norte. Unorganized.

Fol'ger, CHARLES JAMES, jurist and financier, born at Nantucket, Mass., on April 16, 1818; graduated (1836) from Hobart College, Geneva, N. Y. (where he afterward resided), and began the practice of law in 1839; became successively judge of Common Pleas (1844), State senator (1861–69), associate judge State Court of Appeals (1871) and chief justice of same (1880); was appointed U. S. Secretary of the Treasury (1881–84), in 1882 was Republican candidate for Governor of New York, but was defeated by Grover Cleveland. Died Sept. 4, 1884.

Folk'-tales, *n. pl.* (*Anthrop.*) Narratives of ancient origin, which have been passed down orally through many generations, and many of which are still extant as the domestic literature of the common people. Many tales of this character have been committed to writing in ancient times, and have descended to us as part of the written literature of former periods; but the bulk of them have been communicated by way of recitation, and only recently have been collected and reduced to printed form in any large measure. These compositions are those of the common people, and do not possess any special literary merit, while their form is largely that of the fable or fairy tale—the favorite lore of the period of high antiquity which many of them can claim. This antiquity is shown by their wide diffusion and the many variants of the same original tale which are possessed by different and often widely separated peoples. *F.* cannot be said to indicate any active power of imaginative invention possessed by the people among whom they arose, the same incident being made to do duty in many different tales, and a small stock of more or less magical events serving the purpose of numerous distinct peoples. The study and collation of these tales belongs to the subject of folk-lore (*q. v.*).

Fou'da, in *Iowa*, a post-town of Pocahontas co., 35 m. W. of Fort Dodge on Des M. & N. W. and Ill. Cent. R.Rs. *Pop.* (1897) about 1,300.

Fonse'ca, da, MANUEL DEODORO; Brazilian soldier and politician, born in the province of Alagoas, Aug. 5, 1827; graduated from the military school with the rank of sub-lieutenant of artillery, having previously served in the army as cadet. After the banishment of the Emperor, Dom Pedro, II., a republic was proclaimed and *F.* made chief of the provisional government; subsequently elected President for four years. Revolts breaking out, *F.* was forced to resign (March, 1892), the vice-president, Peixoto, assuming the office of President. Died Aug. 23, 1892.

Fontanel, in *Indiana*, a post-village of Vigo co., on C., C., C. and St. L. R. R. *Pop.* (1890) 521.

Fool's Gold, *n.* Iron or copper pyrites, which has a resemblance to gold.

Fool's Par'adise. A place in the world of spirits popularly considered to be the abode of nonsense and vanity; hence, any state of deception, bliss or foolish pleasure.

Foot'-ball, *n.* (*Sports.*) A game played in an open field, with an inflated, hollow ball, by any even number of persons divided into two sides—generally eleven on a side. In England the ball is usually round; in this country the oblong shape is more in vogue; it is made of India-rubber or an ox-bladder, covered with pig-skin or other leather, with an inlet, tube, and screw-valve for inflating the sphere by means of an air-pump or lung pressure. The oblong ball, of regulation size, is about 9 inches in diameter by 12 inches long. The game should be played (according to the rules of the University Athletic Club, 1897), upon a rectangular field 330 feet in length by 160 feet in width, the boundaries being indicated by heavy white lines marked in lime upon the ground. It is customary to mark off the field with cross lines in lime at intervals of five yards, for the benefit of the referee in determining how far the ball is advanced at each down. The two end lines are the *goal lines.* These and the side lines are extended past the points of their intersection; and the spaces lying beyond the goal lines and outside the side lines are termed *touch-in-goal.* The goals are placed on the goal lines, midway between the side lines; each consists in two upright posts, exceeding 20 feet in height, placed 18½ feet apart, and joined by a cross-bar 10 feet from the ground. The space beyond the goal lines, and between the extensions of the side lines, is termed *goal.*

The frequently rough nature of the game requires a special dress, affording some measure of protection to the player. This is provided by padded trousers, shin-guards, &c., while special shoes are made, of leather or canvas, with leather cross-pieces on the sole to prevent slipping. On taking the field, the players "line up" as follows: In front, the rush line of 7 men, whose positions are termed, respectively, *center*, *right guard*, *right tackle*, and *right end*, and *left guard*, *left tackle*, and *left end.* Close behind the *center* stands the *quarter-back;* a few yards further in the rear, and on either side, are the two *half-backs*, while the *full-back* or *goal-tender* is placed ten or twelve yards behind the half-backs. The opposing side, of course, is similarly disposed, and the contending forces face each other across a space a few feet wide in the center of the field. Referee, umpire, and linesman are chosen; the extremities of the playing field are indicated by flags. The whole purpose of the game is to force the ball through or over the opponent's goal. In the old-style game, this was done wholly by kicking; but in the modern game, as played in this country by the university athletes, the ball is thrown and carried as well as kicked. The side winning the preliminary toss has the right to a choice of goal or to the first kick-off. If there be no advantage in goals (due to wind, position of the sun, &c.) the captain will generally choose the kick-off. The ball is placed in the the exact center of the field and the game begins, there being two periods or "halves" of play, 35 minutes each, with an intermission of 10 minutes. At the first kick the ball must be sent at least 10 yards into the opponent's territory, unless intercepted by an opponent; as a matter of fact, it is generally sent as far as possible, and the rush line plunges forward in the hope of reaching the ball in time to force it onward toward the other's goal before it can be returned by a kick or carried by a speedy runner around the end. The various plays may be fairly understood by reference to the following partial

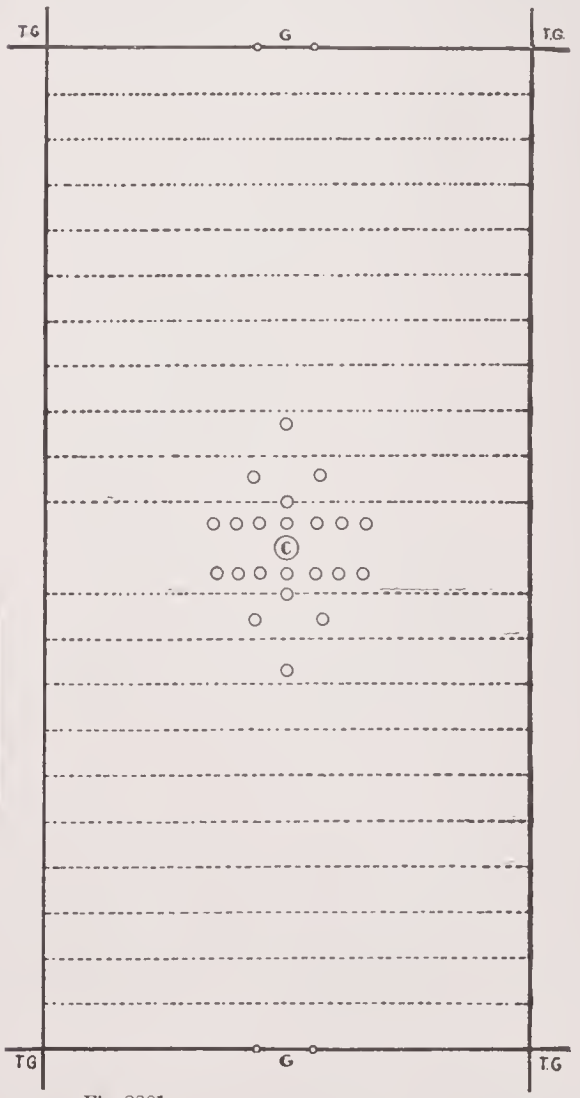


Fig. 2881.—DIAGRAM OF FOOT-BALL FIELD.

C, center; G, goal; TG, touch-in-goal. The dotted lines show the 5-yard intervals.

list of terms used in and general rules governing the game:

A *drop-kick* is made by letting the ball fall from the hands and kicking it the instant it rebounds. A *place-kick* is made by kicking the ball after it has been placed on the ground. A *punt* is made by letting the ball fall from the hands and kicking it before it reaches the ground. A *kick-off* is a place-kick from the center of the field of play, and of course can never score a goal. A *kick-out* is a place-kick, drop-kick, or punt made by a player of the side which has touched the ball down in its own goal, or into whose touch-in-goal the ball has been sent during play. *A free kick* is any kick where the opponents are restrained by rule from advancing beyond a certain point. If a side obtain a free kick, the ball may be put in play by any form of kick. A ball is *out of bounds* when it crosses either side line, or when any player holding the ball shall put any part of either foot on or across a side line. It is *in goal* under similar conditions affecting the goal lines. A *foul* is any violation of any rule. A *touchdown* is made when the ball is carried, kicked, or passed across the goal line, and there held either in goal or touch-in-goal. The point where the touchdown is marked is the place where the ball is fairly held, or "downed"—not the point where it is carried across the line. A *safety touchdown* is made

when a player touches down the ball, it being in possession of his side, in his own goal or touch-in-goal. A *touchback* is made when the ball, having been sent across the goal line by an opponent, is touched down by a player behind his own goal. A *punt-out* is a punt made by a player of the side which has made a touchdown to one of his own side for a fair catch. A *fair catch* is one made direct from an opponent's kick, or from a punt-out by one of the same side; providing the player making the catch marks the spot with his heel, and no other of his side has touched the ball. If he be thrown after making the catch, or be interfered with by an opponent who is off side, he is given 15 yards, providing he has not advanced beyond his mark. A player is *off side* if he be in opponents' territory at the instant the ball is put in play. A *scrimmage* occurs when the holder of the ball places it on the ground and puts it in play by snapping it backward or kicking it forward. *Charging* is rushing forward to tackle a player or to seize the ball. The ball is *dead* when the umpire or referee blows his whistle during play or declares a down; when a goal has been obtained; when a touchdown or touchback has been made; when a fair catch has been held; when the ball has been downed after going into touch-in-goal or out of bounds. No play can be made while the ball is dead except to put it in play according to the rules. A *goal* consists in kicking the ball in any way, except by a punt, from the field of play, over the cross-bar of the opponent's goal. If the ball pass directly over one of the upright posts, it counts a goal, just as though it had passed between them. The *umpire* is the judge of the conduct of the players, and his judgment as to fouls and unfair plays is final; except that the *referee* is required to see that the ball is properly put in play, and to judge its position and progress; he is also judge of forward passes and of running with the ball by the quarter-back. The same side is not allowed the kick-off in two successive halves; and whenever a goal has been obtained, the side losing has the next kick-off. At kick-off, if the ball go out of bounds before being touched by an opponent, it is brought back for another kick-off; if this occur twice in succession, it goes as a kick-off to the opponents. The side having a free kick must be behind the ball when kicked; and the opponents must stand at least ten yards in front of the ball until it is kicked. A player may pass or throw the ball in any direction except toward the opponent's goal. A player is *tackled* if, when attempting to run with the ball, he is assailed by his opponents. *Interference* consists in the efforts of the runner's fellow-players to prevent his being tackled. A *down* occurs when a player holding the ball is fairly stopped by his opponents, or when he shouts "down;" the referee then blows his whistle, the ball is considered down at that spot, and any piling up thereafter on the player who has the ball is punished by giving him 15 yards. If in three consecutive downs (the ball not being carried across the goal line), a team shall not have advanced the ball 5 yards or taken it back 20 yards, it goes to the opponents on the spot of the fourth down. These are only a few of the many and somewhat intricate points and rules of play. The scoring is as follows: Goal obtained by touchdown, 6 points; goal from field-kick, 5 points; touchdown failing goal, 4 points; touchdown for safety, 2 points.

Foote, Andrew Hull, an eminent naval officer, born at New Haven, Conn., 1806. Entering the navy in his sixteenth year, he became a commander in 1852, served with distinction in China in 1856, and in 1861 was entrusted with the command of the gunboat flotilla on the Mississippi, in which position he rendered efficient aid in the reduction of Forts Henry and Donelson, in 1862. In the same year he became a rear-admiral, and succeeded Admiral Du Pont in command of the South Atlantic squadron. Died in 1863.

Foote, Henry Stuart, statesman; born in Fauquier co., Virginia, September 20, 1800; graduated from Washington College, Va., and licensed to practice law; was U. S. Senator from Mississippi (1847–52), when he was elected governor of that State; was a member of the Confederate Congress, but was one of the few prominent Southerners who opposed secession. Died May 19, 1880.

Foote, Mary (Hallock), artist and novelist; born in Milton, N. Y., Nov. 18, 1847; since her marriage with Arthur D. F., she has lived in California, Colorado and Idaho. Besides her own works, she has illustrated Longfellow's *Skeleton in Armor; Hanging of the Crane*, and verses by other poets. Her novels include *The Led-Horse Claim; John Bodewin's Testimony*, &c.

For'age Plants. (*Agric.*) Plants which are cultivated to serve as food for farm animals, or which may be adapted to this purpose. This is the case with some of the cereals which are frequently grown for winter pasturage in the South, and are largely grown for hay in California. Maize, in its young state, is often used for this purpose in the North. The grazing plants of this country, in great part, are native grasses which grow freely without culture, and which, upon the grazing lands beyond the Mississippi, support many millions of cattle and sheep. What are called "artificial grasses," the clovers, &c., which form a considerable share of the annual hay crop, and are usually associated with the grasses by the farmer, belong to a very different class of plants. Of the many kinds of grass possessed by this country, only a few species are cultivated for hay, while of those which supply the western grazing interests the farmer has little or no knowledge. Grasses are usually classified in accordance with their habit of growth, as *bunch grasses*, which grow in bunches and do not form a sward, and *gregarious grasses*, which grow in close association, forming a compact sward, this being the habit of most grasses of the temperate zones. They may also be classed as *aquatic grasses* (those growing in the water), *salt grasses* (those found in alkaline soils or salt marshes), *meadow and pasture grasses* (including most of those cultivated for pasture), and *agrarian grasses* (usually considered as weeds). Of these, the bearded darnel is believed to bear poisonous seeds, a property almost unknown in the grass family. It is thought to be the "tares" of the Scriptures. There are other grasses which are weeds only in certain localities, as the barn-yard and crab grasses, which are worthless weeds in Northern fields but are prized for both hay and pasturage in the South. There are others which are excellent for forage while young, but are injurious weeds when mature, developing sharp-pointed awns which may seriously injure animals feeding upon them. Of this character are the wild-oat and porcupine grasses. Within the limits of the U. S. there are no fewer than 800 different species and varieties of grasses. As regards those commonly used for forage purposes, most of them have been introduced from foreign countries, either intentionally or accidentally. Of the native grasses, many are known to have value as *F. P.*, though only a few of them are grown commonly on farms. Thus the native grasses of Texas are remarkably rich in variety, are fed on by vast herds of cattle, and doubtless some of them would prove to be highly valuable under cultivation. The same may be said of the grasses of the Great Plains. Of native grasses the Kentucky blue grass has acquired most fame. It is highly valued for hay, but its chief excellence is as a pasture plant, it attaining its highest perfection in the rich calcareous soil of Kentucky. Yet in Oregon this grass, highly prized as it is in the East, is looked upon as one of the most troublesome of weeds, it being very difficult to eradicate on account of its rapid propagation by root stalks and stolons. Clover, though not a grass botanically, is one of the most valuable of *F. P.* There are about 200 species of the genus *Trifolium*, while some species of allied genera, having similar leaves, are popularly called clover. Only three of these are native to the eastern section of the U. S., but there are more west of the Mississippi, while some 40 are found west of the Rocky Mountains. The kinds usually cultivated are European species, principally the red clover (*T. pratense*,) the white or "Dutch" clover (*T. repens*), and the hop clover (*T. procumbens*). Of these the red clover is most largely raised for forage purposes, while the white clover is much grown for permanent pastures. Red clover is often grown where manure is scarce, to be ploughed under as a fertilizer, a crop of about two tons to the acre being equal to five cords of stable-manure. The burr clover has become naturalized in California and other Pacific States and thrives greatly. Cattle are fond of it, but the burr-like seeds are very annoying to sheep raisers. The alfalfa is a famous plant for dry regions, and will afford two or three cuttings a year even in such soils as that of Utah. Many other *F. P.* allied to the clovers might be enumerated, of which we shall name here only the white lupine, largely grown in Southern Europe as a forage plant, and also to be plowed under for fertilizing purposes. Vetches and tares are also highly prized in Europe as pasture plants, but have received little attention in the U. S. The same may be said of the bird's-foot trefoils, small herbs nearly allied to the true clovers.

For'aker, Joseph Benson, statesman, was born in Highland co., Ohio, July 5, 1846; entered the Federal army at the age of 16, and was captain of his company at 20; graduated from Cornell in 1869, and began the practice of law at Cincinnati; in 1879 was elected a judge of the Superior Court, holding the position five years; was elected governor of Ohio in 1885 and again in 1887, but was defeated in 1889; was elected U. S. Senator in 1896 to succeed Calvin S. Brice. *F.* is one of the acknowledged Republican leaders, a brilliant and forceful orator.

Forbes, Archibald, war correspondent, was born in Morayshire, Scotland, 1838. Student of the University of Aberdeen. After serving for several years in the Royal Dragoons, he became (1870) the war correspondent of the London *Daily News*, accompanying the German Army during the entire period of the Franco-German war. He also visited India during the famine of 1874; witnessed and reported the Servian troubles of 1876, the Russo-Turkish war of 1877, and the Afghan and Zulu campaigns of 1878–80. He subsequently made a lecture tour through the U. S.

Force, Peter, antiquarian; born at Passaic Falls, N. J., Nov. 26, 1790; published the *National Journal*, which was the official journal of the administration during the presidency of John Quincy Adams, and devoted thirty years to his documentary history of the American colonies. His collection of books, manuscripts, etc., relating to American history was purchased by Congress for $100,000. He was mayor of the city of Washington, D. C., from 1836 to 1840, and died in that city on January 23, 1868.

Ford, Austin E., journalist, born at Boston, Aug. 31, 1857; received a collegiate education, and in 1874 became editor of the *Freeman's Journal* and managing editor of the *Irish World;* entered politics in 1882, as Republican candidate for Congress but was defeated; led the Irish revolt against Cleveland, in 1884; was again defeated for Congress in 1894, in which year he was appointed a Fire Commissioner of New York city. Died Sept. 17, 1896.

Ford, Richard, an English author and traveller, born in 1796; wrote especially of Spanish art. Died in 1858.

Ford, in *Kansas*, a S.W. co.; *area*, 1,040 sq. m. Intersected by Arkansas river and Crooked creek. Surface nearly level. Cattle and sheep raising are the chief industries. *Cap.* Dodge City. *Pop.* (1895) 4,940.

Ford City, in *Pennsylvania*, a post-village of Armstrong co., 6 m. from Kittanning, on Alleg. Val. R. R.; has plate-glass works. *Pop.* (1890) 1,255.

For'dyce, in *Arkansas*, a post-village of Dallas co., 99 m. S. of Little Rock, on St. Louis & S. West. R. R.; has saw and grist mills, and is trade center of a large cotton growing district. *Pop.* (1890) 980.

Fore'fathers' Day. The anniversary of the day (Dec. 21) on which the Pilgrims landed in Plymouth, Mass., in 1620; celebrated in New England, and by Congregational churches throughout the U. S.

For'est, in *Wisconsin*, a N. co.; *area*, 1,276 sq. m. *Soil*, fertile, well watered and well timbered. *Cap.* Crandon. *Pop.* (1895) 1,288.

For'est City, in *Pennsylvania*, a post-borough of Susquehanna co., 30 m. S.E. of Montrose, on Erie and N. Y., Ont. & West. R.Rs.; has coal-breakers. *Pop.* (1890) 2,319.

For'estry, *n.* The care and management of trees in forests; comprising the proper utilization of natural forest growth, the planting of and care for new forests, and the reproduction of forests where unwisely destroyed. Two important objects need careful consideration in forestry, the first being the furnishing of a supply of wood sufficient for human needs, a subject of the highest importance in view of the host of uses to which wood is now put; the second being the preservation of forests where needed for the conservation of the water supply, and where they exert some favorable influence upon climate. To this latter object little attention was paid in the past, and almost irreparable injury has been caused by the heedless defforesting of mountain slopes. Within the 19th century man has awakened to the injury caused by recklessness in this direction, and attention is being paid to the preservation of existing forests, and to the reforesting of certain denuded localities. The forest has a large influence upon the rainfall, both in affecting the meteorological conditions and causing a more regular distribution of rain throughout the season, and in checking the too free outflow of rain water. The forest holds the soil in steep slopes, prevents erosion, checks evaporation by excluding sun and wind, holds the fallen water in the soil, humus and litter of the forest floor and yields it to the streams by slow percolation, instead of by rapid downflow on slopes whose soil has been washed away by the loss of their forest covering. The difference between the two is that in the one case the water is delivered gradually to the streams, which remain far more uniform than in the other, where rapid outflow and dry intervals alternate, yielding occasional dangerous floods, with intermediate states of very low water. Another injurious effect of denudation of hillsides is the carrying of vast quantities of sand and mud into the streams, silting them up and seriously affecting navigation. There is abundant evidence that these results occur. For example, we may give the desolation of certain formerly fertile regions in the Mediterranean countries, undoubtedly due to the destruction of their forests. An opposite example may be drawn from the experience of France, where certain denuded hill slopes have been reforested, with the result of reproducing the lost regularity of flow in the streams. The poorer soils, of little use for agricultural purposes, are often very well adapted to forest growth, so that it is not difficult to arrange a just balance between the agricultural and forestry interests, while the denudation of elevated lands which often follows reckless deforestation absolutely destroys the value of the land.

Management of Forests.—Natural reproduction takes place by the growth of new sprouts to replace fallen or felled trees, either from the old stump or from the seed. In cutting it is important to select the fully grown trees, leaving those of partial growth to replace losses, annually cutting only those trees which are of full size and in condition for market use, and thus confining the results to a limited quantity of wood yearly, and gaining a regular crop of unlimited duration. This is in opposition to the method of the lumberman, who in heedless disregard of the future, cuts without regard to coming needs, leaves the brushwood to dry and furnish ready fuel for the fires to which such great forest loss is due, and in every respect shows lack of foresight in his industrial activity. It is first to Germany and secondly to France that we must look for the adoption of rational and judicious systems of forestry. The contracted limits and growing population of these countries long since rendered attention to their forests necessary, and movements in this direction began even before the time of Charlemagne. Ban forests, those kept for the use of the king in the chase, were established and kept intact. But long earlier the communistic villagers had adopted regulations for the conservation of the village woodlands, the amount and kind of wood to be cut being carefully decided each season. Pasturing of sheep and goats in the woods was early prohibited, from their injury to young shoots, and the number of hogs allowed in the oak and beech woods was carefully limited. Each man had also to plant a number of trees in proportion to his use of wood, thus forming a sort of arbor-day regulation. We have historical statements of the replanting of certain destroyed forests. The effect of the Thirty Years War, however, with later hurtful influences, largely put an end to these wholesome practices, and it was not until late in the 18th century that new attention began to be paid to the forests, while the true steps of reform have largely been confined to the 19th century. Of the German forests, about half the area is under state and communal supervision, and these are kept subject to strict inspection by government officials. The

remainder, in private hands, are held under certain legal restrictions which prevent destructive use of their timber. The universities have chairs or schools of *F.*, and there are twenty periodicals devoted to this single subject. The policy of the government is to cover the waste and unfertile lands with forest growth and clear the richer ones for agricultural use, the result having been a considerable increase of the forest area within recent years. *France.*—A similar progress in *F.* has taken place in France, which was divided into forest districts in 1669, the cutting on private as well as public lands being regulated by law. During the Revolution destruction proceeded unchecked, and France has ever since been engaged in repairing the damages done in those few years. The forest administration was revived by Napoleon in 1801, but the present system, based on that of Germany, was not adopted till 1827. Later laws have given the State certain supervision and control over private forest lands, particularly those on mountain slopes. About 8,000,000 acres of once fertile land have been injured in consequence of mountain deforestation, and many millions of dollars have been spent in the effort to regain the lost forests and accumulate new soil. It will take perhaps $40,000,000 to complete the work. Austria, Italy and Switzerland have strict forest laws, but this subject is neglected in the other countries, while in Great Britain it has received little attention.

United States.—In the U. S. no system of *F.* has existed until within the past few years. The total area of woodlands is about 500,000,000 acres, on which the annual cut amounts to over 20,000,000,000 cubic feet, about four-fifths of which are used for firewood. There has been in the past no government forest policy worthy the name, the woods have been cut with the utmost recklessness, and every year fires sweep over thousands of square miles of forest, causing a destruction far surpassing that by the axe. In 1891 a number of forest reservations were made, with the purpose of preserving mountain forests in certain important localities, and in 1896 President Cleveland set aside certain further extensive areas, though his policy in doing so has been strongly questioned and his action may be set aside. The government holds about 50,000,000 acres of woodlands, which, under wise management, may be made of the highest value. Forestry commissions have been formed in a number of the States, and active measures are being taken to rouse the people to a sense of the importance of an enlightened care of their woodland treasures. New York has taken active steps in this direction by setting aside a forest reservation in the Adirondack region, and the State of Maine exercises a useful supervision over its forests, but the work of reform elsewhere is yet in its infancy. The establishment of Arbor Day, now celebrated in most of the States, is a useful step in the right direction, while among societies of private origin, the American and the Pennsylvania Forestry Associations are doing active work. On the whole, we seem approaching a turn in the tide, and the 20th century may see the 19th century work of destruction followed by one of preservation and reproduction. The principal forest reservations of the U. S., prior to 1896, were as follows: *Alaska*, the Afognak Forest, area unestimated; *Arizona*, Grand Cañyon, 1,851,520 acres; *California*, San Gabriel, Sierra, San Bernardino, and Trabuco, 7,290,240 acres in all; *Colorado*, White River Plateau, Pike's Peak, Plum Creek, South Platte, and Battlement, 3,103,360 acres in all; *New Mexico*, Pecos, 311,040 acres; *Oregon*, Bull Run, Cascade, and Ashland, 4,653,440 acres; *Wyoming*, Yellowstone, 1,239,040 acres. The following new reserves were added in 1896: *California*, Stanislaus and San Jacinto, 1,428,480 acres in all; *Idaho and Montana*, Bitter Root, 4,147,200 acres; *Idaho and Washington*, Priest River, 645,120 acres; *Montana*, Flathead, Lewis and Clark, 4,318,480 acres in all; *South Dakota*, Black Hills, 967,680 acres; *Utah*, Uintah, 876,520 acres; *Washington*, Washington Forest, Olympic, and Mount Ranier, 8,017,920 acres in all; *Wyoming*, Teton and Big Horn, 1,957,120 acres in all. The total acreage thus specifically reserved is 38,944,640. On certain other public lands timber may be cut by permit from the Secretary of the Interior.

Formicidæ (*fôr-mĭs'ĭ-dee*), *n. pl.* [From Lat. *formica*, an ant.] (*Entomol.*) The ant family; insects belonging to the sub-order *Hymenoptera*, which have long, in common with the bees, attracted attention from the remarkable intelligence displayed by them, their social habits, and their unremitting industry.

In appearance and structure the ants display a resemblance to bees and wasps. They usually dwell in communities, which contain one or more fertile queens, or

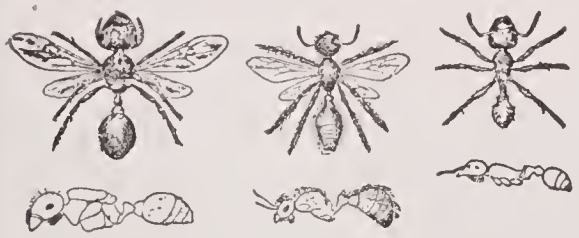


Fig. 2882.—THE OCCIDENT ANT AND LARVÆ.

females; workers (undeveloped females) of several sizes; and, in the case of some species, soldiers, or ants whose special duty is fighting, and which have remarkably large heads. These are all wingless. The winged forms comprise males and females, which leave the nest (usually in September) for their "swarming" or "marriage flight," being forced to do so in some instances by the workers. There are large numbers of these sexual forms, and at times, when pouring forth at once from many nests, they fill the air in clouds. Mating takes place in the air—though it may also do so in the nest. This duty performed, the males, having completed the one function of their lives, sink to the earth, where they soon perish or are devoured by insectivorous animals, they being unprovided with weapons of defence or excavation. The fertilized females tear off their wings as no longer of use to them; and such of them as escape destruction burrow into the ground, as the first step toward the formation of a new colony.

Colony Life.—The cycle of events in an underground colony, the kind formed by the great majority of ants, may be briefly described. When the queen has excavated a gallery of sufficient depth, or perhaps found a

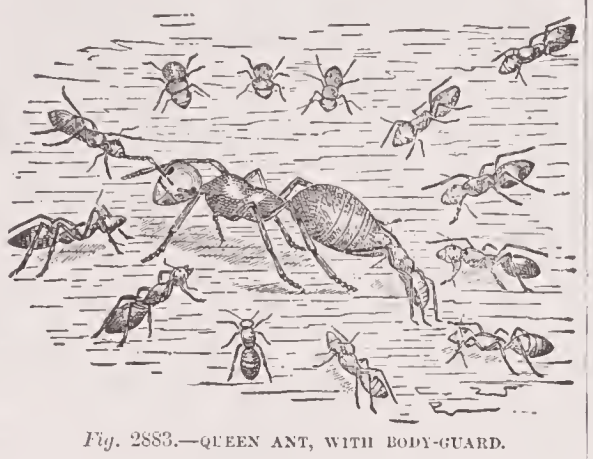


Fig. 2883.—QUEEN ANT, WITH BODY-GUARD.

place of shelter and safety under a stone, she deposits her first eggs, and carefully rears and feeds the larvæ hatched from them. The first brood is composed wholly of workers, and is a small one, varying from 30 or 40 to a much smaller number. It needs to be small, for the mother ant is obliged to seek food for herself and her offspring until they reach maturity; when they at once enter upon their duty as laborers, feeding the queen and her new broods, nursing the young, enlarging the underground chambers, and taking on themselves all the active duties of the community. During the remainder of her existence the queen is occupied in egg-production, though probably aiding in nursing the young, and rarely leaves her subterranean quarters. If she does so she is always surrounded by a body-guard of careful attendants, alert to the least threat of danger; for on the preservation of the queen rests the well-being of the community. She is fed and cared for by

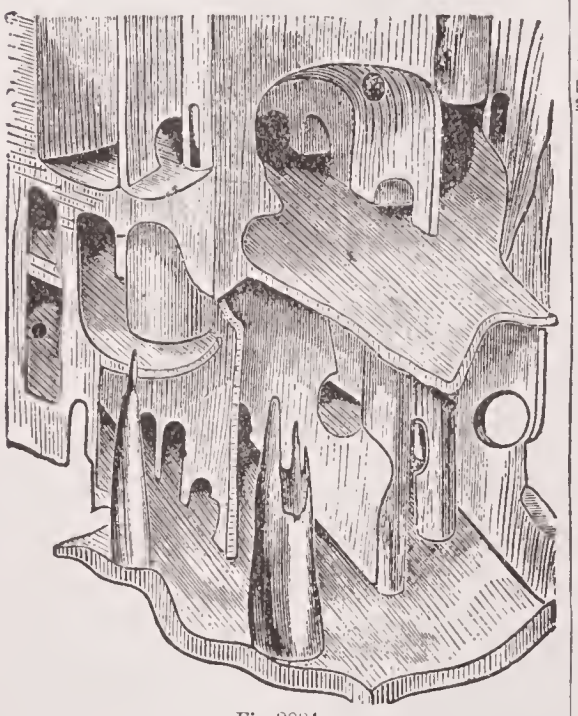


Fig. 2884.
HALLS AND GALLERIES OF THE CARPENTER ANT.

the workers, who continually surround her and attend to her wants. In a large nest there may be several queens, and workers have been seen, after a marriage flight, to seize and drag into the nest newly-fertilized queens, doubtless to add to the productive powers of the community, which meets with severe losses in its population from the constant perils to which the workers are subjected in their out-door foraging and wars. The queen lays a vast number of eggs, which, after the first broods, produce males and females and the various forms of workers. The eggs are minute in size, and white or yellowish in color, hatch in 15 to 30 days, and yield white, legless grubs, or larvæ. Eggs and young alike are carefully attended to by the workers, who lick them, feed the grubs, carry them back and forth during changes of weather, and flee with them or fight for them when assailed by enemies. They also seem to assort them according to age and size, and display in their care for them a striking degree of intelligence or development of instinct. At the end of the larval period, which may differ in different species from a month to several months in length, the grubs pass into the pupal stage, sometimes spinning a cocoon, in other species remaining naked. It is these white or straw-colored cocoons which are frequently mistaken for ant-eggs. No food is taken in the pupal state, though the pupæ are most carefully attended to by the workers, the whole life of the formicary seeming devoted to the rearing of new members of the community. It is in the pupal stage—in the ants as in all insects—that development from the larval to the mature form takes place, the wings and other organs of the mature insect appearing. At its termination the workers help the young ants from their cocoons, unfold their new legs with care, and smooth out the wings of the males and females. This ends the round of life in the formicary, the young workers at once taking up their life duties, probably with some instruction from their older brethren, while the sexed forms spend their days in idleness and enjoyment until the marriage season arrives, being wholly dependent on the workers for food.

Ant Anatomy.—The workers, or "neuters," resemble the queens in organization, being wingless and undeveloped females. In some cases they have been seen to lay eggs, from which, though unfertilized, workers are produced. The workers are of two sizes, the major and minor, while in some species there is a third, or dwarf form. The soldier, occuring in a few species, is a special form of worker. The ant's body is divided into head, thorax, and abdomen, the brain being located in the central and upper part of the head. It is, as Darwin has said, in view of the great intelligence of this small creature, the most marvellous atom of matter in the universe. There are two compound eyes, and in many species three additional ocelli or simple eyes. From the head project two jointed antennæ, or "feelers." The mouth, opening vertically, as in all insects, has two pairs of jaws, of which the upper pair, the mandibles, constitute the tools, weapons, and carrying implements

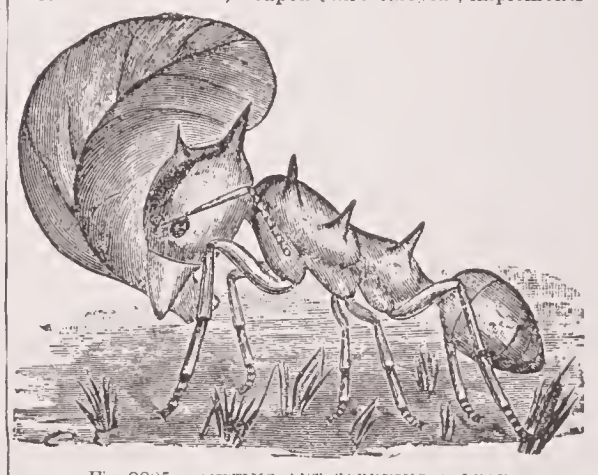


Fig. 2885.—CUTTING ANT CARRYING A LEAF.

of the ant. They are worked by strong muscles, are concave within, and armed with sharp teeth along the edge. It is with these that the ant performs the many duties of its varied life, digging, carrying, sawing, cutting, fighting, &c. The thorax bears three pairs of legs, which terminate in strong claws, efficient aids to the mandibles. The abdomen is composed of six segments, protected by plates, and is possessed of stinging organs, which in some species are rudimentary, in others can inflict as painful a wound as the bee or wasp. In the fore part of the abdomen, at the rear end of the œsophagus, is the crop, which receives the food before it enters the gizzard, stomach, and intestine. This food, in a liquid form, can be kept in the crop as a storehouse, and is frequently used in feeding the young and the males and females, being regurgitated through the mouth for this purpose. In all ants the crop can be greatly distended, the muscular membrane which bears the plates of the abdomen being highly elastic. In the species known as honey ants, it becomes immensely inflated, looking like a currant or small grape. This condition is confined to certain workers, who act as food reservoirs or living honeycombs for the rest of the community.

Formicaries or Ant Nests.—Most ants dwell in homes excavated in the earth, but in addition to these mining ants there are some species, known as *carpenter ants* and *arboreal ants*, which may be briefly described. The carpenter ants excavate their nests in wood. The best known species, *Camponotus pennsylvanicus*, is a large black ant found widely throughout the U. S. and also in Europe. It excavates growing timber and decaying trees, producing a labyrinth of cells, which are arranged in stories and half-stories, with connecting halls and corridors. The partitions are often very thin and the walls and floors fairly smooth. These ants may often be seen in trees, thrusting out their black heads from tiny openings in the bark, and dropping the chippings which have been cut off by their sharp mandibles. The arboreal ants make their nests in the leaves of trees; some building in the tree itself, others carrying the leaves underground. Those that build in branches make nests of leaves and other fibres, which are suspended to the wood, and bear some resemblance in

structure to those of the paper-making wasps. The underground ants of this group, known as *cutting ants*, have remarkable habits. One species, found in Texas and the Southwest, excavates chambers of remarkable size, the central portion being sometimes as large as a small cellar. Tunnels radiate from this in all directions, enlarging at times into chambers, some of which are 3 feet long by 12 inches wide and 8 deep. Within these chambers are found masses of a delicate leaf-paper variously arranged, the paper being made from leaves by a process of chewing. It is arranged into cells, in which great numbers of small ants and larvæ are found. This material is cut from the leaves of trees, generally

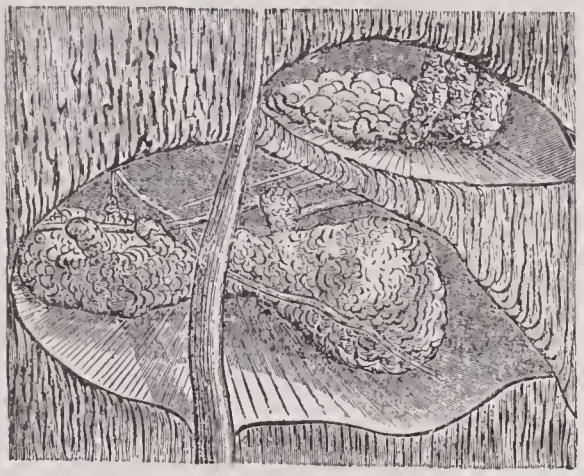


Fig. 2886.—CAVES OF THE CUTTING ANT (TEXAS).

at night, the cutters ascending the trees and cutting from the leaves circular pieces of the diameter of a dime. The columns of cutters, on their way to and return from the tree, are attended by soldiers, who seem to act as scouts or pioneers. The piece of cut leaf is borne upright in the mandible and carried to the nest. From this habit these ants have often been called *parasol ants*. In some South American species of cutting ants, a small fungus has been found to grow on the heap of leaf fibre within the nest; and the theory is advanced that this is used as food by the ants, who have gathered the leaf as a fertilizing material. If this is the case, it is another remarkable evidence of ant intelligence, which thus makes gardens of humus to raise edible plants for food.

Mining Ants.—The underground homes burrowed by ants in general are much the same in formation in all species, consisting of a system of galleries irregularly disposed, though with some tendency to arrangement in stories. They are generally horizontal in direction, these at different depths being connected by vertical galleries. At various points they are hollowed out into chambers, which serve as nurseries and store-rooms for food. One or more openings lead to the surface. These, the gate-ways of the colony, are nearly always guarded by sentinels, quick to challenge all comers and to give the alarm in case of danger. At night and in stormy weather the gates are sometimes carefully closed. Some-



Fig. 2887.—NEST OF OCCIDENT ANT—VERTICAL SECTION SHOWING STORE AND SEED-ROOMS.

times the gates are sedulously concealed as a measure of protection, as in the case of the slave species when threatened by the slave-makers. The home of the ant is, in fact, an underground fortification, and is guarded with all the care which man gives to his fortress. In truth, war, as an art, had its origin with the ants; and, in many species, attack and defence form leading incidents of their lives. Though, as a rule, these ant-homes make little display upon the surface, in the case of some species large mounds of earth are built up above the surface, within which their galleries are made. The mound-making ants of the Alleghenies erect earth mounds of a regular conical shape, which in some instances are more than 3 feet high and from 20 to 40 feet in circumference of base. On Brush Mountain, Pa., are nearly 2,000 of these mounds, grouped like an ant city, and probably all springing from one colony. When cut vertically through, they are found to be perforated with galleries in all directions, while others beneath the surface serve for places of refuge in case of disturbance. The galleries are very carefully constructed, the pellets of earth seeming to be cemented together, as if by a salivary secretion. The interior is smoothed and the roof of the gallery neatly arched.

Food of Ants.—Ants are omnivorous in their taste for food. Much of this is drawn from the sweet juices of plants or from insects yielding sweet secretions, from fruits, the oils of nuts and seeds, &c.; but they are also carnivorous, devouring dead insects and other animals, organic refuse, and living insects, on which some species prey largely. This is particularly the case with the genus *Eciton*, the famous *driver ants* of Africa and South America, which make excursions in broad and long columns of raiders, devouring every insect and small animal that comes within their reach, ascending trees and invading houses in their search, in which they are warmly welcomed by the inhabitants of the tropics, who know that when an army of Ecitons has passed their homes will be free for a time from insect pests. Interesting stories are told of the persistency with which they explore every nook and cranny, the terror of the insects within their line of march, and the frantic and generally useless efforts of their prey to escape. The mound-making ants of the Alleghenies have been seen to capture flies even upon the wing, while the agricultural ants of Texas have been observed, after a shower, to rush from their gates, scatter through the foliage, and bear home multitudes of living insects that have

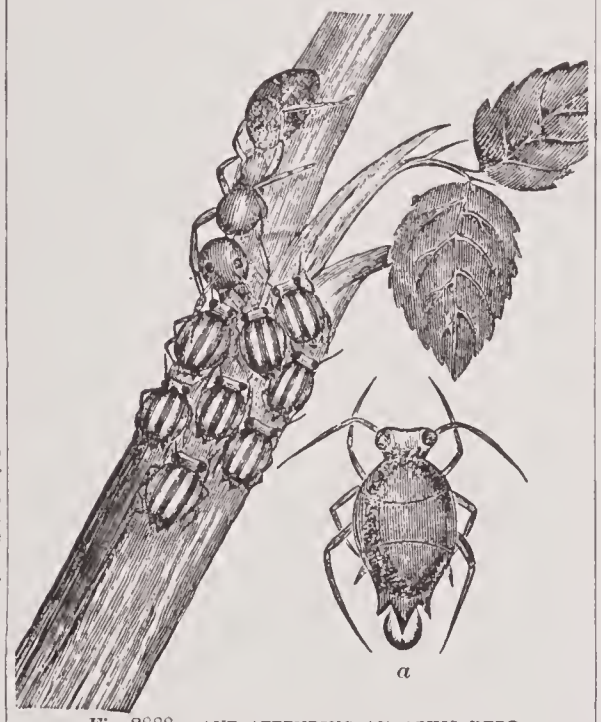


Fig. 2888.—ANT ATTENDING AN APHIS HERD.
a, Aphis (magnified).

been beaten down by the rain. Ants even feed on each other, stronger devouring weaker species; and they act the part of cannibals in devouring individuals of their own species. In truth, ants seem inveterately hostile to all others not of their own nest, while warmly friendly to all members of their own community. In this they resemble the primitive communities of mankind; even the ancient Greeks, who looked on all foreigners as barbarians and foes, had advanced little beyond the ant scale of ethics.—*Ant Cows.* Ants cannot masticate solid substances, but lick or lap up their food as a cat takes milk. In eating seeds, they obtain the nutriment by licking the surface. They resemble human beings in keeping domestic animals, the so-called ant cows, from whom they obtain food by a milking method of their own. This is one of the most curious and interesting habits of the ants, and has attracted much attention and observation. The insects known as aphides, or plant-lice, excrete in considerable abundance a sweet substance known as honey-dew, of which ants are particularly fond. These insects gather upon the leaves and other green tissues of plants, suck their sap, and exude this sweet liquid in minute transparent drops. The ants lick this up greedily as it exudes; and to induce the aphides to yield it more freely they stroke the insect gently with their antennæ, a process strikingly analogous to that by which the cow is induced to yield her milk through gentle pressure of her udder. Ants are said to keep, as it were, herds of the aphides on leaves, attending them assiduously, and apparently claiming them as individual property, or at least as the property of a certain ant hill. They even seem to go further than this, and support their aphis herds during the winter. On turning over flat stones in dry or sandy soil in early spring groups, of aphides may be seen clinging to the under surface in good condition, as if having been carefully sheltered during the winter and brought out from their stables in the ant hill to this situation in spring, to enjoy the growing warmth. Ants are found in close attendance upon them, and on their being thus disturbed seize them in their mandibles and carry them quickly into the nest, in whose chambers they have evidently been cared for during the winter. This is not the only resemblance of ant to human habits in this respect, since they actually breed their minute cows, rearing them from the egg as they do their own larvæ. Some species cover the aphides, when feeding on plants, by an arch of earth and wood fibers, thus building summer stables for their stock. A species of caterpillar, which similarly exudes fluid, is attended by ants in the same way as they care for the aphides. In addition to the aphis, other species of insects inhabit ant nests, though

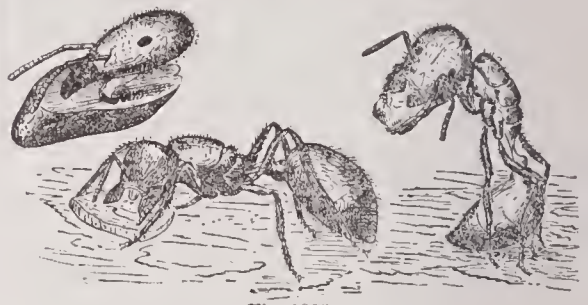


Fig. 2889.
ANTS FEEDING ON SEEDS, BY LAPPING AND LICKING.

for what purpose is not known; these are mostly little beetles, some of which are quite blind, and found nowhere else, the ants seemingly taking as much care of them as of their own young.

War and Slavery.—The aphides and beetles are not the only domestics of these small proprietors. Certain species keep slaves as well, which they obtain, in true human fashion, by warlike raids; and in similar human fashion they are made to do all the work. The wars of ants are matters of frequent occurrence and have attracted universal attention, man being particularly interested in finding that there is another animal that emulates him in his war-making habit. Some of these wars are waged for the purpose of obtaining slaves; but this is not the only source of emmet warfare, these little creatures being fiercely pugnacious and inveterately hostile to foreign communities. As a rule all ants are warlike, though some are specially marked for their bellicose spirit. Not only their nests, but sometimes their paths and hunting grounds, are guarded by sentinels, which furiously repel all intrusions on their domain, attacking intruders with fierce energy. Ant wars often become pitched battles, in which hosts of warriors on both sides are engaged; and these conflicts are more frequent and bitter between communities of the same species than between alien hosts. What leads to these conflicts does not often appear. Intrusion of one community on the territory of another doubtless is a leading cause; but, whatever the cause, the battle is usually to the death. Our little pavement ant is a very belligerent warrior, and may often be seen engaged in fierce battle with the population of a neighboring nest, great hosts taking part in the fight, and struggling with such blind ferocity that they may be lifted and transferred to box or plate without for an instant relaxing their fury of combat. Their weapons are those provided by nature. Those that have stings freely use them. The stingless species depend upon their mandibles, with which they seize a foe and hold on with grim determination. The neck is the favorite point of assault, the assailing ant working away with his jaws until he severs the head from the body. Yet the decapitated ant, which has seized some part of its antagonist, holds on after death, the jaws still clinging firmly to their hold. These wars, instigated perhaps by an effort of two communities to obtain some attractive store of food, are replaced in other cases by regular wars of conquest,



Fig. 2890.
AGRICULTURAL ANT CARRYING A GRASS-STALK.

in which an army of one species invades the formicary of another, which is besieged by the one party and defended by the other, and if taken is thoroughly plundered. It is chiefly the slave-making ants that make these forays, their objects of plunder being the cocoons and the larvæ of their victims, which are carried to their own homes, reared there, and become workers for the benefit of the conquerors. The shining slave-making ant of America is born only for fighting, depending for everything else on its slaves. It has become incapable of caring for or even feeding itself, and would die of hunger it not fed by its slaves. But as a fighter its energy and ability are unsurpassed. The red slave-maker, another species, retains all its powers. The ants usually enslaved are *Formica fusca*, a black species and *F. Schaufussi*, a reddish yellow one.

The latter does not tamely yield to the onslaughts of its foe, but is a fierce and determined warrior, fighting with furious energy, and only yielding when overwhelmed, when the survivors rush into their conquered home and seek to carry off the booty sought for. The conquerors follow in hot haste, seize the cocoons, and pursue the fugitives to rob them of their prizes. The young thus taken from their native homes do not seem to suffer in consequence. They act like native members of the new community, working side by side with their adopted masters, and, in case of the helpless shining slave-maker (*Polyergus lucidus*), attending on the wants of their lords with filial devotion, and, in case of an enforced change of habitat, carrying not only the young but their helpless masters to the new home.

Harvesting Ants.—In addition to the ants mentioned, there are two classes which call for special attention from their remarkable habits, those known as *harvesting* and *honey* ants. The name harvesting ants has been given to caterin species which display a striking

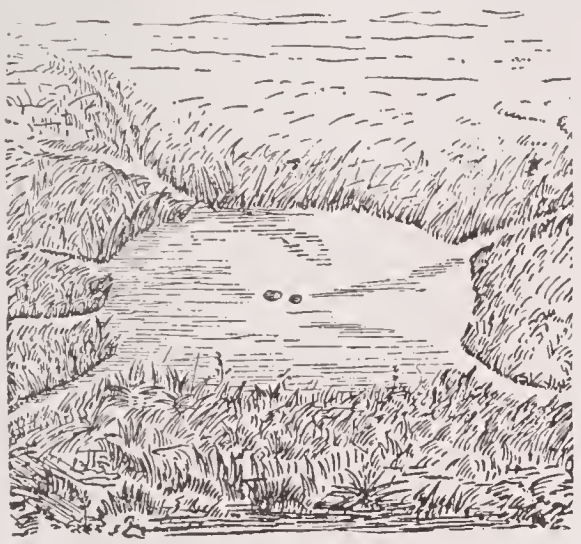


Fig. 2891.—NEST OF HARVESTING ANT WITH PATHS.

degree of intelligent foresight, and which have been particularly observed by Moggridge in southern France, McCook in Texas, and Mrs. Treat in Florida. These ants are distinctly agricultural in habit, since they carefully gather the ripe seeds of certain grasses, and store them in their underground galleries, doubtless for use as winter food. Many ancient authors speak of them; and the stores of grain which they gather in Palestine appear to be so considerable that the Talmud gives a precept to settle the question of ownership of the grain found in ants' nests. Some travellers speak of these industrious harvesters as rapidly carrying away a bushel of grain; and Bates speaks of South American species which carry off as much as two bushels of mandioca in a single night. In times of famine in India, the nests of harvesting ants are sought and rifled by the natives for food. Of observations on these interesting species, the closest and most complete are those made by Rev. Dr. Henry C. McCook, of Philadelphia, on the agricultural ant of Texas. We can give his interesting description only in epitome: These ants construct their subterranean homes in several stories, containing numerous passages, rooms and granaries, the roofs of the latter supported by pillars. In these granaries, which

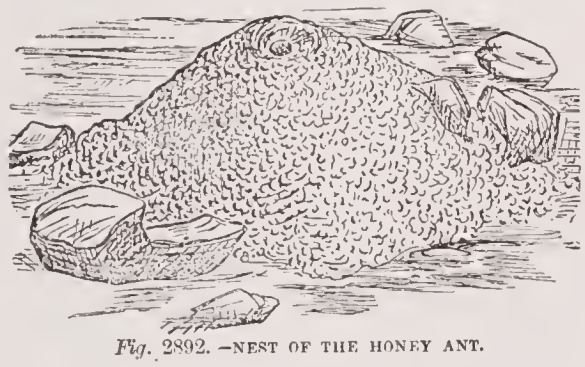


Fig. 2892. —NEST OF THE HONEY ANT.

lie at depths of from an inch and a half to two and a half feet below the surface, the grain is stored. The nest is not mounded, and opens by a small gateway to the surface. One of the most interesting facts noted by Dr. McCook is that the ants make a wide circular clearing around the mouth of the nest, in which they permit only a single kind of grass to grow, killing out all other plants by biting them off as they appear. Lincecum declares that the ants even sow the seed for this special crop, but McCook found no trace of such an intelligent habit. But it is certain that they harvest the ripe seed, storing it in their underground granaries, and then remove the dry stubble from the field, which is left bare for the next year's crop. Our farmers go little further than this in the cultivation of grain. The ants do not confine their operations to this specially-cultivated home field, but go abroad for additions to their stores, making for this purpose long roads which branch in every direction through the surrounding, grass, the forest of the ant kingdom. These roads are broad near the nest, but gradually narrow until they disappear. They are made level and kept clean from debris, and on them lines of ants may be continually seen, going and coming, and bringing in the grain from the ripe grasses of the outer regions. Such cleared fields and radiating roads have not been seen outside of Texas, except in a nest of Indian ants described by Dr. Jerdon. The garnered grain is carefully attended to.

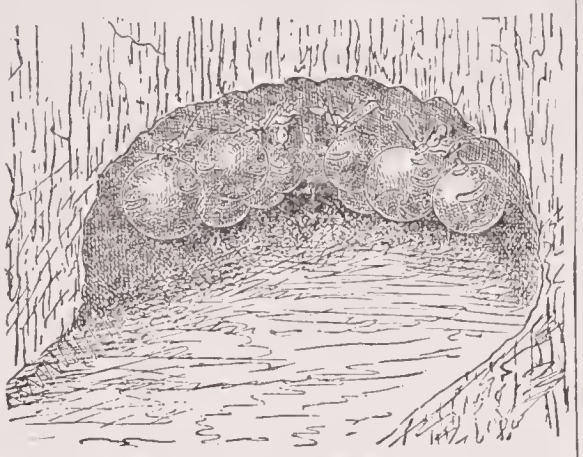


Fig. 2893.—HONEY-BEARERS CLINGING TO THE ROOF OF A HONEY-CHAMBER.

If the seeds become wet and begin to sprout, they are carefully carried to the surface and left to dry in the sun, while only those which have not sprouted are taken back into the nest. In India much of the grain is carried up *before* rains and left to be devoured by birds. Moggridge thinks this is done to prevent the passages becoming choked by sprouting and swelling grain. He says that the Mediterranean ants, if sprouting begins, at once bite off the radicle or fibril of the seed. As to the eating of this food, it was formerly believed that ants were incapable of eating anything hard, and it is probable that the seed is not eaten until it has softened by germination. In eating, the seed is held by the fore feet, and the juices and minute particles pressed out by the tongue, this perhaps being aided by the secretions of the salivary glands. On the whole, the intelligence displayed by the harvesting ants is extraordinary when we consider their minuteness.

Honey Ants.—Dr. McCook has added a valuable chapter to ant history in his description of *Myrmecocystus hortus-deodorum*, which extends from Southern Mexico to Colorado, where it was observed by him in the "Garden of the Gods." These ants are nocturnal in habit, their food consisting of honey, which exudes from galls on the scrub-oak. The ants work all night long, gathering this honeyed exudation, which is stored up for later use in an extraordinary manner. The ants lack the instinct of the bee, to make honey-combs to contain their liquid food, but instead they convert certain members of the colony into living honey-combs. The abdomen of the ant, as already stated, contains a sac-like dilatation of the œsophagus, anterior to the stomach and intestine, which is capable of great distention, though it can be readily contracted by the aid of surrounding muscles. The prospecting ant fills its crop with honey, and on its return to the nest forces this honey, by muscular contraction, from its mouth into that of one of the *honey-bearers*. This process is continued by other ants, until the crop and abdomen of the honey-bearer become extraordinarily distended, finally attaining the size of a large pea, from which the head and thorax produce like small appendages. This change of condition renders the honey-bearers almost helpless, but they are carefully attended to by the other ants, being kept in certain apartments, to whose roofs they cling, the swollen abdomens hanging down like amber globules. When a honey-room was opened by the observer, the ants could be seen actively dragging off their helpless food-bearers, even carrying them up vertical ascents. There seems no question but that the honey is thus stored up as a stock of food for the community. The ants needing

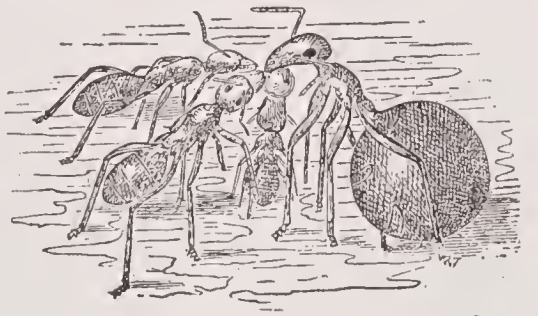


Fig. 2894.—HONEY-BEARER FEEDING WORKERS.

food apply their mouths to that of the honey-bearer, which by a slight contraction of its crop-muscles, forces out minute drops of honey, which gather on the mouth organs and are licked off by the hungry ants. This is very probably the only instance in nature in which a living creature is converted into a depository of food for the use of its fellows. The natives of New Mexico rifle the nests of the honey ants and use the honey-bearers as deserts to their meals. A plate of the ants is placed on the table, and the honey extracted by a pressure of the swollen abdomen between the teeth. The squeezed-out honey is also said to be sold in the Mexican markets as a basis of a drink resembling mead.

Personal Habits.—Careful study of ant life gives us much information concerning the personal habits of these industrious creatures. No animals pay more attention to cleanliness; and, though they dwell in dirt, they do not permit it to soil their bodies. They frequently make a thorough cleansing of their bodies, particularly in the intervals of their work after eating and sleeping. In this duty they assist one another, the cleanser beginning at the face, which is thoroughly licked, even the mandibles and jaws being cleansed. In this way the whole body is gone over, while the attitude of the ant operated on is one of intense satisfaction, as if the process was thoroughly enjoyed. Ants also clean themselves, and take similar care of their young, which also appear to enjoy the operation. Ants have interesting funeral habits. Their dead are carried from the nest,

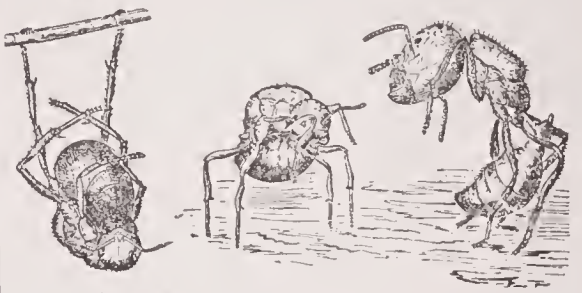


Fig. 2895.—ANTS AT THEIR TOILET—LICKING OFF THE ABDOMEN AND BRUSHING THE HEAD HAIRS.

and deposited in some chosen place of sepulture. The same is done with the carcasses of aliens; but in this case they first extract the juices of the body—a custom which they do not practice in the case of their own dead. The red slave-makers have two cemeteries, depositing the bodies of the slaves in special groups, while those of their own dead are taken far from the nest and deposited separately, not in groups. Ants have their intervals of sleep, their slumber being often so profound that they may be tickled with a feather without awaking. Their hours of sleep vary, sometimes extending to three hours. On waking they occasionally yawn, and invariably begin a cleaning process, licking their bodies, and combing them with the spur on the lower leg. Their life, though largely one of work, is not entirely so. They have their hours of relaxation, in which they seem to enjoy themselves in sports and games. Dr. McCook's observations indicate that they have methods of amusement resembling games, and that they are not without a sense of humor, in certain tricks which they seem to play on each other. Dr. Forel, the Swiss naturalist, has recently confirmed the observations of Huber and McCook on the occasional playfulness of ants. *Intelligence.*—Ants have well developed senses. They are very sensitive to slight changes of light and temperature, and seem capable of perceiving rays and hearing sounds which are beyond our powers. Their sense of smell is very highly developed. It is this which enables them to find their way, though in this they often seem at fault. They seem to have the instincts of fear and caution highly developed. In cases where a line of ants has been seen ascending a wall to some store of sweets, and some of them have been killed by rubbing the finger across the line, the newcomers indicate the greatest terror on arriving at the place of death, running back in seeming consternation. Several days pass before they will venture to cross the spot, some odor or other indication deterring them. Ants are able to recognize the members of their own family



Fig. 2896.—FOOT AND SPUR-COMB.
a, claw; *b*, spur; *c*, comb.

even when intoxicated, or when they have been removed from the nest as larvæ and brought up separately. Some naturalists think that they can communicate with each other by something approaching language. Ants of foreign nests are quickly recognized and are always received with hostility. Such a foreign ant, placed in some receptacle near a nest, will soon be surrounded by a hostile throng, making frantic efforts to penetrate the fortress and attack their foe. "When we see an ant-hill," says Lubbock, "tenanted by thousands of industrious inhabitants, excavating chambers, forming tunnels, making roads, guarding their home, gathering food, feeding their young, tending their domestic animals, each one fulfilling its duties industriously and without confusion, it is difficult altogether to deny them the gift of reason," or escape the conviction "that their mental powers differ from those of men not so much in kind as in degree." It is certainly of striking interest

to find these communities of minute creatures practicing many of the arts and displaying many of the passions, feelings and habits, of human communities, and possessing industrial customs considerably in advance of those of the lowest class of mankind. Ants are very numerous in species, each species having some peculiar habit of its own. They are divided by scientists into four subfamilies, the *Formicidæ*, *Myrmicidæ*, *Poneridæ*, and *Dorylidæ*, of which the first two comprise the commonly known species. The "white ants" are not ants at all, but belong to a different order of insects, the *Neuroptera*. See TERMITES.

Books of Reference:—HUBER: *Natural History of Ants;* FOREL: *The Swiss Ants* (in French); E. ANDRÉ: *Les Fourmis* (in French), a popular work, and *Species of the Formicidæ* (in French), a descriptive work; LUBBOCK: *Ants, Bees, and Wasps;* MCCOOK: *Agricultural Ant of Texas; Honey and Occident Ants;* and *Tenants of an Old Farm.*

For'ney, JOHN WEISS, journalist and politician, born at Lancaster, Pa., Sept. 30, 1817; studied the art of printing; in 1837 became editor and part proprietor of the Lancaster *Intelligencer*, and in 1840 united with this the *Journal*. In 1845 he was appointed surveyor of the port of Philadelphia, where he became editor of the *Pennsylvanian*, long a prominent Democratic paper. He was appointed clerk of the House of Representatives in 1851, and held this office until 1856, editing meanwhile the Washington *Union*. His succeeding journalistic enterprise was with the Philadelphia *Press*, founded by him, in 1857, as an organ of the Douglas Democracy and in opposition to President Buchanan. In 1859 he again became clerk of the House, and on the opening of the war in 1861 became a vigorous advocate of the prosecution of the war, and an active member of the Republican party, whose candidates he supported until the nomination of Horace Greeley, whom he supported for the presidency. In 1861 he was made secretary of the U. S. Senate, a position which he held until 1868, meanwhile editing the Washington *Chronicle*, and acting as corresponding editor of the *Press*. In 1868 he visited Europe, writing letters to the *Press* and *Chronicle* which were published in 1869 as *Letters from Europe*. In 1870 he sold his interest in the *Chronicle* but continued his editorial connection with the *Press*, serving (1871–72) as collector of the port of Philadelphia. *Progress*, a weekly literary journal, was founded by him in 1878. Died in Philadelphia, Dec. 9, 1881.

For'ney, in *Texas*, a post-town of Kaufman co., 21 m. E. of Dallas, on Tex. and Pac. R.R. Bois d'arc lumber is an important export. *Pop.* (1890) 811.

For'rest, EDWIN, a popular tragedian, born in Philadelphia, 1806. For nearly half a century he was one of the chief ornaments of the American stage, and also performed with eminent success on the English boards. *Macbeth, King Lear, Richard III.*, and *Othello* were among his ablest Shakespearian impersonations. He was also very successful in *Metamora, The Gladiator, Jack Cade*, and other American plays, some of them



Fig. 2897.—EDWIN FORREST.

written especially for him. His domestic relations were unfortunate, having been divorced from his wife in 1849. Immediately preceding his death, he was engaged in a series of readings from the great dramatic poets. Died Dec. 12, 1872, leaving a large estate, nearly the whole of which he bequeathed to found a home for aged and infirm actors, at his country-seat near the Delaware river, above Philadelphia.

For'rest, NATHAN BEDFORD, soldier; born in Bedford co., Tenn., July 13, 1821; acquired a large fortune as a cotton-grower. Although opposed to disunion, he entered the Confederate army and was promoted to the rank of lieutenant-general; surrendered at Gainesville on May 9, 1865. After the war he became president of Selma, Marion & Memphis Railroad Company. Died Oct. 29, 1877.

For'rest, in *Illinois*, a post-village of Livingston co., 93 m. S. of Chicago, on Tol., Peor. & West. and Wabash R. Rs. *Pop.* (1890) 1,021.

For'rest City, in *Arkansas*, a post-town, cap. of St. Francis co., 90 m. N.E. of Little Rock, on Little Rock & Memphis and St. L., Iron Mt. & S. R.Rs.; has cotton gins, a flour mill and a planing mill. *Pop.* (1890) 1,021.

For'rester, ALFRED HENRY, artist and comic writer, born in London, England, 1805; educated at Islington; notary in the Royal Exchange; was a designer and modeler, and exhibited pen-and-ink drawings at the Royal Academy; engraved, on steel and wood, illustrations for his own writings. Author of *Leaves from my Memorandum-Book; Wanderings of a Pen and Pencil; The Comic Arithmetic*, &c.; contributor to several periodicals, including the *Illustrated London News*. Died May 26, 1872.

Fors'ter, JOHN, an able historian, critic and biographer, born at Newcastle, Eng., in 1812. Originally a member of the bar, he never practiced, but devoted himself to a career in literature. He conducted the London *Examiner* for nearly 20 years, during a great part of which period he also edited the *Foreign Quarterly Review*. In 1861 he was appointed by government a commissioner of lunacy. As a historian his literary merits are of a high order, his principal works being *The Statesmen of the Commonwealth of England; Biographical and Historical Essays*, and *Debates on the Grand Remonstrance*. As a biographer he is distinguished by his *Sir John Eliot: a Biography, 1590–1632; Life of Walter Savage Landor; The Life of Charles Dickens*. F. was the lifelong friend of Dickens, and an executor of his will. Died in 1876.

Fors'ter, WILHELM, astronomer, born at Grünberg, in Silesia, Germany, December 16, 1832; studied at Berlin and Bonn, graduating in 1854. After holding the positions of second and first assistant in the Berlin Observatory, he was made professor extraordinary of astronomy in the University; editor of the *Astronomisches Jahrbuch*, and director of the committee for the introduction of the metric system of weights and measures into Germany. He has contributed scientific papers to various journals, and published the lives of distinguished astronomers.

Forsyth (*fôr-sĭth'*), JOHN, statesman, born at Fredericksburg, Virginia, in 1780. He graduated at Princeton College, and then commenced the practice of law at Augusta, Ga., after which he held a seat for many years in Congress. In 1819 he was sent as United States Minister to Spain; became governor of Georgia in 1827, and was Secretary of State under Jackson and Van Buren (1834–41). Died in 1841.

Fort Ke'ough, in *Montana*, a post-town of Custer co., 5 m. from Miles City. Here is a military post. *Pop.* (1890) 614.

Fort Low'ell, in *Arizona*, a village of Pima co. *Pop.* (1890) 545.

Fort Meade, in *South Dakota*, a post-town of Meade co. *Pop.* (1890) 576.

Fort My'ers, in *Florida*, a village (P. O. name, Myers), cap. of Lee co., 18 m. from Gulf of Mexico; has a cannery, lumber mills and an alligator-skin tannery. *Pop.* about 1,000.

Fort Myers, in *Virginia*, a U. S. military post, in Fairfax co., adjoining the Arlington National Cemetery, opposite Washington, D. C.

Fort Payne, in *Alabama*, a post-town, cap. of DeKalb co., 51 m. S.W. of Chattanooga, on Queen & Crescent R.R. Has a large hardware factory, furnace and rolling mill, stove and ice factories. *Pop.* (1890) 2,698.

Fort Yates, in *North Dakota*, a post-village of Morton co. *Pop.* (1890) 511.

For'tune, ROBERT, author and botanist; born in Berwickshire, England, 1813, educated at a village school; employed in the botanical gardens of the Scotch capital and of Chiswick; director of the botanical garden at Chelsea; collector of plants for the Botanical Society of London in Northern China; was sent by the East India Company to China, to investigate the tea plant and in 1859 collected for the U. S. Government, the seeds of the tea shrub and other plants. Author of *Three Years Wanderings in Northern China; Two Visits to the Tea Countries of China, Yeddo and Peking*, &c. Died April 16, 1880.

Fortu'ny, Y CARBO MARIANO, painter; born at Reus, Catalonia, Spain, June 11, 1838; studied with Palau, Claudio Lorenzalez, and at the Barcelona Academy. Most of his life was spent in Rome. His pictures are sought for by collectors; many of his principal works are owned in the U. S. They include *Camels at Rest; Arab Fantasia; Court Jester*, &c. Died Nov. 21, 1874.

Forty Hours. In the R. C. church, a period of devotion lasting forty hours, in honor of the Blessed Sacrament.

For'ty-nin'er, *n.* One of the pioneer gold-seekers who went to California in 1849.

Fos'sil, *n.* By extension, a person of antiquated notions, or a thing entirely out of date.

Fos'sil Foot'prints, *n. pl.* Impressions of the feet of extinct animals made in mud which has become hardened into stone. The most interesting examples of these are those in the slaty rocks of the Connecticut valley, first observed in 1800, and thoroughly studied and described by Edward Hitchcock in 1836. These were at first supposed to have been made by birds, but are now ascribed to the peculiar three-toed reptiles known as Dinosaurs, which existed in the Mesozoic period in great variety of form and size. In addition to these there have been found the foot-prints of marsupials, birds, batrachians, chelonians, &c., and impressions made by fish, insects, and other animal forms. Footprints have been found in other localities, with numerous other impressions made by animals, such as worm trails and burrows, crustacean tracks, fish and amphibian trails, &c.

Fos'silized Trees. Collections of fossilized tree-trunks are found in various parts of the earth, as near Cairo, Egypt, in Nubia, Silesia, and the island of Antigua, West Indies. Other collections exist in Chili, New Zealand and Abyssinia, while the U. S. possesses some of the most interesting examples of petrified forests on the earth. In the Bad Lands of the Little Missouri thousands of such petrified trees are found scattered over the surface, having been washed out from the sandstones and shales of the Laramie formation. A remarkable group of such trees, some of them 12 feet in diameter, exists in Napa county, California; and in Yellowstone Park has been found a fossilized forest, in which the trees still stand erect, being surrounded by volcanic debris. On the banks of the Little Colorado, in Arizona, are found fossilized tree-trunks of various sizes, some of them 6 feet in diameter, which are perfectly preserved, though none of them occupy their original positions. In regard to the method of fossilization of the woody structure, it may be said that the wood in many cases has been replaced by white silica, which shows the structure of the wood in perfection. In other instances the wood has been converted into solid jasper, of the color of red sealing-wax, or has been changed into opal or agate, or filled with chalcedony or crystallized quartz, with beautiful variegation of colors. As hot water dissolves silica much more readily than cold, it is probable that thermal springs have had much to do with wood fossilization, the heated waters making their way through the wood, carrying off the organic material, and depositing silica in its place. The U. S. regions of fossilized wood have been localities of active volcanic phenomena, and thermal springs, rich in dissolved silica, still exist there and still display their petrifying powers. The geology of the island of Antigua leads to the same conclusion. A forest of buried trees exists in the southern Ohio drift deposits, whose wood is not mineralized; while at the Cascades of the Columbia a similar buried forest has been silicified, the latter region having been at one time actively volcanic.

Fos'ter, BIRKET, artist, born at North Shields, Eng., Feb. 4, 1825. He illustrated most of the standard English poets, and first attracted attention by his illustration of Longfellow's *Evangeline*. His first water-color, *The Mill at Arundel*, was exhibited at the Royal Academy, in 1859. Many of his pictures represent child-life and rural scenes. Died in 1893.

Foster, CHARLES, statesman and financier, born near Tiffin, O., April 12, 1828; received a common-school and academic education, and entered mercantile life, becoming the head of a successful firm; was elected a (Republican) member of Congress in 1870, and for three succeeding terms, serving continuously on the Ways and Means Committee, but was defeated in 1878; was governor of Ohio (1879–84), and on the death of William Windom was appointed (Feb. 7, 1891) U. S. Secretary of the Treasury, holding that office until March 4, 1893.

Foster, JOHN GRAY, soldier and engineer; born at Whitefield, Coos co., N. H., May 27, 1823; graduated from West Point, and entered the engineering corps, serving with Gen. Scott in Mexico; was chief engineer at Charleston Harbor (1861); made brigadier-general of volunteers and subsequently major-general. In the regular army he advanced to the position of lieutenant-colonel of engineers, with the brevet of major-general. Died Sept. 2, 1874.

Foster, JOHN WATSON, diplomat, born in Pike co., Ind., March 2, 1836; graduated from the State University of Indiana and Harvard Law School; practiced law at Evansville, Ind., until he entered the Federal army (1861); filled several official positions under Presidents Grant, Hayes, Cleveland and Harrison, being Minister to Russia, Spain and Mexico, and special agent of the U. S. in the Bering Sea arbitration with Great Britain (1892); was appointed Secretary of State by President Harrison in 1892. In 1894–5 he acted as arbitrator in the settlement of the difficulties between China and Japan, and has been entrusted with other delicate missions of a diplomatic character.

Foster, LAFAYETTE SABINE, LL.D., statesman, born at Franklin, Conn., Nov. 22, 1806; graduated from Brown University with the highest honors; admitted to the bar; was Speaker of the Assembly of Connecticut, 1847–1848–1854, and in 1870; mayor of Norwich (1851–52), receiving every vote cast at his last election; became U. S. Senator in 1854 and was reëlected in 1860, acting for years as chairman of the committee on foreign relations. Upon the death of President Lincoln he became acting Vice-president of the U. S. Was appointed judge of the Supreme Court of Connecticut in 1870, and died Sept. 18, 1890.

Foster, STEPHEN COLLINS, song composer, born at Pittsburg, Pa., July 4, 1826; educated at Athens Academy and Jefferson College; was self-taught in music, French and German. Author of a number of popular songs of which he often wrote both words and music. They include: *Nelly was a Lady; Old Dog Tray; Come where my Love lies Dreaming*. His songs number almost two hundred, and for *Old Folks at Home* he received $15,000. Died Jan. 13, 1864.

Fos'ter, in *Missouri*, a post-village of Bates co., 14 m. S. W. of Butler, on Mo. Pac. R.R. *Pop.* (1890) 513.

Fos'ter, in *North Dakota*, an E. cen. co., *area*, 648 m. Intersected by Pipestem river. *Surface*, rolling prairie. *Products*, wheat and oats. *Cap.* Carrington. *Pop.* (1890) 1,210.

Foucault (*foo-kō*), JEAN BERNARD LÉON; born in Paris, France, Sept. 18, 1819; was scientific editor of the *Journal des Débats*, and inventor of an apparatus by which electric light is used in optical experiments,

microscopic researches, &c.; was a member of the French Institute, and physicist to the Imperial Observatory; obtained the Copley Medal of the Royal Society for measuring the velocity of light. Died Feb. 11, 1868.

Foul, *n.* (*Sports.*) A colliding or entanglement; a breach of rule or custom in any contest. In baseball, a stroke that sends the ball outside (or back of) the foul-lines.

Foul Lines, *n. pl.* (*Baseball.*) Lines marked out, generally with lime or chalk powder, from the home plate through first and third bases.

Foulard (*foo-lärd'*), *n.* [Fr.] A thin, washable silk (or silk and cotton) dress-stuff, not dyed in the yarn.

Founda'tions. (*Engin.*) The providing of suitable foundations for buildings and other structures is a subject which has called for much consideration of recent years, in view of the weight of the structures now erected and the varying character of the soil on which they are built. This soil may vary from rock to gravel, sand, or quicksand, each of which has its influence on the character of the foundation. A rock bottom needs simply to be levelled off, and its crevices filled with cement or concrete, or arched over where very wide and deep. Soft or disintegrated rock needs removal, and draining is requisite to prevent injury from surface water and springs. If the rock is not continuous, a part of the edifice has to be built on compressible soil, and some settling usually occurs, though this may be avoided at times by digging deeper until rock is again found. *Hard gravel* forms an excellent foundation bed, and is capable of sustaining a pressure of 5,000 lbs. per sq. foot, or much more than this if rock lies beneath it. In gravel the footings are spread much more than in the case of rock foundations, being usually made 50 per cent wider than the walls they are to sustain.—*Sand foundations.* Sharp sand, if constantly wet or dry, is practically incompressible if so confined as to prevent lateral motion. In laying foundations on this material, excavations must go below the frost line, and the trenches be thoroughly drained if there is danger of water infiltration. The footings need a 50 per cent. spread, and should be made to fill the whole width of the trench. There is danger that the heavier portions of the structure may force up the sand under the lighter portions, and settle in consequence; and to avoid this danger an equal distribution of the load should be provided for by laying a platform or continuous footing of timber or concrete. If the structure be very heavy, it is necessary to guard against lateral yielding of the sand, especially on sloping sites. For this purpose parallel brick walls, penetrating two or three feet below the bottom, and laid up in cement, are sometimes employed. A less expensive and equally satisfactory method is that of *sheet piling.* In this, planks are driven close into the soil to the necessary depth, and spiked at the top to string pieces of timber.—*Foundations on Quicksand.* The most difficult problem in foundation building is in the case of the presence of quicksand, or sand permeated by moving water. Here it becomes necessary to surround the whole site of the building with sheet piling, and to cover the entire building area with a platform of concrete. In some cases a grillage or platform of logs or squared timbers is first laid in successive courses at right angles to each other and bolted together, and the interstices filled with concrete. In either case water must be excluded while the concrete is settling, for fear it may wash it out before it has time to harden. The water is drained into a trench or well, and pumped out until the hardening is complete. The footings and lower walls in this case must be laid in strong hydraulic cement, and protected externally by a coating of asphalt or tar against the percolation of water. The problem is one of the greatest difficulty, subterranean springs having been known to break through a concrete bed two feet in thickness. The best solution of the problem, where available, is to dig down to solid bottom, or to reach it by driving piles.—*Pile Foundations.* These are of two kinds, sand and timber piles. In moist or boggy soils, where not soft enough to cause the sand to work into the earth, sand piling may be employed. Holes 6 feet deep and 6 and 8 inches in diameter are bored in the bottom of the foundation trench and filled with damp sand, well rammed. This distributes the pressure of the load horizontally as well as vertically, while timber piles distribute it vertically only. It is therefore not necessary to penetrate to solid bottom, the sand pile having a broad bearing surface. In the case of the timber pile, all the pressure is transferred to the bottom of the piling, though it has a considerable degree of sustaining strength from the friction of its lateral surface against the soil. Piles need usually to be driven to solid bottom, and are from 20 to 40 feet in length, or even longer. They are driven in rows by the use of a "pile-driver," a heavy iron weight in vertical guides, dropping on the top of the pile. Piles completely buried in sand or water may last for centuries, of which evidence exists in the cities of Venice and Amsterdam, which are largely built upon them. Their chief danger of decay arises from exposure to air; and piles in tidal water should be cut off below the low water mark. Disk piles, with broad flanges at the base, have been used successfully in India for bridge work: and screw piles, made of metal and driven by turning, have been used effectively in soft strata. Concrete is sometimes used for piling in soft soils with rock at no great depth, holes of considerable width being bored and filled with this material. Isolated piers are thus built up and connected by arches of masonry or metal girders, on which the walls are built.—*Platform Foundations.* The purpose of the platform is the distribution of the pressure over an area much wider than that of the walls or footings, and also the prevention of one part of the building settling more than another. The platforms are of concrete, of masonry, of timber, and of iron and concrete. The concrete platform is made by mingling broken or crushed stone or coarse gravel with the proper proportion of hydraulic cement mixed with sand and water, the proportion varying to suit each individual case. The bottom of the excavation, being brought to a level, is covered with the concrete in layers of 9 to 18 inches thick, each layer being thoroughly rammed and allowed to set before the next one is laid. Such platforms are laid under structures of considerable weight and limited area, such as towers, chimneys, and bridge piers, or large buildings having many piers; also in the case of buildings to be erected on wet sands or soils, and where it is necessary to exclude water from the cellar.—*Masonry Platforms.* Masonry can be used for platform purposes only by the use of inverted arches. In the case of a heavy building erected on isolated piers instead of continuous walls, a series of inverted arches, turned beneath the feet of the several piers, practically bind them into one, while if barred vaults be built between each line of arches, the loads are distributed over the whole area of the building.—*Timber Platforms.* What is known as a grillage, composed of squared or round timbers, is often employed. If in a constantly wet soil, or completely buried in sand, such a platform is practically indestructible. The hollows between the timbers may be filled with sand or concrete so as to make a solid mass. After the building of the foundation walls, the platform needs to be completely buried. Timber platforms have been frequently used for foundations both for bridge piers and for tall buildings. The New Orleans custom-house, built upon a very soft and treacherous soil of sandy clay saturated with water, in which piling was not to be trusted, stands upon a timber grillage of logs 12 inches in diameter, laid close together, crossed by a second layer of logs 3 feet apart. The openings are filled with concrete, and a third layer of 12-inch logs laid above. The building settled about 2 feet during its construction. The great Auditorium Building at Chicago is built upon a massive platform of timber, concrete, and steel rails, which is 7 feet in total thickness.—*Iron and Concrete Foundations.* The method of platform building used in the Auditorium has been employed with success in many Chicago buildings, the soil there being a wet clay supposed to overlie quicksand, with no solid bottom short of 50 or 60 feet. In the new system a platform of timber or concrete is first formed over an area sufficient to reduce the pressure to between 3,000 and 4,000 lbs. per sq. foot. On the concrete is laid a layer of steel rails, placed close together, and one or two more upon this, each at right angles to the one below. On top is a layer of 15- or 20-inch I-beams, which sustains the iron or masonry columns or walls. The whole is covered with concrete, and the ends of the beams are protected by a heavy plastering of cement.

Subaqueous Foundations.—Foundations for service under water are made by the use of three expedients—the coffer-dam, the open crib, and the pneumatic caisson. The *coffer-dam* is a temporary water-tight wall built around the space to be excavated, and enabling the latter to be kept dry by pumping while the foundations are being made. Two parallel rows of sheet piling are sunk and the space between filled with clay, or mixed clay and sand, thoroughly rammed. Rows of piling are also driven, with string pieces to which the sheet piles are spiked. The *open crib* or *caisson* is used in water too deep for the use of the coffer-dam. It is a box-like structure of timber or iron, open, except for a partial flooring or shelf, on which is laid a load sufficient to sink it, while it is made high enough for its top to stand above the water. The bottom of the area is then dredged out, the crib sinking, and new sections being added to it so as to keep its top above the water level. A coffer-dam is thus formed from which the water may be pumped, and the foundations built within it. Or, if it is sunk to a firm bottom, it may be filled with concrete and the piers built upon this material. The *pneumatic caisson* is the device usually employed in water of considerable depth. In this the principle of the diving bell is used. An air-tight crib or caisson, in the form of an inverted box, with a cutting-edge at the bottom, is floated out to the site of operation, and sunk by weights. The caisson, being filled with air under pressure, serves as a working chamber for the men, air-pumps constantly renewing the air and the water being effectually excluded. Workmen are admitted to or released from the working chamber by the aid of "air locks," or intermediate spaces between an outer chamber filled with air at atmospheric pressure, and the working chamber filled with compressed air. These permit entrance and exit without change of pressure in the working chamber. The workmen enter the air lock by its outer door, which is then closed, and the lower door is opened, admitting the compressed air until the air of lock and chamber are equal in pressure, when the workmen may enter the chamber. On leaving, this procedure is reversed. The methods of excavation and foundation building here described are largely of recent origin, though the Romans showed great skill in their building operations, using concrete and hydraulic cement freely in foundations, employing the inverted arch, and using the coffer-dam in subaqueous work. The heavy mediæval structures were usually built in widely-spread footing courses, with a gradual decrease upward in thickness, solid rock or compact gravel being the usual base. In modern times the art of foundation building has been revolutionized by the methods mentioned, and structures of great size and weight can now be erected in soils or in under-water situations where such erections would have been quite impossible under the methods of the past ages.

Foun'tain, Intermit'tent. (*Physics.*) The name given to those fountains the flow of which ceases and recommences at regular intervals. Near the lake of Como there is a fountain which, three times a day, increases and diminishes; Pliny the Younger makes mention of it in the 30th Epistle of his 4th Book. In Savoy, on the edge of the Lake of Bourget, exists the *Fountain of Wonders,* one which flows, stops, and reflows twice in an hour; when the flow is about to begin a bubbling noise is heard, and then the water escapes on three sides, forming jets, the height of which increases at first, and then successively diminishes. The water, after springing for seven or eight minutes, stops for the space of two. It would be easy to multiply similar examples. In order to explain such phenomena, let us suppose that a spring is reached by a pipe, or by any natural passage (*o*) to a reservoir (M), whence it can escape only by a passage (*a, b, c*) forming a siphon. The water accumulates in the reservoir until the level of the water reaches the curvature of the siphon; the fountain then commences to flow by the orifice (*c*), but if the siphon be allowed to let more water escape at

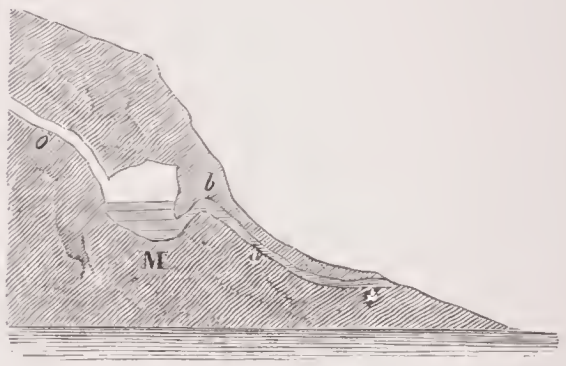


Fig. 2898.—THEORY OF AN INTERMITTENT FOUNTAIN.

one time than is received from the spring by the reservoir, the latter becomes exhausted, and the flow ceases until the level of the curvature is again reached. The intermittent fountain used in scientific laboratories is altogether different from the natural objects of the same name; it was invented by Sturmius, and consists of a vessel (A), closed by a glass stopple, and cemented upon a piece of brass provided with three lateral spouts, D D′. The whole is supported by a tube B, which opens into the interior part of the vessel A. This tube is terminated at its other extremity by a basil, and sustained by a tripod. The whole apparatus rests upon a basin, C, percolated by a little hole in its center. The vessel A being filled with water as far as the level of the pipe B, the efflux takes place by the spouts D D′; the falling water becomes accumulated in the basin C, and is replaced by air brought by the tube B; but, if the little orifice bored in the basin be insufficient for its exhaustion, the water by increasing obstructs the inferior part of the pipe B, and, as the air can no longer enter in A, the efflux ceases until the extremity of the pipe B is allowed to become disengaged from the water, and the air again permitted to reënter.

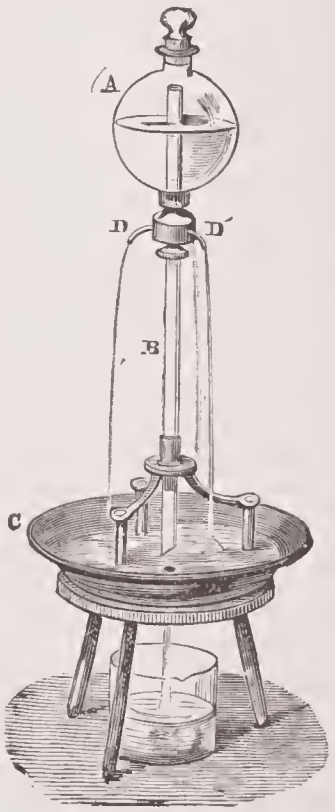


Fig. 2899.—STURMIUS' INTERMITTENT FOUNTAIN.

Fouquet (*foo-kā'*), Nicolas, Marquis de Belle-Isle, a celebrated French finance minister, born in Paris, 1615, became in 1650 Attorney-General of the Parliament of Paris, and two years afterward superintendent of the finances of the kingdom, in which capacity he dissipated millions of francs on himself and his favorites and pensioners—needy literary men, of whom Pélisson may be regarded as the type. Falling into disgrace with Louis XIV., on account of his prodigality and sumptuous mode of life, vieing in splendor with that of the court, *F.* was arrested in 1661 (at an instance, as has been supposed, of his rival Colbert); and, after a trial which lasted three years, was condemned to imprisonment for life. *F.*'s best trait was his patronage of letters, and constant fidelity to his friends and parasites. Died in 1680.

Fourth Estate'. A designation originally applied, in England, to the lowest and unrepresented classes of society; the "Third Estate" being the commons, which came after nobility and royalty, constituting the second and first, respectively. Now humorously applied, in this country, to the newspaper fraternity, in recognition of its peculiar influence on public affairs.

Fow'ler, Charles Henry, D.D., LL.D.; a clergyman of the M. E. Church, born in Canada, in 1837; graduated at Genesee College, Lima, N. Y. (1859) and at Garrett Biblical Institute, Evanston, Ill. (1861). The same year he was admitted into Rock River Conference and engaged in pastoral work in Chicago till 1872, when he was elected to the presidency of Northwestern University, at Evanston. In 1876 he became editor of the *Christian Advocate*, New York; from 1880 to 1884 he held the position of corresponding secretary of the Missionary Society of the M. E. Church, and in 1884 he was ordained a bishop. The degree of D.D. was conferred upon him by Northwestern University and that of LL.D. by Syracuse University.

Fowler, Lorenzo Niles, phrenologist, born in Steuben co., N. Y., on June 23, 1811; educated at Amherst College, and became associated (1835) with his brother, Orson S. *F.*, in opening an office in New York for the development of the new science of phrenology, publishing (1836) a book entitled *Phrenology Proved, Illustrated, and Applied*. Two years later the brothers established the *Phrenological Journal*, published first in Philadelphia, then in New York, retaining the management until 1863. In that year Lorenzo *F.* removed to London, Eng., where he resided until August, 1896, when he returned to the U. S. and died in New York on Sept. 2 of the same year.

Fowler, Orson Squire, phrenologist; born in Steuben co., N. Y., Oct. 11, 1809; graduated from Amherst College; as a writer, editor and publisher, devoted himself to the subjects of phrenology, self-culture, social reform, &c., and attained a wide reputation as a lecturer. Died Aug. 18, 1887.

Fowler, Philemon H., D.D., an eminent clergyman of the Presbyterian Church, was born in New York in 1804 and died in Utica, N. Y., in December, 1879.

Fowler, Samuel, M.D., born near Newburg, N. Y., Oct. 30, 1799; studied medicine at Penn Medical College, Philadelphia; began practice at Hamburg, N. J; was a member of the 24th and succeeding Congresses, being an active politician. He ranked high as an expert in mineralogy and geology; and, among other services, made known to the naturalists of Europe the iron and zinc ore, *franklinite*. He was an honorary member of many learned societies, and his scientific writings were profuse and valuable. Died Feb. 20, 1844.

Fowl'er, in *Indiana*, a post-town, cap. of Benton co., 28 m. N.W. of Lafayette, on C., C., C. & St. L. R.R.; has manufactures of farming implements, tiles and furniture. *Pop.* (1890) 1,285.

Fow'ler's Solu'tion. (*Pharm.*) An aqueous solution of potassium arsenite, containing one per cent. of white arsenic; so called from an English physician, named Fowler, who first brought it into use. It is poisonous, but is a powerful tonic, and is used for neuralgia, malarial fever, &c. Dose, 1 to 5 drops, well diluted. It should be taken only just after eating.

Fowl'ing, *n.* The act or practice of pursuing or killing wild fowl for food or game. This has been followed in all parts of the world since the time when man was given dominion over the fowls of the air. By some it is made a means of subsistence, while by others it is only pursued as a recreation. It is often attended with great toil and danger, as in the case of sea-birds, whose breeding places are the shelves and ledges of lofty precipices. Various methods are employed for capturing birds, according to their habits. Small birds intended for the table are often taken in nets. Bird lime (*q. v.*) is used also in the capture of them, especially in hot and dry weather when they congregate where they can get water. Traps, or snares, of different kinds are also employed. One of the most common is the thread or hair with a noose in which the bird is caught by the head or the feet. The modern sportsman generally employs the rifle and shoots the bird either when on the wing or after it has alighted. Decoys are used, especially with wild ducks, to lead them within shot. Numerous kinds of ducks, geese and plover are sought after, and gannets, gulls, terns, guillemots, and other sea-birds, furnish the most adventurous objects of pursuit to the fowler.

Fowls, Domes'tic. The importance of the poultry industry of the United States is made prominent by the fact, revealed by the census of 1890, that the annual value of the poultry product at that time was $290,000,000—exceeding that of any one other agricultural industry. Hundreds of thousands are exclusively engaged in poultry raising; the number of professional poultry fanciers exceeds 100,000; and more than 50 weekly and monthly journals are to-day published in the interest of the poultry industry. The raising of fancy breeds has become a popular fad with wealthy people, some of whom have poultry plants costing from $3,000 to $20,000; and there are hundreds of poultry farms where from 3,000 to 15,000 chickens and ducks are raised. An elaborate Poultry Show is held each year in New York, and similar exhibitions are frequent and popular elsewhere. The U. S. Government issues regular poultry bulletins, containing much valuable information and current news relating to this important branch of agricultural industry.

Pure-Bred Poultry.—Considerable difference of opinion exists as to the origin, or original habitat, of the several breeds of domestic poultry; the statements bearing upon this subject, as given herein, are based upon the best available authority. Those breeds classed as American are the result of crossing various breeds of domestic with imported stock. The *Plymouth Rocks* are among the best for general purposes, being superior layers and shapely for market. The *Wyandottes* are of more recent origin, slightly lighter, but scarcely inferior to the Plymouth Rocks in other respects. The *Dominiques* rank with the Wyandottes, and are the oldest American breed. It is believed that the Plymouth Rocks originated in a cross between these and a larger breed. *Javas* and *Jersey Blues* complete the list of Americans; these have some physical peculiarities, but in a general way rank with the Plymouth Rocks. The *Cochins* are descendants of the old *Shanghae*, or *Brahma-Pootra* fowls (which came originally from Cochin-China), whose stilted legs and long necks have been reduced by intelligent crossing. The buff varieties are largely used for crossing with inferior stock to secure weight and firmness of flesh. These fowls are only moderately good layers, but they sit persistently and the hens make model mothers. *Light Brahmas*, the largest of all breeds, are, as they exist here to-day, practically an American variety, being the result of careful and long-continued breeding from the old Brahma-Pootra stock. They are the best layers among the large varieties, and make good "broilers" at 8 to 10 weeks. After the chicks are 12 weeks old they grow rapidly and become bony; therefore are not desirable for market from the time they are about 3 months old until fully matured. The pencilled *Hamburgs* are supposed to have originated in Holland; the spangled varieties are of English nativity, and were once known as *Lancashire Mooneys* and *Yorkshire Pheasant Fowls*. The *Andalusians*, as the name indicates, came from the province of Andalusia, in Spain. *Silkies*, sometimes called *Negro Fowls*, are from India. *Frizzled* fowls are found in all countries. The *Leghorns* are natives of Italy; but the white and brown varieties have been so greatly improved in this country as to be fairly classed as Americans. The name of the *Polish* breed probably comes from the word "poll," meaning "head;" the skull has a prominent bony cyst, above the orbits, not found in the uncrested breeds. The eggs and fowls of this breed are rather small; they are chiefly bred for fancy purposes, and had their origin in Holland. The *Sultan* fowls come from Constantinople. This breed is very rare, and it is difficult to secure pure-bred stock from its native place, as it is there considered a sacred bird. The Sultans are extremely showy, pure white, with a large crest and beard, and five toes. Their legs are feathered all around, as are all the toes. The Sultans were first owned and bred in this country by Mr. George O. Brown, of Baltimore. The *Malays* are from India. The origin of the *Game* fowls is involved in some doubt, though England claims to be its native land. Contrary to a very common impression, these varieties are not largely raised for fighting, but almost wholly for practical purposes. They are hardy, and possess great muscular development about the breast; and are therefore valuable to cross with common stock or thoroughbred varieties. The *Indian Game*, when crossed with stocky breeds, produces excellent broilers at an early age. *Sebright bantams* were originated by Sir John Sebright, of England, about the year 1800, after a long period of patient breeding. The breed known as the *Rumpless* are without tails, and the caudal appendage irreverently called "the parson's nose" is also lacking. Aldrovandus mentioned this breed two centuries ago. There is a breed in England, called *Scotch Grays*, that resembles our Plymouth Rocks in plumage, but has pinkish-white instead of yellow legs. *Guinea fowls* are from the Cape Verde Islands and Jamaica, where they abound in a wild state.—*Ducks.* The *Aylesbury* originated in Buckinghamshire, England. The *Rouen*, of French origin, is almost identical in plumage with the wild Mallard. The *Cayuga* breed originated on Cayuga Lake, New York.

Following are the standard breeds of domestic poultry in the United States, with the varieties of each breed, as recognized by the American Poultry Association:

AMERICAN.

PLYMOUTH ROCK: Varieties—Barred; White; Buff; Barred, Pea Comb.
Plumage of the Barred varieties shows parallel bars of bluish-black and white; all have single combs except the Barred with pea comb; all have yellow legs.

WYANDOTTE: Varieties—Silver; Golden; White; Buff; Black.
All have rose combs and yellow legs, except the Black, which has black or greenish-black legs. Plumage of Silver is white in center of feather, laced with black; of the Golden, golden center laced with black.

JAVA: Varieties—Black; Mottled; White.
All have single combs.

DOMINIQUE: Has rose comb.

JERSEY BLUE: Has single comb.

ASIATIC.

BRAHMA: Varieties—Light; Dark.
Both have pea comb. The Light variety has white plumage, except the tail, which is black, slightly laced or edged with white; necks penciled with black; male and female marked alike. The Dark variety (male) has solid black breast and tail; neck is silvery-white with black stripe down center of feathers; back, silvery-white; saddle, silvery-white feathers striped with black; the legs and outer and middle toes are well feathered. The hens are beautifully marked, the silvery-gray color being distinctly pencilled with darker stripes.

COCHIN: Varieties—Partridge; White; Black; Buff.
All have pea combs. The male Partridge has black breast and tail; neck, bright orange-red, with black pointed and striped centers in feathers; back, dark red-brown; saddle, marked very much like neck; wing-bows rich maroon-red. The hens are beautifully pencilled, reddish-brown ground marked with darker shades; necks similar to males. All Cochins must be heavily feathered on legs and on middle and outer toes.

LANGSHAN: Varieties—Black; White.
Both have single comb; legs feathered to a medium degree, and the outer toes feathered to their extremities.

MEDITERRANEAN: Varieties—Brown, Single Comb; Brown, Rose Comb; White, Single Comb; White, Rose Comb; Black, Single Comb; Dominique, Single Comb; Silver Duck-wing, Single Comb.

MINORCA: Varieties—Black; White.
Both have single comb.

ANDALUSIAN: Variety—Blue, Single Comb.

SPANISH: Variety—White-Faced Black, Single Comb.

POLISH: Varieties—White Crested Black; Golden; Silver; White; Buff Laced; Bearded, Golden; Bearded, Silver; Bearded, White.

HAMBURG: Varieties—Black; White; Golden Spangled; Silver Spangled; Gold Pencilled; Silver Pencilled.

RED CAP: These have immense rose combs, whence their name.

CAMPINE: Varieties—Silver; Golden.
Both have single combs.

FRENCH.

HOUDAN: Black and white mottled plumage; five toes on each foot.

CRÈVECŒUR: Variety—Black.

LA FLECHE: Variety—Black.
All have combs shaped like the letter V.

ENGLISH.

DORKING: Varieties—White; Silver; Colored.
The White variety has a rose comb, the others a single comb; five toes on each foot.

GAME: Varieties—Black-Breasted Red; Brown Red; Golden Duck-wing; Silver Duck-wing; Red Pyle; White; Black; Birchen.
The above list comprises the varieties of the Standard Games.

GAME BANTAM: Varieties—Same as the Standard Game.

INDIAN GAME: Variety—Cornish.

MALAY: Variety—Black-Breasted Red.

SEBRIGHT BANTAM: Varieties—Golden; Silver.
Both have a rose comb.

ROSE-COMB BANTAMS: Varieties—White; Black.

BOOTED BANTAM: Variety—White, with single comb.

COCHIN BANTAM: Varieties—Buff; Partridge; White; Black.
These are, in all respects, the large Cochins in miniature.

JAPANESE BANTAM: Varieties—Black-Tailed; White; Black.
All have single combs.

POLISH BANTAM: Variety—White; has white crest.

MISCELLANEOUS.

RUMPLESS: Various colors.

RUSSIAN: Black.

SUMATRA: Black, with immense long tails.

SILKIES: White, with webless, soft, fleecy plumage; five-toed feet, feathered; legs also feathered; head and skin dark purple.

SULTAN: White; heavily crested, muffled and bearded; feathers on legs and toes.

FRIZZLE: Various colors.
In addition to the foregoing, there are bred in the United States the following that are classed as pure-bred fowls, viz.: Sherwood (white), Ancona (mottled), White Wonders, and Dark Brahma Bantams.

TURKEYS.—The varieties are as follows: Bronze, Narragansett, Buff, Slate, White and Black. All are considered of American origin. The Bronze variety was produced by crossing the domestic with the wild turkey.

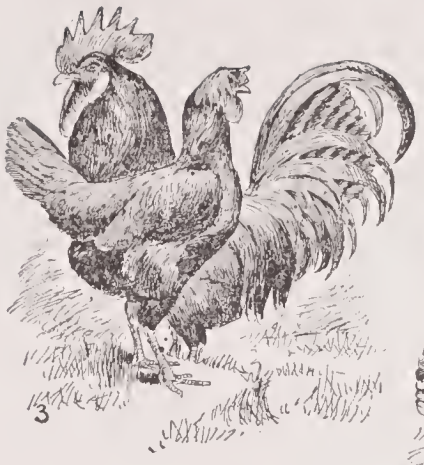
DUCKS.—The varieties embrace the Pekin, white in color, originating in China; the Aylesbury, a white English breed; the Rouen, a parti-colored French variety; the black Cayuga; the colored and the white Muscovy; the gray and the white Call; the Crested White; and the East Indian, black.

GEESE.—The gray breeds include the Toulouse (French) and the Wild (Canada); the Egyptian is a colored variety; the German breed, Embden, is white; the African is gray; and of the Chinese there are two varieties, the brown and the white.

GUINEA FOWLS.—There are two kinds—the well-known pearl, and the white.



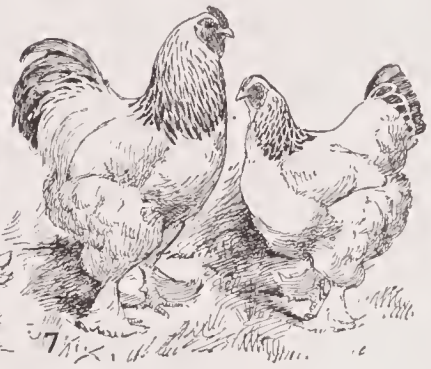




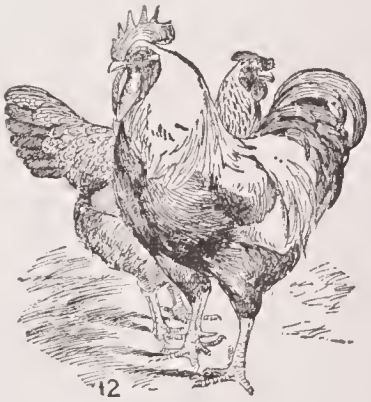


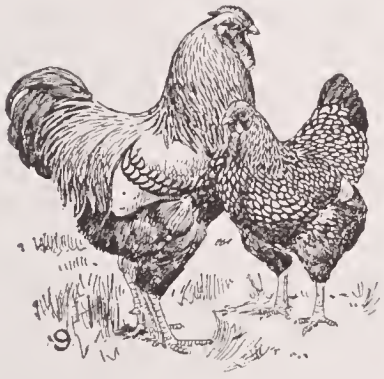




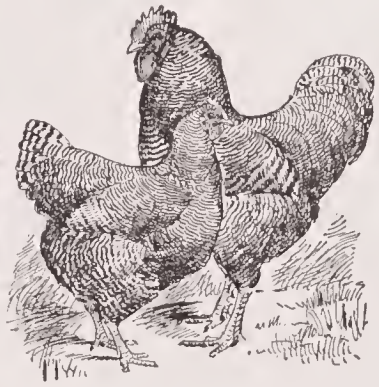


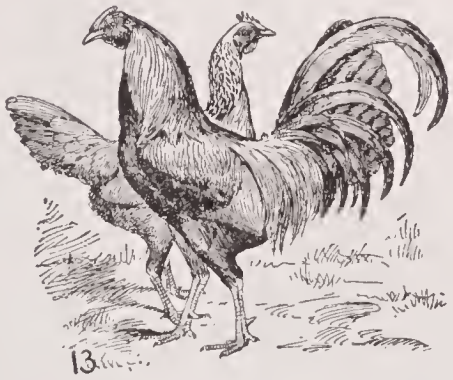


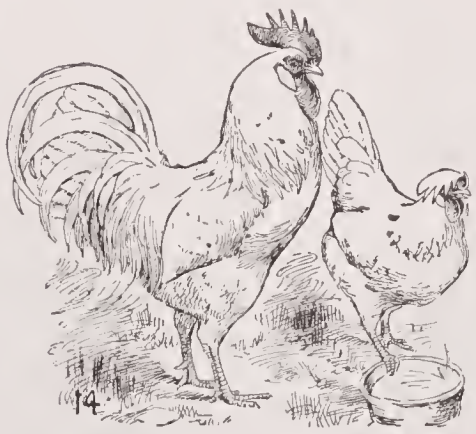


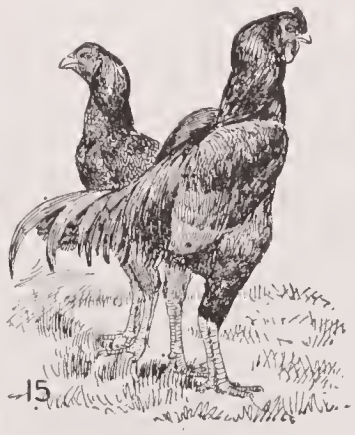


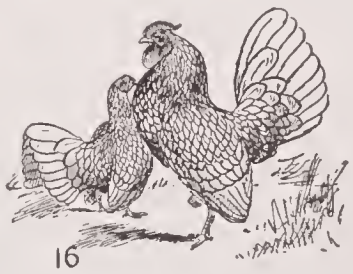












TYPES OF LEADING BREEDS OF AMERICAN PURE-BRED FOWLS.

1. White-Crested Black Polish.
2. Silver-Spangled Hamburg.
3. Black Minorca.
4. Houdan.
5. Mottled Java.
6. Buff Cochin.
7. Light Brahma.
8. White-Faced Black Spanish.
9. Silver-Laced Wyandotte.
10. Partridge Cochin.
11. Barred Plymouth Rock.
12. Dorking.
13. Pit Game.
14. White Leghorn.
15. Indian Game.
16. Silver Sebright Bantam.

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STANDARD WEIGHTS.—The standard weights for fowls and chicks for the show-room, as per the rules of the American Poultry Association (1897), are shown by the following table:

CHICKENS.

Breed.	*Cock.*	*Hen.*	*Cock'l.*	*Pullet.*
	lbs.	*lbs.*	*lbs.*	*lbs.*
PLYMOUTH ROCK	9½	7½	8	6½
WYANDOTTE	8½	6½	7½	5½
JAVA	9½	7½	8	6½
AMERICAN DOMINIQUE	8½	6½	7½	5½
JERSEY BLUE	10	8	7	5
LIGHT BRAHMA	12	9½	10	8
DARK BRAHMA	11	8½	9	7
COCHIN—				
Buff	11	8½	9	7
Partridge	11	8½	9	7
White	11	8½	9	7
COCHIN, BLACK	10½	8½	9	7
LANGSHAN	10	7	8	6
MINORCA	8	6½	6½	5½
RED CAP	7½	6½	6	5
HOUDAN	7	6	6	5
CRÈVECŒUR	8	7	7	6
LA FLÈCHE	8½	7½	7½	6½
DORKING—				
White	7½	6	6½	5
Silver-Gray	8	6½	7	5½
Colored	9	7	8	6
CORNISH INDIAN GAME	9	6	7½	5½
MALAY	8	7	5½	4
RUSSIAN	8½	6½	7½	5½
	ozs.	*ozs.*	*ozs.*	*ozs.*
GAME BANTAMS	22	20	20	20
BLACK-BREASTED RED MALAY GAME BANTAMS	26	24	24	22
BANTAMS—				
Sebright	26	22	22	20
Rose Comb	26	22	22	20
Booted White	26	22	22	20
Buff Cochin	28	24	24	22
Partridge Cochin	30	26	26	24
White Cochin	30	26	26	24
Black Cochin	30	26	26	24
Black-tailed Japanese	26	22	22	20
White Japanese	26	22	22	20
Black Japanese	26	22	22	20
White-crested Polish	26	22	22	20

TURKEYS.

Variety.	*Cock.*	*Hen.*	*Cock'l.*	*Pullet.*
	lbs.	*lbs.*	*lbs.*	*lbs.*
BRONZE	35	20	24	15
NARRAGANSETT	32	22	22	14
BUFF	27	18	18	12
SLATE	27	18	18	12
WHITE	26	16	16	10
BLACK	27	18	18	12

DUCKS.

Variety.	*Adult Drake.*	*Young Drake.*	*Old Duck.*	*Young Duck.*
	lbs.	*lbs.*	*lbs.*	*lbs.*
PEKIN	8	7	7	6
AYLESBURY	9	8	8	7
ROUEN	9	8	8	7
CAYUGA	8	7	7	6
MUSCOVY	10	8	8	7

GEESE.

Variety.	*Old Gander.*	*Young Gander.*	*Old Goose.*	*Young Goose.*
	lbs.	*lbs.*	*lbs.*	*lbs.*
TOULOUSE	20	18	20	15
EMBDEN	20	18	18	16
AFRICA	20	16	18	14
CHINA	14	10	12	8
WILD	16	12	14	10
EGYPTIAN	15	12	12	9

TECHNICAL TERMS.—We give below a glossary of technical terms referring to domestic fowls and their breeding; also a cut showing the points of a fowl as considered by the judges at a poultry show under the rules of the American Poultry Association. For much of this information we acknowledge our indebtedness to Mr. George O. Brown, former president of that Association:

bar'ring. marks or stripes across the feathers at right angles, or nearly so, to its length.

beard. a bunch of feathers under the throat of some breeds of chickens, such as Houdan and Polish.

breed. any race of fowls having distinctive characteristics in common. *Breed* is a broader term than *variety*, and may include several varieties; for example, the Plymouth Rock has Single-combed Barred, Pea-combed Barred, and White, as varieties of that breed.

brood. the family of chicks belonging to a single mother.

cape. the feathers under and at the base of the hackle, shaped like a cape. The term is most frequently applied to the Light Brahma, whose cape is composed of black and white feathers.

car'riage. the attitude or "style" of a bird.

carun'culated. covered with small, fleshy protuberances, as on the head and neck of a turkey-cock.

chick. a newly hatched fowl.

chicken. a term indefinitely applied to any age under one year old.

clutch. a term applied both to the batch of eggs sat upon by a fowl, and to the brood of chickens hatched therefrom.

cock. a male fowl over one year old.

cock'erel. a male fowl under one year old.

comb. the fleshy protuberance growing on the top of a fowl's head. The four chief varieties of comb are single, rose, pea, and leaf; all others being modifications of and properly classed with them.

condi'tion. the state of a fowl as regards health and beauty of plumage.

crest. a tuft of feathers on the head; of the same significance as *top-knot*.

crop. the receptacle in which a fowl's food is stored before passing into the gizzard for digestion.

cush'ion. the mass of feathers over the rump of a hen, covering the tail; chiefly developed into Cochins.

dub'bing. cutting off the comb, wattles and ear-lobes, so as to leave the head smooth and clean.

duck'-foot. the carrying of the hinder toe forward.

ear'-lobes. the folds of bare skin hanging just below the ears—by many called deaf-ears. They vary in color, being red, white, blue and cream-colored.

face. the bare skin around the eye.

flights. the primary feathers of the wing, used in flying, but tucked under the wings out of sight when at rest.

fluff. soft, downy feathers about the thighs and covering the posterior part of the bird—chiefly developed in Asiatics.



Fig. 2900.—POINTS OF A FOWL.

1, comb; 2, face; 3, wattles; 4, ear-lobes; 5, hackles; 6, breast; 7, back; 8, saddle; 9, saddle-feathers; 10, sickles; 11, tail-coverts; 12, main tail-feathers; 13, wing-bow; 14, wing-coverts, forming wing-bar; 15, secondaries; wing-bay; 16, primaries or flight-feathers; wing-butts; 17, point of breast bone; 18, thighs; 19, hocks; 20, shanks or legs; 21, spur; 22, toes or claws.

fur'nished: when a cockerel has obtained his full tail, comb, hackles, &c., he is said to be "furnished."

gills. the same as wattles, which see.

hack'le. the neck plumage of both sexes.

hack'les. the peculiar, long, narrow feathers on the neck of fowls.

hen'ny or **hen'-feathered.** the plumage of a cock resembling that of a hen from the absence of hackles and sickle-feathers, and in plumage generally.

hock. the joint between the thigh and shank.

keel. the breast-bone, so called from its resemblance to the keel of a boat.

knock'-kneed. a term used to express an inward turning of the hocks by which they are brought near together while the legs extend outward and are well spread at the feet.

leaf'-comb. the two-pronged, V-shaped comb, such as is seen in crested breeds, so called from a fancied resemblance to the open leaves of a book.

leg. in a living fowl, this is the scaly part usually denominated the shank; in a dressed fowl it refers to the joint above.

leg'-feathers. feathers growing upon the outer sides of the shanks, as in Asiatics.

mos'sy. having confused or indistinct marking in the plumage.

nub'-comb. an irregular pea-comb, but lacking in the true triple character, the longitudinal depressions or channels being grown up. It approaches in character to a rose-comb, but is properly classed as a pea-comb, as it is produced only by pea-combed varieties.

pea'-comb. a triple comb, resembling three small single combs joined together at base and rear, lower and narrower at front and rear than center, and distinctly divided, the largest and highest in the middle, each part slightly and evenly serrated.

pen'cilling. small markings or stripes over a feather. These may run straight across, when they are frequently called *bars*, or follow the outline of the feather, taking a crescent form.

poult. a young turkey.

pri'maries. the flight-feathers of the wings, hidden when the wing is closed, being tucked under the visible wing, composed of the secondary feathers. Usually the primaries contain the deepest color belonging to the fowl, except the tail, and great importance is attached to their color by breeders.

pro'file. a direct side view or illustration of a fowl.

pul'let. a female fowl under one year old.

rose'-comb. a low, thick, solid comb, the upper surface of which is usually corrugated or covered with small points. It usually terminates in a well-developed spike, which may turn upward as in the Hamburgs, remain nearly level as in the Rose-comb Leghorns, or turn downward, as in the Wyandottes. In some varieties the spike is but slightly developed.

roost'er. a term for cock or cockerel.

sad'dle. the posterior part of the back, reaching to the tail in a cock, and answering to the cushion in a hen—*cushion*, however, being restricted to a very considerable development, as in Cochins, while *saddle* may be applied to any breed.

sec'ondaries. the quill-feathers of the wings, which are visible when the wing is folded.

self-col'or. a uniform tint over the feather, or a uniform hue to the plumage, in the latter sense being applied to all solid colored varieties, such as white, black, and buff.

shaft. the stem or quill part of a feather.

shank. the lower and scaly joint of the leg.

sick'les. the long, curved feathers of a cock's tail; properly applied only to the top pair, but sometimes used for one or two pairs beside.

single comb. an upright comb, varying in size and depth of serration, rising from the beak and generally extending back of the head for some distance, and consisting of a single, thin, fleshy mass.

spang'ling. the marking produced by a large spot or splash on each feather, differing from that of the ground color.

spur. the sharp defensive weapon of the cock, growing from the inner side of the shank.

squir'rel-tailed. the tail projecting over the back in front of a perpendicular line drawn from the roots of the tail.

stag. a term used for a young cock; chiefly employed by Game fanciers.

sta'tion. an ideal standard for Games, embodied in *style* and *symmetry*.

strain. a race of fowls that has been carefully bred by one breeder, or his successors, for a number of years, and has acquired an individual character of its own.

sur'face-color. the color of the plumage or feather which lies upon the surface of a fowl when in a normal position and condition.

sym'metry. perfection of proportion; harmony of all the parts of a fowl, taken as a whole, and must be typical of the variety it represents.

tail-coverts. the soft, glossy, curved feathers at the sides of the lower part of the tail, usually of the same color as the tail itself.

tail-feathers. the straight and stiff feathers of the tail only; the top pair are sometimes slightly curved, but they are, generally, nearly if not quite straight, and are contained inside the sickles and tail-coverts.

thighs. the joints above the shanks, the same as the drum-sticks in dressed fowls.

top'knot. the same as CREST.

tri'o. a cock or cockerel and two hens or pullets.

under-color. the color of the plumage not exposed when the fowl is in a normal condition and position, and seen when the surface has been lifted. It is manifested chiefly in the down seen about the roots of the feathers.

vari'ety. a term used to denominate fowls possessing common characteristics, less wide in its application than breed (*q. v.*).

vene'tianed. lapping over, like the Venetian blinds used in houses. This term is frequently applied to the lapping of the tail feathers.

vul'ture-hock. stiff, projecting feathers at the hock joint. The feathers must be both stiff and projecting to be thus truly called and condemned.

wat'tles. the red, pendulous of the base of the beak, chiefly developed in males.

web: the web of a feather is the flat or plume portion; of the feet, the flat skin between the toes; of the wings, the triangular skin seen when the wings are extended.

wing'-bar. a line of dark color across the middle of the wings, caused by the color or marking of the feathers known as the lower wing coverts.

wing'-bay. the triangular section of the wing, below the wing-bar, formed by the exposed portion of the secondaries when the wing is folded. Used chiefly in reference to Game fowls.

wing'-bow. the upper or shoulder part of the wing.

wing'-butts. the end of the primaries; also called wing points.

wing'-coverts. the broad feathers covering the roots of the secondary quills.

wing'-fronts, the front edge of the wing at the shoulder. This section of the wing is sometimes erroneously called *wing-butts;* but, to avoid confusion, the latter term should be applied only to the ends of the primaries.

Fox'tail, *n.* The tail of a fox.

(*Bot.*) The name of several kinds of grass, so called from the shape of the fruit or flower-head.

(*Metall.*) The cinder obtained in the last stage of the charcoal-firing process—a more or less cylindrical piece, hollow in the center.

Fox-ter'rier, *n.* A small, short-coated, parti-colored dog of the terrier kind, formerly used to unearth foxes.

Frack'ville, in *Pennsylvania,* a post-borough of Schuylkill co., 12 m. N. of Pottsville, on Penna. and P. & R. R.Rs. Coal is extensively mined in the vicinity. *Pop.* (1890) 2,520.

Fran'cis, JOHN M., journalist and diplomat; born in Prattsburg, Steuben co., N. Y., March 6, 1823; educated in the public schools, subsequently serving as apprentice in the printing business; edited newspapers in Palmyra, Rochester and Troy, N. Y.; was minister to Greece, under President Grant, to Portugal (1882), and to Austria-Hungary (1884–85). For several years before his death was chief owner and editor of the Troy (N. Y.) *Times.* Died June 18, 1897.

Fran'cis, SIR PHILIP, an eminent English statesman and publicist, born in 1740; became a member of the Supreme Council of Bengal, and the leading opponent of the measures of the Governor-General, Warren Hastings. In 1785 he took a prominent part in the impeachment and trial of the latter, and was a zealous advocate of the abolition of slavery. Sir Philip is generally accredited with the authorship of the famous *Letters of Junius,* and from the evidence which has been advanced in support of his claims to that honor, little doubt remains as to his having the facile and fearless pen which played so dominant a part in the political affairs of England during the closing half of the last century. Died in 1818.

Frangipan'i, *n.* [Marquis *Frangipani,* the inventor.] A perfume derived from, or in imitation of, the flowers red jasmin (*Plumiera rubra*), a West Indian tree.

Frank'ing Priv'ilege. (*U. S. Legis.*) The right of free carriage of letters or packages through the mails. Originally, only official communications were carried by the postal service, but subsequently, when private matter was permitted to be carried at a charge for transmission, the free use of the mails by government officers and others became regarded as a privilege. This right was claimed by the British House of Commons in 1660, but was abolished in 1839. In the U. S., the *F. P.* was given to soldiers in 1776. In subsequent years various changes were made in the use of this privilege by persons in public service and others, and in 1845 it was limited to the President, Vice-President, members of Congress, the third assistant Postmaster-General and postmasters, other officials being required to pay postage from their contingent funds. Afterward an appropriation was made for this purpose, and the free exchange of newspapers, which had formerly existed, was re-established in 1851. In 1864 another act was passed modifying the preceding law; and in 1873, as it was found that the privilege given members of Congress of sending documents and other matter free through the mails, had been greatly abused, the *F. P.* was abolished, the new law declaring that all official correspondence should be charged with postage at the legal rates. A special appropriation was made for the purchase of stamps by the executive, heads of departments, secretary of the Senate, and the clerk and sergeant-at-arms of the House. In 1875 the *F. P.* was restored to members of Congress for public documents then printed or ordered, and for seeds from and reports of the Agricultural departments. In 1887 a law was passed providing official envelopes for the departments, and authorizing free mailing of public documents by Senators and Representatives, the secretary of the Senate and the clerk of the House, with a penalty of $300 for their use in private matter. In 1879 the use of the official envelope was extended to all government officials, except pension agents, and to the Smithsonian Institution. Official postage stamps were allowed to the principal government departments by acts of 1881, 1882 and 1883. In 1891 an act was passed providing "that the members and members-elect of Congress shall have the privilege of sending free through the mails, and under their frank, letters to any officer of the government, when addressed officially."

Frank'land, EDWARD, chemist; born Jan. 18, 1825, at Churchtown, Lancashire, Eng.; was a pupil of Bunsen and Leibig; professor of chemistry in Owen's College, Manchester, the Royal Institution, and the Royal College; president of the Chemical Society, and the Institute of Chemistry; author of *Notes for Chemical Students; How to Teach Chemistry,* &c.

Frank'lin, WILLIAM BUEL, soldier, born at York, Pa., Feb. 27, 1823; graduated from West Point and was assigned to the topographical engineers; served in the Mexican War, and also with distinction in the Civil War; reached the rank of major-general, July 4, 1862, and was assigned to command the left grand division of the Army of the Potomac in Nov. of same year; after the battle of Fredericksburg (Dec. 12–13, 1862) was placed on waiting orders for six months, but assumed command of the 19th Army Corps in August, 1863; conducted the Sabine Pass expedition, was wounded (April 4, 1864) and disabled for six months; resigned his commission of major-general of volunteers on Nov. 9, 1865, and that of colonel of 12th Infantry, U. S. A., in March, 1866. Has since been engaged in various engineering works, and has been a prominent figure in military circles. Was U. S. Commissioner General at the Paris Exposition of 1889, and was made a grand officer of the Legion of Honor.

Franklin, in *Nebraska,* a S. co.; *area,* 576 sq. m. It is intersected by the Republican river. *Surface,* nearly level; extensive prairies but little timber. *Soil,* fertile. *Cap.* Bloomington. *Pop.* (1890) 7,693.

—A post-village of Franklin co., 5 m. E. of Bloomington, on C., B. & Q. R.R.; has large flour mills, several grain elevators, creamery and woollen factory. *Pop.* (1890) 556.

Franklin, in *Texas,* a N. E. co.; *area,* 300 sq. m. Bounded on the N. by the Sulphur Fork of Red river and intersected by White Oak Bayou. *Surface,* undulating; *soil,* fertile. *Products,* cotton, corn, fruits, pork, cattle. *Cap.* Mount Vernon. *Pop.* (1890) 6,481.

Franklin, in *Washington,* a S.E. co.; *area,* 1,244 sq. m.; is intersected by Snake river. *Cap.* Pasco. *Pop.* (1897) about 1,000.

—A post-town of King co., on Columbia & Puget Sound R. R. *Pop.* (1890) 647.

Franz, ROBERT, composer; born at Halle, June 28, 1815; studied under Schmieder at Dessau. His songs called forth the warmest praise from several of the greatest masters, including Mendelssohn and Liszt. He published for single voices over 250 songs; and his best compositions are thought to rank closely with those of Schubert and Schumann. Died in 1892.

Frater'nal Insur'ance Soci'eties. Societies founded for social and beneficial purposes are numerous in the U. S., including the Freemasons, Odd Fellows, Red Men, Druids, Knights of Pythias, and many others, the principal ones being treated in this work under their respective title headings. It is designed here to consider them solely from their beneficial aspect, their social features and secrecy of organization calling for no special treatment. Most of these societies possess a lodge organization, with ritual, special official designations, and other characteristics differing in each instance; but nearly all agree in one condition of organization—that of paying sick- and death-benefits, with more or less degree of fraternal attention to sick members. As the methods employed by the strictly fraternal societies are closely similar, we need speak here principally of those which are organized simply for insurance purposes, many of which lack the lodge and ritual system of organization. One method employed by these associations is that of death assessment. The purpose of these is to pay the heirs of each deceased member a fixed sum, as $1,000, which is raised by an assessment on each member of $1, or other specified sum. The amount paid annually by each member varies in accordance with the number of deaths. It may vary from $1 to $10 for each $1,000 of insurance, or may be considerably higher, the assessment rate increasing as the association grows older, unless the death ratio be kept down by a constant addition of young members. Most companies grade their assessments according to age at entrance, so that the young and vigorous shall not pay as heavily as the old; while many others, by a full assessment while the association is young, provide a reserve fund to prevent increase of assessments when it has grown old, though each company reserves the right to make such assessments as become necessary. One principal advantage of the fraternal over the business insurance societies (mutual or otherwise) is in the much lower ratio of expenses of management, office and agency expenses being dispensed with, and the work largely performed without charge. Fraternal sick- and death-benefit associations have existed in the U. S. since early in the 19th century, their usual "benefits" averaging about $5 a week in case of sickness and from $50 to $100 in case of death. These became somewhat flourishing before the Civil War. The assessment plan did not come into existence until 1866, the first association of this kind being organized at Newark, N. J., Nov. 12th of that year, by some members of the Masonic fraternity. The plan was quickly followed by other Masonic and Odd Fellows lodges. These rapidly increased, partly becoming organized as special societies, partly lacking the lodge feature, and transacting all their business through a central office. By 1880 the total sum of insurance thus carried was about $240,000,000. Of the central office societies may be named the *Masonic Mutual Benefit Association of Connecticut,* organized in 1867, and the *Odd Fellows Mutual Aid Association of Connecticut,* organized in 1891, each founded on the principle of death assessments.—*Fraternal Lodge Insurance Societies.* The societies of the kind above mentioned have grown much more slowly than those in which the lodge principle prevails, members of such associations apparently greatly preferring the social principle involved in lodge meetings and ceremonials. The *Ancient Order of United Workmen,* organized in 1868, though formed originally for trades-union purposes, soon became mainly a beneficial association. It is divided into subordinate and grand lodges and a supreme lodge, and was the first American society to establish a lodge system in which a stipulated sum was to be paid on the death of a member. The rapid growth of the order served to keep down its average mortality rate, which increased from 8·34 in 1879, to 9·84 in 1890, though considerably higher in some individual lodges. The success of the new method led to the founding of other societies on the same plan, the second in order being the *Knights of Honor,* founded in 1873, and which twenty years later had a membership of 127,073. For a long time the membership was stationary and the death ratio rapidly increased, advancing from 11·1 in 1884 to 16·3 in 1892. Then, through a change in the method of assessment, growth began again, with a consequent fall in the ratio. The insurance policies are for $500, $1,000, and $2,000. The *Knights of Pythias, Endowment Rank,* organized in 1877, is conducted on the principle of graded assessments according to age at entry. Its death ratio has kept very constant at about 13·50. The *Royal Arcanum,* founded in 1877, has had a rapid growth, and carries over $400,000,000 insurance, the policies being for $1,500 or $3,000. The mortality ratio has remained low, on account of the rapid increase in membership. Its average has never been over 9. In this, as in fraternal organization in many cases, the sick and disabled may be aided by payment of their assessments by the lodges and in other ways. Other associations organized on this principle include the *American Legion of Honor,* founded in 1878; the *Knights and Ladies of Honor,* in 1878; the *Equitable Aid Union,* in 1879; the *National Union,* in 1881; the *Catholic Benevolent Legion, Catholic Mutual Benevolent Association,* and *Catholic Knights of America;* the *Modern Woodmen of America;* the *Knights of the Maccabees;* the *Independent Order of Foresters;* the *United Order of the Golden Cross,* and numerous others. In addition to these fraternal societies, there are many business assessment companies, which in some cases confine their operations to members of a special order, as in the case of the *Northwestern Masonic Aid,* of Chicago, and the *Knights Templar's and Masonic Life Indemnity Association,* of the same city. One important statement concerning the fraternal organizations is, that none of them have ever failed, which cannot be said of the business organizations; while the mutual aid and enjoyment obtained through the lodge system have added greatly to their popularity and membership.

Fred'erick Charles, NICHOLAS, prince of the imperial house of Germany, eldest son of Prince Carl, 2d brother of the Emperor William I., was born on the 20th of March, 1828, and from early youth devoted himself to the military profession. He held a high command in the Schleswig-Holstein war of 1864; and in 1866 he was placed at the head of the First Army destined to operate against Austria, entering Bohemia through Saxony, and so conducted his forces through the latter country as to inspire its people with friendly feelings toward Prussia. The extreme rapidity and energy of movement displayed by the Prince in Bohemia disconcerted the Austrian Gen. Benedek's plans, the latter having calculated upon being allowed to assume the offensive. In a series of actions Prince Frederick Charles drove the Austrians as far as Sadowa, and won the great battle of Königgrätz, aided by the Crown Prince, who, bringing up the Second Army, effected his junction with his cousin at the crisis of the day. Prince Frederick Charles had for many years previously labored strenuously, and with great success, to make the Prussian military system more elastic, allowing greater freedom to the officers, and relying more upon the moral means than upon the rule and method of dealing with the men. The unexpected suppleness and dash shown by the Prussians in 1866 was, in a great measure, the consequence of these reforms. The reputation acquired by the Prince in the Austro-Prussian war was heightened by his successes in the contest with France. At the close of July, 1870, he was on the Rhine frontier in command of the Second German Army, comprising the 2d, 4th, 7th, 9th, 10th and 12th North German corps, estimated at 260,000 men and 500 pieces of artilery. On Aug. 6, the Prince defeated Gen. Frossard at Speichern, and ten days later made a vigorous attack on the right of the French position held by Marshal Bazaine between Doncour and Vionville, driving the French troops back to Metz. The Prince then closely invested that fortress, which, after resisting a siege of 70 days, capitulated on Aug. 27th. Shortly afterward the Prince defeated Gen. Aurelles de Paladines and the Army of the Loire (Nov. 28th), recaptured Orleans, Dec. 4th, and after a struggle protracted over six days he took Le Maus and compelled Gen. Chanzy to withdraw his forces northward, Jan. 13, 1871. The Prince was created a field-marshal, Oct. 28, 1870. Died June 15, 1885.

Fred'erick William, Emperor of Germany, and King of Prussia, only son of William I., King of Prussia and Emperor of Germany, was born in Oct., 1831, and, entering the army at an early age, rose to general rank. On the outbreak of the Austro-Prussian War of 1866, the Crown Prince had placed under his command three army corps, exclusive of the corps of the Guard under Prince Augustus of Würtemberg. He led his forces, composed of 125,000 men, from Silesia through the passes of the Sudetic Hills, an operation exposed to great difficulties and to considerable danger. By a series of brilliant operations the army pushed its way through the mountains, and, after fighting a series of severe actions, arrived on the field of Königgrätz, July 3d, in the middle of the battle and at the proper moment, for, in so doing, the Crown Prince's reinforcements cut the heart of the Austrian position, and decided the fortunes of the day. His march from Miletin to the above battle-field, and the series of victories following his entry into Bohemia, established the Prince's reputation as a commander of ability and energy. The next occasion on which the Crown Prince's military talents were conspicuously displayed, was the breaking out of hostilities between France and Germany in 1870. The close of July found him on the Rhine frontier, in command of the Third German army, comprising the 5th, 6th, and 11th North German corps, the 1st and 2d Bavarian corps, and the divisions furnished by Baden, Würtemberg, and Hesse—in all about 200,000 men and 500 guns. On the 4th of August he vigorously attacked the position held at Weissenburg by Gen. Abel Douay's division of MacMahon's corps, and carried

it after a desperate struggle. Following up this important advantage, the Crown Prince attacked on the 6th the united army corps of Marshals MacMahon and Canrobert, drawn up in position at Wörth. The French commander had under him a total force of 50,000 men, or 40,000 according to French authorities. The Crown Prince came up from Weissenburg on the evening of the 5th with an army of 130,000 men, and attacked the enemy at seven the next morning. The French line was turned at two points, and their left and center broken, notwithstanding a desperate charge of cavalry, which was ordered by MacMahon as a last resort. On the memorable day of Sedan, Sept. 1st, the troops of the Crown Prince and those of his cousin, Prince Frederick Charles, were engaged against the greater part of MacMahon's forces, and the Germans succeeded in crossing the Meuse, this hazardous operation being effected by



Fig. 2901.—FREDERICK WILLIAM III.

the Crown Prince with his Prussians and Würtembergers, supported by the Bavarians under Gen. von der Tann. He next advanced toward Paris, entered Versailles, Sept. 20th, commenced to throw additional troops round the capital, and remained near the invested city until after the conclusion of peace. On Oct. 28th, he was promoted to the rank of a field-marshal of Prussia, and on Nov. 8th was given the same high grade in the Russian army. By his wife Victoria, Princess-Royal of England, Frederick William had a family of three sons and three daughters. Upon the death of William I, his father, March 9, 1888, *F. W.* became King and Emperor, as Frederick William III. He died of a painful and lingering disease, June 15, 1888, and was succeeded by his son, Frederick William (born in 1859), who assumed the title William II.

Fredo'nia, in *Kansas*, a city, cap. of Wilson co., 32 m. S.W. of Humboldt, on Mo. Pac. and A., T. & S. Fé R.Rs. Has lime, fire-clay, building stone, salt springs, and excellent coal in abundance. *Pop.* (1895) 1,638.

Free Church of Scotland. (*Eccl. Hist.*) The name assumed by the largest and most influential religious body in Scotland, who differ from the principles of the Established Church, and who separated themselves from it at the disruption of 1843. They refuse to be called dissenters, because they contend that their principles are those of the Church of Scotland, and that it is the Established Church, and not they, that have departed from the principles of the Church as set forth in the Confession of Faith and the other standards. They are also known as *Non-intrusionists*, from the great principle against which they contend being the intrusion, or establishing, of a minister in a church by the patron, contrary to the wish of the people. It is a characteristic feature of Presbyterianism, especially in Scotland, that the people have a considerable voice in the affairs of the Church, and that a certain amount of deference is to be paid to the popular mind. They have, also, always been opposed to any interference of the civil powers in ecclesiastical matters. The disruption ministers met with much sympathy throughout the country, but the majority of the nobility and great landed proprietors went with the Established Church, and some of them were guilty of very cruel and oppressive acts towards the Non-intrusionists. Some of them, for a long time, refused to grant any sites on their lands for churches or other buildings, though nearly all have now conceded this favor. Indeed, people at a distance could scarcely conceive how high party feeling ran, and what bitterness existed between the two parties; and scarcely less remarkable is the degree to which it has passed away in so short a time. Indeed, there are not wanting persons on both sides who think that a union may yet be effected; for the Free Church has always kept tenaciously to the principles of an Established Church, and this has been the only thing that has prevented a union between them and other bodies who have succeeded from the Established Church, and who are opposed to the principle of state endowments. There can be little hope of a union, however, unless the state very considerably modifies the law with regard to patronage. The progress of the Free Church since 1843 has been very remarkable. It has upward of 900 ministerial charges, besides numerous preaching-stations; it supports missionaries in all parts of the world; has established schools in almost every parish; built churches, manses, school houses, &c.; and has colleges or theological halls for the education of its ministers in Edinburgh, Glasgow, and Aberdeen. The tenets and government of the Free Church are identical, except in the points already indicated, with those of the Church of Scotland.

Free-and-easy, *a.* Unrestrained; regardless of formalities.

—*n.* A club or resort whose members or patrons are free to drink, smoke, and indulge themselves without restraint.

Free'man, EDWARD AUGUSTUS, historian, born at Harborne, Staffordshire, Eng., Aug 2, 1823; entered Trinity College, Oxford, 1841; examiner in law and modern history at Oxford, 1857–58 and 1863–64; in modern history, 1884. He received the honorary degrees of D.C.L. from Oxford in 1870; LL.D. from Cambridge in 1874 and from Edinburgh in 1884, and honorary membership in the University of St. Petersburg in 1877. Dr. Freeman's fame rests on his many notable historical productions and particularly on his *History of the Norman Conquest* (5 vols., 1867–76), which is one of the greatest monuments of English historical erudition, its one fault being, in the opinion of a critic, lack of condensation. His other historical works were very numerous, some of the principle ones being: *History and Conquests of the Saracens; Growth of the English Constitution; Comparative Politics; The Ottoman Power in Europe; Historical Geography of Europe; The Reign of William Rufus; Chief Periods of European History; William the Conqueror;* and *History of Sicily from the Earliest Times*, on which he was engaged at his death, March 16, 1892. As a historian, *F.* showed great learning and accuracy, but his power of insight and breadth of view seem less declared than his knowledge, and his style was somewhat marred by undue pedantry and expansion.

Free-Soil Party. (*U. S. Hist.*) A former American political party, which grew out of the anti-slavery excitement of the years preceding the Civil War, its purpose being to oppose the extension of the institution of slavery into new States and territories. In 1846 David Wilmot, of Pennsylvania, offered an amendment to a bill presented to Congress for the appropriation of money to pay for Mexican territory, to the following effect: "Provided that there shall be neither slavery nor involuntary servitude in any territory on the continent of America which shall hereafter be acquired by or annexed to the U. S. by virtue of this appropriation or in any other manner, &c." This proviso formed the basis of the principles of the *F.-S. P.*, which was made up of members of several former political organizations. The *F.-S. P.* nominated Van Buren for the presidency and Charles Francis Adams for the vice-presidency in 1848, but received no electoral votes. In 1852 it nominated John P. Hale and George W. Julian, with similar lack of success. In 1856 the party was merged into the new Republican party.

Fre'mont, in *Washington*, a post-town of King co., 3 m. from Seattle, on S., L. Sh. & E. R. R. *Pop.* (1897) about 800.

Fremont, in *Wyoming*, a W. central co.; *area*, 12,000 sq. m. *Rivers.* Sweetwater and Big Horn rivers. *Surface*, mountainous, with numerous elevated plains; *soil*, fertile. *Industries*, mining and stock raising. *Cap.* Lander. *Pop.* (1890) 2,463.

Fremon'tia. (*Bot.*) A remarkable and beautiful California bush belonging to the *Sterculiaceæ*. Along with the hand-plant of Mexico (*Cheirostemon*), it differs from the others in that group in the flowers having no petals; and from the latter it is readily recognized by the bell-shaped calyx, which remains attached, and does not fall away when the flower withers. *F. californica* was first discovered by Colonel Fremont (whose name it bears) in one of his Californian expeditions in the northern part of the Sierra Nevada. It forms a deciduous bush four to ten feet high, having much the aspect of an ordinary fig-tree. The rounded five-to seven-lobed leaves, however, are smaller than those of the fig, and clothed with rusty hairs underneath. The handsome yellow flowers are produced singly on the ends of short, spur-like branches, and consist of a broadly bell-shaped calyx of five spreading divisions, clothed sparsely with cinnamon-colored down outside; five stamens having their stalk united below into a cup; and an ovoid ovary surrounded by the staminal cup, and terminating in a simple style. The fruits are oval capsules, which when ripe, split into five woody portions, each of which contains a few black seeds.



Fig. 2902.—FREMONTIA CALIFORNICA.

French, WILLIAM HENRY, soldier, born at Baltimore on Jan. 13, 1815; graduated from West Point (1837) and was assigned to the artillery; served in the Seminole War, and as an aide in the Mexican War; was appointed brigadier-general of volunteers in the Federal army in September, 1861, and served through the Peninsular campaign; commanded a division at Antietam and Fredericksburg; was made major-general of volunteers in October, 1862, and had command of the 3d army corps from November, 1863, to May, 1864, when he retired from the volunteer service. Was retired from the U. S. A. in July, 1880, and died May 20, 1881.

French Roof, *n.* (*Arch.*) An American modification of the mansard roof, having a nearly flat deck for the upper slope.

French'ville, in *Maine*, a post-town of Aroostook co. *Pop.* (1890) 2,560.

Frere, CHARLES THEODORE, French painter, born at Paris, June 24, 1815; studied with Coignet and Roqueplan. He took his subjects from Eastern life; had a studio in Cairo, and one in Paris. His pictures include: *The Halt of the Arabs; A Harem at Cairo; Ruins of Karnak*, &c. Died May 29, 1884.

Frere, SIR HENRY BARTLE EDWARD, diplomatist, born in Wales on March 29, 1815; educated at the India College, Haileybury; entered the civil service in Bengal, serving with distinction during the Indian mutiny; was governor of Bombay (1862–67); member of the privy council (1873), and governor of Cape Colony (1877–80); was president of the Royal Geographical Society. Died at Wimbledon, May 29, 1884.

Frere, PIERRE EDOUARD, painter, born at Paris, Jan. 10, 1819; pupil of Paul Delaroche. His specialty was child-life, and his paintings show much grace and depth of feeling. They include: *The Little Gourmand; The Road to School; Preparing for Church; The Orphan's First Prayer*, &c. Died May 23, 1886.

Frere-Orban, HUBERT JOSEPH WALTHER, statesman, born in Liege, Belgium, April 24, 1812; called to the bar in 1832. He held successively the offices of Minister of Public Works, and of Finance, and was head of the Cabinet, with the portfolio of Foreign Affairs (1878–84). He was a leader in public improvements and of the Belgian liberals. Died Jan. 2, 1896.

Fret'-saw, *n.* A saw with a long narrow blade, and usually with fine teeth, for cutting frets, scrolls, etc.

Freycinet, CHARLES LOUIS DE SAULCES, DE, engineer and statesman, born at Foix, France, on Nov. 14, 1828; studied at the Polytechnic School and the School of Mines, and did valuable work in the development of the French railway system, but about 1874 entered politics, becoming Gambetta's assistant in the war department; senator (1876); minister of public works (1877); premier and minister of foreign affairs (1877), resigning in 1880, but formed a new ministry in 1882 and again in 1886; in 1889 was minister of war under M. Tirard, and in 1890, for the fourth time, became premier and minister of war, this last ministry resigning on Feb. 19, 1892. *F.* has written several important works on engineering, and his political administration was notable for its strength.

Fri'day, Black. A Friday marked by some public calamity; specifically (in the U. S.) the Friday of Sept. 18, 1873, when a financial panic began in New York that had a disastrous effect upon business for a long time.

Frie'denburg, in *Pennsylvania*, a village of Berks co., 10 m. E.N.E. of Reading. Its post-office is OLEY. *Pop.* (1890) 514.

Friend, in *Nebraska*, a post-village of Saline co., 35 m. W. of Lincoln, on C., B. & Q. R.R.; has flour mills and elevators, and a fine shipping trade in grain and stock. *Pop.* (1890) 1,347.

Friend'ly Soci'eties. The name given in Great Britain to associations similar to the fraternal societies of the U. S. These societies are organized on the lodge principle, have secret meetings and ceremonials, but are mainly based on the principle of mutual aid, their secrecy and ritualistic ceremonies being issues of minor importance. The term originally included societies organized mainly for purposes of good fellowship, but its beneficial principle has descended from ancient times, as in the burial societies of the Greeks, Romans and Chinese, and of mediæval Europe. The modern *F. S.*, while descending from the mediæval organizations, seems traceable in England to the Huguenot emigration to that country after the revocation of the edict of Nantes, these frugal and provident people bringing their societies with them, some of which still survive. In 1793 an act was passed for the protection and encouragement of the *F. S.*, of which at that time nearly 1,000 were enrolled in Middlesex alone. Their organization was simple, principally providing for monthly meetings, an annual dinner, uniform contributions, and levies in case of death of a member or the wife of one. During the 19th century the system of social and beneficial organization grew largely, various acts were passed for its control, and numerous strong lodge societies arose, many of which extended to the U. S., where some of them have had as large a development as in the mother country. These associations comprise three successive stages: the lodge, which insures pay to the sick; the district, an aggregation of lodges, which insures funeral benefits; and the order, which unites the whole, but has no insurance feature. In a measure, these conform to the lodge, grand lodge, and supreme lodge of the American societies. At a recent date there were estimated to be in England and Wales about 1,600 lodges, with 1,750,000 members, and over $60,000,000 in funds. In addition to these are the assessment insurance societies, for the collection of death benefits, which have had a large development in England, as in the U. S., their membership being nearly 3,500,000. These are not organized on the lodge system; collections are made by agents, and the expenses of management are very considerable. The custom of insuring children on this principle has obtained great extension, both in England

and the U. S., and has in some instances given rise to serious abuses and frauds. In France the *F. S.* receive State aid, and in Germany they are closely affiliated with the State, through the development of legislation in favor of accident, sickness and old age insurance.

Frœ'bel, Friedrich, the father of the kindergarten, was born at Oberweissbach, Thuringia, April 21, 1782, and at thirteen was apprenticed to a forester, who taught him mathematics, for which he showed great talent. He afterward studied at Jena and Berlin, being particularly interested in pedagogy, in connection with which he twice visited Pestalozzi, and in 1816 opened a school at Keilhau. This was continued until 1826, and gained the reputation of being a paradise for children, but was said to be in a chronic state of bankruptcy. The plan adopted was to educate the children by making them observe and work, with nature as their teacher. *F.* married while here, his wife being his former student in mineralogy, and proving a happy helpmeet in his labors. Schools were opened at Wartensee, Burgdorf, and Willisau, in Switzerland; and during this period *F.* studied comparative philology at Göttingen, as an aid in his duties. His wife died in 1839, just two years after *F.* had founded his first practical kindergarten, at Blankenburg. The first indications of the method here established had been given by him twenty-three years before, in a work entitled *Human Education.* In this, however, he maintained that the child's education should be conducted by its mother until seven years of age (an opinion which fuller acquaintance with the multifarious duties of mothers caused him to change); and to conclude that between the ages of three and seven it would be a relief both to mothers and children to gather the latter into companies and at once amuse and instruct them by the methods of the kindergarten. During the following twelve years he was engaged in developing his new educational system, and in forming a corps of adepts in the method, dying at the end of this period, June 21, 1852, at Rudolstadt, where he had a training school for kindergartners. During this final period of his life he published his *Die Mütter- und Kose-Lieder* ("Mothers Cossetting Songs"), illustrated with plates and notes for the mother, the purpose being to guide her in her prattle with her children. *F.* may be held to have brought to their culmination the views on education held by Rousseau, Fichte, Pestalozzi and Diesterweg, and to have enunciated and established the principle of teaching the child, during its early years of mental development, by a proper directing of its spontaneous activities. The method established by him has since his day exercised an important and beneficial influence on all systems of education.

Frœ'belism, *n.* The kindergarten system. See Kindergarten; Frœbel.

Fromentin, Eugène, painter, born at La Rochelle, France, Oct. 24, 1820; studied with Remond and Cabat. He travelled extensively, and wrote art criticisms; also a book of travels, and a semi-technical work entitled *Les Maitres d'Autrefois.* Died Aug. 27, 1876.

Fron'tenac, in *Kansas*, a post-village of Crawford co., on K. C., P. & G., and A., T. & S. Fé R.Rs. *Pop.* (1890) 600.

Frontier', in *Nebraska*, a S. W. co.; *area*, 972 sq. m. Drained by Little Medicine creek. Surface is undulating and nearly destitute of timber. Stock raising is the leading industry. *Cap.* Stockville. *Pop.* (1890) 8,497.

Frossard, Charles Auguste, soldier, born in France, April 26, 1807; educated at the École Polytechnique in Paris, and School of Artillery and Engineering in Metz; entered the army (1827) and won distinction in Algeria and the Crimea, where he commanded the second engineering corps; was chief of the engineering department in the Italian war (1859). During the Franco-German war he commanded the 2d army corps, and on the capitulation of Metz was captured by the Germans. Died Sept. 3, 1895.

Froth'ingham, Octavius Brooks, author, born in Boston, Nov. 26, 1822; graduated born Harvard and studied theology at Cambridge; for many years was pastor of the Third Unitarian Society, which he established in New York; afterwards became a Free Religionist; was president and one of the founders of their association; was art-critic for the New York *Tribune;* contributor to the *Index*, an organ of free religion printed in Boston; and author of *The Religion of Humanity; The Life of Theodore Parker; The Cradle of the Christ; Recollections and Impressions*, &c. Died Nov. 27, 1895.

Fruit Cul'ture. (*Agric.*) Botanically, every flowering plant has its fruit, consisting of the seeds and seed vessels with the associated parts. But commercially the name is applied only to the succulent fruits, those used for food by man, the edible seeds being thrown as nuts and grains. Of the fruits of the north temperate zone the best known are the apple, pear, peach, plum, cherry, quince, fig, melon, and grape, with the several familiarly known berries. To these may be added a number of fruits made very familiar to the north by commerce, the orange, lemon, banana, pineapple, olive, etc. Most of those fruits are now cultivated in regions far removed from their native soil, being raised wherever the climate and soil render this profitable. In this outspreading the apple perhaps takes the lead, its range being very wide through latitude and longitude, while it gains added value from the fact that its varieties ripen from midsummer till late autumn. The same may be said of the pear, but cannot be said of fruits in general, most of them having a limited period of ripening. The succulent fruits, as we know them, are largely a product of human intelligence. In their wild state most of them are small in size, and unpleasant or but slightly attractive in taste, their present great size and luscious flavor being due to persistent selection of the best varieties. This selection has been going on for ages; and we know that most of the fruits we now possess were in successful cultivation early in the Christian era, many varieties being then known, among which were 36 varieties of the pear. Selection probably proceeded in a somewhat haphazard fashion until about the beginning of the 19th century, with little increase in the varieties grown; but during that century the varieties in cultivation enormously increased, with, in many cases, great increase in size and improvement in flavor. Of marked development in size that of the strawberry is a striking example. Of the varieties now enumerated the U. S. is said to possess some 2,400 distinct kinds of apples, 1,300 of pears, and about 500 each of peaches, grapes, and strawberries. The total number of varieties of these fruits throughout the civilized world cannot be definitely enumerated. North America owes to the French settlers, and particularly to the missionaries of the Roman church, most of its exotic fruits, these having been diligent in their introduction. The English also took some share in this work. Indigenous species of cherries, plums, apples, &c., were found in this country, but the cultivated orchards were early supplied with European varieties, little effort being made to cultivate the native species. The French gave special attention to the apple and pear, which were freely cultivated by 1610. Jesuit missionaries introduced the European grape into California and other warm regions of the country, but it proved unsuited to the colder north, and the native species of this fruit have been widely cultivated. Nurseries for the growth and sale of fruit trees were first known in America about 1798, at which date many varieties were known, especially of the apple. *F. C.* became an important agricultural industry early in the 19th century, and has had a steady and rapid development until the present time.

Methods of Selection.—The production of new varieties of fruit ranks among the most important operations of the farming industry. For this purpose the seeds of carefully selected fruits are sown. A valuable variety once obtained, it is preserved by continued grafting, it never being sure that a seed will yield a fruit resembling its parent form. Thus, in *F. C.*, heredity is the result of grafting; variation, of seed planting. Variation is also attained by crossing, unlike trees being grown in propinquity that natural crossing may take place, and artificial crossing being produced by impregnating the stigma of one blossom with pollen taken from another. Natural impregnation is thought to yield the best results. Of operators in fruit selection, the names of Van Mons, of Belgium, and Knight, of England, are best known. For years Van Mons constantly selected the choicest seeds of the pear, beginning with the wild fruit and continuing through eight generations, by which time he had produced a great deviation from the original. In Knight's experiments the artificial crossing of varieties were pursued. To these two methods we owe most of our valuable modern fruits, but to them must be added the preservation of useful chance variations, termed "sports," such as that which yielded the nectarine from the peach. The soil and climate of the U. S. are well adapted to *F. C.*, and it may be considerably extended with advantage. But it must be borne in mind that fruit-trees demand good soil as well as other vegetable products, and the poor bearing and indifferent fruit, for which many farmers blame their trees, are really due to their own neglect. They hope for a generous yield from half-starved trees. Fertilization is a requisite of successful cultivation, but it must be conducted wisely. The peach, nectarine and apricot, for instance, must not be unduly stimulated, since this induces them to bear too late in the season and exposes them to danger from frost. Judicious thinning of the fruit in prolific seasons is another important process, rarely performed. If the tree be left crowded, the fruit will be small in size and deficient in flavor. If properly practiced it yields finer fruit, with no loss in total bulk, while permitting the removal of the insect-stung and otherwise defective fruit. A third requisite is a constant battle with insect enemies which, if left free to act, commit great ravages. All this entails much labor, but it is a labor that pays. The apple, for instance, the most easily managed of fruit trees, which, yields under ordinary methods a return of $50 to $100 per acre, can be made to yield $200 or $300. Grapes and pears may be stimulated to a yield of $500 per acre, and strawberries, with special care and skill, may be forced well up toward $1,000 per acre.

Fruit Characteristics.—The apple has long held its own as the favorite fruit of temperate climates. While less luscious than the pear and peach, it surpasses them in hardihood, ease of culture, and long-continued bearing; and has also the advantage of keeping longer, with less care, than other fruits, thus forming a valuable addition to the winter fruit-supply. This is difficult or impossible with most other fruits. None of the more juicy species will keep, with the exception of the grape. Another characteristic of the apple and pear is that they will continue to ripen after pulling. This is notably the case of the pear, many varieties of which ripen with a better flavor in the house than on the tree. It is a useful property of several of the important fruits, such as the orange, banana and pineapple, which can be plucked unripe and will ripen in the voyage. Fruits vary greatly in size, shape, color and general appearance, and also in degree of juiciness, sweetness or acidity, while in some instances they possess the unpleasant properties of bitterness, astringency, pungency, &c. The aroma also varies greatly, being in many instances highly agreeable, in some decidedly unpleasant. The durian of Asia, for example, while one of the most luscious of fruits, has a disgusting odor. Nearly every fruit has some characteristic and distinguishable flavor, there being thus an adaptation in fruits to every variety of human taste. In consistency they vary from the firm flesh of the apple, through various degrees of growing juiciness, to the condition of fruits which are simply reservoirs of delicious juices. These juices vary through many grades of sweetness and tartness, many of the fruit acids being highly valuable as health preservatives, particularly those of the the lemon and lime. As a rule, the fruits of summer and autumn form a store of food specially adapted to those seasons, and the health of every community is likely to be the better the more freely they consume these grateful gifts of nature. Within recent years, however, commerce and methods of preservation have rendered it easy to supply fruits without regard to season, soil or climate, and many of the fruits are obtainable the year round, a fact which will certainly prove far from detrimental to the health of the community.

Fruit Preserva'tion. The former methods of preserving fruit—in addition to that applicable to a few fruits, of keeping it in a fresh state—were two: the one being drying by the heat of the sun; the other the employment of preservative agents, such as acids, alcohol, salt, sugar, saltpetre, &c., each of which gave its particular flavor to the product. In this latter method were produced the pickles, brandied fruits, marmalades, sugared or candied fruits, &c., of old housekeepers, now much less used than formerly. The drying, as of old practiced, was unsatisfactory in results, the sliced fruit, exposed to the sun and wind and also to dust and insects, yielding a blackened and hardened product that no amount of softening and cooking could restore to more than a suggestion of its original palatableness. When the work was done with care and skill, a more satisfactory result appeared; but at best sliced and sun-dried fruit was never highly satisfactory. With fruits dried whole, such as grapes, plums, &c., better results appear, though oven drying is now to some extent employed in the production of currants, raisins, and prunes. Oven drying, now generally employed in the case of the apple, peach, &c., is far more rapid than solar heat in its effect, and yields a product much less changed from the original. As first practiced, the lack of air circulation proved a defect, the fruit being rather cooked than dried in the warm, moist air of the chamber. This difficulty has been overcome by placing the cut fruit on trays in a chamber so constructed that a draught of hot air from the stove passes up through it, carrying off the moisture as it is yielded by the fruit. In the Alden evaporating process the temperature and degree of moisture are graduated so as to produce the best results. The evaporating chamber is about 20 feet high by 5 feet square, and is provided with an endless chain, which carries the trays, introduced at the top, slowly downward to the bottom, where they are taken out fully dried. Below there are a steam coil and a blower, the air blown into the chamber ranging from 160° to 195° F. The blast is never quite dry, it being kept moist enough to prevent too rapid drying. But it is dryest and hottest at the bottom, while at the top it is reduced in temperature and laden with the moisture which it has extracted from the fruit. Thus, at the top the fruit meets a warm moist air, and the process of dessication begins slowly, increasing as it descends into a dryer and hotter air; while at the bottom the last remnant of moisture is extracted, and the fruit issues with little change in color and induration of surface. This method has been applied to many fruits and vegetables with very favorable results, the dried fruit, when soaked in water, regaining much of its original condition. Yet many look upon heat as an injurious curative agent—one which causes a partial loss of flavor and tends to cause a degree of fermentative change. To avoid these results the cold blast system has been resorted to, the fruit being exposed to a dry air current at a temperature of from 32° to 60° F. This process has a considerable advantage in economy over the former, while the dried fruit is said to retain its native qualities almost perfectly and to remain good indefinitely. But the drying, and more fully the curing, processes of *F. P.* have been largely set aside of late years by the canning methods, in which the fruit is kept in air-tight tin cans or glass jars. This method is applicable to every kind of perishable food, and requires that sufficient heat should be applied to destroy all germs or microbes capable of setting up fermentation or putrefaction. The can being closed and rendered air-tight while the heated state continues, the usual causes of change are effectually removed, and the food may be kept unchanged for an indefinite period. It is, of course, partly cooked by the heat applied, but its natural qualities are well retained, and if cooked on removal from the can it closely resembles fresh cooked fruits or vegetables. In this process sugar is generally added to fruit, but only sufficient to impart an agreeable flavor.—*Cold Storage.* The most recent method of *F. P.* is that known as cold storage, one applicable not only to fruit but to food of all kinds. In this the substance preserved is kept constantly at or near the freezing temperature, which checks all change in its constitution, and yields it when warmed in its original state. Some change, however, appears to have taken place, since the food thus kept is found to decay, when restored to ordinary temperature, much more quickly than the unfrozen substance. The various processes named have enabled man to keep for use vast quantities of food.

stuffs which formerly went to waste, to supply fruit in a more or less fresh condition throughout the year, to send fruits unchanged to distant regions, and to supply vessels with a much greater variety of palatable food than they could formerly possess.

Fry, James B., soldier, born at Carrollton, Ill., Feb. 22, 1827; graduated from West Point, and served in the Mexican War; was assistant adjutant-general in 1861, and chief of staff to Gen. McDowell; his chief service was in 1863–66, during which period he was provost-marshal-general of the U. S. Under his direction more than a million men were enlisted or drafted into the Federal army, and over 76,000 deserters captured and returned. Was afterward adjutant-general of the divisions of the Pacific, the South, and the Atlantic; retired in 1881, with the rank of brevet-major-general, and died July 11, 1884.

Frye, William Pierce, LL.D., statesman; born in Lewiston, Me., Sept. 2, 1831; graduated at Bowdoin College; practiced law. He held various public positions including that of attorney-general of Maine; was representative in the 42d and five succeeding Congresses, and elected United States Senator (March, 1881) to fill the unexpired term of James G. Blaine; was re-elected in 1883, 1889 and 1895.

Fryx'ell, Anders, Swedish historian; born at Hesselskog, in Dalsland, Feb. 7, 1795; studied at Upsala; was ordained as a priest, but from 1847 till the close of his life gave his attention to literary pursuits. Author of *Narratives from Swedish History* (Stockholm, 1832–80), which numbered 46 volumes many of them have been translated into the European languages. He also wrote *Conspiracies of the Swedish Aristocracy.* Died March 21, 1881.

Fu'gitive Slave Law. (*Amer. Hist.*) A law enacted by the Congress of the U. S., in 1793, or one passed in 1850, based on a clause of Art. IV of the Constitution, providing that a slave escaping from his master into another State was to be seized and restored to his owner, and any person aiding in his flight was to be deemed guilty of committing a penal offence. There was much opposition to this law in the Northern free States.

Full'-back, *n.* See Foot-ball.

Full-blood'ed, *a.* Having a large supply of blood. —Of pure blood or extraction; thoroughbred.

Full-dress', *a.* Requiring the wearing of full-dress; as, a *full-dress* occasion.

—*n.* The conventional style of dress for court receptions or formal social gatherings.

Ful'ler, Andrew S., horticulturist, born at Utica, N. Y., in 1828; was for many years a popular contributor to the New York *Weekly Tribune* and *Weekly Sun* on horticultural topics, and wrote several books on the culture of small fruits. Died May 4, 1896.

Fuller, George, figure and portrait painter; born in Deerfield, Mass., 1822; studied in Boston, New York, London, and on the Continent. His *Romany Girl* was exhibited in New York in 1879, and later the *Quadroon; Winifred Dysart; Psyche; Fedalma,* &c. His work was rich in tone, and attracted much attention from connoisseurs though not appealing to the popular taste. Died March 21, 1884.

Fuller, Melville Weston, jurist, born at Augusta, Me., Feb. 11, 1833; graduated from Bowdoin College (1853), studied law at Bangor and at the Harvard Law School, and began practice at Augusta in 1855; became city solicitor and president of the council the following year, but resigned these positions and removed to Chicago, where he soon attained a leading position at the bar. Was appointed Chief-Justice of the U. S. Supreme Court by President Cleveland (1888), succeeding Morrison R. Waite.

Fuller, Sarah Margaret, (Marchioness D'Ossoli), reformer and litterateur, born at Cambridgeport, Mass., May 23, 1810; studied with her distinguished father, Timothy *F.*, after whose death she aided in the support of the family by teaching. She was exceedingly precocious; philosophy, history and æsthetics were her favorite studies. She edited *The Dial* from 1839 to 1844, and in the latter year went to New York and contributed a long series of articles on literature and art to the *Tribune.* Her *Woman in the Nineteenth Century* appeared in 1845; the following year she went to Europe, visiting Thomas Carlyle, and later proceeding to Rome, where she met and married Count D'Ossoli in 1847; sailed for America with her husband and infant, May 17, 1850; and on the morning of July 16, when off Fire Island, a hurricane burst upon the ship and the three perished in the surf.

Full-jewelled, *a.* (*Horol.*) Having all the pivot-holes—13 in number—supplied with jewelled bearings (applied to watches.)

Fur'bringer, Max, anatomist; born at Wittenburg, Saxony, Jan. 30, 1846; educated at the Universities of Jena and Berlin; made a special study of zoölogy and anatomy, and became professor extraordinary of anatomy at Heidelberg, and later director of the Anatomical Institute of Amsterdam; since 1888 has filled similar positions at Jena. His most important work is: *Untersuchungen zur Morphologie und Systematik der Vogel.*

Fur'nas, in *Nebraska,* a S. co.; *area,* 720 sq. m. It is intersected by the Republican river. The surface is undulating, and well timbered; the soil fertile and adapted for grazing. *Cap.* Beaver City. *Pop.* (1890) 9,840.

Fur'ness, Horace Howard, critic and litterateur, son of Rev. William H. *F.;* born in Philadelphia on Nov. 2, 1833; graduated from Harvard (1854), studied law, and was admitted to the Philadelphia bar in 1859. Mr. *F.* has contributed somewhat largely to legal literature, but his chief work has been the preparation and editing of a variorum edition of Shakespeare, of which several volumes have been published.

Furness, William Henry, Unitarian clergyman and author; born at Boston on April 20, 1802; studied at Boston Latin School, and graduated from Harvard College (1820), and Harvard Divinity School (1823); became pastor of the First Unitarian Church, Philadelphia, in 1825, a charge which he held until 1875, being pastor emeritus thereafter until his death, Jan. 30, 1896. Dr. *F.* was the associate and close friend of Emerson, Sumner, Garrison, and Lucretia Mott, and an earnest abolitionist; in addition to his pastoral work, he wrote extensively, his favorite theme being the life and character of Jesus. He was a man of singular purity and strength of character, universally beloved and respected by his associates.

Furness, William Henry, Jr., artist, born in Philadelphia on May 21, 1828; studied in Dusseldorf, Munich, Dresden, and Venice, and established a studio first in Philadelphia and then in Boston, achieving fame as a portrait painter. Died March 4, 1867.

Fur'nivall, Frederick James, philologist; born at Egham, Surrey, England, Feb. 4, 1825; student of University College, London, and Trinity Hall, Cambridge, receiving the degree of B.A. in 1846 and M.A. in 1849; founder of the Workingmen's College, where he taught for ten years; student in philology and organizer of numerous societies for the publication of English texts; honorary secretary of the Philological Society. His works number about thirty editions of classical English texts, several Shakespeare quartos in fac-simile, a six-text print of *Canterbury Tales,* and other invaluable philological studies.

Fu'sus, *n.* (*Zoöl.*) A genus of gasteropodous molluscs nearly allied to *Murex,* having a spindle-shaped shell, with a very elevated spire, the first whorl often much dilated, and a straight elongated canal. The whorls are not crossed by varices, as in *Murex.* About 100 existing and 300 fossil species have been described. The existing species are distributed over the whole world, living generally on muddy and sandy sea-bottoms at no great depths. In the cottages of Zetland the shell,

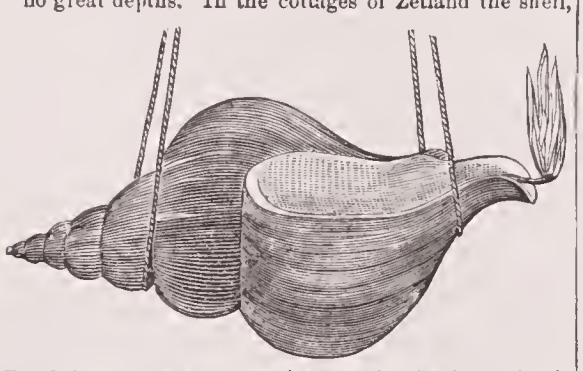


Fig. 2903.—fusus antiquus (as used by the Zetlanders).

generally about six inches long, is used for a lamp, being suspended horizontally by a cord, its cavity containing the oil, and the wick passing through the canal. This mollusc is often dredged up with oysters. It is eaten by the poor, but is more generally used as bait for cod, skates, &c. This genus makes its first appearance in the Oolite, in which 10 species have been noticed. The numbers increase to 35 in the Cretaceous rocks, to 100 in the Eocene, and to 150 in the Miocene and Pliocene.

Fuze, *n.* A device to produce explosion at a distance, and insure safety from its effects. The fuzes for this purpose differ widely in character, in accordance with the moving or stationary condition of the explosive, and the immediate or protracted time designed for the explosion. The fuzes employed in projectiles are of three classes, designated as *time, percussion* and *combination.* The first of these, the time *F.,* is a case of paper, wood, or metal, containing the ingredients of gunpowder, combined in a manner to produced combustion at a desired rate. These, being made of proper length, are inserted in the *F.* hole of the projectile, are ignited by a match or by the flame of discharge, and reach the charge of the shell, explosive bullet, or whatever it may, be at a fixed time in its flight. This arrangement sufficed for smooth-bore guns, but proved inapplicable to rifled guns, the rotating device cutting off the flame of discharge from the *F.* and preventing its ignition. In these guns the shock in the bore is utilized to kindle the *F.* In the "M'Evoy attachment" a hollow cylinder of wood was fixed to the outer end of a time *F.,* it containing a gun primer loaded with lead, which was ignited by the shock of the discharge, and fired the *F.* Many other inventions have appeared, some mechanical in operation, some employing fulminates, and using in some cases the shock of translation, in others that of rotation, to fire the igniter. The greater time of flight due to the long range of recent guns, has increased the difficulty of exactly estimating the time of explosion, and researches are still kept up. One *F.* is designed to have the explosion take place after the fall of the shell. A small bottle of sulphuric acid is broken by the shock, the escaping acid soaking through several thicknesses of slowly absorbing paper before reaching a mixture of chlorate of potash and sugar placed within, and detonating it by contact.—*Percussion Fuzes.* These are designed to produce explosion by the shock of contact between the projectile and the object. This is difficult to effect unless contact is made at a particular point on the projectile, and therefore is of little utility except with rifled arms or with grenades whose motion is guided by some device. An ordinary form of this class of fuzes is a percussion cap on a gun-cone placed within a plug at the point of the projectile, and igniting by impact. The fire *F.,* used in the Civil War for incendiary shells, embraced a small vial of fulminate left after the shock of discharge, by an ingenious device, unprotected among some loose shot. The slightest impact caused this to detonate. Ordinarily it is almost impossible to produce explosion by percussion until the projectile has buried itself to some distance in the earth, thus greatly reducing its destructive effect. This is, however, of advantage in breaching a masonry wall or penetrating an iron-plated ship, since it adds to the effect of the explosion. In the latter case it has been found best to dispense with fuzes and place the bursting charge in a flannel bag, so as to retard the explosion until it can produce its greatest effect on the iron plating.—*Combination Fuze.* This consists of a time *F.,* to which is added a device to cause explosion upon impact. The Splingard *F.,* one of the oldest of this class, was formed of a time *F.* in whose axis was a long hollow cone of plaster of Paris, open at the bottom. As the supporting composition is burned away, this cone weakens so as to break and admit the flame to the interior if impact takes place before the fixed time. More elaborate are the Schenkl fuzes used in the U. S. Civil War, the British Armstrong *F.* and various later ones. Combination fuzes are complex and costly, yet they are much used to prevent the waste of the very costly modern projectiles. Of the more recent types are the Hotchkiss point and base fuzes and the Merriam base *F.;* but perfection in this direction is yet lacking, and room for new invention lies open.—*Stationary Explosives.* In the the case of stationary explosives, as in mining operations, the employment of planted torpedoes, &c., quite a different class of fuzes is necessary. Those used may be classed as *time, contact* and *electrical.* The time *F.* in this case is simply a slow match, cut of sufficient length to allow the operators to reach a position of safety before the explosion. Various kinds of matches are employed, differing in rapidity of action. The contact *F.* is used with torpedoes, many devices for explosion being employed. In some a projecting lever is arranged to be moved on contact with a ship, set free a trigger, and explode a common gun cap. Other methods of exploding a percussion cap are employed, and in one plan a bottle of sulphuric acid, imbedded in chlorate of potash and sugar, is arranged to be broken on contact and ignite the torpedo by chemical heat. Electrical fuzes, which are now largely used, obviate many of the disadvantages of the other systems. Explosion is produced by the heat generated by a thin resistance strip of platinum or other metal, on the passage of the current, wires passing from the torpedo or other explosive to the place of operation, where explosion may be produced by connecting them with a battery. Various primings, such as gunpowder, guncotton, &c., may be placed in contact with the resistance wires. To produce a more intense shock, a capsule filled with fulminate of mercury, called a detonator, is employed. These are very dangerous to handle, but in blasting with modern explosives their use is highly important. Of the various primings in use, the copper fulminate is the most sensitive in its action, and may be so prepared that it will explode in a dry atmosphere if the exposed ends of the wires are brushed with a feather, or if, in the case of a person grasping one terminal, an ebonite comb is passed through his hair, the other terminal being insulated in the air. With fuzes of this character a large number of blast holes may be fired simultaneously; while with other detonators the explosion of the successive holes is usually not quite simultaneous. But this substance is debarred from common use by its highly dangerous character. In electrical explosion, the platinum wire *F.* has practically displaced all others. By a proper grouping of the explosives and adjustment of the battery power, a large number of holes may be fired simultaneously. This was done at Hallett's Point, in the East River, in 1876, when 3,640 fuzes were simultaneously fired by an electric charge. These fuzes are used exclusively in submarine mining, and largely in cannon of recent date, and have even been adapted to small arms.

Fyffe, Joseph, U. S. N., born in Ohio on July 26, 1832; became midshipman in the U. S. navy in 1847, and reached the rank of rear-admiral on July 10, 1894, more than half of this time being passed at sea, including distinguished services during the Civil War, as lieutenant-commander and commander. Retired July 20, 1894, and died February 25, 1896.

G.

G. The seventh letter, and the fifth consonant of the English alphabet, is the third letter in those of all the Oriental languages, and also of the Greek. The form of our G is borrowed from the Roman alphabet, in which, as in all the modern European languages, it stood seventh in order of priority. G in English has two sounds—*guttural* and *sibilant;* before *a*, *o*, and *u*, and occasionally before *i* and *e*, it is the medial letter of the guttural order, as in *gave*, *gore*, *gusto*, and (in an exceptional sense) in *gild*, *get*. The other sound, which it possesses only before *e* and *i*, is one of the mediais of the sibilant series, having the same sound, in fact, as *j*, as in *gem*, *gin*. G in its proper power, belongs to the order of gutturals *k* or *c*, *g*, *ch*, *gh;* of the two "bare" gutturals, *g* is the *flat* (or medial), and *k* the *sharp;* while *ch* and *gh* are the corresponding aspirates.—G as a Roman abbreviation is used for *gratis*, *gens*, *gaudium*, &c. G.V. signifies *genio urbis*, G.L. *genio loci*, and G.P.R. *gloria populi Romani*.—As a numeral it denoted 400, and with a dash over it, 40,000. On the French coins, G indicates the city of Poitiers, and in chronology it is the seventh Dominical letter.

(*Mus.*) G is the fifth sound of the natural diatonic scale of C, and the eighth sound of the chromatic scale. It stands in proportion to C as 2 to 3; is a perfect fifth above C, and the second harmonic arising from C as a fundamental note. In the solmisation of Guido Aretinus the note G was called *Sol*, *Re*, or *Ut*, according as the hexachord began with C, F, or G. G major as a key has one sharp at its signature, viz., *F sharp*. G minor has two flats at its signature, viz., *B flat* and *E flat*.

Ga, a prefix found in the Old Gothic, and thence derived into the modern languages of Teutonic origin. It corresponds to the Anglo-Saxon *Ge* (*q. v.*).

Gaal (*gaí'ăl*), [Heb., contempt.] Son of Ebed (*Judges* ix. 26–41), perhaps a descendant of Hamor, the father of Shechem (*Gen.* xxxiv. 2–6). He joined the Shechemites when revolting against Abimelech, son of Gideon, inflamed their passions, and led them to battle, but was defeated, and excluded from the city.

Gaash (*gaí'ăsh*), [Heb., tempest.] A hill in Mount Ephraim, celebrated from Joshua's tomb.

Gab, *v. n.* [A. S. *gabban*, to mock, to scoff.] To talk idly; to prate.—To impose upon; to lie.

—*n.* Idle, silly, or profuse talk.

(*Steam Engine.*) The hook on the end of an eccentric-rod, opposite the strap.

Ga'ban, *n.* A coarse cloak.

Gab'ardine, *n.* [Sp. *gabardina*, from *gabán*, a hooded and close-sleeved great-coat. Cf. It. *gabbano*, L. Lat. *cappa*, an outer garment with a hood; more particularly, the outer garment worn by monks.] A coarse frock or loose upper garment; a mean dress.

Gab'batha, [Heb., high or elevated.] (*Scrip.*) The name of a place in front of Pilate's palace, whence he pronounced sentence against Jesus Christ (*John* xix. 13). It was not the usual judgment-hall, which the Jews could not enter, but some place in the vicinity of the crowd without.

Gab'ble, *v. n.* [Du. *gabberen*, to jabber.] To talk fast, or to talk without meaning; to utter inarticulate sounds with rapidity; to jabber.

"To *gabble* like tinkers in an ale-house."—*Shaks.*

—*a.* Loud or rapid talk without meaning; inarticulate sounds rapidly uttered, as of fowls.

Gab'bler, *n.* A noisy talker; a prater; one who utters inarticulate sounds.

Gab'bling, *n.* The making of a confused noise; rapid, indistinct utterance.

Gab'bronite, *n.* [*Gabbro*, the Italian name of a rock composed of diallage and feldspar.] (*Min.*) A variety of altered Scapolite. See WERNERITE.

Ga'bel, *n.* [A. S. *gafel*, *gaful*, from *gyfan*, to give; Fr. *gabelle;* It. *gabella*. See GAVEL.] An excise; a tax; an impost.

"The *gabels* of Naples are very high."—*Addison.*

Ga'beler, *n.* A collector of taxes; an exciseman.

Gabelle, (*ga-bel',*) *n.* [Fr., probably from the Teut. *geben*, to give.] In France, this term was originally applied to any tax or impost laid upon commodities, but which afterwards came to be specially applied to a duty upon salt. This salt-tax was first established toward the end of the 13th century, in the reign of Philip IV. It was very unequally distributed, some parts of the country being altogether free, and others more or less heavily taxed; and hence it was very unpopular, and frequently gave rise to disturbances. It was finally abolished in 1789.

Gab'erdine, *n.* Same as GABARDINE, *q. v.*

Gaberlun'zie, *n.* [Scot.] A beggar; one who has no money to pay his expenses.

Gabii, (*gaí'be-i,*) a city of the Volsci, taken, about 500 B. C., by the artifice of Sextus, the son of Tarquin, who gained the confidence of the inhabitants by deserting to them, and pretending that his father had ill-treated him.

Gab'ilan Mountains, in *California*, a branch of the Coast Range extending S. through San Mateo and Santa Cruz cos., into Monterey co.

Gabin'ius, a Roman consul, who made war in Judæa, and reëstablished tranquillity there. He suffered himself to be bribed, and replaced Ptolemy Auletes on the throne of Egypt. On his return, he was accused of receiving bribes. Cicero, at the request of Pompey, ably defended him. He was banished, however, and D. at Salona, about 40 B. C.

Ga'bion, *n.* [Fr.; It. *gabbione*, aug. of *gabbia*, a cage, from L. Lat. *gabia*, Lat. *cavea*, an enclosure, from *cavus*, hollow.] (*Mil.*) A basket or cylinder made of wicker-work, open at both ends, used in the construction of earthworks. These baskets, which are 2 ft. 9 in. in height, and 2 ft. in diameter, are thus made: A number of stakes, varying from about 21 to 27, according to the flexibility of the osiers or brushwood that are used in making the *G.*, are driven into the ground at equal intervals round the circumference of a circle traced thereon, with a radius of 11 in., that the outer diameter of the *G.* may not exceed 2 ft. when it is completed. The willow rods, or any other material that can be obtained which is suitable for the purpose, are then twisted between and about the stakes, each successive layer of rods being tightly pressed against the one below it, until the basket-work has attained the requisite height. The *G.* is then pulled up, the osiers at the top and bottom are secured to prevent them from coming out of place, and the ends of the stakes are cut off about 3 in. from the basket-work at either end and sharpened. Gabions are used in making earthworks. They are placed on end and filled with earth taken from the ditch dug out in front of the rampart. They add considerably to the strength of the mound, by affording support to the earth that is thrown over and against them. When one line of gabions is placed on top of another, a row of fascines is generally placed between them.

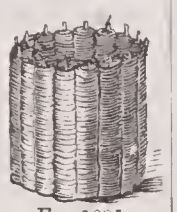


Fig. 1095.
GABION.

Ga'bionnade, *n.* [Fr. See SUPRA.] (*Mil.*) A bulwark or parapet, chiefly made of gabions.

Ga'ble, *n.* [Ger. *giebel;* Dan. *gavl;* Lat. *gabulus*, a pointed roof. Cf. Gr. *kephale*, the head.] (*Arch.*) The upper part of the end-wall of a building, the sides of which meet in an angle and afford support to the ends of the rafters of the roof. The angle thus formed corresponds to the shape of the roof; it attains the greatest degree of acuteness in Gothic architecture. (Fig. 1096.) The gables of the different styles of Gothic architecture were often richly ornamented, the wall being raised above the roof and finished with a coping and finial, which generally assumed the form of a cross in churches and buildings designed for ecclesiastical purposes. In Elizabethan architecture, the outline of the gable was composed of curves and angles variously combined, that known as the ogee-gable being the most common. It was often richly ornamented with open stonework. The sloping sides, particularly in old Scotch, Dutch, and German buildings, were sometimes finished in the form of a series of steps, which, in Scotland, were termed "corbie steps." In domestic Gothic architecture, the roof generally projects beyond the face of the gable-wall, and an ornamental barge-board is attached to the end of the rafters. The end of a house terminating in a gable is indifferently called the gable or gable-end of the building.

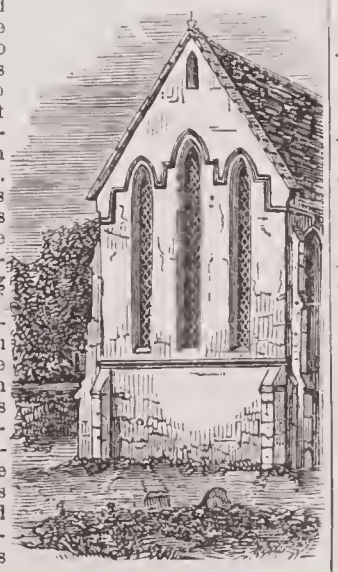


Fig. 1096.
STANTON HARCOURT.
(England, 13th century.)

Ga'ble-roof, *n.* (*Arch.*) A roof converging to an apex in the manner of a gable.

Ga'ble-window, *n.* (*Arch.*) A window having its upper end shaped like a gable.—A window in the gable of a building.

Ga'blet, *n.* (*Arch.*) A small ornamental gable or canopy, formed over a tabernacle, niche, &c.

Gab'-locks, *n. pl.* False spurs placed on game-cocks.

Gaboon', a bay on the coast of W. Africa, in about Lat. 0° 30′ N., and Lon. 9° 20′ E. In 1843, the French established there a fortified factory, whose pop. in 1874 was about 5,000. Here resides a French bishop, as well as American, English, and Portuguese missionaries.

Gabriel, (*gaí'bre-el.*) [Heb., strength of God.] An angel of high honor in the service of God. He was sent to the prophet Daniel to explain his visions; also to Zacharias, to announce to him the future birth of John the Baptist (*Dan.* viii. 16; ix. 21; *Luke* i. 11–19). Six months afterwards he was sent to Nazareth, to the Virgin Mary (*Luke* i. 26–38).

Ga'briel Channel, a strait of Terra del Fuego, between Dawson Island and the mainland. This remarkable channel is about 2½ m. wide at either end, but the shores approach towards the middle, and rise to an almost perpendicular height of 1,500 ft. The hurricane squalls, or *williwasos*, so common in this region, sweep the channel with such violence as to carry everything before them. Lat. 54° 20′ S., Lon. 70° 40′ W.

Gabrielle d'Estrées, B. 1571, was the daughter of Antoine d'Estrées, 40 years grand-master of artillery in France. Henry IV., visiting her father's château in 1590, fell in love with her, and she became his mistress, retaining his affection for many years, and enjoying the honors though not the title of queen. She received the title of duchess of Beaufort. Anxious to legitimate the children she had borne to the king, she pressed for a marriage. But Margaret of Valois had not consented to a divorce, and Sully, the chief minister, opposed the marriage of Gabrielle from reasons of state. At Easter, 1599, Gabrielle was sent to Paris, the king observing the Easter ceremonies at Fontainebleau. She was there seized with a fit of apoplexy or paralysis, and before the king could arrive she was dead. Whether she was poisoned is a question which remains unanswered. Negotiations for the king's marriage with Marie de Medicis quickly followed the death of Gabrielle.

Ga'by, Gaw'by, *n.* A silly person; a dunce. (Colloq.)

Gad, *n.* [A. S. *gad*, a club, a sting.] A sharp-pointed rod or pricking instrument; a goad, as for driving oxen.—A wedge or ingot of steel or iron—A style or graver.

"To write with a *gad* of steel."—*Shaks.*

—Any rod or stick, as a fishing-rod; particularly a rod cut and trimmed of its branchlets for the purpose of whipping children or of driving cattle. (Prov. Eng., and local U. S.)

—*v. n.* [From *gat*, 3d per. sing., pr. ind. of O. Goth. *ga*, to go.] To walk about, to rove or ramble idly or without fixed purpose.

"Where have you been *gadding?*"—*Shaks.*

—To be exuberant in growth; to shoot forth branches and tendrils in every direction, as the vine, the ivy, &c.

Gad, [Heb., band or troop.] A son of Jacob and Zilpah, Leah's servant (*Gen.* xxx. 11), who gave his name to one of the twelve tribes of Israel, which was located E. of the Jordan.

—A prophet and faithful friend of David.

Gad'about, *n.* One who runs much abroad without business.

Gada'mes, an oasis of the great African desert, containing numerous villages, S. of the main chain of the Atlas. It is in the centre of the caravan routes which lead to Tunis, Tripoli, and several oases.

Gada'ra, (*Anc. Geog.*) A city of Decapolis, Palestine, of considerable importance in the time of Christ, and having many Greek inhabitants. It lay S. of the river Hieromax, 7 m. S.E. of the Sea of Galilee, upon the level summit of a steep limestone hill. A few ruins are found on the top of the hill, and many excavated tombs on its sides, still partly occupied as residences, and warm springs at its base. The country of the Gaderenes extended to the Jordan and the Sea of Galilee; and in the part of it bordering on the lake occurred the miracle recorded by *Matt.* viii. 28, ix. 1, *Mark* v. 1–20, *Luke* viii. 26–39.

Gad'der, *n.* A rambler; one who roves about idly.

Gad'di, [Heb., my troop.] One of the spies sent by Moses from Manasseh to explore Canaan.

Gad'diel, [Heb., God is my happiness.] One of the spies sent from Zenuhon to explore Canaan.

Gad'dingly, *adv.* In a rambling, roving manner.

Gad'dish, *a.* Disposed to wander about idly.

Gad'dishness, *n.* Disposition to ramble about idly.

Gad'-fly, Bot, Bot'-fly, Bris'tle-tail, *n.* (*Zoöl.*) Names common to many insects of the family *Œstridæ*, q. v., the genus *Œstrus* of Linnæus; divided by others into the two families *Pabanidæ*, or Horse-fly, and *Œstridæ*, or Bot-fly. The name *bot* is sometimes restricted to the larvæ, the other names being given to the perfect insects. The insects of this family are now supposed not to be those which were called *Œstrus* by the ancients, although, like them, extremely troublesome to cattle. They belong to the sub-order *Diptera*,

and are nearly allied to the *Mucidæ*, with small 3-jointed antennæ, and mouth destitute of a proboscis. The Gad-fly, or Horse-bot of the horse (*Gasterophilus*, or *Gastrus*, or *Œstrus Equi*), sometimes also called the Breeze, the Horse-fly, or Horse-bee, occurs chiefly in elevated, healthy districts. It is not quite half an inch in length, woolly, with yellowish-gray head, rusty thorax, abdomen, and the wings whitish, with brownish-gray spots. The abdomen of the female terminates in a blackish horny tube. In the latter part of summer, the female hovers about horses, and deposits her eggs on their hairs, where they remain attached by a glutinous substance until they, or the larvæ just emerging from them, are licked off by the tongue of the horse, their destined place being its stomach. It is believed that the fly deposits her eggs only on those parts which are accessible to the horse's tongue, seeming to prefer the back of the knee-joint, where they may sometimes be found in hundreds. The larva is yellowish, without feet, short, thick, soft, composed of rings which have a double row of short teeth surrounding them; it is somewhat acuminated at one end — the head; and the mouth is furnished with two hooks, one on each side, for taking hold of the inner coat of the horse's stomach, to which the Bot attaches itself, and from which it derives its subsistence, hanging in clusters sometimes of three or four, sometimes of more than one hundred. Here it spends the winter; and in the following summer it disengages itself, and being carried through the horse's intestines, burrows in the ground, and changes into an oval black pupa with spiny rings, from which, in a few weeks, the perfect insect comes forth. — The Ox-bot, or Ox-gadfly (*Œstrus Hypoderma Bovis*,) also called Bull-bee or Burrel-fly, is more troublesome than any species of Horse-bot. It is a beautiful insect, not quite half an inch long, and thicker in proportion than the Horse-bots; it has brown, unspotted wings; the face is whitish, the crown of the head brown, the thorax black, the abdomen whitish, with a broad black band around the middle, and yellow hairs at the extremity, where also the female has an ovipositor, — a remarkable organ, formed of a horny substance, and consisting of four tubes, retractile within one another, like the pieces of a telescope, and the last of them terminating in five points, three of which are longer than the others, and hooked. By means of this organ a small round hole is pierced in the hide of an ox's back, in which an egg is deposited. The fly is very quick in depositing her egg, not remaining upon the back of the animal more than a few seconds. Cattle exhibit great alarm and excitement at the presence of the Gad-fly, and rush widely about, with head stretched forward, and tail stuck out, to escape from their tormentor. The further injury done by this insect is not, however, usually great; the larva, a little pearl-white maggot (*warble* or *wormal*), feeding upon the juices beneath the skin, causes a swelling, called a *warble*, forming a sort of sac, within which it lives and grows, amid a kind of purulent matter suited to its appetite, and from which it finally emerges, leaving a small sore, and like the Horse-bot, undergoes its further transformations in the ground. By pressure on the warbles, Bots may be destroyed; and when they are numerous, assiduous oiling of the back of the ox is resorted to for the same purpose. — The Sheep-bot (*Cephalemyia*, or *Œstrus Ovis*) is a much more serious pest than any other species, and is not unfrequently very destructive to flocks. The insect is smaller than either the Ox-bot or Horse-bot;

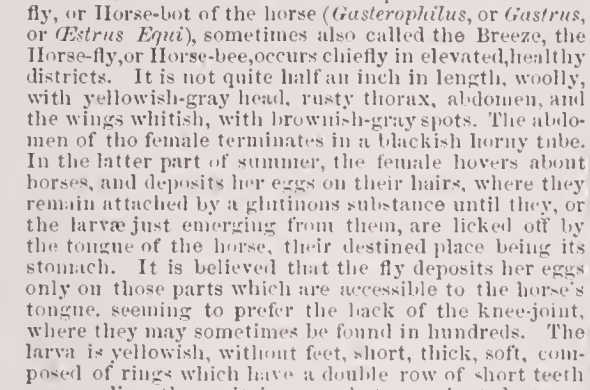


Fig. 1097. — SHEEP GAD-FLY, OR BOT-FLY.

a, larva, full-grown; *b*, larva, younger; *c*, pupa; *d*, the face of the perfect insect, magnified; *e*, perfect insect, natural size; *f*, perfect insect, magnified.

it is of a grayish color, with a large head and yellow face, and is most abundant in damp situations and woody districts. It is to be seen chiefly in the months of June and July. Sheep exhibit great alarm when it approaches them, and seem to seek, by keeping their noses close to the ground, and by incessant motion of their feet, to keep it from entering their nostrils. It is in the nostrils of the sheep that this fly deposits its eggs; and the larvæ, when hatched, make their way into the maxillary and frontal sinuses, causing great irritation in their progress, and feeding upon the juices there until they are ready to change into the pupa state, in April or May of the following year, when they find their way again through the nostrils to the ground.

Gad'fly, in *Missouri*, a post-office of Barry co.

Ga'didæ, *n. pl.* [Lat. *gadus*, a cod-fish.] (*Zoöl.*) A family of malacopterygious fishes, including the Cod and its allies. They are easily known by the position of the ventral fins under the throat, and the pointed character of those fins. The body is long, rather compressed, and covered with small soft scales. The head is scaleless; eyes lateral; jaws and anterior part of the vomer furnished with several ranges of unequal teeth; the gills large, 7-rayed, and opening laterally; a small beard at the tip of the lower jaw. Most of the species have the dorsal fin contained in two or three bundles; they have also fins behind the vent, and a distinct caudal fin. The greater number of the species live in cold or temperate seas, and furnish the greater portion of the fish obtained in England and America. Their productive powers are very great; and the numbers in which they exist in some parts of the ocean is perfectly incalculable. The principal genera are *Gadus*, or *Morrhua*, the Cods; *Merlangus*, the Pollacks, including the Cudden or Coal-fish; *Merlucius*, the Whitings; and *Lota*, the Burbots.

Gadita'nian, *a.* [Lat. *gaditanus*, from *Gades*, Cadiz.] Of or belonging to Cadiz in Andalusia, Spain.

—*n.* A native or inhabitant of Cadiz.

Gad'ling, *n.* [A. S. *gad*, a goad or sting.] A gadder — A boss on the knuckle of a gauntlet. (Also called *gad*.)

Ga'doid, *n.* (*Zoöl.*) A name of the family GADIDÆ, *q. v.*

—*a.* (*Zoöl.*) Relating to codfishes, or *Gadidæ*.

Gad'olinite, *n.* (*Min.*) A mineral varying widely in its crystals, and physical and chemical characters, found principally near Fahlun, Sweden. It has a vitreous lustre, black to greenish-black color, and sp. gr. 4–4·5. *Comp.* Silica, oxides of beryllium, iron, yttrium, and cerium, and lime.

Ga'dor, (Sierra de,) a mountain-chain of Spain, in Andalusia, ranging nearly parallel with the Sierra Nevada. Its highest point is nearly 7,000 ft. above sea-level.

Gads'den, in *Ala.*, a thriving town, cap. of Etowah co., 63 m. N.E. of Birmingham. *Pop.* (1897) about 6,000.

Gadsden, in *Florida*, a W. co., bordering on Georgia. *Area*, about 550 sq. miles. *Rivers*, Apalachicola, Ocklockonee, and Little rivers. *Surface*, uneven; *soil*, fertile. *Cap.* Quincy. *Pop.* (1890) 11,894.

Gadsden, in *South Carolina*, a post-village of Richland co., 20 miles E.S.E. of Columbia.

Gadsden, in *Tennessee*, a post-village of Crockett co., 76 miles N.E. of Memphis.

Gad's' Hill, an eminence of England, co. Kent, 3 m. W. of Rochester. It has been immortalized by Shakspeare, who, in the 2d act of his Henry IV., makes it the scene of a famous rencontre between Prince Henry and Falstaff. Mr. Charles Dickens, the novelist, had a country-seat here, where he died, in 1870.

Ga'dus, *n.* [L. Lat., codfish.] (*Zoöl.*) See GADIDÆ.

Gad'wall, Gadwell, *n.* [From *gad* and *well*.] (*Zoöl.*) The *Anas strepera*, a duck which inhabits the N. and E. parts of Europe.

Gael, (*gāle*,) *n. sing.* & *pl.* A Scottish Celt or Highlander. — An Irish Celt.

Gaelic (or **Erse**) **Language and Literature,** (*gal'lik.*) The language spoken by the Highlanders of Scotland is termed by them the Gaelic; but the name frequently given to it by the Lowlanders is Erse, or Ersh, evidently a corruption of Irish. It is a dialect of that great branch of the Celtic languages termed the Gwyddelian or Gaelic, and to which belong also the Irish and Manx, or that spoken in the Isle of Man. According to Dr. Prichard, the Celts are of eastern origin, belonging to the great Indo-European family. They arrived before the Teutons from the regions on the Oxus, and from Media, and penetrated through the Allophylic races along the southern shores of the Baltic Sea, at a time of which we have no historic data. At the time of the Roman invasion, Celtic was the language generally spoken in W. Europe. The dialects of the Celtic still spoken, besides the three already mentioned, are the Welsh, and the language of Brittany; while the Cornish, another dialect, though not now spoken, is preserved in books. The three dialects, the Irish, the Scottish-Gaelic, and the Manx, approach each other so nearly as to form, in fact, but one language, the peculiarities which distinguish them from each other not being sufficiently broad or vital to constitute either of them a distinct language. The differences between the spoken language of the Scottish Highlanders and the Irish exist partly in the pronunciation, partly in the grammar, and partly in the idioms. In the vocabulary, also, there are considerable differences, as where words now obsolete in Irish are still used in the Scottish-Gaelic, and others are used in a different sense. There are also marked differences in the language as spoken in different parts of the Highlands; and a native of Sutherland has some difficulty in understanding one of the S. districts of Argyle. The Gaelic, which, from a variety of causes, has retained, in a considerable degree, its original purity, is copious, bold, and expressive. It derives no assistance from the languages either of Greece or Rome, from which it differs in its structure and formation. Having affixes and prefixes, it greatly resembles the Hebrew, particularly in the inflections of its nouns and verbs. In Ireland, too, the Gaelic spoken in the different parts varies; and the difference is very marked between that spoken in the N. and S. parts of the island. The Scottish Highlands and the N. of Ireland were, at an early period, inhabited by the same race or races, and an intimate connection subsisted between the two countries. For nearly four centuries, from about the middle of the 12th to nearly the middle of the 16th cent., according to Mr. Skene, "there was not only a close political connection between the W. Highlands and islands and Ireland, but the literary influence was equally close and strong; the Irish sennachies and bards were heads of a school which included the W. Highlands, and the Highland sennachies were either of Irish descent, or, if of native origin, resorted to bardic schools in Ireland for instruction in the language and the accomplishments of their art." A powerful influence must thus have been exercised upon the language and literature of the Highlands, which must have become by degrees more and more assimilated to that of Ireland. The written and cultivated language of the Highlands thus came to be identical with that of Ireland; but, according to Mr. Skene, we have no reason to conclude, on that account, that there was not a vernacular Gaelic which preserved many of the independent features of a native language, and existed among the people as a spoken dialect. The introduction, however, of the Reformation, in the 16th cent., gave rise to a religious literature, which, commencing in the written, or Irish-Gaelic, gradually approached nearer and nearer to the spoken dialect of the country, and, accompanied by the preaching of the clergy in the vernacular dialect, tended to preserve and stereotype the language spoken in the Highlands in its native form and idiom. The first printed book in Gaelic was a translation of the forms of prayer issued by John Knox, and printed at Edinburgh, 1567. The second was a translation of Calvin's Catechism, published along with an English edition, in 1631. In 1659 the Presbyterian synod of Argyle took up the work of issuing translations into Gaelic of the metrical Psalms and of the Scriptures. In 1690 the first Bible was published for the use of the Highlands. All these works were in the Irish orthography and Irish dialect, the last being simply an edition of the Irish version of the Bible, with a short vocabulary. The first work published in Scottish-Gaelic was Baxter's *Call to the Unconverted*, translated by the Rev. Alexander Macfarlane in 1750, who in 1753 also published the Psalms in Scottish-Gaelic. In 1767 the first translation of the New Testament was published in the Scottish dialect; and in 1783, a translation of the Old Testament was undertaken by the Society for Propagating Christian knowledge in Scotland, and completed in 1787. In 1816 a committee of the best Gaelic scholars was appointed by the General Assembly of the Church of Scotland to effect an improved translation of the Scriptures, the whole being published in 1826. The earliest specimens of Scottish-Gaelic poetry are preserved in a collection made in the beginning of the 16th cent., by Sir James Macgregor, Vicar of Fortingall and Dean of Lismore, and now preserved in the Advocate's Library in Edinburgh. A selection from it has recently (1862) been published, with translations, by the Rev. Thomas M'Lauchlan, and an introduction by Mr. W. F. Skene. Some of the poems are in pure Irish, others in pure Scottish-Gaelic, and others in a mixed dialect, in which the one or the other idiom predominates. The MS. is one of no mean literary value, as throwing some light upon the much controverted subject of Ossian's poems. "It contains no fewer than twenty-eight Ossianic poems, extending to upwards of 2,500 lines: nine directly attributed to Ossian, two to Farris, or Fergus Filidh, and one to Caolte McRonan, the three bards of the Feine; two to Allan McRuadrig, and one to Gillie Calum Mac an Olla, bards hitherto unknown: and eleven poems, Ossianic in their style and subject, to which no author's name is attached." It is thus clear, "that the characters introduced into Macpherson's poems were not invented, but were really the subjects of tradition in the Highlands, and that poems certainly existed which might be called Ossianic, as relating to the persons and events of that mythic age;" and "that Macpherson had used many such poems in his work, but by joining separate pieces together, and by adding a connecting narrative of his own, had woven them into longer poems, and into the so-called epics." The Dean's collection affords a fair specimen of the poetic literature in the Highlands of Scotland before the fall of the Lords of the Isles, and the introduction of the principles of the Reformation. — Ref. *The Highlanders of Scotland; their History, Origin, and Antiquities*, by W. F. Skene, 1837. Also, Mr. Skene's Introduction to the *Book of the Dean of Lismore*, 1862.

Gaëta, (*gā-ā'ta,*) a fortified seaport-town of S. Italy, prov. Caserta, at the end of a peninsula, on the W. shore of the kingdom, forming the N.W. boundary of the gulf to which it gives its name; 4 m. S.S.W. of Mola di Gaëta, 41 N.W. of Naples, and 72 S.E. of Rome. The town is regarded as one of the keys of S. Italy, being strong from its natural position, which art has taken advantage of. Its port, which has 7 fathoms water, though not the largest, is one of the safest and best in Italy. *G.*, situated in a beautiful tract of country, is the centre of a considerable trade. This place is very ancient. It became the residence of many Roman patrician families; and Cicero was put to death, by order of Anthony, in its immediate vicinity. After the fall of the W. empire, it had a republican form of government, at the head of which, however, was placed a duke, acknowledging the temporal suzerainty of the Pope. In 1435, it was taken by Alfonso V. of Aragon; and since then belonged to the crown of Naples until 1860. In modern times *G.* has been repeatedly besieged; the last siege of note was in 1806, when it fell into the hands of the French. In Nov., 1860, it withstood a siege of several weeks (as the last stronghold of Francis II., king of Naples, who had sought refuge within its walls) by the national troops commanded by Gen. Cialdini. *Pop.* 17,978.

Gaëta, (Gulf of,) an inlet of the Mediterranean Sea, lying in Lat. 41° N., Lon. 13° 40′ E.

Gaffer, *n.* [A. S. *gefere*, a companion; possibly by abbreviation for *godfather*, or *grandfather*.] A term of respect anciently applied to an elderly person in humble life, which seems to have degenerated into a term of familiarity or contempt.

> "For *gaffer* Treadwell told us, by the bye,
> Excessive sorrow is exceeding dry."—*Gay.*

Gaffle, *n.* [A. S. *gafeluc*; Dan. *gaffel*; Ger. *gabel*. Cf. W. *gafl*, a fork.] An artificial spur with which cocks are heeled when set to fight a match or main. — A steel contrivance for bending crossbows.

Gaff, *n.* [Fr. *gaffe*, an iron hook used for pulling the larger sea-fish on board. Cf. Gael. *gaf*, a hook.] A light pole with a barbed iron head, used for spearing fish; as, a salmon-*gaff*.—An artificial spur put on a cock when set to fight.

(*Naut.*) A kind of boom (Figure 1098) employed in small ships, as yachts, cutters, &c., to extend the upper edges of those sails which are secured to the masts by hoops or lacings, and which are usually extended by a *boom* below; such, for instance, as the mainsails of sloops, brigs, and schooners.

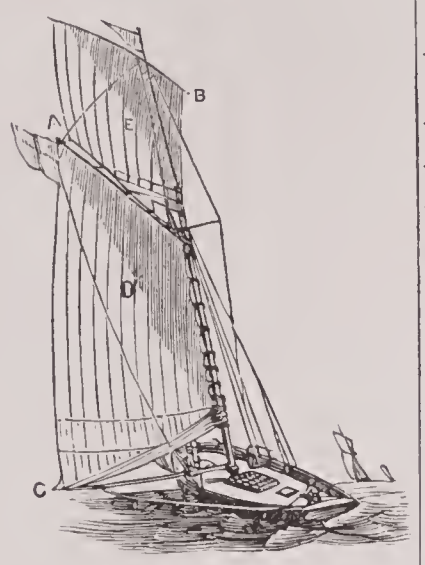


Fig. 1098.
A, Gaff; B, Gaff-topsail-yard; C, Boom; D, Sheet; E, Gaff-topsail.

Gaff-top'sail, *n.* (*Naut.*) A light sail set over a gaff, the sail being spread by it; (see Fig. 1098.)

Gag, *v. a.* [A.S. *cæggian*, to lock, shut fast, from *cæg*, a key.] To stop the mouth of, by thrusting into the throat something that shall allow breathing, but prevent speaking; to silence; not to allow freedom of speech to.—To cause to retch with nausea; to superinduce an effort to vomit.

—*v. n.* To heave with nausea.

—*n.* Something thrust into the mouth and throat to hinder speaking; a muzzle.—Any mouthful that causes the stomach to heave in an effort to vomit.

Ga'gas, or GIGAS, an African tribe. See BENGUELA.

Gage, (*gaij,*) *n.* [Fr. *gage*; Eng. *wage*; L. Lat. *gadium*, for Lat. *vadium*, from *vas*, *vadis*, bail, surety.] A pledge or pawn; something laid down or given as security.

"Nor without *gages* to the needy lend."—*Sandys.*

—Something thrown down as a challenge to combat, to be taken up by the one who accepts the challenge.

"There is my *gage*, the manual seal of death."—*Shaks.*

—Any instrument used to measure. See GAUGE.

(*Naut.*) The number of feet that a ship sinks in water.—also, the position of one ship in regard to another; as, "to have the weather-*gage*, or the lee-*gage*." *Worcester.*

—*v. a.* [Fr. *gager*.] To bind by pledge, caution, or security; to engage.

—To measure. See GAUGE.

Gage, THOMAS, general, commander-in-chief of the British troops of North America, and the last governor of Massachusetts for the English government. Shut up in Boston after the battle of Lexington, *G.*, whom Congress had declared a public enemy, caused martial law to be proclaimed. After the affair at Bunker Hill, he was forced to embark for England, where he D. 1787.

Gage, in *Nebraska*, a S.E. co., bordering on Kansas; *area*, 864 sq. m. *Rivers.* Big Blue river, and some smaller streams. *Surface*, diversified; *soil*, fertile. *Cap.* Beatrice. *Pop.* (1897) about 41,000.

Gag'er, *n.* A GAUGER (*q. v.*).

Gage'town, in *Michigan*, a post-village of Tuscola co.

Gage'town, a town of New Brunswick, cap. of Queen's co., on the St. John's River, about 28 m. S.E. of Fredericton.

Gag'ger, *n.* One who gags.

Gag'gle, *v. n.* [Dut. *gagelen*; Ger. *gackern*. See CACKLE.] To make a noise like a goose.

"May fat geese *gaggle* with melodious voice."—*King.*

Gag'-tooth, *n.* A tooth that projects.

Gag'-toothed, *a.* Having projecting teeth.

Gah'nite, *n.* (*Min.*) A zinc spinel. Lustre, vitreous; color, dark green to black; sp. gr. 4–4·6. *Comp.* Alumina 61·3, oxide of zinc 38·7. The name *automolite* was first given to this mineral from the Greek *automalos*, a deserter, from the fact of the zinc occurring in an unexpected place. Occurs at Franklin, N. J.

Gai'ety, *n.* Same as GAYETY, *q. v.*

Gaillac, (*gal'yak,*) a town of France, dep. Tarn, cap. arrond. on the Tarn, 12 m. S.S.W. of Alby. *Manf.* Casks, hats, leather, brandy. *Exp.* Wines, of which good, strong-bodied, deep-colored growths are produced in the neighborhood. *Pop.* 8,617.

Gailliarde, (*gal'yard,*) *n.* [Fr. *gaillarde*; It. *gagliarda*.] A lively dance, of Italian origin. See GALLIARD.

Gai'ly, *adv.* Same as GAYLY, *q. v.*

Gain, *v. a.* [A.S. *gynan*, *gewinnan*; Fr. *gagner*, to win, to acquire: Ger. *gewinnen*.] To get as profit or advantage; to acquire; to obtain; as, to *gain* a livelihood.—To obtain by superiority or success; to procure; as, to *gain* a name.—To receive, as honor.—To obtain or receive, as anything good or bad.—To draw into one's interest or party; to win to one's side; to conciliate.—To reach; to attain.

"To *gain* the timely inn."—*Shaks.*

—*v. n.* To have advantage or profit; to grow rich; to advance in interest or happiness.—To encroach; to advance on; to come nearer by degrees; to advance closer; to get ground.

"So on the land, while here the ocean *gains*."—*Pope.*

—To prevail against, or have the advantage.—To obtain influence with.

"My behavior had *gained* on the emperor."—*Swift.*

—*n.* [Fr.] Profit; interest; lucre; emolument; benefit; overplus in computation; anything opposed to loss.

—[W. *gan*, a mortise.] (*Arch.*) The bevelling shoulder of a joist or other timber.

Gain'able, *a.* [Fr. *gagnable*.] That may be procured, attained, or reached.

Gainas, (*gai'i-nas,*) a Goth, who became a general in the Roman army under Arcadius. He put Eutropius, the favorite of that emperor, to death, also the prefect Rufinus. Causing himself to be appointed commander of the cavalry and Roman infantry, he governed the weak Arcadius. At length declared an enemy of the state, he took up arms, was defeated, and perished by the hands of the Huns, with whom he had sought an asylum, 400.

Gain'er, *n.* One who obtains profit, interest, or advantage.

Gaines, in *New York*, a post-town and township of Orleans co. *Pop.* (1890) 2,070.

Gaines, in *Pennsylvania*, a post-township of Tioga co. *Pop.* (1890) 1,187.

Gaines'boro, in *Virginia*. See BIG LICK.

Gainesborough, in *Tennessee*, a post-village, cap. of Jackson co., on the Cumberland river, about 73 m. E. N. E. of Nashville. *Pop.* (1897) about 500.

Gainesborough, in *Virginia*, a post-village of Frederick co., about 150 m. N. N. W. of Richmond.

Gaines Cross Roads, in *Virginia*, a post-village of Rappahannock co., about 120 m. N. N. W. of Richmond.

Gaines' Landing, in *Arkansas*, a post-village of Chicot county.

Gaines' Mill (BATTLE OF). See CHICKAHOMINY RIVER.

Gaines' Station, in *Michigan*, a post-village of Genesee county.

Gaines'town, in *Alabama*, a post-village of Clarke co.

Gaines'ville, in *Alabama*, a post-village of Sumter co., on the Tombigbee river, about 54 m. W. S. W. of Tuscaloosa. *Pop.* (1890) 1,017.

Gaines'ville, in *Arkansas*, a post-village of Green co., about 165 m. N. E. of Little Rock.

Gaines'ville, in *Florida*, a city, cap. of Alachua co., 70 m. S. S. W. of Jacksonville. *Pop.* (1890) 2,790.

Gaines'ville, in *Georgia*, a city, cap. of Hall co., on the Chattahoochee river, 53 m. N. E. of Atlanta. *Pop.* (1890) 3,202.

Gaines'ville, in *Kentucky*, a post-office of Allen co.

Gaines'ville, in *Mississippi*, a post-vill. of Hancock co.

Gaines'ville, in *Missouri*, a post-town, cap. of Ozark co., about 70 m. E. S. E. of Springfield.

Gaines'ville, in *New York*, a post-town and township of Wyoming county, about 45 miles E. S. E. of the city of Buffalo. *Pop.* (1890) 2,166.

Gaines'ville, in *Texas*, a city, cap. of Polk co., on M., K. & T. and G., C. & S. F. R. Rs., 285 m. N. E. of Austin; has brick and ice factories, flour and planing mills, foundry, soap and broom works, &c. *Pop.* (1897) about 7,900.

Gaines'ville, in *Virginia*, a post-village of Prince William co., about 35 m. W. of Alexandria.

Gain'ful, *a.* Profitable; advantageous; advancing interest or happiness; lucrative; adding to wealth or estate; as, a *gainful* purchase, *gainful* care.

Gain'fully, *adv.* With increase of wealth; profitably; advantageously.

Gain'fulness, *n.* Profit; advantage.

Gain'ings, *n. pl.* Acquisitions made by labor or successful enterprise; gains.

Gain'less, *a.* Unprofitable; not bringing advantage.

Gain'lessness, *n.* Unprofitableness; want of advantage.

Gain'-pain, *n.* [Fr. *gagner*, to gain, and *pain*, bread.] A term formerly applied to the sword of a mercenary; a bread-gainer; a bread-winner.

Gainsay', *v. a.* [A.S. *gean*, *ongean*, against, and *seggan*, *secgan*, to say.] To contradict; to oppose in words; to deny or declare untrue what another says; to controvert; to dispute.

"Speeches which *gainsay* one another."—*Hooker.*

Gain'sayer, *n.* One who denies what is alleged; an opposer.

Gains'borough, THOMAS, an English landscape and portrait painter, was B. at Sudbury, in Suffolk, 1727. He grew up a lover of nature, and began early to draw and paint. About 1741 he went to London, received some instruction from Gravelot, an engraver, and Hayman, the painter, and after four years married and settled at Ipswich. In 1774 he removed to London, where he rose to the highest reputation as a portrait-painter, and was the friend and rival of Sir Joshua Reynolds. He was one of the first members of the Royal Academy. He was often careless in his drawing, and produced some of his finest effects in landscape by rough scratches and suggestions which look like chance-work. But his pieces charm by their truth to nature, their simplicity and purity. Among his most pleasing landscapes are, the *Cottage Door*, *Market Cart*, *Two Boys and Fighting Dogs*, and the *Woodman*. D. 1788.

Gains'borough, a seaport-town of England, in Lincolnshire, on the Trent, 117 m. N. by W. of London. It is a place of considerable trade.

'Gainst, *prep.* Contr. of AGAINST, *q. v.*

Gair'fowl, *n.* A large bird; the auk or penguin.

Gair'ish, Gar'ish, *a.* [A.S. *geáro*, ready, *yare*, from *gegyrian*, to clothe, to adorn; Ger. *gar*, done, dressed, ready.] Gaudy; showy; fine; affectedly fine; tawdry. "A *gairish* flag." (*Shaks.*)—Extravagantly gay; flighty.

Gair'ishly, Gar'ishly, *adv.* Gaudily; in a showy manner.

Gair'ishness, Gar'ishness, *n.* Gaudiness; finery; ostentatious show.—Flighty or extravagant joy, or ostentation.

Gait, *n.* [A.S. *gan*, to go; *gat*, a gate or door.] A walk; a march; a way.

"They kept on their *gait*."—*Spenser.*

—Manner of walking or stepping.

"Great Juno comes, I know her by her *gait*."—*Shaks.*

Gait'er, *n.* [Fr. *guêtre*, a spatterdash.] A covering of cloth or leather for the lower portion of the leg and ankle, fitting closely to the shoe.—A sort of high shoe covering the ankle-joint.

—*v. a.* To dress with gaiters.

Gains, or CAIUS, (*gai'yus,*) an eminent Roman lawyer, author of a valuable body of legal institutes, which formed the basis of the more celebrated Institutes of Justinian. The work of Cains was long lost, but a mutilated manuscript copy was discovered in 1816 by Niebuhr, and by the patient labor of several German scholars the difficult task of deciphering it was accomplished, and the work was published in 1820. Caius is supposed to have lived in the latter half of the second century.

Gaius, (*Script.*) I. A Macedonian who accompanied Paul in his travels, and whose life was in danger at Ephesus, (*Acts* xix. 29.)—II. A Corinthian convert of Paul, who hospitably entertained the apostle while laboring at Corinth, (*Rom.* xvi. 23; 1 *Cor.* i. 14.)—III. Of Derbe; an attendant of Paul from Corinth, in his last journey to Jerusalem, (*Acts* xx. 4.)—The third epistle of John is addressed "to the well-beloved Gaius," whose character for hospitality comports well with that of II. above. The name was a common one wherever the Romans lived: and yet it is not certain that more than one or two different individuals of this name are spoken of in Scripture.

Gal, Gall. Abbreviations for *gallon*, or *gallons*.

Ga'la, *n.* [Fr., feast or entertainment; It., ornaments, finery; Sp., court-dress, court-day. The word was introduced into Sp. from the Arab. *chalaah*, festive dress, a robe of honor.] A show; pomp; festivity; a fête.

Ga'la, or GALA WATER, a river of Scotland, rising in the S. of Midlothian, or Edinburghshire, and emptying into the Tweed near Galashiels.

Galac'tic, *a.* [Gr. *gala*, *galaktos*, milk.] Of or belonging to milk; lacteal.—Obtained from milk; lactic.—Of, or belonging to, the galaxy, or milky way; as, the *galactic* circle, *galactic* poles.

Galac'tine, *n.* [See SUPRA.] (*Chem.*) A milky and waxy substance obtained from the sap of the *Brosimum galactodendron*, or Cow-tree, of S. America.

Galac'tite, *n.* (*Min.*) [Gr. *gala*, milk, from its milky color when immersed in water.] Same as NATROLITE, *q.v.*

Galactoden'dron, *n.* [Gr. *gala*, *galaktos*, and *dendron*, a tree.] (*Bot.*) See BROSIMUM.

Galactom'eter, *n.* Same as LACTOMETER, *q. v.*

Galactoph'agist, *n.* [Gr. *gala*, milk, and *phagein*, to eat.] One who lives upon milk.

Galactoph'agous, *a.* Living on milk.

Galactoph'orous, *a.* [From Gr. *gala*, and *pherein*, to produce.] Tending to increase the secretion of milk; milk-producing.

Galac'topoiet'ic, *a.* [From Gr. *gala*, and *poietikos*, capable of producing, from *poiein*, to make, or produce.] Increasing the flow of milk.

—*n.* A substance that increases the secretion or flow of milk.

Gala'ga, an island in the Indian Ocean, belonging to France; Lat. 10° 29′ 50″ N., Lon. 56° 45′ E. Cocoa-nuts abound, and oil is exported.

Gala'go, *n.* (*Zoöl.*) A genus of small quadrumanous animals, inhabiting different parts of Africa, and subsisting chiefly on insect food. They have great eyes; large membranous ears, which double down when at rest; hind limbs of a disproportionate length; and a long and tufted tail. The best known species are the GREAT GALAGO (*Galago crassicaudatus*), which is as large as a rabbit; and the SENEGAL GALAGO (*Galago Senegalensis*), or gum animal of Senegal, the size of a rat. They make nests in the branches of trees, and are a favorite article of food in Senegal.



Fig. 1099.—SENEGAL GALAGO.

Galan'ga, Galan'gal, *n.* See MARANTA.

Galan'this, (*Myth.*) A servant-maid of Alcmena, whose sagacity saved her mistress great pain at the birth of Hercules, and defeated the plots of Juno. She was changed by Lucina into a weasel, and condemned to bring forth her young by the mouth, in great suffering. See ALCMENA.

Galapa'gos, or **Gallipagos,** a group of islands in the Pacific Ocean, abt. 200 m. W. of the coast of Peru, consisting of 7 small and 6 large islands, of which Albemarle, the largest, has a length of 60 m., by a breadth of 15. The whole are of volcanic formation, and abound in lava deposits, interspersed with fertile oases. Tortoises and turtles abound, and the islands are frequented by immense flocks of sea-birds. They are, for the most part, uninhabited, and were discovered by the Spaniards. The *G.* lie near the equator, between Lon. 89° and 92° W.

Galan'thus, *n.* [Gr. *gala*, milk, *anthos*, flower.] (*Bot.*) The Snowdrops, a genus of plants, order *Amaryllidaceæ*. The species *G. nivalis*, the Snowdrop (fig. 1100), is much cultivated in borders for the sake of its early and pretty blossoms. It is a bulbous plant: the flower is solitary, white, and drooping, the inner segments being greenish. It is singular that no varieties have been developed from this favorite plant by cultivation.



Fig. 1100. — THE SNOWDROP.

Gal'antine, *n.* [Fr., from *galantin*, a bean, from *galant*, pleasing.] (*Cookery.*) A dish of veal, or other white meat, freed from bones, tied up, boiled, and served cold.

Galashiels, (*gāl-a-shēēls'*,) a manufacturing town of Scotland, situated partly in the co. Selkirk, and partly in that of Roxburgh, on both sides of the Gala, 27 m. S.S.E. of Edinburgh, and 5 from Melrose. It is picturesquely located, and has manufactures of woollens, flannels, blankets, plaids, stockings, shawls, and leather. *Pop.* (1895) 10,890.

Gala'ta, a suburb of CONSTANTINOPLE, *q. v.*

Galatæa, or **Galathæa,** (*gal'a-te'a.*) (*Myth.*) A sea-nymph, daughter of Nereus and Doris. She was passionately loved by the Cyclop Polyphemus, whom she treated with disdain, while Acis, a shepherd of Sicily, enjoyed her unbounded affection. The happiness of these two lovers was disturbed by the jealousy of the Cyclop, who crushed his rival to atoms with a piece of rock, while he sat in the bosom of Galatæa. Galatæa was inconsolable for the loss of Acis, and as she could not restore him to life, changed him into a fountain.— See ACIS.

Galatia, (*ga-lā'she-a,*) a country of Asia Minor, between Phrygia, the Euxine, Cappadocia, and Bithynia. It received its name from the Gauls, who migrated there under Brennus, some time after the sacking of Rome. Here St. Paul's labors were successful in preaching the Christian religion.

Gala'tian, *a.* Of or belonging to Galatia, in Asia Minor.
—*n.* An inhabitant or native of Galatia.

Gala'tians, (ST. PAUL'S EPISTLE TO THE.) (*Script.*) One of the canonical epistles of the New Testament, written, as is generally supposed, about the year A. D. 57. It is said at the end to have been written from Rome, but this is generally believed to be incorrect. The authenticity of the epistle itself has never been called in question, and is frequently cited by the apostolic and other early fathers. Two journeys of the apostle to Galatia are mentioned in the Acts of the Apostles, and it was probably after the second of these that the epistle was written. Shortly after his departure, Judaizing teachers appear to have come among them, preaching "another gospel" than that of Christ, and to whom they were giving heed. These teachers also endeavored to subvert the apostle's authority, by attacking his character, and asserting that he was not divinely appointed. Paul, therefore, in his epistles proceeds to controvert these errors. He vindicates his character, and asserts his divine appointment and the truth of what he had taught them, declaring that, "though we, or an angel from heaven, preach any other gospel unto you than that which we have preached unto you, let him be accursed." He then proceeds to point out the relationship of Judaism to Christianity, that they are now no longer under the law but under faith, being made the children of God through faith in Jesus Christ; and exhorts them to "stand fast, therefore, in the liberty wherewith Christ hath made us free," and not to be "entangled again with the yoke of bondage." He also exhorts them not to fulfil the lust of the flesh; but to be led of the spirit, the fruit of which is love, joy, peace, &c. The number of commentaries on this epistle are very numerous — among which may be mentioned those of Luther, Winer, Rückert, De Wette, and Alford.

Galati'na, or **St. Pietro in Galatina,** a town of S. Italy, prov. Otranto, 13 m. S. of Lecce; *pop.* 9,118.

Galato'ne, a town of S. Italy, prov. Otranto, 9 m. N.E. of Gallipoli; *pop.* 6,000.

Galatz', or **Galaez',** a seaport-town of Moldavia, on the N. bank of the Danube, between the confluence of the Sereth and the Pruth with that river, 80 miles W. of its Sulina mouth; Lat. 45° 24′ N., Lon. 28° E. It is an ill-built, squalid place, but possesses a good harbor, and since the opening of the trade of the Danube in 1829 has become an important commercial emporium; and with Ibrail (*q. v.*) is the chief entrepôt of the vast countries traversed by the Danube from Hungary to the Black Sea. *Exp.* Grain, tallow, wool, butter, staves, wax, wine, skins, &c. *Manuf.* Soap, candles, smoked meats, flour, &c. *G.* has regular steam communication both with Constantinople and Vienna. *Pop.* estimated (1897) at 60,000.

Gal'axy, *n.* [Fr. *galaxie;* Gr. *kuklois galaxias*, the milky circle, from *gala galaktos*, milk.] (*Astron.*) See MILKY WAY.
—An assemblage of splendid persons or things; as, a *galaxy* of beauty or wit.

Gal'ba, SERVIUS SULPICIUS, a Roman emperor, who was descended from the ancient family of the Sulpicii. He was successively prætor, pro-consul of Africa, and general of the Roman armies in Germany and Spain. He retired to avoid the jealousy of Nero; but the tyrant having issued an order for his death, Galba revolted against the emperor in 68, and Gaul declaring for him, Nero killed himself. Galba gave himself up to the government of favorites, and he was slain by the prætorian band, who had proclaimed Otho in his stead, A. D. 69.

Galba'num, *n.* [Lat.] A fetid gum-resin used in medicine, internally as an anti-spasmodic, and externally as a stimulant and discutient application to tumors and chronic swellings. It is imported from Turkey and the East Indies, and is usually met with in masses of a brownish-yellow color, more or less translucent and shining. It has a peculiar balsamic odor, and an acrid, bitter taste. It is uncertain from what plant it is derived. Species of at least 4 different genera have been suggested as its source by different writers. It is supposed to be the *chelbenah* of the Scriptures, and is translated *galbanum* in the English Bible.

Gale, *n.* [A.S. *gyllan*, to roar; Ger. *jäh*, *jählings*, hasty, sudden. Cf. Erse, *gal*, a blast of wind.] A wind not tempestuous, yet stronger than a breeze; a strong current of air; a gust.

"What happy *gale*
Blows you from Padua here to old Verona?" — *Shaks.*

—A breeze; a light current of air.

"Winds of gentlest *gale*." —*Milton.*

(*Naut.*) When used without qualification, it signifies a vehement, tempestuous, or destructive wind; a storm of wind.

(*Bot.*) See MYRICA.

—*v. n.* (*Naut.*) To sail rapidly; to bowl along.

Gale, in *Wisconsin*, a township of Trempealeau co. *Pop.* (1895) 1,816.

Ga'lea, *n.* [Lat., a helmet.] (*Antiq.*) A Greek helmet (Fig. 194); a light casque or head-piece; a morion coming down to the shoulders, the lower part of which was called the *buccola*, and the upper part the *crista* or crest. It was originally made of skins, though in more advanced ages, of brass or polished iron.

(*Bot.*) The upper lip of a labrate flower (Fig. 194).

(*Geol.*) A genus of Echinites; same as GALERITES, *q. v.*

(*Anat.*) The innermost of the enveloping membranes of the fœtus.

(*Surg.*) A kind of bandage.

Ga'leas, *n.* Same as GALLEASS, *q. v.*

Ga'leate, GA'LEATED, *a.* [Lat. *galeatus*, pp. of *galeare*, to cover with a helmet, from *galea*, helmet.] Covered as with a helmet.

(*Bot.*) Having a flower like a helmet, as aconite.

(*Zoöl.*) Furnished with feathers on the head, which in shape appear as a helmet.

Gale'ga, *n.* (*Bot.*) Same as TEPHROSIA, *q. v.*

Ga'len, or **Gale'nus,** CLAUDIUS, one of the most celebrated physicians of ancient times, was born at Pergamus, in Asia, in 131. After studying philosophy and general literature, he travelled through Egypt and other countries in the East for the purpose of acquiring medical and anatomical knowledge. On his return, he practised four years in his native city, and then went to Rome, but was driven from thence by the intrigues of his jealous rivals, who attributed his success to magic. From Rome he returned to Pergamus; but was recalled by a special mandate of the Emperor Marcus Aurelius, who, on quitting Rome to make war on the Germans, confided to Galen the care of the health of his son Commodus. The place and time of his death are uncertain; but he is supposed to have died at Rome, in about the 70th year of his age. A part only of his very numerous writings has been preserved; but even that part forms 5 folio volumes, and affords undoubted proofs of his practical and theoretical skill. The system of Galen, which was the first theoretical system of medicine, was based on the physical doctrines of Aristotle: it admitted no chemical preparations as medicines, but only organic substances. "The views of Galen," says Liebig, "in regard to the cause of disease and the action of remedies, were regarded during thirteen centuries as impregnable truths, and had acquired the entire infallibility of the articles of a religious creed. Their authority only ceased when chemical science advancing made them no longer tenable. Soon after Luther burnt the papal bulls, Paracelsus burnt at Basle the works of Galen." D. abt. 205.

Galen, in *New York*, a township of Wayne county.

Gale'na, Galenite, *n.* [Fr. *galène;* Lat. *galena;* from Gr. *galēnē*, tranquillity.] (*Min.*) Native sulphide of lead crystallizes in the form of the cube and its secondaries. Lustre, metallic; color, pure lead-gray. Sp. gr. 7·25–7·7. *Comp.* When pure, sulphur 13·4, lead 86·6. It is the most abundant ore of lead, and occurs in veins and beds both in crystalline and uncrystalline rocks. Immense deposits of it exist in Missouri, Illinois, Iowa and Wisconsin. All *G.* contains more or less silver, and sometimes it is so rich in silver that it is worked almost entirely as an ore of that metal.

Gale'na, in *Illinois*, a city, the cap. of Jo Daviess co., on Fevre River, about 6 miles above its entrance into the Mississippi, and 133 miles W.N.W of Chicago. *G.* is peculiarly built upon the slope rising from the river, many of the streets communicating with each other by flights of stairs. The city owed its former remarkable prosperity to the rich mines of lead found in the vicinity. *Pop.* (1890) 5,635.

Galena, in *Indiana*, a post-village of Floyd co., about 8 miles W.N.W. of New Albany.
—A township of La Porte co.

Gale'na, in *Maryland*, a post-town of Kent co., about 30 miles E. of Baltimore.

Galena, in *Missouri*, a post-village, cap. of Stone co., on the James river, about 35 miles S. by W. of Springfield.

Galena, in *Nebraska*, a post-village of Hayes co.

Galena, in *Nevada*, a post-village of Lander co., about 70 miles N. of Austin. Gold, silver, and lead are mined here.

Galena, in *Ohio*, a post-village of Delaware co., about 20 miles N.N.E. of Columbus.
—A village of Scioto co. The P. O. is RARDEN.

Galen'ic, Galen'ical, *a.* Pertaining to, containing or consisting of galena.—Having reference to Galen, the physician or to his theories as to the treatment of diseases.

Ga'lenism, *n.* The doctrines put forth by Galen.

Ga'lenists, *n. pl.* (*Eccl. Hist.*) A religious sect, a branch of Waterlandians, Mennonites, or Anabaptists, which arose in the 17th century. Their founder was Galen Abraham Haan, pastor of a Mennonite congregation in Amsterdam, a man of great penetration and eloquence, who was disposed to lay much more stress upon practice than faith, and held that all who acknowledged the divine origin of the Old and New Testament, and led holy and virtuous lives, ought to be received into their communion.

(*Med. Hist.*) A term applied to those who adhered to the system of Galen, more particularly as opposed to the chemical school. The former ran much upon multiplying herbs and roots in the same composition, which they usually prescribed in the form of tinctures or extracts; while the latter dealt chiefly with mineral substances, and professed, by means of various chemical processes or operations, to extract the virtues or essences out of them into a very small compass.

Galenoec'ratite, *n.* (*Min.*) Same as PHOSGENITE, *q. v.*

Galeopith'ecus, *n.* (*Zoöl.*) See FLYING-LEMUR.

Galeop'sis, *n.* [Lat., from Gr. *galiopsis.*] (*Bot.*) A genus of plants, order *Lamiaceæ*, including the HEMP NETTLE, *q. v.*

Galeo'ta Point, the S.E. extremity of the island of Trinidad, W. Indies; Lat. 10° 9′ N., Lon. 60° 59′ W.

Gale'ra, a river of Brazil, in the prov. of Matto-Grosso, unites with the Guapore about 50 miles N.N.W. of Villabella. Now called the MATTO-GROSSO.

Galera, a peninsula and cape on the N.W. coast of Colombia, 28 m. N.E. of Carthagena; Lat. 10° 51′ N., Lon. 75° 25′ W. It bounds a small bay of the same name.

Galeric'ulate, *a.* [Lat. *galericulum.*] Being covered, as with a hat or other head-dress.

Gal'erites, *n.* [Lat. *galea*, a helmet.] (*Geol.*) A genus of fossil sea-urchins, abounding in the chalk formation, and from their shape popularly known as "sugar loaves." The shell is high, more or less conical, and oblong-oval at the base, narrowing towards the hinder part. These helmet-shaped echinites can be found in the chalk cliffs near Margate, England, with little trouble.

Gale'rius, CAIUS VALERIUS MAXIMIANUS, a Roman emperor. Entering the army as a common soldier, he rose to the highest ranks by his bravery, and was adopted by Diocletian, who gave him his daughter in marriage. He ascended the imperial throne in 305, and D. in 311. He was naturally of a cruel disposition, and during his reign the Christians suffered great persecution

Gales, in *South Dakota*, a flourishing township of Aurora county.

Gales'burg, in *Illinois*, a city, cap. of Knox co. abt. 165 miles W.S.W. of Chicago. It is the seat of two excellent colleges, and contains some handsome edifices; has a fine local trade. *Pop.* (1897) about 18,000.

Galesburg, in *Iowa*, a post-village of Jasper co.

Galesburg, in *Michigan*, a post-village of Kalamazoo co., about 130 m. W. of Detroit. *Pop.* (1894) 702.

Gales's Ferry, in *Connecticut*, a post-village of New London co., about 45 miles S.E. of Hartford.

Gales'ville, in *Maryland*, a small village of Anne Arundel co., on West river, about 12 miles S. by W. of Annapolis.

Galesville, in *New York*, a post-village of Washington co., 37 miles N.E. of Albany. Now MIDDLE FALLS.

Galesville, in *Oregon*, a post-village of Douglas co., about 32 miles S. of Roseburg.

Galesville, in *Wisconsin*, a post-village of Trempealeau co., about 16 miles E. by N. of Winona. *Pop.* (1895) 874.

Gale'ville, in *New York*, a P. O. of Ulster co.

Galia'ceæ, *n. pl.* (*Bot.*) An order of plants, alliance *Cinchonales*, consisting of 10 genera and 320 species; common weeds in the northern parts of the northern hemisphere, and also in the high mountainous districts of Peru, Chili, and Australia. The order has the following characters: — Herbaceous plants with whorled exstipulate leaves and angular stems. Calyx superior, with the limb 4–6-lobed or obsolete; corolla monopetalous, 4–6-lobed, regular; stamens epipetalous, equal in number to the lobes of corolla, and alternate with them, ovary inferior, 2-celled, with one solitary erect ovule in each cell; styles two; fruit 2-celled, indehiscent, with one erect seed in each cell; albumen horny. The *Galiaceæ* are chiefly remarkable for the presence of a coloring-matter in their roots. (See RUBIA.) Some have valuable medicinal properties. — See GALIUM.

Galia'no, an island of British N. America, in Queen Charlotte's Sound, Lat. 51° 9′ N., Lon. 128° 2′ W.

Gali'cia, a prov. of Spain, at the N.W. extremity of the Iberian peninsula, lying between Lat. 41° 52′ and 42° 47′ N., and between Lon. 7° 17′ and 9° 14′ W. It is bounded N. and W. by the Atlantic, S. by Portugal, and E. by the Spanish provs. of Leon and Asturias. *Area*, 15,897 sq. m. *Desc.* The country is in general very moun-

tainous, being intersected by the branches of the Asturian mountains, which separate at the Sierra de Peñamarella, and form three ranges running W.S.W. and S.S.W. through the province; numerous fertile valleys being intersticed here and there. *Rivers.* Minho, Sil, and Ulla. The coast of *G.*, especially on the W. side, is abrupt and much indented, forming numerous capes and bays. Of the former, capes Ortegal and Finisterre are best known; of the latter, the bays of Ferrol, Corunna, Betanzos, Pontevedra, and Vigo. *Clim.* Moist, but healthy. *Prod.* Wine, wheat, maize, barley, flax, and potatoes. The sweet chestnut grows abundantly, and may be justly called the bread of the Galicians, as it constitutes their common and favorite food. *Min.* Copper, lead, tin, antimony, white marble, and jasper. *Manuf.* Coarse woollens, linens, and sail-cloth. Anchovy fishing is extensively engaged in. The Galicians are esteemed the most honest and industrious of the Spanish peoples, and make the best soldiers in the Spanish army. *Language.* Old Castilian, mixed with Low Latin. *Pol. Div. G.* is subdivided into 4 provs., viz., Lugo, Corunna, Orense, and Pontevedra. *Chief Towns.* Corunna (the cap.), Santiago de Compostela (the ancient cap.) *Pop.* (1895) 2,001,500.

Galicia and Lodomeria, (*ga-lish'ya.*) (KINGDOM OF,) a province of the Austrian empire, forming its N.E. portion, between 47° 10′ and 50° 50′ N. Lat., and 18° 50′ and 26° 36′ E. Lon. The name Galicia is derived from the Polish *Halicz*, as Lodomeria is from *Wladimir*, both being ancient principalities, forming a part of the present prov., which also includes the territories of Poland which fell to Austria in the various partitions of that country, and the Bukowina, ceded by the Turks in 1774. This prov. lies to the N. of the Carpathian Mountains, which separates it from Hungary; on the N.W. it is separated from Prussia, the State of Cracow, and a part of the kingdom of Poland, by the Vistula; on the N. and N.E. it is open, and has no well-defined boundary; the east frontier towards Volhynia is formed by the river Podhorce, emptying into the Dniester. A range of heights divide the Bukowina from the Turkish part of Moldavia. *Area.* Including the Bukowina, 34,357, sq. m. *Surface.* Mountainous in the S., hilly in the centre, and in the N., and most extensive portion, a continuous plain. *Rivers, &c.* Vistula, San, Bug, Pruth, Dniester, &c.; innumerable ponds or small sheets of water checquer the face of the country. *Soil.* On the whole, very fertile. *Prod.* Cereals, potatoes, flax, and hemp. Agriculture is the principal source of wealth, and cattle-breeding is also extensively pursued. *Min.* Gold, silver, iron, coal, lead, zinc, marble and alabaster, rock-crystal, and several varieties of precious stones. Salt is found in almost inexhaustible quantities. *Manuf.* Woollens, cottons, glass, salt, &c. *Chief towns.* Lemberg (cap. of Galicia), Czernowitz (cap. of Bukowina), Samborz, Wismeiz, Stanislawów, &c. *Pop.*, including the Bukowina, 6,548,844.

Galician, (*ga-lish'yan.*) *a.* [Sp. *galiciano.*] (*Geog.*) Pertaining to Galicia, a prov. of Spain, or to Galicia, a kingdom of the Austrian empire.

—*n.* A native of Spanish Galicia. (*Galligan* is also used.)

Ga'lien, in *Michigan*, a small river of Berrien co., enters Lake Michigan at New Buffalo.

—A post-township of Berrien co., about 14 m. W.S.W. of Niles. *Pop.* (1894) 1,238.

Gal'igher, in *Ohio*, a post-office of Guernsey co.

Galigna'ni, JOHN ANTHONY, and WILLIAM, brothers, were B. in London in 1796 and 1798 respectively. They are well known as the proprietors and directors of the English daily newspaper issued at Paris under the title of *Galignani's Messenger*, and as the publishers of many valuable works. The *Messenger* was established in 1814 by their father, who opened an English publishing-house at Paris in 1800. After his decease, in 1821, the *Messenger* assumed, under the management of his sons, a more important position. The principal object of this well-known journal is the advocacy of cordial relations between France on the one hand, and the English-speaking nationalities on the other. The brothers *G.* support at their own expense an hospital in Paris for distressed and invalid Englishmen. John died 1873; William died 1882.

Galile'an, *n.* [Lat. *Galilæus.*] (*Geog.*) A native or inhabitant of Galilee, a city of Judæa.

(*Eccl. Hist.*) One of an ancient Jewish sect named after Judas the Gaulonite, who resisted the Roman tax established by Quirinus, and rebelled at various intervals, till Jerusalem was destroyed by Titus, A. D. 70. Eliazar, the grandson of Judas, after the capture of Jerusalem, retired with 960 followers to a strong fortress, where they were exterminated. — Christ and his disciples were also called *Galileans.* (*Matt.* xxvi. 69, and *Mark* xiv. 70.)

—*a.* Belonging or having reference to Galilee.

Galilean telescope. See TELESCOPE.

Galilee, (*găl'e-lē.*) [Heb. *galil*, a circle or circuit.] The name originally applied to a district in the N.E. of Palestine, and N. of Samaria, divided into Upper and Lower Galilee. The former, which included the half-tribe of Manasseh, bore the name of "Galilee of the Gentiles," so called, it is presumed, because it contained the descendants of many of the natives whom the tribe had saved from the sword when taking possession of their country. The other half was situated on the farthest northern verge of Judea, was flat, fertile, and productive, yielding corn, oil, and fruits, and was peopled by the tribes of Asher, Zebulun, Naphtali, and Issachar. *G.* was bounded on the N. by Syria, and the mountains of Lebanon; on the S. by Samaria; on the E., by the Jordan; and W., by Phœnicia and the Mediterranean. As the cradle of Christianity, this is perhaps the most interesting spot in the East, if not in all the world. Here was situated Nazareth, where Jesus was reared and educated; the Jordan, where he received baptism, and on whose banks he began his ministry; here lay Cana, where the first miracle was performed; there nestled Capernaum, in a little bay of the Lake Tiberias, where he raised the young man to life; farther, the hills on whose side he delivered the exhortation called the Sermon on the Mount. Yonder, Tabor, where his disciples saw the mystery of his Transfiguration. In fact, every mile of its land and coast bears the deathless footprints of the Redeemer's journey on earth. The natives of this somewhat remote prov. were held in great contempt by the Jews of the rest of the country, both of Judea and Israel, on account of their ignorance and simplicity — being, in fact, a colony of fishermen, simple in their nature, and hardy and honest in their lives; indeed, to mark their contempt of the new devotion, the Jews called all the followers of Christ, and of his doctrine, by the contemptuous name of *Galileans.* Galilee, at the present day, forms a part of the govt. or pashalik of Damascus, and is infested by Bedouins and hordes of robbers.

Gal'ilee, (SEA OF,) or **Lake of Tiberias,** a lake of Palestine, formed by the River Jordan, which flows into it. It was early renowned for the sweetness and coolness of its water, and is described by Josephus as being

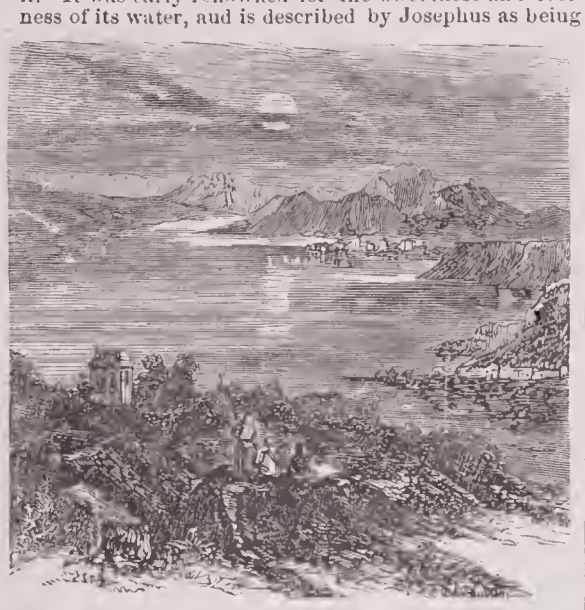


Fig. 1101. — SEA OF GALILEE, FROM THE N.W. COAST.
(With Magdala and Tiberias.)

100 furlongs in length by 40 in width; it is also called in Scripture the Sea and Lake of Kinnaeth, and the Lake of Genesareth. — See TIBERIAS.

"The Assyrian came down like the wolf on the fold,
And his cohorts were gleaming in purple and gold;
And the sheen of their spears was like stars on the sea,
When the blue wave rolls nightly on deep *Galilee.*"—*Byron.*

Gal'ilee, *n.* (*Arch.*) A porch or chapel at the entrance of an abbey church, designed for the congregation of religious bodies after a ceremony or procession; for the reception of the dead previous to interment; and, in some cases, for the use of women, who were not allowed to advance further into the church than the second pillar of the nave.

Gal'ilee, in *Pennsylvania*, a post-office of Wayne co.

Galile'i, GALILEO, the illustrious astronomer, mathematician, and philosopher, was the son of a Florentine nobleman, and was B. at Pisa, in 1564. He was intended by his father for the medical profession; but his love for mathematical studies was so decided, and his aversion for medical studies so strong, that he was allowed to pursue the former, which he did with such unwearied diligence, that at the age of 24 he was appointed mathematical professor at Pisa. There he was constantly engaged in asserting the laws of nature against the scholastic philosophy, which raised up such a host of enemies against him, that, in 1592, he was obliged to resign his professorship. He then went to Padua, where he lectured with unparalleled success, and students flocked to hear him from all parts of Europe. After remaining there 18 years, Cosmo III. invited him back to Pisa, and soon after called him to Florence, with the title of principal mathematician and philosopher to the grand-duke. *G.* had heard of the invention of the telescope by Jansen; and making one for himself, a series of most important astronomical discoveries followed. He found that the moon, like the earth, has an uneven surface; and he taught his scholars to measure the height of its mountains by their shadow. A particular nebula he resolved into individual stars; but his most remarkable discoveries were Jupiter's satellites, Saturn's ring, the sun's spots, and the starry nature of the Milky Way. The result of his discoveries was his decided conviction of the truth of the Copernican system; though the blind and furious bigotry of the monks charged him with heresy for it, and he was twice persecuted by the Inquisition, first in 1615, and again in 1633. On both occasions he was compelled to abjure the system of Copernicus; but it is said that, in the last instance, when he had repeated the abjuration, he stamped his foot on the earth, indignantly muttering, *Yet it moves!* In the following year, when he was 70 years old, and his health was declining, a very heavy blow fell on him by the death of his beloved daughter, Maria, who would have sweetly soothed him in his enforced retirement. Two years later he became blind. He bore this affliction, to him of unusual severity, with great patience. His latter years were spent near Florence, devoting himself to the perfecting of his telescope. He died in 1642, aged 78, the year in which Newton was born. The greatest work of *G.* is the *Dialogue on the Copernican and Ptolemaic Systems.* Among his others are *Dialogues on Motion, Syderens Nuncius, Treatise on the Sphere*, &c. See *G.* and the Roman Curia, von Gebler, translated by Sturge. (Lon. 1879.)

Galimatias, (*gal-i-mā'shas.*) *n.* [Fr.] Silly talk; nonsense; gibberish; a medley of unmeaning language.

"Her dress, like her talk, is a *galimatias* of several countries."
Walpole.

Gal'ingale, *n.* [See GALANGAL.] (*Bot.*) A name often applied to the tubers of *Cyperus longus*, and sometimes to the whole plant.

Gal'ion, in *Ohio*, a fine city of Crawford co., about 58 m. N. by E. of Columbus. *Pop.* (1897) 7,200.

Gal'iot, *n.* [Fr. *galiote*, dim. of *galère*, a galley.] (*Naut.*) A Dutch vessel (Fig. 1102), carrying a main and a mizzen mast, and a large gaff-mainsail. — A small sort of brigantine, built for chase.



Fig. 1102. — DUTCH GALIOT.
(Beating to windward.)

Galipe'a, *n.* (*Bot.*) A genus of plants, order *Rutaceæ.* The species *G. officinalis* and *cusparia* yield the drug known as Quina de la Guayna, Angostura or Cusparia Bark. They are natives of South America.

Gal'ipot, *n.* [Fr.] (*Chem.*) A white semi-solid substance. It is resinous, and found as an exudation upon the pine and fir trees, especially on the maritime fir, and is found, chiefly in winter, incrusting the wounds and abrasions of the tree. It consists almost entirely of a colorless crystallizable resin called *pimelic acid.*

Galita, (*ga-lē'ta,*) an island in the Mediterranean, lying off the N. coast of Tunis; Lat. 37° 31′ N., Lon. 8° 55′ E.

Galit'zin, BASIL, a Russian nobleman, who was B. 1633, and in 1680 became minister of the Czar Fédor Alexowitz, whom he persuaded to abolish the titles of nobility, and to let his subjects rise to dignities by merit. He was in great favor with the regent, Princess Sophia, sister of the czars Peter I. and Ivan, and during her regency possessed supreme power. The intrigues of the regent, however, against her brother Peter being discovered, she was confined in a monastery, and Galitzin exiled. D. 1713. See GALLITZIN.

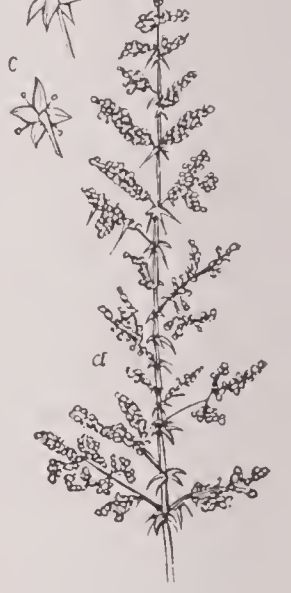


Fig. 1103.—YELLOW BEDSTRAW.
(*Galium verum.*)
a, top of stem, showing leaves and flowers; *b*, *c*, 2 views of a flower.

Ga'lium, *n.* [Gr. *gala*, milk — the flowers of one species being used for curdling milk.] (*Bot.*) The typical genus of the order *Galiaceæ.* The species *G. aparine* is the common Goose-grass or Cleavers. The inspissated juice or extract of this plant has been used with success in *lepra* and other cutaneous diseases. The extracts of *G. rigidum* and *G. mollugo* have been employed in epilepsy. *G. verum* (Fig. 1103), the Yellow Bedstraw, rare in New England, has a slender, erect stem, 1–2 feet high, with short, opposite, leafy, unequal branches. The roots dye red. The flowers are used in England to curdle milk.

Gal'ivant's Ferry, in *South Carolina*, a post-township of Horry co.

Gall, *n.* [Lat. *galla* — probably by syncope from Gr. *balānos*, an acorn.] The Oak-apple, or GALL-NUT. *q. v.*

—[A. S. *gealla*; Ger. and Fr. *galle.*] Anything extremely bitter. — Rancor; malignity; bitterness of mind.

(*Physiol.*) The bile. — See BILE and GALL-BLADDER.

—A wound caused by abrasion of the skin.

—*v. a.* To excoriate; to fret and wear away by friction; to hurt or break the skin or surface of anything by rubbing; as, to *gall* a mast.

"Tyrant, I well deserv'd thy *galling* chain."—*Pope.*

—To tease; to fret; to vex; to chagrin; as, a *galling* reply.

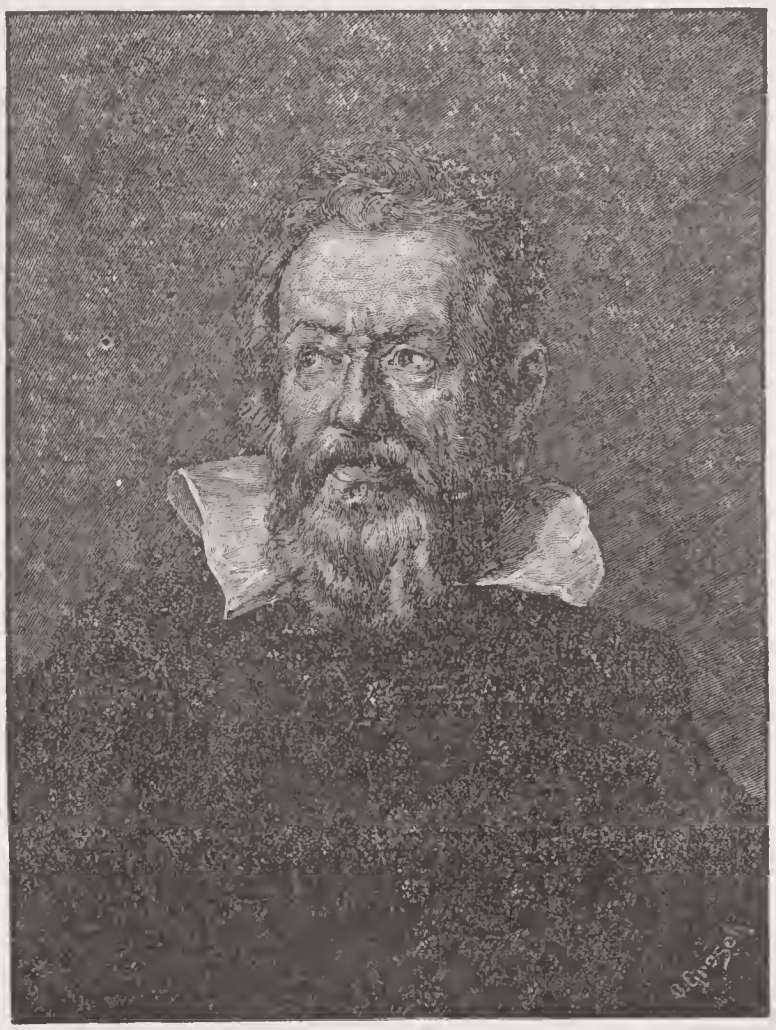
—To harass; to annoy; to injure; as, the troops advanced under a *galling* fire.

(*Dyeing.*) To steep in a decoction of the gall-nut.

—*v. n.* To fret.

"I have seen you *galling* at this gentleman twice or thrice." *Shaks.*

Gall, FRANCIS JOSEPH, the founder of that celebrated intellectual or cerebral physiology known as *Phrenology*, B. at Tiefenbronn, in Baden, 1758. The incidents of *G.*'s life were not numerous, and resemble those of many other



Galileo

1564–1642

propounders of new moral and intellectual doctrines in Germauy: silenced by one governmcnt, harbored for a time by another, he became through compulsion a peripatetic. His longest residence was in Paris, where, in conjunction with his disciple Spurzheim, he published his chief works. D. 1828. — See PHRENOLOGY.

Gall, (St.,) an Irish monk of the 6th and 7th cent., B. of a noble family, and educated at the monastery of Bangor, accompanied St. Columba to France about 585, and took part with him in all his missionary labors. Banished from France, they went together into the wilder regions of Switzerland, and near the Lake of Constance they founded the monastery which bore the name of *St. G.* and gave name to the town which grew around it, and also to the canton. After a few years Columba retired to Italy, leaving his companion abbot of the new house. *St. G.* D. about 646. The monastery was burnt by Hungarians in the 10th cent.

Gall, (St.,) a canton of Switzerland, in the E. part of which it is situated, occupying the 14th place in the Swiss Confederation. It has E. the Vorarlberg and Lichtenstein (belonging to the Austrian dominions), from which it is separated by the Rhine; S.E. and S. the Grisons; W. the cantons Glarus, Schwytz, and Zurich, with its lake; and N. Thurgau and the Lake of Constance. Leugth, N. to S., about 40 m.; breadth varying from 11 to nearly 35 m. *Area*, 747 sq. m. *Surface*, greatly diversified. In the N. there is an inconsiderable portion of plain country; but the ceutral and S. parts are almost wholly covered with Alpine ranges, the summits of some of which rise above the snow-limits. Mt. Scheibe, at the S.W. extremity, is estimated to be 10,188 feet above sea-level. There are, however, several extensive and fertile valleys, as that of Toggenburg (watered by the Thur, 36 m. in length), those of the Rhine, and others noted for their wild and picturesque character. *Rivers, &c.* Next to the Rhine, the chief rivers are the Thur, Sitter, Serz, &c.; Wallenstadt is the principal lake. Extensive forests cover the S. portion of the canton. *Soil*, moderately fertile. *Prod.* Corn, maize, hemp, and flax, fruit, &c. Cattle and hog feeding is extensively carried on. *Min.* Iron and coal. Mineral springs are numerous. *Manuf. St. G.* is one of the principal Swiss manufacturing cantons: as many as 60,000 of its inhabitants are stated to be employed in its manufactures of cotton fabrics, thread, linens, glass, wax, &c. *Chief town.* St. Gall, the cap. *St. G.* is one of the most democratic of the Swiss cantons, aud furnishes a contingent of 2,630 men to the Federal army. German is the language of the canton. *Pop.* (1895) 241,560.

GALL, (ST.,) cap. of the above canton, is situated on the Steinach, in a narrow and elevated valley, 7 m. S.W. of the Lake of Constance. It possesses a famous Benedictine abbey, which became the asylum of learning during the Dark Ages, and was one of the most celebrated schools in Europe, between the 8th and 10th centuries; it now serves as the cathedral of the diocese. *St. G.* is one of the chief manufacturing towns in the Confederation; it has extensive manufactures of muslin, is the centre of the Swiss trade in that fabric, and of gold and silver embroidery, besides cotton fabrics and yarn. *Pop.* 5,985.

Gallagher, (*gal'la-her,*) in *Pennsylvania*, a township of Clinton co.

Gal'lagherville, in *Pennsylvania*, a village of Chester co., about 36 m. W. of Philadelphia.

Gal'land, ANTOINE, a French antiquary and Oriental scholar, B. 1646. In 1709 he was appointed professor of Arabic in the Royal College of France. *G.* was the first to introduce to the western world the famous *Arabian Nights' Entertainments*, his translation of which appeared in Paris, in 12 vols., 1704–17. D. 1715.

Galland, in *Iowa*, a post-village of Lee co., on St. L., K. & N.W. R. R.

Gal'lant, *a.* [Fr. *galant;* It. *galante*, from *gala*, gayety, festivity.] Manifesting intrepidity or bravery; magnanimous; noble-minded; brave; dariug; valorous; frank; as, a *gallant* soldier. — Gay; well-dressed; showy; splendid; magnificent in aspect or appearance; as, a *gallant* show.

"The gay, the wise, the *gallant*, and the grave."—*Waller.*

—Chivalrous; deferential to the fair sex; showing politeness and attention to women; as, a *gallant* wooer.

Gallant', *n.* A gay, sprightly man; a courtly or fashionable man; a man who is chivalrous, polite, and attentive to ladies; one who is punctilious on the nicer points of etiquette; one who attends upon ladies at parties or places of public amusement; as, "travell'd *gallants.*" (*Shaks.*) — A wooer; a lover; a suitor; one who addresses honorable court to a lady; and, in a bad sense, a paramour; a seducer; one who pays court to a woman for base purposes.

"She had left the good man at home, and brought away her *gallant.*"—*Addison.*

—*v. n.* To attend or wait on, as a lady. — To manipulate with an airy, graceful manner; as, to *gallant* a fan.

Gal'lantly, *adv.* Bravely; nobly; heroically; gaily; generously.

"We fought the battle *gallantly.*"—*Mrs. Norton.*

—In the manner of a wooer or gallant.

Gal'lantness, *n.* State or quality of being gallant; gayety; chivalrousness; bravery.

Gal'lant, (Port,) a harbor in the Straits of Magellan, W. coast of Brunswick Peninsula.

Gal'lantry, *n.* [Sp. *galanteria;* Fr. *galanterie.*] Bravery; heroism; valor; intrepidity; boldness; courageousness; daring; as, thanks were voted to the army for its *gallantry.*

—Civility or courtly attention to ladies; (used in a good sense;) and, correlatively, vicious love or pretensions to love; intrigue; lewdness; debauchery; as, a man noted for his *gallantry.*

Gal'las, (COUNTRY OF THE,) a territory of Africa, whose savage inhabitants have occupied all the region to the S. of Abyssinia, aud seized on some of the finest provs. of that country. This territory is comparatively unknown to geographers.

Gal'late, *n.* (*Chem.*) A neutral salt formed by the union of gallic acid with a base.

Galla'tia, in *Illinois*, a post-office of Saline co.

Gal'latin, ALBERT, an American statesman, B. in Geneva, Switzerland, in 1761, where his father was a councillor of state. His parents numbered among their connections the French finance minister Necker, and his daughter, the celebrated Madame de Staël. In 1780 he set out for this country to assist the Americans in their struggle for independence. Soon after his arrival he was appointed to command Fort Passamaquoddy. In 1783 he, for a short time, taught French at Harvard College, and in the following year he invested his patrimonial inheritance in a large tract of land in W. Virginia. Here he formed the acquaintance of Gen. Washington. In 1786, purchasing land in Fayette co., Penna., he settled there, became naturalized, and devoted himself to agriculture. In 1790–1, *G.* became a member of the State legislature, and in 1793 U. S. senator, but some question arising as to his eligibility for senatorial honors at that time, the election was annulled. He ultimately entered Congress in Dec., 1795, and at once took up a high position, becoming the recognized leader of the (then) Republican or Democratic party. He early took a prominent part in all questions touching the finances, and was the first to bring about the organization of the Committee of Ways and Means as a standing committee of the House. In 1801 he was appointed by President Jefferson Secretary of the Treasury, which office he held through three presidential terms, under Jefferson and Madison, till 1813. He was eminently successful in his conduct of the affairs of the treasury, and soon attained a reputation as one of the first financiers of the age. He also exercised great influence on the other departments of the government, and on the politics of the country generally. *G.* was opposed to the war with Great Britain in 1812, and as a member of the cabinet exerted himself strenuously to restore amicable relations with the British government. In 1813 he was one of the three commissioners appointed to negotiate peace with that power, which was effected by the treaty of Ghent, Dec. 24, 1814. In 1815 he was appointed U. S. minister to France, where he remained until 1823. In 1826 *G.* was appointed by President Adams envoy-extraordinary to Great Britain, where he successfully negotiated several important commercial treaties, and, returning to the United States in 1827, took up his residence in New York city. In 1830 he was chosen president of the council of the University of New York, and, in 1831, published *Considerations on the Currency and Banking System of the United States*, in which he advocated the advantages derivable from a regular U. S. bank. In the same year he was a member of the free-trade convention at Philadelphia, and drew up the memorial which was submitted to Congress. He passed his remaining years in retirement, devoting his time to literature, especially in its historical and ethnological departments. He was president of the New York Historical Society (holding office until his death), and also first president of the Ethnological Society. He strongly opposed the Mexican war in a pamphlet of which 150,000 copies were printed, causing a marked sensation at the time. He was the author of papers written for the Ethnological Society on the *Semi-civilized Nations of Mexico, Yucalan, and Central America*, with *Conjectures on the Origin of Semi-civilization in America*, (1845.) Died at Astoria, N. Y., 1849. See Adam's *Life of G.*

Gal'latin, in *Illinois*, a S.S.E. co., bordering on Illinois and Kentucky; *area*, 349 sq. m. *Rivers.* Ohio and Wabash rivers, and the Saline creek, with its north and south forks. *Surface*, generally level; *soil*, fertile. *Cap.* Shawneetown. *Pop.* (1890) 14,935.

Gal'latin, in *Indiana*, a village of Parke co., about 16 m. N. of Terre Haute. Also spelled GALATIN.

Gal'latin, in *Kentucky*, a N. co., bordering on Indiana; *area*, about 130 sq. m. *Rivers.* Ohio river and Eagle creek. *Surface*, diversified; *soil*, fertile. *County-town*, Warsaw. *Pop.* (1897) about 5,900.

Gal'latin, in *Mississippi*, a post-village of Copiah co., on Bayou Pierre, about 40 m. S. S.W. of Jackson.

Gal'latin, in *Missouri*, a city, cap. of Daviess co., about 20 m. E. of St. Joseph. *Pop.* (1890) 1,482.

Gal'latin, in *Montana*, a S.W. central co.; *area*, about 2,295 sq. m. *Rivers.* Jefferson, Madison, Gallatin and Yellowstone rivers, besides numerous smaller streams, all being the headwaters of the Missouri river. *Surface.* much diversified; *soil*, in some parts fertile. Mount Gallatin, in this county, is about 10,000 feet high. Gold and silver are found in this county. *County-town*, Bozeman. *Pop.* (1890) 6,246.

Gal'latin, in *New York*, a township of Columbia co.

Gallatin, in *North Dakota*, a post-office of Griggs co.

Gal'latin, in *Tennessee*, a post-town, cap. of Sumner co., about 25 m. N. E. of Nashville. *Pop.* (1890) 2,078.

Gal'latin River, in *Montana*, one of the three rivers which unite and form the Missouri; rises about Lat. 44° N., Lon. 110° W., and after a general N. and W. course, joins the Jefferson river at Gallatin.

Gal'latinville, in *N. York*, a post-vill. of Columbia co.

Gallau'det, THOMAS HOPKINS, LL. D., founder of the first institution established in the U. States for the instruction of the deaf and dumb, was B. in Philadelphia in 1787. He was of Huguenot descent, and graduated at Yale College in 1805. Having been trained for the ministry, he received a license to preach in 1814, but becoming interested in the education of deaf mutes, he was appointed to superintend the formation of an institution at Hartford, Conn., for that purpose. To prepare for this object, *G.* visited Europe in 1815, and after inspecting the various systems in operation among its peoples, returned to this country, bringing with him a highly-trained teacher from the Paris institution. The asylum at Hartford commenced operations in 1817, and Dr. *G.* continued to direct its successful course until 1830, when ill health occasioned his resignation of active duty. More than 1,000 persons were instructed under his auspices, and the Hartford institution became the parent of similar establishments throughout the country. In 1838, Dr. *G.* became chaplain of the Connecticut Retreat for the Insane at Hartford, which office he held till his death in 1851. Dr. *G.* was the author of several religious and children's books, and also edited the *Annals of the Deaf and Dumb*, published at Hartford in 6 vols.

Gallaudet', or **Gallaudett',** in *Indiana*, a post-village of Marion co., about 8 m. S. E. of Indianapolis.

Gallaway's Station, in *Missouri*, a former post-office of Osage co.

Gall'-bladder, *n.* (*Anat.*) An oblong membranous receptacle attached to the under part of the liver. (Fig. 356.) It is about the size of a small hen's egg, and resembles a pear in shape. It serves as a reservoir for the bile, which is retained in it for future use when digestion is not going on. The cystic duct connects the gall-bladder with the hepatic duct which proceeds from the liver, and the two united form the *ductius communis choledochus* which conveys the bile to the duodenum. Gall-stones of the ox generally contain a peculiar yellow coloring-matter valued by painters. — See BILE, and GALL-STONE.

Galle, (*gäl,*) in Ceylon. See POINT DE GALLE.

Galleass, *n.* (*Naut.*) See GALLEY.

Galle'gan, Galle'go, *n.* (*Geog.*) Same as GALLICIAN, *q. v.*

Gallegos, (*gal-yä'gose,*) a river of Patagonia, enters the Atlantic Ocean opposite the Falkland Islands; Lat. 51° 33′ S., Lon. 69° W. It is small but very rapid, and at its month or æstuary the tide rises 46 feet.

Gal'leon, *n.* [Sp. *galeon;* It. *galeone.* See GALLEY.] (*Naut.*) A name given by the Spaniards to a very large kind of vessel, with three masts and three or four decks,



Fig. 1104. — GALLEON.

such as those used by them in their commerce with S. America, to transport the precious metals. They were large, clumsy, square-sterned vessels, having bulwarks three or four feet thick, all of which were so encumbered with top-hamper, and so overweighted in proportion to their draught of water, that they could bear very little canvas, even with smooth seas and light winds. See *Motley's History of the United Netherlands.*

Gal'lery, *n.* [Fr. *galerie;* L. Lat. *galeria;* probably

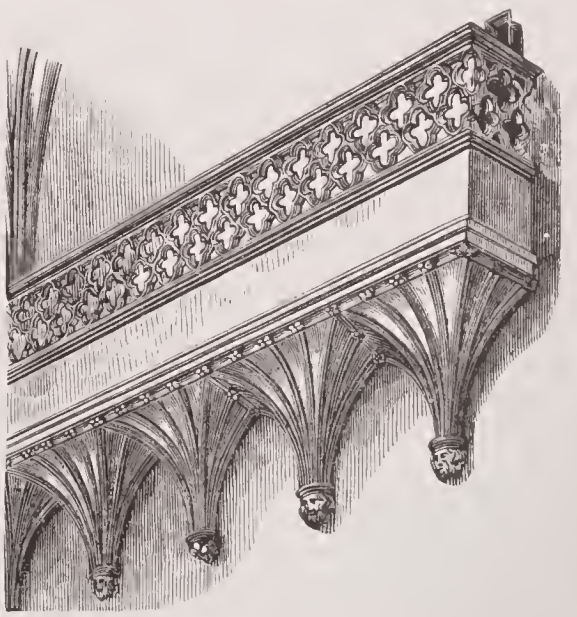


Fig. 1105. — GALLERY IN EXETER CATHEDRAL, (ENGLAND.)
(Beginning of the 14th century.)

from A.S. *wealli'n*, Ger. *wallen*, to walk.] (*Arch.*) A passage open or closed on one side, and having on the other side the doors of a series of apartments which open into it. In this sense it is synonymous with the term "corridor." — In ecclesiastical architecture, the name is given to a floor midway between the ground-floor of the building and the roof, used to obtain additional accommodation, and projecting from the walls on either side, or at the W. end, and supported on a series of columns, or on cantalevers. The *G.* at the W. end of a church is usually set apart for the organ and choir. — In theatres, the *G.* is the range of seats above the upper boxes; it affords the worst view of the stage, on account of the great height at which it is placed above it, and the sum charged for admission is, consequently, low. — The term is also applied to a large room devoted to the reception of paintings, sculpture, and other works of art.

(*Naut.*) The name given to the balcony that is made outside the sterns of men-of-war, and vessels of large size.

(*Mil.*) A covered passage, cut through the earth or masonry in a fortification, either as a means of communication, or as a position whence a musketry-fire can be maintained through loopholes. For the latter purpose, galleries are found occasionally in the counterscarps of dry ditches, where their defenders exercise a flanking fire upon the ditch.

Galles. (*galz.*) (*Geog.*) The French name for WALES, *q. v.*

Gal'ley, *n.*; *pl.* GAL'LEYS. [Fr. *galère*; Sp. *galera*; It. *galéa*; L. Lat. *galera*, from Lat. *galea*, a helmet, because formerly the prows of such vessels were decorated with helmets.] (*Naut.*) A low, flat-built vessel, much used in the Mediterranean Sea before the introduction of steamboats. They were long and narrow, fitted with two masts and lateen sails: and being propelled by oars as well as by sails, they were of great use in those long calms so frequent in the above-mentioned sea. The largest of the common *G.* were about 166 feet long, 32 wide, and contained 52 oars. In the Spanish Armada,

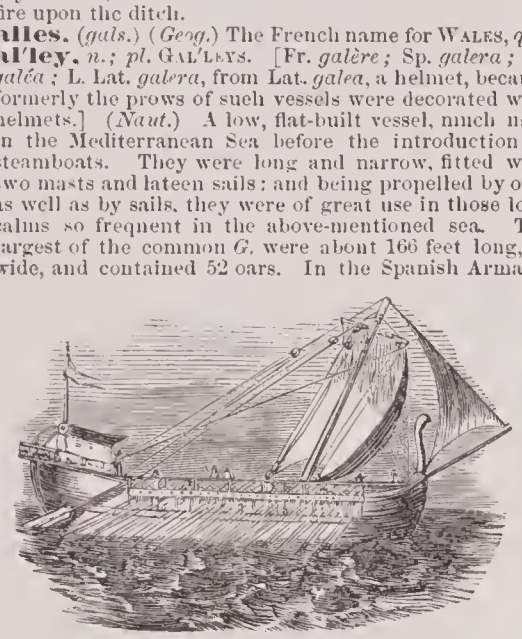


Fig. 1106. — GALLEY.

in 1588, four vessels, called *galeasses*, were employed, which were about one-third larger than the ordinary *G.*, and were each of them rowed by 300 galley-slaves. "They consisted," says Motley in his *History of the United Netherlands*, "of an enormous towering fortress at the stern, a castellated structure almost equally massive in front, with seats for the rowers amidships. At stem and stern, and between each of the slaves' benches, were heavy cannon. They were gorgeously decorated. There were splendid state apartments, cabins, chapels, and pulpits in each; and they were amply provided with awnings, cushions, streamers, standards, gilded saints, and bands of music. To take part in an ostentatious pageant, nothing could be better devised; to fulfil the great objects of a war-vessel, to sail and to fight, they were the worst machines ever launched upon the ocean." — *G.* (the Corinthian *triremes* and the *dromonds* of the Byzantine empire) were used during the Middle Ages by the Venetians and Genoese, by whom they were introduced into France about the reign of Charles VI. (1380–1422). The first document referring to the punishment of the *G.*, called in French *Bagnes*, is an ordinance of the French parliament in 1532; but criminals were most probably condemned to row in them at an earlier period. In 1564, the minimum duration of punishment at the *G.* was limited to 10 years. The office of captain of the *G.* was abolished by an ordinance of Louis XV., 1748, when the slaves were removed to work in the docks and arsenals.

—The caboose or cook-house on board ship.

(*Chem.*) An oblong reverberatory furnace with a row of retorts.

(*Print.*) A frame which receives the types from the composing-stick.

Gal'ley Head, a headland on the S.E. coast of Ireland, in Munster, co. Cork, between Ross and Clonakilty bays.

Gal'ley-slave, *n.* A person condemned, for some crime, to work at the oar on board of a galley.

Gal'li, *n. pl.* [Lat.; Fr. *Gaulois.*] The inhabitants of GALLIA, *q. v.*

Gal'lia, or **Gaul,** [Fr. *Gaule.*] (*Anc. Geog.*) A large country of Europe, of which the inhabitants were called *Galli* (or Gauls), *Celtæ*, *Celtiveri*, and *Celto-Scythæ*. Ancient Gaul was divided by the Romans into four different provs. called *Gallia Belgica*, *Narbonensis*, *Aquitania*, and *Celtica*. Besides these grand divisions, there is often mention made of *Gallia Cisalpina*, or *Citerior*; *Transalpina*, or *Ulterior*, which refers to that part of Italy which was conquered by some of the Gauls who crossed the Alps. By *G. Cisalpina* the Romans understood that part of Gaul which lies in Italy; and by *Transalpina*, that which lies beyond the Alps, in regard only to the inhabitants of Rome, and now called France. *G. Cispadana* and *Transpadana* is applied to a part of Italy conquered by some of the Gauls, and then it means the country on the W. side of the Po, or beyond the Po, with respect to Rome. — The Gauls of the Gallia Transalpina seized Rome and invaded Greece at different ages. Cæsar has given a full account of them, and was ten years in their country before he could totally subdue them. — (For an admirable sketch of the Gauls, see the introduction to Motley's *Rise of the Dutch Republic.*)

Gal'lia, in *Ohio*, a S. co., bordering on West Virginia; *area*, abt. 420 sq. m. *Rivers.* Ohio River, and Racoon, Symmes, and Leading creeks. *Surface*, hilly; *soil*, fertile. *Min.* Coal. *Cap.* Gallipolis.

Gal'liass, *n.* See GALLEY.

Gall'-fly, *n.* (*Zoöl.*) One of the hymenopterous insects forming the genus Cynips of Linnæus, and now the family *Cynipidæ*. "It comprises small insects which have the head short and broad, thorax thick and oval, abdomen much compressed and attached to the thorax by a very short peduncle, and the wings few-veined. The females have a long, slender ovipositor, with which they insert their eggs into leaves and other parts of plants. These punctures cause excrescences called *galls*, the form and solidity of which vary according to the nature of the plant or parts of the plant that receive the wounds, and according to the species of gall-fly that make them. The eggs introduced into the punctures increase in size, and at length hatch, and the larvæ feed upon the vegetable matter in which they find themselves imbedded. With some exceptions, they undergo their transformations within the galls, and, gnawing through the shell, fly away. Some species gnaw through at the end of their larval life, and enter the ground to go into the pupa state. There are members of this family which produce no galls themselves, but are parasitic in galls produced by others; and they are called *Guest Gall-Flies.*" (*Tinney.*) — "Probably," says Mr. Westwood, "no insect has been of greater benefit to mankind than the *Cynips Gallæ tinctoriæ*, (Fig. 1107,) the galls of which are the common gall-nuts of commerce, growing upon the *Quercus infectoria* in the Levant, and which are employed in the manufacture of ink. The galls are of the size of a boy's marble, very hard and round, with various tubercles on the surface; they contain but a single inhabitant, which may often be found in the interior on breaking the galls. Those galls which are gathered before the insect has escaped (and which consequently contain most astringent matter) are known in trade under the name of *black* or *blue galls* and *green galls*; but those from which the insect has escaped are called *white galls.*"

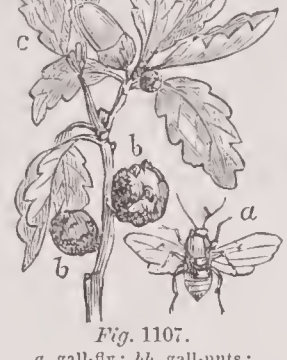


Fig. 1107.
a, gall-fly; *bb*, gall-nuts; *c*, *Quercus infectoria.*

Gal'lia Furnace, in *Ohio*, a post-village of Gallia co., abt. 30 m. W. of Gallipolis.

Galliam'bic, *a.* [Lat. *galliambicus*, from *Galli*, *Gallorum*, a name applied to the priests of Cybele, and *iambus*, a foot consisting of a short and a long syllable.] (*Pros.*) Noting a kind of Latin and Greek verse consisting of two iambic dimeters catalectic, the last of which wants the final syllable.

Gal'liard, *n.* [Fr. *gaillard*, from *gai*, cheerful, lively. Allied to A. S. *gagol*, *geagle*, wanton.] A gay, brisk, lively man; a fine fellow. (o.) — A lively, brisk dance, formerly in vogue.

Gal'lic Acid, *n.* [Fr. *Gallique*, from *galle*, gall-nut.] (*Chem.*) This acid is obtained from gall-nuts, sumach, tea, valonia, and other astringent vegetables. It is generally obtained by exposing powdered gall-nuts in a moist state to the action of the air for some weeks, in a warm place, when oxygen is absorbed and carbonic acid evolved, and the powder becomes covered with crystals of Gallic acid. By boiling the mass in water the *G. A.* is extracted, and since it is sparingly soluble in cold water, the greater portion of it crystallizes out, as the solution cools, in long silky needles. It is freely soluble in alcohol. It dissolves in sulphuric acid with a red color, and when the solution is poured into water, a red-brown precipitate is formed called *rufigallic acid*, used in dyeing calico red, if previously mordanted with alum. Heated to about 420°, *G. A.* is resolved into carbonic acid and *pyrogallic acid*; the latter acid being largely used in photography.

Gal'lic, Gal'lican, *a.* [Lat. *Gallicus*, or *Gallicanus*, from *Gallus*, a Gaul, from *Gallia*, Gaul, *q. v.*] Pertaining to ancient Gaul, or modern France.

Gal'lican Church, *n.* (*Eccl. Hist.*) The name given to the Roman Catholic Church in France, which, although in communion with the see at Rome, maintains, in some respects, an independent position. It has, from the earliest times, enjoyed certain liberties and immunities, not as grants from the popes, but as forming part of her original constitution, which she has always striven to maintain. When the Church of Rome was grasping after temporal power, their efforts in France were frequently opposed by the sovereigns, and more than one conflict was the consequence. There thus arose two parties in the French Church — those who were opposed to the encroachments of the see of Rome, and were known as the *Gallican party*, while the supporters of the Roman see were known as the *Roman, Papal*, or *Ultramontane* party. The earliest important manifestation of this opposition appears in the pragmatic sanction of Louis IX., issued in 1268, which made the paying of taxes to the Pope dependent on the consent of the king and the national clergy, and forbade the interference of a foreign power in the affairs of the national Church. The spirit of independence was strengthened by the decrees of the councils of Constance and Basle, which were adopted by France at the assembly of estates at Bourges in 1438, and promulgated in the pragmatic sanction of Charles VII., the fundamental law of the *G. C.* This placed the general council above the Pope, forbade the paying of taxes to him for appointing bishops and prelates, and abolished the annates after the death of the then living Pope. This sanction was repealed by Louis XI. in 1461, but restored by Charles VIII., and by Louis XII. through the edict of 1496. It was superseded, however, by the concordat entered into by Francis I. with Leo X., who had promised to confer upon the king greater power in ecclesiastical matters than he had hitherto enjoyed. This paction gave great dissatisfaction both to the French people and the French clergy. In the reign of Louis XIV. a contest arose between that monarch and Pope Innocent XI. regarding the ecclesiastical rights of the crown, which led to the drawing up of the well-known declaration of the French clergy in 1682, which has since been regarded as the charter of Gallicanism. It was drawn up by Bossuet by order of Louis XIV., and contained the four following articles: — (1) Kings and princes are in temporal matters subject to no spiritual power, and the latter can never absolve subjects from their oath of obedience; (2) the Pope is subject to the decisions of an œcumenical council; (3) the power of the Pope is further limited, as far as France is concerned, by the established prescriptions and usages of the Gallican Church; and (4) in matters of faith, also, the decisions of the Pope are not infallible when not confirmed by the consent of the whole Church. This "Declaration" was strenuously enforced by Louis XIV. It was imposed upon the universities and all public ecclesiastical bodies, and its acceptance was made a condition of appointment to offices in the Church; but it was in the same proportion distasteful to the popes. It was condemned by Alexander VIII. in 1690, by Clement XI. in 1706, and again by Pius VI. in 1794; but both the acceptance of the articles by the French clergy, and the condemnation of them by the Roman pontiffs, are understood to be with certain reservations as to the particular doctrines. The *G. C.* underwent very extensive modifications at the close of the 18th and the beginning of the present century, not merely by the enactment of what was called the *Civil Constitution of the Clergy*, and which introduced into the constitution of the Church a large infusion of the presbyterian, and even the democratic element, but by the concordat of Pius VII., with Bonaparte as First Consul, which reduced the number of sees, brought the ecclesiastical divisions of the country into harmony with its new political distribution into departments, diminished the number of festivals, and confirmed the suppression of the ancient religious establishments, and the confiscation of the church property throughout France.

Gallic'inite, Gallit'zenite, *n.* [Ger. *Gallitzenstein.*] (*Min.*) Native sulphate of zinc; same as GOSLARITE, *q. v.*

Gal'licism, *n.* [Fr. *Gallicisme*, from Lat. *Gallicus.* See SUPRA.] A French idiom; a mode of speech peculiar to the French language; as, *to deliver* battle, instead of *to give* battle; *to make* a walk, instead of *to take* a walk.

"In English, I would have *Gallicisms* avolded." — *Felton.*

Gal'licize, *v. a.* To cause to conform to the idiomatic peculiarities of the French language.

Gallienus, PUBLIUS LICINIUS, (*găl-li-e'nus,*) a Roman emperor, who reigned conjointly with his father, Valerianus, for the space of seven years, and with general approval; upon the death of his father, however, A. D. 260, he gave himself up to indolence and luxury; indeed, so infatuated had he become, so wedded to a life of voluptuous ease and pleasure, that the revolt of Egypt, the insurrection of the Gauls, and the irruption of the Scythians, could not rouse him from his ignoble idleness; and it was only when Posthumus assumed the purple in the West, and Ingenuus laid claim to the empire of the East, and each threatened his very existence with hostile arms, that he threw off the bonds of enervating pleasure, and, taking the field, led his legions to crush the nearest danger. The defeat and death of Posthumus, however, only increased his perplexities; new competitors arose, not only in Gaul, but in other quarters of the overgrown empire. Even the coadjutor he had adopted as the Cæsar, Aureolus, conspired to overthrow his patron and grasp the disputed power of sovereignty, and collecting a powerful army, shut himself up in Milan, assuming all the arrogance of sole mastery. Stung with the ingratitude of this act, *G.* marched at once upon the Lombard capital, and in A. D. 268 closely invested the city, but before he could effect any permanent lodgment, a conspiracy was formed among the officers of his guard, and *G.* was basely assassinated. This emperor is memorable from having, while he reigned, put a stop to the persecution of the Christians. He was succeeded by Claudius II.

Galligas'kins, *n. pl.* A sort of loose, wide breeches, formerly worn by the inhabitants of Gascony. Large open hose or slops, so called because the Vascones, the ancient inhabitants of that part of Spain called Navarre, used them as a covering for the lower extremities instead of the spatterdash, a kind of domestic greave in common wear among these people, when they sub-

sequently passed into France, and established themselves in Aquitaine, under the title of *Gascoigns*, or Gascons.

Gallimatia, (*gal-e-ma-she'aw,*) *n.* [Fr. *galimatias.*] Talk without meaning; nonsense. (R.)

Galliman'fry, *n.* [Fr. *galimafrée*, a hash composed of several different meats.] (*Cookery.*) A hotch-potch, or hash of several sorts of broken meat.—A medley; a jumble.

"Our English tongue is a *gallimaufry* of all other speeches." *Spenser.*

—Any inconsistent or ridiculous mixture.

"A dance which the wenches say, is a *gallimaufry* of gambols." *Shaks.*

Gallina'ceau, *n.* [See above.] (*Zoöl.*) One of the GALLINÆ, *q. v.*

Gallina'ceous, *a.* [Fr. *gallinacé;* Lat. *gallinaceus*, from *gallina*, a hen, *gallus*, a cock.] (*Zoöl.*) Pertaining to the sub-order of birds *Gallinæ.*

Gal'linæ, *n. pl.* [See SUPRA.] (*Zoöl.*) A sub-order of birds, order *Rasores*, including all those which constitute what are commonly termed *poultry*, and furnishing us with the greator number of our farm-yard fowls, and with much excellent game. The name *Gallinæ* is applied to them from their affinity to the Domestic Cock, in common with which they have generally the upper mandible vaulted, the nostrils pierced in a large membranous space at the base of the beak, and covered by a cartilaginous scale. Their wings are short, their carriage heavy, and their flight laborious. They have an extremely muscular gizzard, and generally a large globular crop. In general they lay and incubate on the ground, on a few carelessly arranged stems of straw or grass. Some species are polygamous, and some monogamous; in the former the male is always larger and more gaily-colored than the female; in the latter the sexes nearly or quite resemble both in size and color. There are four families, viz., *Penclopidæ*, or Curassow; *Megapodidæ*, or Mound-bird; *Phasianidæ*, or Pheasant; and *Perdicidæ*, or Quail.

Gallina'go, *n.* (*Zoöl.*) See SNIP.

Gall'ing, *p. a.* Adapted to vex or chagrin; vexing.

—*n.* A fretting or wearing of the skin by friction.

Gal'linipper, *n.* A large kind of mosquito.

Gall'-inseet, *n.* (*Zoöl.*) The GALL-FLY, *q. v.*

Gal'linule, *n.* (*Zoöl.*) See RALLIDÆ.

Gal'liot, *n.* (*Naut.*) Same as GALIOT, *q. v.*

Gallip'oli, (anc. *Callipolis,*) a fortified seaport-town of S. Italy, prov. Lecce, on a rocky islet on the E. coast of the Gulf of Tarento, 49 m. S.E. of Tarento, and 28 W.S.W. of Otranto. *G.* is connected by a bridge with the mainland, on which is its suburb Lizza. *G.* displays an air of great industry, if not of affluence, and is the most frequented of all the ports on the S.E. coast of Naples, being the great mart for the oil of Apulia, most of which is shipped here. *Manuf.* Muslin, cotton stockings, and woollen goods. *Pop.* 10,128.

Gallip'oli, a seaport-town of Turkey in Europe, prov. Roumelia, cap. of a sandjak, on a headland called the *Braccio di Gallipoli*, at a point where the Hellespont unites with the sea of Marmora, 90 m. S. of Adrianople, and 128 W. by S. of Constantinople; Lat. 40° 24′ 30″ N., Lon. 26° 39′ 45″ E. Its harbor is frequently a rendezvous of the imperial fleet, and is the chief station of the capitan-pasha. *Manuf.* Cottons, silk, earthenware, and the best Morocco leather made in Turkey. In 1854 a portion of the Anglo-French army designed for the protection of Turkey from the encroachments of Russia, was stationed here.

Gallip'oli-oil, *n.* (*Com.*) The name given to an inferior olive-oil of Apulia, from its being mostly shipped at Gallipoli.

Gallip'oli, (Peninsula of,) a tongue of land separating the Hellespont from the Ægean Sea and the Gulf of Saros, 62 m. long, by a varying breadth of from 4 to 12. m. Lat. between 40° 3′ and 40° 38′ N., Lon. between 26° 10′ and 27° E.

Gallipolis (*gal-le-po-lēse'*), in *Ohio*, a flourishing city, capital of Gallia co., on the Ohio river, about 108 m. S.S.E. of Columbus. *Pop* (1897) about 5,000.

Gal'lipot, *n.* [Du. *klei*, clay, and *pot*, pot.] A small vessel of potter's clay, painted and glazed, used for containing medicines. (Spelled also GALIPOT.)

Gal'litzin, GALITZIN, GALIZIN, or GOLYZIN, the patronymic of a princely Russian family, of whose more eminent members were the following:—VASILI III., surnamed the *Great*, b. 1633. After fighting against the Turks, Crim Tartars, and Cossacks, of which latter people he was made hetman, he assisted in bringing about the great reforms of the Czar Feodor Alexievitch, and promoted after his death the ambitious designs of Sophia against her brother, Peter the Great, fell with her, and was banished to Siberia in 1689, where he died.—MIHAIL, B. 1675, served under Peter the Great in his various campaigns, defeated the Swedes at Dobry, in Lithuania, in 1708, and fought at Pultowa, obliging the remnants of the Swedish army to surrender a few days afterwards, (1709.) He was then made governor-general of Finland, appointed a field-marshal by Catherine I., and D. in Moscow, 1730.—ALEXANDER, son of the above, B. 1718, served under Prince Eugene on the Rhine, 1733, fought in the Seven Years' War, commanded a Russian army on the Dniester in 1768, took Khotin, and D. 1783.

Gallit'zin, in *Pennsylvania*, a post-borough of Cambria co., 3 m. N.E. of Cresson. *Pop.* (1891) about 2,450.

Gal'livat, *n.* [Du. *galei*, a galley, and *vat*, a vessel.] (*Naut.*) A small vessel used on the Malabar coast.

Gall'-nut, *n.* (*Chem.*) An excrescence produced by the *cynips* or GALL-FLY, *q. v.*, which deposits its eggs in the tender shoots of the *Quercus infectoria*, a species of oak abundant in Asia Minor. The best *G.* are imported from Aleppo and Smyrna. *G.* contain *gallic* and *tannic* acid. The infusion of *G.* affords a dense white precipitate in a solution of gelatine, and a black precipitate with the salts of the sesquioxide of iron. The latter property leads to the use of *G.* in making ink and black dye. The tannic acid renders them valuable for tanning, and they are also used in medicine as astringents.—Affections or diseases of any plants caused by the puncture of insects. They are produced by an excessive deposit of cellular tissue.

Gal'lon, *n.* [Sp. *galon;* L. Lat. *galo*, *galona*, from *gelo*, an earthen vessel with a narrow neck and handles, for holding wine; Fr. *galon*, a grocer's box.] A liquid or dry measure of four quarts, or eight pints. The *Imperial G.*, the standard British measure both for dry and liquid articles, contains 10 lbs. avoirdupois weight of distilled water (weighed in air at the temperature of 68° of Fahrenheit's thermometer, the barometer being at 30 inches), or 277·274 cubic inches. The *G.* of the United States is the standard Winchester wine *G.* of 2·31 cubic inches, and contains 8·3388 avoirdupois lbs., or 58372·1754 troy grains of distilled water at 39·83 Fahrenheit, the barometer being at 30 inches. It is the legal *G.* in each State in which no law exists fixing a state or statute *G.*—The *G.* of the State of New York is of the capacity of 8 pounds of pure water at its maximum density, or 221·184 cubic inches.

Galloon', *n.* [Fr. *galon*, probably from *gala*, pomp or show.] A kind of close lace, made of gold or silver, or of silk only.—A kind of tape for binding hats, shoes, &c.

Galloon'ed, *a.* Furnished or adorned with galloon.

Gal'lop, *v. n.* [Fr. *galoper*, from Gr. *kalpadzein*, from *kalpē*, a trot or gallop.] To move or run with bounds, as a horse; to run or move with speed; to ride at a galloping pace.

"We *galloped* towards them."—*Sidney.*

—To move very fast; to run over.

"Whom doth time *gallop* withal?—
—With a thief to the gallows."—*Shaks.*

—*n.* [Fr. *gallop.*] The movement or pace of quadrupeds, particularly of a horse, by reaches, springs, or leaps.

Gal'lopade, *n.* [Fr. *galopade.* See SUPRA.] A sidelong or curveting kind of gallop.—A kind of dance; a galop.

—A kind of music appropriate to the dance.

—*v. n.* To gallop; to move about briskly.

—To dance the galop, or gallopade.

Gal'lopading, *n.* Act of dancing the gallopade.

—*a.* Dancing a gallopade.

Gal'loper, *n.* A horse that gallops.

—A man who gallops, or makes great haste.

Gal'loping, *p. a.* Riding or moving at a gallop, or at great speed.

Gallotan'nic Acid, *n.* (*Chem.*) See TANNIN.

Gal'loway, an extensive district of Scotland, comprising the two counties of KIRKCUDBRIGHT and WIGTOWN (*q. v.*).

Gal'loway, in *Alabama*, a post-village of Walker co.

Gal'loway, in *Illinois*, a post-village of La Salle co., about 115 N.N.E. of Springfield.

Gal'loway, in *Missouri*, a township of Christian co.

Gal'loway, in *New Jersey*, a township of Atlantic co.

Gal'loway, in *Ohio*, a post-office of Franklin co.

Gal'loway, Mull of, a promontory of Scotland, co. Wigtown, comprising the S. portion of the district called the *Rhyns*. It stretches in a S.E. direction from Port Patrick to the Point of the Mull, about 17 m.; its breadth varies from about 2 to 5 m. The Point of the Mull, the farthest S. limit of Scotland, in Lat. 54° 38′ N., Lon. 4° 52′ W., rises about 225 ft. above the level of the sea, and is bold, bleak, and striking. A light-house of the first-class, with an intermittent light, having the lantern elevated 325 ft. above the sea-level, has been erected on this headland. The view from the balcony of this light-house is very extensive, commanding the whole Isle of Man, and portions of England, Scotland, and Ireland.

Gal'loway, *n.* A species of horse, not over 14 hands high, much used in the north of England, and in Scotland; probably so called because first bred in Galloway, a district of Scotland. They are hardy, spirited, easy of gait, and of great endurance.

Gal'lowglass, *n.* [Erse, *galloglach*, from *giolla*, a servant, and *gleac*, to fight.] Heavy-armed soldiers among the ancient Irish, and in the Hebrides.

Gal'lows, *n.; pl.* GAL'LOWSES. [A.S. *galga*, *gealga;* Ger. *galgen;* Lat. *gabalus*, probably identical with Ger. *gabel*, a fork.] A beam laid over two posts, on which malefactors are hanged; a cross; a gibbet.

"Oh! there were desolation of gaolers and *gallowses.*"—*Shaks.*

—A pair of braces for the pantaloons. (Colloq.)

Gal'lows-bitts, *n. pl.* (*Naut.*) A strong frame in the centre of a ship's deck, to support spare spars when in port.

Gal'lows-frame, *n.* (*Steam-Eng.*) The frame supporting the beam of a steam-engine.

Gal'lows-free, *a.* Exempt from the danger of being hanged.

Galls, *n. pl.* [See GALL.] (*Farriery.*) Wounds or excoriations produced by the friction of harness.

Gall'-stone, *n.* (*Med.*) The gall-bladder (Fig. 356) is very liable to have a number of calculi formed in its cavity, from the salts in the secretion itself. These calculi, or gall-stones, are of many sizes and shapes; the majority, however, are about the size of a pea; others, again, are as large as a nut or filbert, and sometimes they are found as large as a walnut. In many cases these biliary formations never quit the bladder in which they are formed; or if they do, when very small, pass along the duct without the person being conscious of their transit. When, however, a large one, with jagged or rough edges, gets past the neck of the bladder, and into the duct, it must proceed, and in doing so causes the patient the most acute and distressing pain—a pain which, in the first instance, seems the most difficult to account for, as it commences suddenly, is attended with a sharp, cutting sensation, and though the spot at the first stage is so circumscribed as to be apparently covered by the point of the finger, radiating pains dart from it in all directions, through and up the back. The abdomen soon participates in the disturbance, and becomes tense and tender, while the stomach, sympathizing, rejects its contents, and exhausting retchings are added to the distention and pain of the abdomen. Though the distance the calculus has to travel is so short—only a few inches—yet, owing to the narrowness and unyielding nature of the duct, the diameter of which does not exceed a crow-quill, and there being no propulsive power to urge the obstruction forward, the cause of the pain and constitutional disturbance suffered will be evident to all who reflect on the nature of the parts and the obstacle to be removed. The treatment in such cases as these is to relax the system as quickly as possible, allay the pain, and, if it can be effected, expand the biliary duct, by means of a hot bath, so as to allow the *G.-S.* to pass along and fall into the duodenum.

Gal'lupville, in *New York*, a post-village of Schoharie co., about 35 m. W. of Albany.

Gal'lus, *n.* [Lat., a cock.] (*Zoöl.*] A genus of birds, family *Phasianidæ*, comprising our domestic varieties of the Cock kind, and the jungle-fowl of India. It is generally admitted that the Cock was first introduced into Europe from Persia, and the very handsome Javanese wild-fowl, represented in Fig. 1108, is regarded by many naturalists as the origin of our domestic poultry; but the Cock has been so long established throughout the Western regions, that to attempt to trace its progress from its native wilds would be a useless waste of time. The Domestic Cock has his head surmounted by a notched, crimson, fleshy substance, called a *comb;* and two pendulous, fleshy bodies of the same color, termed *wattles*, hang under his throat. The hen has also a similar, though not so large nor so vividly colored, excrescence on her head. The Cock is provided with a sharp horn or spur on the outside of his tarsus, with which he inflicts severe wounds; the hen, instead of a spur, has a mere knot or tubercle. There is, in both sexes, below the ear, an oblong spot, the interior edge of which is reddish, and the remainder white. The feathers arise in pairs from each sheath, touching by their points within the skin, but diverging in their course outwards. On the neck they are long, narrow, and floating; on the rump they are of the same form, but drooping laterally over the extremity of the wings, which are quite short, and terminate at the origin of the tail, the plumes of which are vertical. In the centre of the Cock's tail are two long feathers, which fall backwards in a graceful arch, and add great beauty to the whole aspect of the fowl. It is in vain to offer any description of the color of the plumage, as it is infinitely varied, being in some breeds of the greatest richness and elegance, and in others of the simplest and plainest hue. Except in the pure white breeds, the plumage of the *C.* is always more splendid than that of the hen; his apparent consciousness of personal beauty, courage, and gallantry seem never to forsake him, whether we regard his stately march at the head of his train of wives and numerous offspring, or watch him as he crows defiance to a rival. His sexual powers are matured when he is about six months old, and his full vigor lasts for about three years. The hen, if left to herself, forms a very indifferent nest; a simple hole scratched in the ground among a few bushes is the only preparation she usually makes, and she generally lays from twelve to fifteen eggs before she begins to sit upon them for the purpose of hatching. But she now becomes a model of enduring patience, remaining fixed in her place until the urgency of hunger forces her to go in search of food. During the time of her sitting she diligently turns and shifts her eggs so that each may receive a due degree of genial warmth; and it is not until about three weeks have elapsed that the incubation is completed. The strongest of the progeny then begin to chip the shell with the bill, and are successively enabled to burst their brittle prisons. The whole family being at length emancipated, the parent leads them forth in search of food. In her nature the hen is timid; but in discharging the duties of maternity she becomes bold, and indiscriminately attacks every aggressor, watches over the safety of her young with the utmost jealousy, neglects the demands of her own appetite to divide the food she may obtain among her nurslings, and labors with untiring diligence to provide them sufficient sustenance. The Cock is very attentive to his females, hardly ever losing sight of them; he leads, defends, and cherishes them; collects them together when they straggle, and seems to eat unwillingly till he sees them feeding around him. Of late years a very useful species, called the *Cochin-*



Fig. 1108.—THE JAVANESE COCK.
(*Gallus bankivus.*)

China fowl (Fig. 1109), has been introduced into this country, and has been extensively used to cross with the best barn-yard varieties, for the sake of obtaining a larger and more fleshy breed of domestic birds; but its extreme ugliness has greatly stood in the way of its being employed in that respect to the extent contemplated. For all its ungainliness, however, the Cochin-China fowl possesses some qualities that must always make it acceptable to the dairyman and farmer, namely, on account of the frequency and regularity of their laying, and the fact that they produce eggs at those seasons when few of our home varieties lay. —The ancients regarded the domestic Cock as the companion of Mars, and in heraldry he is the emblem of strife, of haughtiness, of quarrels, and of victory. It is said to have been the emblem of the ancient Gauls, who wore it on their helmets for a crest; and though the tradition does not rest on the authority of any medal or other monument, and is supposed to have been a mere play of words between Gallus, a cock, and Gallus, a Gaul, the Cock was placed, after the Revolution, on the flags and ensigns of France. — As the emblem of watchfulness, the image of the Cock was placed on the summits of church-steeples from a very early period. It is introduced by artists among the emblems of our Lord's passion, in allusion to St. Peter's sin, and for the same reason it is St. Peter's own emblem. — See FOWL.

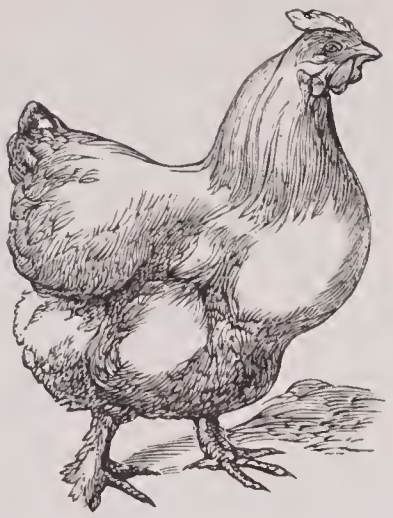


Fig. 1109. — COCHIN-CHINA FOWL.

Gal'lus, a name common to many celebrated Romans, the most distinguished of whom are the following: — *Caius*, a friend of the great Africanus, famous for his knowledge of astronomy, and his exact calculations of eclipses.—*Cornelius*, a Roman knight, who rendered himself famous by his poetical as well as military talents. He was passionately fond of the slave Lycoris or Cytheris, and celebrated her beauty in his poetry. She proved ungrateful, and forsook him, which gave occasion to Virgil to write his tenth eclogue. *G.* was a great favorite with Augustus, by whom he was appointed to rule over Egypt; but he forgot the benefits he had received, pillaged the province, and even conspired against his benefactor; for which he was banished by the emperor. This disgrace operated so powerfully upon him, that he killed himself in despair, A. D. 26. Some few fragments remain of his poetry. He particularly excelled in elegiac composition. — A Roman, who assassinated Decius the emperor, and raised himself to the throne. He became indolent and cruel, and beheld with the greatest indifference the revolt of his provinces, and the invasion of his empire by the barbarians. He was at last assassinated by his soldiers, A. D. 253. — *Flavius Claudius Constantius*, a brother of the emperor Julian, raised to the imperial throne under the title of *Cæsar*, by Constantius, his relation. He conspired against his benefactor, and was condemned to be beheaded, A. D. 354.

Gal'ly, *n.* Same as GALLEY, *q. v.*

Gall'y, *a.* Similar to gall in taste; bitter.

Gal'ly Creek, in *Arkansas*, a village of Pope co.

Galoche, (*ga-losh'*,) *n.* [Fr., from L. Lat. *galochia*, — *solea Gallica*, a Gallic shoe.] An overshoe; also, gaiters extending from the knee, and covering the instep.

Gal'op, *n.* [Fr.] (*Music and Dancing.*) Same as GALLOPADE, *q. v.*

Galopar'o, or CAPO DI FARO, the *Charybdis* of the ancients. It forms the whirlpool on the outside of the harbor of Messina, in the strait separating Italy from Sicily. Opposite, on the Italian coast, is the rock *Scylla*.

Galore', *a.* [Erse *go*, with, and *leor*, enough.] Enough; in plenty; abounding.

"With kisses *galore* from my Katie's sweet lips." — *Croker.*

Galosh', *n.* Same as GALOCHE, *q. v.*

Gal'ston, a manufacturing town of Scotland, in Ayrshire, 14 m. from Ayr. *Manuf.* Cottons, woollens, &c. *Pop.* abt. 5,000.

Galt, (*gawlt,*) *n.* Same as GAULT, *q. v.*

Galt, a town of prov. of Ontario, co. Waterloo, on Grand River, abt. 25 m. W.N.W. of Hamilton; *pop.* abt. 3,850.

Gal'tee, or GAL'TY, a range of mountains in Munster, Ireland; length, from E. to W., about 20 m.

Galt'ville, in *Pennsylvania*, a village of Lancaster co.

Gal'um, in *Illinois*, a village of Perry co., about 145 m. S. of Springfield.

Gal'va, in *Illinois*, a manufacturing town of Henry co., on the C., B. & Q. and R. I. & Peoria R. Rs., 25 m. N. E. of Galesburg. Has a fine local trade. *Pop.* (1897) about 3,000.

Galva'ni, ALOYSIO (or LUIGI), an Italian physiologist, celebrated as the discoverer of galvanism, was b. at Bologna, 1737. He studied medicine under Galeazzi, whose daughter he married. In 1762 he became lecturer on anatomy at Bologna, and obtained a considerable reputation. By experiments on frogs he discovered that all animals are endued with a peculiar kind of electricity; and he followed up this discovery with so much perseverance and success, as to give his name to a new system of philosophy, which excited universal attention. His first publication on this subject was in 1791, and entitled: *Aloysii Galvanii de Viribus Electricitatis in Motu Musculari Commentarius.* Upon this system the famous Volta made vast improvements. *G.*, on the death of his wife in 1790, fell into a state of melancholy, and D. in 1798. Besides the above work, he wrote several memoirs upon professional subjects.

Galvan'ic, *a.* [Fr. *galvanique.*] Pertaining to galvanism; containing or exhibiting galvanism.

Galvan'ic Bat'tery, *n.* (*Phys.*) The combination of a number of elements or cells each of which generates a certain quantity of voltaic or dynamic electricity. The first electro-motive apparatus or battery was constructed by Volta in 1800, and consisted of a series of discs of silver or copper, zinc and flannel, or pasteboard soaked in salt water or dilute acid. These discs were alternately laid on each other until a pile of them had been built up. (A B, Fig. 1110.) To the metallic ends of this pile, wires, *w w*, were connected. With a pile of 40 or more of these alternations, a shock was felt on joining the wires, or the gold leaves of an electrometer could be diverged. Dry piles are constructed that will remain active for years. One of the best of these consists of discs of paper rubbed over on one side with peroxide of manganese, and coated on the other with thin tin or silver leaf, generally sold attached to the paper. The best of these piles are but feeble, and the inconvenience of using them, soon led Volta to the improved modification represented in Fig. 1111. The flannel or paper in the pile is rejected, and in its place a cup of dilute acid is substituted. In each of these cups is a plate of zinc, and one of silver or copper, so connected that each silver and zinc plate is in metallic communication though in separate vessels; the arrangement being zinc, acid, silver, in a continuous circuit. We will not follow the various modifications and improvements made on the simple "crown of cups," as Volta styled it, but describe some of the more important kinds of *G. B.* now in use. If the strips of zinc in the cups of Fig. 1111 be first amalgamated (*i. e.* dipped in mercury), no action takes place so long as the zinc and copper are not connected. On joining them the acid begins to dissolve the zinc plate, and bubbles of hydrogen gas appear at the copper plate. One such cup forms a voltaic pair or cell. The zinc is called the *active* plate or *negative* pole, and the copper the *passive* plate or *positive* pole of the cell. Whatever connects these is called the *circuit.* The passive plate is often made of other substances. The current flows from the positive pole through the wire to the negative pole. A cell arranged as above described is not constant in its action; its power is constantly diminishing. Particles of zinc are precipitated on the copper plate, and the hydrogen liberated at the zinc plate adheres as a film on the surface of the copper. These actions tend to destroy the negative character of the copper. *Smee's* battery obviates the latter difficulty, and from its simplicity and power is in frequent use. In this battery (Fig. 1112) the negative plate, P, is of silver, coated with a deposit of finely divided platinum; on each side of this plate are fixed two plates of amalgamated zinc, Z Z, and the whole are united to a clamp and plunged in dilute sulphuric acid, about 1 of acid to 7 of water. The hydrogen cannot adhere to the platinum surface and is given off with a hissing sound. *Daniell's* battery (Fig. 1113) consists of a cylindrical vessel of copper, C, closed at the lower end; E, a similar smaller cylinder of porous earthenware; Z is a rod of amalgamated zinc connected by the wire *w* with the next copper cylinder, and so on in succession. The porous tube is filled with dilute sulphuric acid, and the copper cylinders with a strong solution of sulphate of copper, which is kept saturated by crystals of the salt lying on a perforated shelf. The porous partition keeps the fluids from mingling, but does not hinder the passage of the current; and the sulphate of copper in contact with the copper serves to take up the hydrogen. This is an excellent battery, and its freedom from fumes, its constancy and its power, render it invaluable in many cases for manufacturing use and scientific research. *Grove's* battery is constructed on the same principle. One form of it is shown in Fig. 1114. A rectangular plate of amalgamated zinc, Z Z, is bent in the form shown in the figure, and immersed in a porcelain or glass vessel, A B, filled with dilute sulphuric acid. Within the bend of the zinc is a porous cell filled with strong nitric acid, in which is a plate of platinum, P. The hydrogen is taken up by the nitric acid, which it decomposes with the liberation of red fumes of nitrous acid. These irritating fumes are the greatest objection to this form of battery, which is more powerful than Daniell's, and of compact arrangement. *Bunsen's* battery is a modification of Grove's, in which the platinum is replaced by a cylinder of the hard coke obtained from gas-retorts. The relative value of different batteries has been estimated in various ways. The following statement shows the amount of copper deposited from a solution of the sulphate in one hour by each of the batteries mentioned; in each case one pair of plates, exposing the same surface of zinc, was used: Grove's battery deposited 104 grains; Daniell's 33 grains, Smee's 22 grains. Daniel's was found to have the advantage in respect to constancy. Many other forms of *G. B.* have been brought into use, and the adaptability to this purpose of a great variety of chemical substances have been tried. The *G.B.* is now generally called VOLTAIC BATTERY.

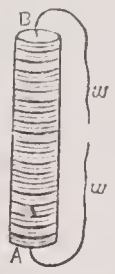


Fig. 1110.

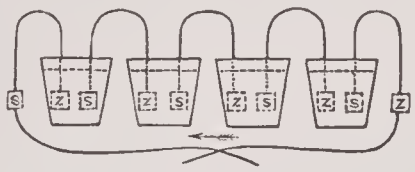


Fig. 1111.

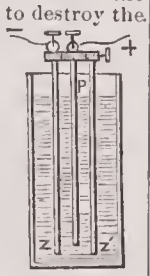


Fig. 1112.

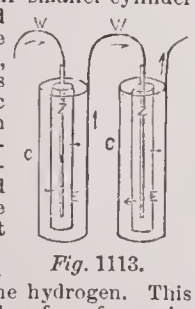


Fig. 1113.

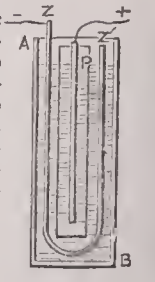


Fig. 1114.

Gal'vanism, *n.* [From *Galvani.*] That branch of the science of electricity which treats of the electricity developed by chemical action. In 1789, Galvani, a professor of anatomy at Bologna, made the discovery that the limb of a frog is convulsed when the nerves and muscles are touched with two different metals and the metals brought in contact. Upon this and similar phenomena, Galvani based his theory of "animal electricity," according to which every animal is endowed with an inherent electricity, generated in the brain, and distributed through the nervous system, the principal reservoirs being the muscles. Volta, a professor of natural philosophy at Pavia, repeated the experiment, and proved that the contractions depended not on any electrical condition of the animal frame, but on a feeble action derived from the metals with which the nerves and muscles were brought in contact. His researches led to the discovery of the *pile*, an apparatus which must be regarded as the source of all the great discoveries in this department of science in modern times. It, with its important modifications, is fully described under the head of GALVANIC BATTERY. The *contact* theory of Volta assumes that different metals have different electrical capacities, and that electrical disturbance results from simple contact. The *chemical* theory, now generally adopted, assumes that the chemical action between the solids and liquids of the battery is the source of its power. Many facts support this theory that are inexplicable when viewed by the light of the contact theory. Faraday and others have proved that chemical action does give rise to electrical force; that, when the chemical action of a battery diminishes or ceases, the current diminishes or ceases; and that powerful currents may be generated without bringing dissimilar metals into contact. There are, indeed, many reasons for supposing that chemical affinity and electricity are only modifications of the same force. The current force of the galvanic battery has been practically applied to many useful purposes. It is employed in telegraphy (see TELEGRAPH), and its power of converting iron bars into temporary magnets of great power is used in the construction of electro-motive engines and clocks. (See ELECTRO-MAGNETISM; ELECTRO-MOTIVE POWER; HOROLOGY.) Its power of causing chemical decomposition is used by the metal worker, the engraver, the stereotyper, the calico printer, and in many other arts. (See ELECTROLYSIS, ELECTRO-PLATING AND GILDING, ELECTROTYPING, ELECTRO-CALICO PRINTING, &c.) The current is used as a remedial agent in the treatment of many forms of disease, in some of which it has afforded decided relief. For its luminous effects, see ILLUMINATION. When a strong current traverses a bad conductor, the resisting medium becomes hot. It has been proved that for currents of equal strength, the heat developed in a wire is directly proportioned to its resistance, or inversely as its conducting power. When an imperfect conductor or platinum is used, a fine wire may be raised to incandescence and even fused. If the two wires of a battery are connected by a fine iron or platinum wire, it can be heated at any distance from the battery, and a charge of gunpowder fired, as in blasting or mining, while the operator is removed at a safe distance from the explosion.

Gal'vanist, *n.* [Fr. *galvaniste.* See above.] One skilled in the phenomena of galvanism.

Gal'vanize, *v. a.* [Fr. *galvaniser.* See above.] To affect with galvanism.

Gal'vanized Iron. (*Metallurgy.*) It is made by coating clean iron with melted zinc. The iron is first thoroughly cleansed and then dipped in a vessel of melted zinc, the surface of which is covered with sal ammoniac in order to dissolve the oxide of zinc which forms upon the surface of the melted metal, and might adhere to the iron so as to prevent its becoming uniformly coated with the zinc. The best quality is made by first depositing a thin film of tin upon the iron by galvanic action; hence the name *G. I.*

Gal'vanizer, *n.* One who, or that which, galvanizes.

Galvanol'ogist, *n.* [See INFRA.] One who is versed in galvanism.

Galvanol'ogy, *n.* [Eng. *galvanism*, and Gr. *logos*, a discourse.] A treatise on galvanism.

Galvanom'eter, *n.* [Fr. *galvanomètre*, from *galvanisme*, and Gr. *metron*, a measure.] (*Electricity.*) An instrument for ascertaining the presence and amount of a current of galvanic electricity. A conductor traversed by a current, and placed above a magnetic needle, but very near to it, and parallel to its axis, causes the needle

to turn to the east or west, according as the current is moving from north to south, or south to north. If the wire is placed below the needle and parallel, as before, the effect is reversed. It follows then that when the conductor passes first above and then below the needle, so as to form two parallel lines between which the needle is suspended, the action of the current upon it will be similar in both cases; and the force thus produced is twice as much as that produced by a single conductor. By increasing the number of coils, the action of the current upon the needle can be so increased, that very feeble currents can readily be detected. The conducting wire used must of course be insulated to prevent any direct metallic communication between the coils. Fig. 1115 represents the simplest form of a *G.* It consists of a needle poised upon a point and surrounded by one or more coils of insulated copper wire, the ends A and B being either left free or terminating in cups containing mercury for convenience in connecting with the source of the current.

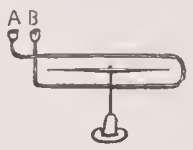
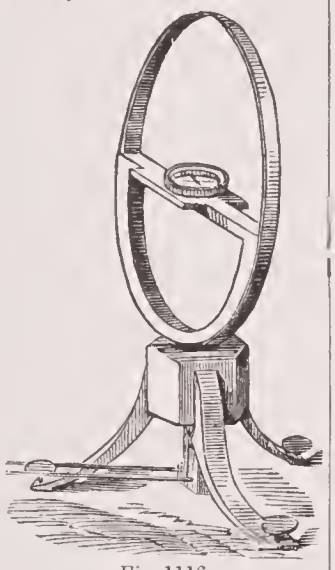


Fig. 1115.

Sometimes the needle is surrounded by two separate coils of wire, through which two currents can be made to pass in different directions. The deflection of the needle then indicates the comparative strength of the two currents which are tending to deflect in it opposite directions. Such an instrument is called a *differential G.* A very sensitive *G.* has been devised having a small mirror attached vertically to the axis. Upon this mirror a beam of light is thrown, which, being received upon a screen at a distance of several feet from the instrument, greatly magnifies any deflection of the needle. This form is termed a *reflecting G.* The *torsion G.* is, where the needle is brought back to its position by torsion, and the angle of its deflection measured. The *electro-dynamic* balance measures the strength of the current by means of a sensitive steel balance, which can turn at about a hundredth of a grain. An *astatic G.* consists of an astatic needle (*q. v.*) placed in a coil of wire so that the lower needle is within the coil, and the upper one above it. Its deflections are more considerable than those of a simple needle. In the *tangent G.*, Fig. 1116, the strength of currents circulating in the ring are proportionable to the tangents of the angles of deviation of the needle. As the needle can never be deflected 90°, this instrument can be used to measure the strongest currents. *G.* are sometimes called *Rheometers*, from the Greek *reo*, I flow, and *metron*, a measure.


Fig. 1116.
TANGENT GALVANOMETER.

Galva'no-plas'tic, *a.* [From *galvanic*, and *plastic*, q. v.] That relates to electro-metallurgy.

Galvan'oscope, *n.* [Fr., from *galvanisme*, and *skopos*, a view, from *skeptesthai*, to see.] (*Electricity.*) An instrument for detecting slight currents of electricity. Its construction is the same as that of the galvanometer, but, being used only to detect the presence of a current, it has no provision for measuring its strength or amount.

Gal'veston, in *Indiana*, a post-village of Cass co., abt. 16 m. S.E. of Logansport.

Galveston, in *Texas*, a S.E. co., bordering on the Gulf of Mexico; *area*, about 330 sq. m., half of which is water. It embraces all of Galveston Island, a portion of the mainland between that island and Houston, extending to Clear Creek on the N., and bounded by Brazoria on the W., Galveston Bay on the S. and E., and also by Bolivar Peninsula N.E. of the city of Galveston, and separated from it by the bay. *Surface*, level; *soil*, partially productive, vegetables being extensively raised. There are some settlements on Dickinson Bayou and Clear creek, and also on Bolivar Peninsula. *Cap.* Galveston. *Pop.* (1890) 31,476.

GALVESTON, a flourishing port of entry, and cap. of the above co., on an island, and at the mouth of a bay of the same name, about 230 m. S.E. of Austin; Lat. 29° 17′ N., Lon. 94° 50′ W. *G.* is the most populous and important city in Texas, its excellent harbor affording commercial advantages second to few ports on the Mexican Gulf. It contains about 12 churches, of which the Episcopal is undoubtedly the finest edifice of its kind in the State. Most other sects have also places of worship, and several excellent schools are established. The medical college is in a flourishing condition. Street railroads are now in operation, and the city is supplied with gas. A canal opens up the inland trade with the Brazos River, and another is projected, to extend to Sabine Pass. River steamers ply *G.*, Houston, and other points, besides lines to New Orleans and New York. *G.* has good wharves ship-building yards, foundries, &c., and ships largely of cotton. In 1877, and again in 1885, *G.* was visited by serious fires, which destroyed a vast amount of property, that of Nov. 13th, 1885, burnt 40 blocks of buildings, counting about 400 houses; since largely rebuilt. *Pop.* in (1897) abt. 34,600.—THE BAY OF GALVESTON exteuds, N. from the city to the mouth of Trinity river 35 miles, and is from 12 to 18 m. broad. The ISLAND is a long strip of low-lying ground, about 3 to 4 ft. above sea-level, abt. 28 m. long, and from 1½ to 3½ m. broad. It was, from 1817 to 1821, the haunt of Lafitte, the notorious pirate of the Gulf of Mexico.

Galway, (*gawl'way,*) a maritime county on the W. coast of Ireland, prov. Connaught, having S. Galway Bay and the cos. Clare and Tipperary; E. king's co. and Roscommon; N. the latter and Mayo; and W. the Atlantic Ocean. *Area*, 1,510,592 acres. DESC. The coast of the co. is deeply indented in its W. and S.W. portions by numerous bays and arms of the sea, affording fine but neglected asylums for shipping, and good, but also neglected, fishing stations. — *Surface.* This county presents every variety of surface and soil, — the country lying to the W. of Loughs Mask and Corrib, including the districts of *Connemara*, *Iar-Connaught*, and *Joyce's Country*, being one of the most rugged and wildest regions of Ireland. The other portion of the co., or that lying to the E. of Galway town and of the above-mentioned lakes, is comparatively flat and fertile. — *Rivers.* The Shannon (bounding the co. on the S.E.), the Suck, and the Blackwater. *Prod.* Wheat, oats, and potatoes. Cattle-rearing forms one of the chief features of farming economy. *Min.* Limestone and marbles. *Manuf.* Coarse linens and woollens. *Towns.* Galway (the cap.), Tuam, Clifden, Loughrea, and Ballinasloe. *Pop.* (1895) 208,803.

GALWAY, a town, seaport, and parliamentary borough of Ireland, and cap. of above co., at the N.E. extremity of a bay of same name, 113 m. W. of Dublin. *G.* was originally a walled and fortified place, and formerly considered of much importance. It is said to have been founded by Spanish rovers, and in support of this it must be stated that the domestic architecture of the older part of the town is decidedly Spanish in all its characteristics. *Manuf.* Coarse cloths, lineus, paper, and flour. *Exp.* Agricultural produce and fish. The harbor of *G.* is safe and commodious, having been much improved of late years. It was used for a time as a station for the large mail-steamers which a few years ago ran from *G.* to the United States. The fisheries are very valuable. *Pop.* (1895) 13,356.

Galway (*gawl'way*), in *New York*, a post-village and township of Saratoga county, about 36 miles N.N.W. of Albany.

Gal'way or **Galloway,** in *Tennessee*, a post-village of Fayette co.

Galway Bay, an arm of the Atlantic Ocean, on the W. coast of Ireland, co. of Galway, Connaught. It is about 20 m. long from E. to W., and in breadth diminishes from 18 m. at its mouth to 8 inland.

Ga'ma, VASCO or VASQUEZ DE, an illustrious navigator, B. at Sines, in Portugal, of a noble family; and to him belongs the merit of having discovered the route to the East Indies by the Cape of Good Hope. Having under his command 3 vessels, manned with 160 marines and sailors, *G.* set sail, July 9, 1497; in the beginning of the next year he reached the E. coast of Africa, and holding his course straight towards the coast of Malabar, arrived in May at Calicut, a city inhabited by Hindoos, where the ruler of the country, called the *zamorin*, or king, had his residence. He returned to Lisbon in two years and two months from the time of his setting out; and the result of the expedition promised such great advantages, that, in 1502, he went out with 20 ships, but he was attacked by an opposing fleet on the part of the zamorin, which he defeated, and returned the following year with 13 rich vessels that he captured in the Indian seas. John III. of Portugal appointed him Viceroy of India on the death of Albuquerque in 1524; on which he went there a third time, and established his government at Cochin, where he died in 1525. The *Lusiad* of Camoens, who accompanied *G.*, is founded on the adventures of his first voyage. His portrait (Fig. 45) illustrates our article AFRICA.

Ga'ma-grass, *n.* [From *Gama*, a group of islands in the Maldives.] (*Bot.*) See TRIPSACUM.

Gama'liel, a celebrated Pharisee in the generation after Christ, a doctor of the law, and member of the Sanhedrim. He possessed great influence among the Jews, and is said by some to have presided over the Sanhedrim during the reigns of Tiberius, Caius, and Claudius. The Talmudists say that he was the son of rabbi Simeon, and grandson of Hillel, the celebrated teacher of the law, and that upon his death the glory of the law departed. His noble intervention before the Sanhedrim saved the apostles from an ignominious death, and shows that he was gifted with great wisdom and tolerance, if not strongly inclined towards the gospel. (*Acts* v. 33–40.) The apostle Paul thought it a high honor to have been one of his pupils, (*Acts* xxii. 3,) and no doubt received from him not only a zealous enthusiasm for the Jewish law, but many lessons of candor, impartiality, and liberality. His high renown, however, among the Jewish rabbis of later ages, seems inconsistent with the tradition that he embraced Christianity.

Gamba'do, *n.; pl.* GAMBADOES. [It. *gamba*, leg.] Leather coverings for the legs in riding on horseback. (Sometimes called *spatterdashes.*)

Gam'bia, a British colony of W. Africa, at the month of the river Gambia; Lat. 13° 30′ N., Lon. 14° 40′ W. *Area*, 20 sq. m. It is one of the healthiest settlements in W. Africa, and enjoys an active trade. *Chief town*, Bathurst.

Gam'bia, a large river of W. Africa, traversing the centre of Senegambia, and after a course of 1,000 m., falling into the Atlantic at the British settlement of Bathurst, 110 m. from Cape Verd.

Gam'bier, JAMES, LORD, a British admiral, B. at the Bahama Isles, of which his father was lieutenant-governor, 1756. He went to sea at an early age, and in 1778 was appointed to the command of the *Raleigh*, 32 guns. In this frigate he was engaged against the French in 1781, and assisted in the reduction of Charleston, S. Carolina. He was present at Lord Howe's memorable victory of the 1st of June, 1794, commanding the *Defence*, 74; and after filling various posts, was intrusted, in July, 1807, with the command of the fleet dispatched to Copenhagen. This city was bombarded for three days, when the enemy capitulated, and 19 sail of the line, 23 frigates and sloops, and 25 gunboats, were taken and conveyed to England. He was now created a baron, and in 1808 had the command of the Channel Fleet In 1809, Lord Cochrane (afterwards the Earl of Dundonald, *q. v.*) who was under Lord Gambier's orders, attacked and destroyed with his fire-ships several French vessels in the inner roads of the Isle d'Aix, and Lord Cochrane was desirous of completing the destruction of the remainder of the enemy's fleet, but the commander-in-chief did not consider the attempt practicable. A court-martial sat on the conduct of the latter, but he was acquitted. In 1814 he negotiated a peace with the United States of America, at Ghent; and, on the accession of William IV., was advanced to the rank of admiral of the fleet. D. at Iver, near Uxbridge, 1833.

Gam'bier, in *Ohio*, a post-village of Knox co., on the Vernon River, abt. 5 m. E. of Mount Vernon. It is the seat of Kenyon College.

Gam'bier Islands, a group in the S. Pacific Ocean, important on account of their being the only known station between Chili and Tahiti where good water can be obtained. They are under French protection. Lat. 23° 12′ S., Lon. 134° 55′ W.

Gam'bir, or **Gambier,** *n.* A kind of catechu. It is sometimes called *pale terra japonica*, and by druggists *catechu in square cakes.* — See CATECHU.

Gam'bist, *n.* [It. *gamba*, leg.] (*Mus.*) A performer on the VIOLA DI GAMBA, *q. v.*

Gam'bit, *n.* [Fr.] (*Games.*) In chess, a movement, of which there are several varieties, by which an advantage is tripped up. This is attempted by the first player's putting a pawn in a situation to be taken by the enemy early in the game, with a view to employ to better advantage his superior pieces.

Gam'ble, *v. n.* [From *game*, q. v.] To play a game for money or other valuable stakes.

—*v. a.* To lose by gaming; as, to *gamble* away an estate.

Gam'bler, *n.* One who games or plays for money or other valuable stakes.

Gam'bling, *n.* [A.S. *gamian*, to play at any sport. See GAME.] Playing at games of hazard or chance for money. — Strictly speaking, *gambling* may be understood as *gaming* in its worst sense, and as implying *professional* play for a money stake, by men who are unscrupulous adepts at so-called games of chance. *G.* is a vice which has been common among most nations, civilized and uncivilized. Tacitus tells us that the ancient Germans were so addicted to it, that, when stripped of everything else, they would stake at last their liberty, and their very lives; the loser going into voluntary slavery, and though much younger and stronger than his antagonist, suffering himself to be bound and sold. In Rome, particularly during the empire, the practice was common, and various enactments were made against it. In England, also, gambling was early made the subject of penal enactments. By 33 Henry VIII. c. 9., "no person shall, for his gain, lucre, or living, keep any common house, alley, or place of bowling, coyting (quoiting), cloth (billiards), cayls, half-bowls, tennis, dicing-table, carding, or any unlawful game then or thereafter to be used, on pain of forfeiting 40 shillings a day;" and every person haunting or using the said houses was declared to forfeit 6*s.* 8*d.* By 9 Anne, c. 14, all bonds and other securities won at play were declared to be void, and every person losing £10 at one time or sitting might, within three months, recover the same, with costs, in any court of record; and after three months any other person might sue for and recover the same, and treble the value thereof, with costs. Various statutes were subsequently enacted on this subject; and in 1845, Act 8 & 9 Vict. c. 109, was passed, which greatly facilitated proceedings against common gambling-houses. By 16 & 17 Vict. c. 119, *betting-houses* were declared to be within the jurisdiction of the acts against *G.* Other acts have since been even more stringent, but notwithstanding all these legislative enactments, there still exist in London not a few gambling-houses, which go by the appropriate name of *hells.* In most of the German states *G.* was allowed, and the petty sovereigns of several of them derived a large revenue from letting the exclusive privilege of keeping such establishments at some of the most fashionable spas, as Baden-Baden, Homburg, Wiesbaden, &c.; but, of late, the German imperial government has laid a stringent interdiction on *G.* In France, prior to 1838, when the practice was abolished, the exclusive right of keeping public gambling-houses was let out to a company, who paid the government six millions of francs annually for the privilege. In this country statutes have been passed in most, if not in all the States, forbidding gambling for money at certain games. In spite of this, however, *G.* may be said to be almost universally practised in most of our great cities, and with but a semi-veil of secrecy thrown over the haunts where it is carried on.

Gam'bles, in *Pennsylvania*, a village of Allegheny co.

Gam'boge, *n.* Same as CAMBOGE, *q. v.*

Gambo'gian, Gambo'gic, *a.* Pertaining to, or like gamboge; containing gamboge or camboge.

Gam bol, *v. n.* [Fr. *gambiller*, from O. Fr. *gambe*; Ital.

gamba, the leg.] To kick about; to dance and skip about in sport; to frisk; to play in frolic.

"Bears, tigers . . . *gambolled* before them."—*Milton.*

—To start; to leap.

"And I the matter will record, which madness
Would *gambol* from."—*Shaks.*

Gam'bol, *n.* A skipping or leaping about in frolic; a skip; a hop; a leap; a sportive prank.

"For who did ever play his *gambols*
With such insufferable rambles?"—*Hudibras.*

Gam'brel, *n.* [It. *gambarella*, dim. of *gamba*, a leg.] The hind leg of a horse. — A stick crooked like a horse's leg, used by butchers to suspend thereon slaughtered animals while dressing and weighing them.

(*Arch.*) A curb-roof of a house. — See CURB-ROOF.

Gam'brel, *v. a.* To tie by the leg.

Gam'broon, *n.* (*Manuf.*) A kind of twilled linen cloth, for lining.

Game, *n.* [A. S. *gamen*, joy, pleasure; — allied to Gr. *komos*, a revel, a merry-making.] The term applied to certain bodily exercises and mental recreations practised as a relaxation from business or study, or employed as a mode of passing the time. They are divided naturally into two classes, *mental* and *physical*, but more definitely they are distinguished as *games of chance*, *games of skill*, and *mixed games*. In the first class the result does not depend upon the attention and dexterity of the player, but is merely determined by chance; it includes games played with dice alone, such as *hazard*, and many of the games played with cards, such as *quinze*, *vingt-et-un*, *lansquenet*, *commerce*, *loo*, &c. The second class comprehends those games which, when once begun, are independent of chance, and are gained by the superior skill and experience of one party. In many games of this kind, however, when the skill of the parties is equal, he who plays first is most frequently the winner. There are very few mental games of this class; but *chess* and *draughts* hold the highest places. It includes several interesting and popular physical games; among others, *cricket*, *base-ball*, *bowling*, *golf*, *tennis*, *billiards*, &c. In the third class the games are generally decided by chance where the players are equal, but otherwise depend much for their event on the skill and caution of the players; among the most important of these are *whist*, *cribbage*, *piquet*, *euchre*, *casino*, *all-fours*, and *backgammon*.

—Jest, as opposed to *seriousness*.

"'Twixt earnest and 'twixt *game*."—*Spenser.*

—Insolent merriment; sportive insult.

"Or make a *game* of my calamities."—*Milton.*

—An exercise or play for amusement or for winning a stake; as, a *game* of skill, a *game* of hazard.—Advantage at play; as, to win the *game*, *i. e.*, the stake.

"Whose *game* was empires, and whose stakes were thrones."
Byron.

—Scheme pursued; measures planned.

"The present *game* of that crowd."—*Temple.*

—Field-sports; the chase; falconry, &c.

"Some sportsmen, that were abroad upon *game*."—*L'Estrange.*

—Animals pursued or taken in the chase, or in the sports of the field.

"At human hearts we fling, nor ever miss the *game*."—*Prior.*

Public Games of Antiquity. (*Hist.*) Under this name are generally included the contests and spectacles of varied kinds celebrated by the ancients, which, in the earlier ages, were connected with religious ceremonials. The public games of the Greeks were very numerous, and the origin of many of them is lost, on account of the religious mystery in which they were founded. Among the Grecian games, the most celebrated were the *Olympic*, the *Pythian*, the *Nemean*, and the *Isthmian*. The conquerors in the Olympic games were held in high respect, and were looked upon as the noblest and happiest of men. These games were held every 5 years at Olympia, in Elis, on the W. side of the Peloponnesus. Among the exercises, some were designed to give strength, and others agility. The lighter exercises comprised running, leaping, throwing the quoit, and hurling the javelin. The more severe course of discipline included wrestling and boxing. Racing also constituted a particular feature in all the ancient games. The Isthmian games were held at Corinth, and, together with athletic exercises, horse and chariot races, constituted a large portion of the spectacle. Originally these games were connected with the worship of Neptune, the wide diffusion of which gained for them the great celebrity which they long enjoyed. The Persian war gave an impulse to the Isthmian games, while the Peloponnesian war dimmed their glory. Under the Romans, these games did not lose their importance, but were exhibited with increased celebrity. They were then held every three years, and comprised three leading divisions, — *musical*, *gymnastic*, and *equestrian* contests. The prize at the Olympic games was merely a chaplet of wild olive. These chaplets, together with branches of palm, which were carried in the hands of the victors, were placed on a tripod in the middle of the course, so as to be seen by all the spectators. At the Isthmian games, the prize was parsley during the mythic periods; in later times, however, the victor was generally crowned with a wreath of pine-leaves, although parsley was often employed. The amusements in the Roman circus did not differ materially from those which were celebrated in the games of ancient Greece. The *theriomachia*, or beast-fight, was a favorite species of entertainment among them; and the men employed in this barbarous amusement, in which men fought with wild beasts, were called *bestiarii*. The combatants were divided into two classes, — those who fought voluntarily for amusement or pay, and who were provided with weapons, — and condemned persons, who were generally exposed to the fury of the animals naked, without arms, and sometimes bound. The Romans were passionately fond of these beast-fights, and very large numbers of animals were engaged in them. Under Pompey, no less than 600 lions were thus destroyed; and under Titus, 5,000 wild and 4,000 tame animals perished in a similar manner. There is no doubt that, although these latter exhibitions produced a debasing effect upon the minds of the beholders, the athletic games of the ancients not only improved the physical development of the people, but tended directly to advance their intellectual and moral culture. The early and long training by which they were preceded, and the exercises through which the child, the youth, and the man were conducted by successive stages, culminated at length in that union of beauty and strength in which physical perfection consists, and in which the ancient Greeks surpassed every other known nation.

Game, *v. n.* [A.S. *gamenian.*] To play at any sport or diversion.

—To play for a stake or prize.

—To practise playing for a valuable stake; to gamble.

—*a.* Brave; resolute; courageous; as, *game* to the last.

—Pertaining to such animals as are pursued or taken in the chase; — also to birds shot in battues.

Game'-cock, *n.* A cock bred or used to fight.

Game'-egg, *n.* An egg from which a game-cock is bred.

"Thus boys hatch *game-eggs* under birds of prey,
To make the fowls more furious for the fray."—*Garth.*

Game'ful, *a.* Full of game or games.

Game'-keeper, *n.* One who has the care of game, and sees that it is not destroyed.

Game Laws, *n. pl.* (*Law.*) Statutes which declare what birds and beasts are to be considered game, and impose penalties on those who unlawfully kill or destroy them. The game laws of England had their origin in the ancient forest-laws, under which the killing of one of the king's deer was equally penal with murdering one of his subjects. At the present day, though considerably modified, the English game-laws are still very severe, and as the administration of these laws is in the hands of the class interested in preserving the game, they are very rigidly enforced. The laws relating to game in the U. States are generally framed with reference to protecting the animals from indiscriminate and unreasonable havoc, leaving all persons free to take game, under certain restrictions as to the season of the year and the means of capture. The details of these regulations must be sought for in the statutes of the several States.

Game'-leg, *n.* [W. *gam*, crooked, wrong.] A lame, stiff, or crooked leg.

Game'less, *a.* Destitute of game; as, *gameless* preserves.

Game'some, *a.* Gay; sportive; playful; frolicsome.

"Though old, yet *gamesome*."—*Sidney.*

Game'somely, *adv.* Merrily; playfully.

Game'someness, *n.* Sportiveness; merriment.

Game'ster, *n.* [*Game*, and suffix *ster*, q. v.] One skilled in games of hazard or skill; one addicted to gaming; a gambler.

"Keep a *gamester* from the dice."—*Shaks.*

—One engaged at play.

"When lenity and cruelty play for kingdoms,
The gentler *gamester* is the soonest winner."—*Shaks.*

Gamin, (*gă-măng'*.) *n.* [Fr.] A child neglected and let loose upon the streets; a city Arab; as, a Parisian *gamin*.

Gam'ing, *n.* The act or art of playing any game in a contest for victory, or for a prize or stake; the practice of gamesters. — See GAMBLING.

G. houses. (*Law.*) Houses kept for the purpose of permitting persons to gamble for money or other valuable stakes. They are nuisances in the eye of the law, being detrimental to the public good, as they promote cheating and other corrupt practices.

Gam'marus, *n.* [Lat., from Gr. *kammaros*, a crab.] (*Zoöl.*) The Fresh-water Shrimp, a genus of AMPHIPODA, *q. v.*

Gam'mer, *n.* [A. S. *gemeder.* Possibly a contraction of *godmother.* See GAFFER.] An old woman in humble life. — The compellation of an old woman, answering to the word *gaffer*, applied to an old man; as, "*Gammer* Gurton's Needle," (an old English play.)

Gam'mon, *n.* [It. *gambone*, from *gamba*, a leg; Fr. *jambon.*] The leg or thigh of a hog, pickled and smoked or dried; a smoked ham; as, a *gammon* of bacon. — A game, usually called BACKGAMMON, *q. v.* — An imposition; a hoax.

—*v. a.* To make bacon; to cure and dry in smoke.

(*Naut.*) To attach or fix, as a bowsprit, by means of rope.

—To defeat at the game of backgammon, by being able to withdraw all one's pieces from the board, and thus ending the game, before one's adversary has brought all his pieces into the table at his left, and has consequently had no opportunity to withdraw any pieces from the board.

—To impose on a person, by making him believe improbable stories; to humbug; to hoax.

Gam'moning, *n.* The act of imposing upon a person by making him believe absurd stories.

(*Naut.*) The lashing by which the bowsprit is secured to the cut-water.

Gamopet'alous, *a.* [Fr. *gamopétale*, from Gr. *gamos*, a wedding, and *petalon*, a leaf.] (*Bot.*) Composed of united petals.

Gamop'yllous, *a.* [Gr. *gamos*, wedding, and *phyllon*, a leaf.] Formed of united leaves.

Gamosep'alous, *a.* [Gr. *gamos*, wedding, and Fr. *sépale*, a leaf or division of the calyx.] (*Bot.*) Having united sepals.

Gam'ut, *n.* [Gr. *gamma*, the third letter of the alphabet, and Lat. *ut*, the name of a musical note.] (*Mus.*) A term applied to the table or scale invented by Guido d'Arezzo, from his having adopted the *gamma*, or third letter of the Greek alphabet, as a sign for its lowest note, which was one note below the *proslambanomenos*, or lowest note of the ancients. It consisted of twenty notes, viz., two octaves and a major sixth. In modern music, the term *gamut* signifies the diatonic scale, and is occasionally applied to the note G below the bass clef.

Gam'y, *a.* Showing fight, or struggling to the last; as, a *gamy* salmon.

(*Cookery.*) Having the flavor of game; high-conditioned; kept until nearly tainted; as, a *gamy* leg of mutton.

Gan, *imp.* of *gin*, began. (o.)

Gananoque', a village of prov. of Ontario, co. of Leeds, on the St. Lawrence River, about 18 miles N.E. of Kingston.

Ganch, *v. a.* [It. *ganciare*, from *gancio*, a hook.] To drop from a high place upon hooks by way of punishment; — a practice formerly existing in Turkey.

"Take him away, *ganch* him, impale him."—*Dryden.*

Gan'der, *n.* [A. S. *gandra*; Ger. *gänserich*; L. Sax. *ganter*; Lat. *anser*; Gr. *chēn*, *chēnos.*] The male of the goose.

Gan'dia, a town of Spain, prov. Valencia, dist. Denia, on the Mediterranean, 34 m. S.S.E. of Valencia. *Manf.* Linens. *Pop.* 7,120.

Gang, *v. n.* [A.S. *gangan.*] To go; to walk. (Used only in Scotland and the N. of England.)

"I'll *gang* nae mair a-roving."—*Burns.*

Gang, *n.* [A.S., from *gan*, *gangan*, to go; D., Dan., and Ger. *gang.*] A number going together: — hence, a company, or a number of persons associated for a particular purpose; a crew or band; as, a *gang* of sailors, a press-*gang*, a *gang* of miners, workmen, &c.; — and, in a bad sense, used of persons allied to a low or disreputable position; as, a *gang* of robbers. — A combination of tools or implements intended to coöperate in action to the saving of time, labor, &c.; as, a *gang* of saws.

(*Mining.*) See GANGUE.

Gang'-board, *n.* (*Naut.*) A plank resting on the gunwale of a boat, &c., with cleats nailed athwart for steps to insure foothold in passing ashore or on to another boat. — A plank within the bulwarks in the waist of a ship of war, on which a sentry paces to and fro.

Gang'-cask, *n.* A small cask for carrying fresh water on board ships or boats.

Gang'-days, *n. pl.* [A.S. *gang-dagas.*] Rogation days. See GANG-WEEK.

Ganges, (*găn'jēz,*) the sacred stream of the Hindoos, and the principal river of Hindostan, through the N. and E. parts of which it flows, watering its most fertile region, and extending through 13 degrees of Lon., and nearly 10 of Lat., from the central chain of the Himalayas to the Bay of Bengal. Its course of 1,557 m. is almost wholly comprised within the British presidencies of Bengal and Agra. It rises by two principal heads, the Bhagirathi and Alcananda, about Lat. 31° N., and between Lon. 79° and 80° E. The Bhagirathi, or W. branch, though neither the longest nor largest, is considered by the Hindoos as the *true Ganges*. Issuing about 200 m. N.N.W. of Delhi, it forms a junction with Alcananda at Deoprang, in Lat. 30° 9′ N., Lon. 78° 33′ E., after which the resulting stream assumes the name of the *G.*, receiving as tributaries the Jumna, Goomtee, Ramgnnga, and many others, and forms a delta about 200 m. from the Bay of Bengal. Of its two principal arms, which form the outermost of the whole series, the E. is the larger, and preserves the original direction of the main stream, together with the name of Ganges; but the W. arm, or Cossimbazar branch, called afterwards the *Hooghly*, is considered by the natives the true Bhagirathi, and invested by them with the greatest portion of sanctity. The region around the mouths of the *G.*, termed the *Sunderbunds*, is a pestiferous tract, covered with jungle, and swarming with tigers, and other beasts of prey. The annual inundation of the *G.* is owing to tropical rains which begin in April, and the rise continues till about the middle of Aug., attaining an average maximum height of 30 ft. The *bore* (q. v.) is a phenomenon peculiar to the *G.* with other rivers. Perhaps no river in the world has on its banks so many populous cities. On different branches of the delta are placed Calcutta, Moorshedabad, and Dacca, the three great cities of Bengal; besides Chinsurah, Chandernagore, Hooghly, Cutwa, Burhanpoor, Cossimbazar, and Jessore. Proceeding up its course, we find on its banks Rajmahal, Monghir, Patna, Ghazepore, Benares, Allahabad, Cawnpore, and Furruckabad, with myriads of villages, temples, and bungalows. The *G.*, from Gangontri to Sangor Island, is considered holy by Hindoos of all castes, though in some places much more so than in others. Hindoo witnesses in British courts of justice are sworn upon the water of the *G.*, as the Christians and Mohammedans are sworn upon their sacred books. The *G.* water is believed by the Hindoos to purify from all sins; many ablutions and suicides accordingly take place in it, and the feet of the dying, when they are sufficiently near residents, are in most instances immersed in it.

Gan'ges, in *Michigan*, a post-township of Allegan co., on Lake Michigan.

Gan'ges, in *Ohio*, a post-village of Richland co., about 10 m. N. of Mansfield.

Gangetic, (*gan-jet'ik,*) *a.* (*Geog.*) Pertaining or having reference to the river Ganges, Hindostan.

Gan'gliac, Gan'glial, *a.* Ganglionic; pertaining to a ganglion.

Gan'gliform, Gan'glioform, *a.* [From *ganglion*, and Lat. *forma*, shape.] Having the form or shape of a ganglion.

Ganglion, (*gang'gli-on,*) *n.*; *pl* GANGLIA. [Gr. *ganglion*, a tumor under the skin, on or near sinews; in

modern anatomy, a nerve-knot.] (*Compar. Anat.*) A small rounded or elongated nervous mass, of a reddish-gray color, situated in the course of the nerves. They are of two kinds, one forming part of the cranial system of nerves, and situated near the origins of many of the cranial and all of the vertebral nerves; the other forming part of the sympathetic system, extending in a series along each side of the vertebral column, and occurring numerously in other parts. They differ widely in size and figure, some being large and conspicuous, while others are almost microscopic. They are composed of two substances, one white, like the medullary matter of the brain, the other reddish-gray. The internal medullary filaments are the continuation of the nerve upon which the *G.* is situated. A section through a *G.* in the direction of the nervous chords connected with it discloses to the naked eye merely a collection of reddish-gray matter, traversed by the white fibres of the nerves.

(*Surg.*) A small tumor in the sheath of a tendon, containing a semi-fluid secretion inclosed in a cyst. This cyst is sometimes loose, but generally communicating with the tendonous sheath. They sometimes form without any apparent cause, but generally arise from some wrench or tension of the tendon. They are most frequently situated about the wrist. The treatment consists in rupturing the cyst, either by firm compression with the thumb, or by striking the swelling sharply with some obscure body, the part being subsequently bandaged, and rest enjoined for a few days.

Lymphatic ganglion, a lymphatic gland.

Gan'glionary, *a.* [Fr. *ganglionnaire.*] Consisting of ganglions; having reference to ganglions.

Ganglionic, (*gang-gli-on'ik,*) *a.* Pertaining to a ganglion; as, the *ganglionic* nerves.

Gangpore', a small state of India, on the Bengal frontiers. It is tributary to the British, and has a fertile soil, but is ill-cultivated. *Area*, 2,490 sq. m. *Pop.* abt. 110,000.

Gangrene, (*găng'grēn,*) *n.* [Fr. *gangrène;* Lat. *gangræna;* Gr. *ganggraina*, from *graō, grainō,* to gnaw; Sansk. *gras*, to devour away the tissues.] (*Med.*) A term applied to the first stage of mortification. It is divided into two kinds, the *moist* and the *dry;* the former, called also inflammatory or acute *G.*, is that which is preceded by inflammation; while the latter, called also chronic or idiopathic *G.*, is that which takes place without visible inflammation having preceded it. The most frequent causes of *G.* are violent inflammation, erysipelas, contusion, burns, cold, and deficient circulation of the blood or nervous energy. When it results from high and active inflammatiou, there is at first severe pain in the part attacked, and generally considerable swelling. After a time, the part loses all sensibility and becomes cold, the redness disappearing, and the skin becoming of an irregular dark color, in some portions approaching a black, and in others a dark-brown or greenish hue. If there is a running sore, the discharge will cease; and a bloody serum forms under the skin. The inflammatory fever disappears, and is succeeded by great langnor and debility; the pulse is weak, quick, and irregular; the stomach is deranged, delirium frequently occurs, and hiccough is one of the most characteristic signs of the disease in its more advanced stage. The features are collapsed and the eyes sunk. When the *G.* is not the result of high and active inflammation, the febrile symptoms are slight or altogether wanting; but there is the same discoloration of the skin, discharge of bloody serum, and morbific appearance. *G.* resulting from severe cold is remarkable for the little pain generally preceding, the part having frequently perished without the patient being aware of the fact. A part suffering from severe cold should first be rubbed with snow or a coarse towel, in order to restore the suspended circulation, avoiding at first any artificial heat, which might be the means of inducing inflammation. *G.* may arise from a diseased state of the blood-vessels, attended with debility of the constitution. This form of the disease is commonly known as *gangrena senilis*, generally observed in advanced age, though exceptional cases occur in earlier life. It is best exemplified when gradual ossification of the small arterial trunks occurs; pain, heat, and redness being the first symptoms, after which the parts become gradually black and dry. The hands, fore-arms, and feet are chiefly affected. It is this dry form of *G.* which is produced by the ingestion of ergot of rye. (See ERGOTISM.) Hospital *G.*, or *phagedæna gangrenosa*, is a form of this disease which attacks open wounds or ulcers, and is so called from its appearing most frequently in crowded hospitals, and causing a fearful mortality among the patients.

(*Bot.*) A disease in plants ending in putrid decay.

Gan'grene, *v. a.* To mortify, as flesh.

> "*Gangren'd* members must be lopp'd away,
> Before the nobler parts are tainted to decay."—*Dryden.*

—*v. n.* To become mortified; to lose vitality.

> "Wounds immedicable . . *gangrene* to black mortification."
> *Milton.*

Gangrenes'cent, *a.* Tending to putrescence or mortification.

Gan'grenous, *a.* [Fr. *gangréneux.*] Mortified; indicating putrescence of living flesh.

Gang'-tide, *n.* Same as GANG-WEEK, *q. v.*

Gang'-tooth, *n.* A projecting tooth.

Gangue, (*găng,*) *n.* [Ger. *gang*, vein.] The mineral substances that accompany metallic ores in the veins of rocks. — The matrix of ores. — The earthy substances present in ores.

Gang'way, *n.* [A. S.] (*Naut.*) A passage or thoroughfare of any kind. — In deep-waisted ships it designates a narrow way built horizontally along the upper part of a ship's side, from the quarter-deck to the forecastle, for the convenience of walking fore and aft, instead of descending into the waist. It is fenced on the outside with iron stanchions, having ropes or rails extended from one to the other. — The opening left in the upper part of a ship's side, for the purpose of entering in or departing from her, is also called a gangway. — The term is likewise applied to a narrow passage left in the hold, when a ship is laden, to enable the sailors to enter either to examine the cargo or provisions, to discover and stop a leak, or to bring out anything that may be required.

To bring to the gangway. (*Naut.*) To fasten and flog a sailor in the waist or at the gangway, — the usual place of punishment on board ship.

Gang'-week, Gang'-tide, *n.* Rogation-week, when processions formerly perambulated parishes to survey their boundaries.

Gan-hway, a province of China. See NGAN-HOEI.

Ga'nier, in *Illinois*, a twp. of Kankakee co., traversed by the Kankakee River.

Gan'il, *n.* [Fr.] A term given in some parts of England to a kind of friable limestone.

Gan'jam, a fertile district of Hindostan, in the North Circars, presidency of Bombay; *area*, 6,400 sq. m.; *pop.* abt. 950,000.—A town, and cap. of above dist., near the coast of the Bay of Bengal, 84 m. S.E. of Cuttack, and 535 N.E. of Madras; Lat. 19° 20′ N., Lon. 85° 20′ E. *Pop.* unknown.

Gan'nat, a town of France, dep. Allier, on the Andelot, 33 m. S. of Moulins; *pop.* 6,158.

Gan'net, *n.* [A. S. *ganot.*] (*Zoöl.*) The *Sulidæ*, a family of birds, order *Natatores*, of which the genus *Sula*, the only one represented in N. America, is the type. *Sula Bassana*, the common Gannet (Fig. 1117), found from the Arctic Sea to the Gulf of Mexico, breeds in immense numbers on the rocky islands near the coast of Labrador. It is almost the size of the tame goose. The bill is about six in. long, jagged at the sides, and straight nearly to the point, where it inclines downwards. A loose skin, bare, and capable of considerable distention, hanging from the blade of the lower bill, and extended over the throat, serves as a pouch in which to convey food to its young. The neck of the gannet is long; body flat, and very full of feathers. The crown of the head, and a small space on the hind part of the neck, are buff-color, and, with the exception of the quill and the bastard wing-feathers, the remainder of the plumage is white. The legs and toes are black, but the fore-part of each is marked with a bright-green stripe. The male and female are nearly alike. The young are at first covered with a very beautiful snow-white down; at the age of about six weeks the feathers make their appearance; and at the end of three months they are ready to fly. The food of the gannet consists of salt-water fish, the herring and pilchard being the staple. It takes its prey by darting down on it from a considerable height. It makes its nests, which are composed chiefly of turf and sea-weed, in the caverns and fissures of rocks, or on their ledges, as well as on the plain surface of the ground. The female lays three white eggs, somewhat smaller than those of the goose. It is stated, however, that the three eggs are only laid in the event of the first and second being removed, and that if left to its own devices the bird will lay but one egg.

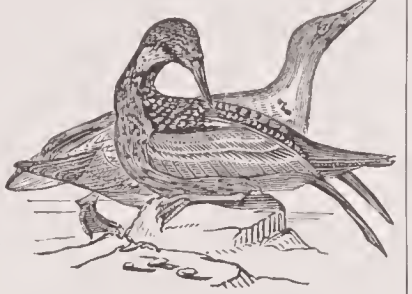


Fig. 1117. — COMMON GANNET. (*Sula Bassana.*)

Gan'net Island, off the N.E. coast of Labrador; Lat. 54° N., Lon. 56° 34′ W.

Gan'net Rock, in *Maine*, a small island and light-house, abt. 6 m. off the S.W. point of Grand Menan Island; Lat. 43° 32′ N., Lon. 66° 52′ W. It exhibits a revolving-light 90 ft. above the sea-level.

Gan'oid, Ganoid'al, Ganoid'ian, *a.* Pertaining or having reference to the ganoids.

Gan'oids, Ganoid'ians, *n. pl.* [Gr. *ganos*, beauty, and *eidos*, form.] (*Zoöl.*) An order of fishes in the classification of Mr. Agassiz, containing more than 60 genera, above 50 of which are only discovered in a fossil state in the old red sandstone and other rocks of that period. The order is named from the brilliant lustre of their scales, which are coated with a bright enamel, as the Gar-fish.

Ga'noine, *n.* A peculiar kind of bony tissue found beneath the enamel of the scale of a ganoid.

Ganom'atite, *n.* [Called also *Chenocoprolite*, or *Goose-dung Ore.*] (*Min.*) An impure iron sinter, containing some oxide of cobalt.

Gansevoort, (*gans'voort,*) in *New York*, a post-village of Saratoga co., abt. 10 m. N.E. of Saratoga Springs.

Gant'let, Gaut'lope, *n.* [*Gant* for *Ghent*, and D. *loopen*, to run.] Originally, a kind of military punishment, in which the culprit was compelled to run between two files or ranks, armed with rods, &c., receiving a blow from each, — a mode of punishment said to have been invented at Ghent, formerly written *Gant*. A similar mode of punishment was also applied on shipboard.

To run the gantlet. (Sometimes, but erroneously, *gauntlet* is used.) To experience the punishment of the gantlet; hence, to go through any trying ordeal of keen criticism, severe animadversion, or, in short, any crucial test of mind or body.

> "He *ran the gantlet* under the eyes of a hundred beauties."
> *Lord Lansdowne.*

Gantois, (*gong-twd',*) *n.* (*Geog.*) A native or citizen of Ghent, Belgium.

Gan'try, Gaun'tree, Gaun'try, *n.* A stillage for barrels.

Gantung Pass, (*gan'toong,*) a mountain defile in Bussahir, between Chinese Tartary and Koonawar, descending, on the W. side upon the Sutlej; Lat. 31° 38′ N., Lon. 78° 47′ E. Height, 18,290 feet above sea-level.

Ganyme'de, [Gr. *Ganymedes.*] (*Myth.*) A son of Tros and Callirhoë, and brother of Ilus. Being the most beautiful of all mortals, he was taken by Zeus to be his cupbearer and to live among the gods on Olympus. Later writers added that he was borne aloft to heaven on an eagle sent by Zeus.

Gan'za, Gan'sa, *n.* [Lat.] A kind of wild goose, by a flock of which a virtuoso was fabled to be carried to the lunar world.

> "They are but idle dreams and fancies,
> And favor strongly of the *ganzas.*"—*Hudibras.*

Gaol, (*jāl,*) *n.* (Sometimes written JAIL.) [Fr. *géole;* L. Lat. *gaiola*, a prison; It. *gabbiola*, a small cage, dim. of *gabbia*, a cage; L. Lat. *caveola*, dim. of *cavea*, a cavity.] A prison; a house of detention; a place for the confinement of criminals and debtors.

—*v. a.* To imprison; to hold in durance: to place in confinement; as, "*gaoling* vagabonds." — *Bacon.*

Gaoler, (*jāl'ėr,*) *n.* A jailer: the keeper of a gaol or prison; a custodian; a janitor.

Gap, *n.* [From *gape;* Icel. *gap*, a hiatus.] An opening; an aperture; a cleft or break; a breach; any avenue or passage; way of entrance or departure; a defect; a flaw; an interstice or vacuity; a hiatus; a chasm.

To stop a gap, to fill a vacant place; to secure a weak point or feature. — *To stand in the gap*, to make defence against an expected danger; to expose one's self for the protection of something.

Gap, (anc. *Vapincum,*) a town of France, dep. Hautes-Alpes, of which it is the cap., in a wide valley, nearly 2,500 ft. above the sea, surrounded by the lower Alpine ranges, 44 m. S.E. of Grenoble. *Manuf.* Woollen and linen fabrics, silks, chamois, and other kinds of leather, and cotton yarn. This place is very ancient, and was the cap. of the Tricorii, under the name of *Vap. Pop.* 9,040.

Gap, in *Alabama*, a village of Walker co.

Gap, in *Pennsylvania*, a post-village of Lancaster co., abt. 18 m. E. of Lancaster.

Gap Civ'il, in *North Carolina*, the former name of SPARTA, a post-village, cap. of Alleghany co.

Gape, (*gāp,*) *v. n.* [A.S. *geapan;* Dan. *gabe;* Icel. *gapa*, to gaze with open mouth; Dut. *gapen.*] To open the mouth wide; to yawn, indicative of sleepiness; as, he is *gaping* for bed. — To open the mouth for food, as young birds. — To open the mouth in wonder, surprise, eager longing, hope, or expectation, or with a desire to injure or devour; as, a *gaping* crowd. — To open in fissures or crevices; to exhibit a hiatus; as, a *gaping* chasm. — To desire earnestly; to crave; — preceding *for* or *after;* as, "*gaping after* court-favor." — *L'Estrange.*

—*n.* A gaping.

(*Zoöl.*) The width of a mouth when opened, as of a bird, fish, &c.

The gapes, a disease common among young poultry, indicated by much gaping.

Gap'er, *n.* One who gapes, yawns, or stares open-mouthed.

Gap Grove, in *Illinois*, a post-office of Lee co.

Gap Mills, in *W. Virginia*, a post-village of Monroe co.

Gap Run, in *Tennessee*, a post-office of Carter co.

Gaps'ville, in *Pennsylvania*, a P. O. of Bedford co.

Gap'-toothed, *a.* Having gaps or interstices between the teeth.

> "The broad-speaking, *gap-toothed* wife of Bath." — *Dryden.*

Gar, [A.S.] an affix or syllable signifying a dart or weapon: an instrument of offence. Hence the derivation of some of the Saxon names, as Ed*gar*, "happy weapon;" Ethel*gar*, "noble weapon;" and many others.

Ga'ra, (Lough,) a lake of Ireland, in Connaught, abt. 13 m. W. of Carrick on Shannon.

Gar'ancine, *n.* (*Chem.*) A coloring-matter derived from madder by the action of sulphuric acid upon it. When boiled in water, it yields a red solution containing *alizarine*, (*q. v.*) It has a higher coloring power than madder itself.

Garb, *n.* [O. Fr. *garbe*, a garb; Norm. *garbes*, clothing; It. *garbo*, comeliness, behavior, carriage; A.S. *gearwa*, clothing.] Dress; clothing; habit; as, the *garb* of a monk.

—Fashion or mode of dress; — hence, external appearance, looks, &c., expressive of disposition, manner, character, &c.; as, "he could not speak English in the native *garb*." — *Shaks.*

(*Her.*) A sheaf of any sort of grain; — said to represent summer.

Garbage, (*gär'bāj,*) *n.* [From the root of *garble.*] That which is separated, as by sifting; the bowels of an animal; refuse parts of flesh; offal. (Applied sometimes to vegetable refuse, and to immoral and gross literature.)

> "Who, without aversion, ever look'd
> On holy *garbage*, though by Homer cook'd?"—*Lord Roscommon.*

Gar'baged, *a.* With the bowels or entrails removed.

Garbed, (*gärbd.*) *a.* Dressed; attired; habited; clad.

Gar'bel, *n.* (*Naut.*) Same as GAABOARD, *q. v.*

—That which is sifted, and from which the coarse and drossy portions have been removed.

Garbieh, (*gar'be,*) a maritime prov. of Lower Egypt, in the delta of the Nile.

Gar'ble, *v. a.* [O. Fr. *grabeller*, to sift, to examine nearly; Sp. *garbillár*, to sift, *garbillo*, a coarse sieve; Ar. *gharbil*, a sieve.] To pick out or separate such parts from a whole as may serve a purpose; to destroy or mutilate by picking out; as, a *garbled* version of a story.

Gar'bler, *n.* One who garbles; one who picks out or selects to serve a purpose; as, a *garbler* of quotations.

Gar'bles, *n. pl.* The dusty refuse matter of drugs, spices, &c.

Gar'board, Gar'bel, *n.* (*Naut.*) The first plank fastened on the outside of a ship's keel.

Gar'board-strake, *n.* (*Naut.*) The strake of plank in the bottom that is wrought into the rabbet of the keel of a ship.

Garcia River, (*gar-see'a.*) in *California*, enters the Pacific Ocean from Mendocino co.

Gar'cias, Lasso, or Garcilaso de la Vega, called the Prince of Spanish Poets, b. at Toledo, in 1503. He was early distinguished for his wit and fancy, wrote several pathetic pastorals and sonnets, and did much towards uprooting that taste for bombast, which, at the period in which he flourished, disfigured the productions of his countrymen. *G.* followed the profession of arms, and attended Charles V. in many of his expeditions, and fell in battle, in 1536.

Garcila'so de la Vega, surnamed The Inca, because by his mother's side he was descended from the royal family of Peru, was b. at Cuzco, in that country, in 1530. Philip II., dreading the influence of *G.* among the natives, summoned him to Spain, where he d. He wrote a *History of Peru*, and also a *History of Florida*.

Garcinia, (*gar-sin'e-ă.*) *n.* [In honor of Dr. *Garcin*, an Oriental traveller.] (*Bot.*) A genus of the order *Guttiferæ*. The species *G. mangortana*, a native of Malacca, produces the Mangosteen, which is reputed to be the most delicious of all fruits. *G. cornea*, *kydiana*, and *pedunculata* yield fruits of a similar character, but much inferior. The seeds of *G. purpurea*, upon being boiled in water, yield a concrete oil called *kokum butter*, or oil of mangosteen. It is very useful as an application to chapped hands, and has been recently imported into this country. One or more species of this genus are supposed to yield our commercial and officinal gamboge, which is brought from Siam in cylinders, either solid or hollow, and in large cakes or amorphous masses. The pipe, or roll gamboge, is the finest kind. In medicine, gamboge is used as an active hydragogue and drastic purgative. In over-doses it acts as an acrid poison. In the arts it is much employed as a water-color, and to give a golden tint to lacquer-varnish for brass-work.

Gard, a dept. of France, in the S. part of that country, formerly comprised in the prov. Languedoc; between Lat. 43° 27′ and 44° 27′ N., and Lon. 3° 17′ and 4° 50′ E.; having N. the depts. Lozère and Ardèche; E. the Rhone, separating it from Vaucluse and Bouches-du-Rhone; W. Aveyron; and S. Hérault, the Mediterranean, and the Isle de Camargne. *Area*, 583,556 hectares. *Desc.* The N. and W. parts are occupied by ramifications of the Cevennes range, the general slope of the dept. being from N.W. to S.E., in which latter part of its surface there is a considerable extent of level country, with numerous and extensive pools and marshes. *Rivers.* Gard, Cèze, Vidourle. *Clim.* For the most part hot and dry, with occasional *siroccos*. *Soil.* fertile. *Prod.* Cereals, potatoes, chestnuts, wine, and fruits. The mulberry is largely cultivated. Much wool is produced. *Min.* Iron and coal are abundant; argentiferous lead, antimony, zinc, and great quantities of salt are obtained from the salt marshes on the coast. *Manuf.* Silk, cotton, and woollen fabrics, hats, paper, brandy, leather, glass, earthenware, &c. *Chief towns.* Nîmes (the cap.), Alais, Uzès, and Le Vigan. *Pop.* (1895) 421,650.

Gard, or **Gard'on,** a river of France, which traverses the centre of the dept. Gard, and after a course of 55 m. falls into the Rhone, 5 m. from Tarascon.

Gard, (Pont du,) in France. See Aqueduct.

Garda, (Lake of.) (anc. *Lacus Benacus.*) a famous lake of N. Italy, bounded by the provs. of Mantua, Brescia, and Verona, and the circle of Roveredo in the Tyrol. From Peschiera at its S.E. extremity (15 m. W. of Verona) it stretches N.N.E. to Riva, a distance of abt. 35 m. Its lower or S. portion is abt. 12 m. across where broadest; but its upper or N. portion is not more than from 3 to 4 m. across. It is everywhere enclosed by ramifications of the Alps, except on the S., where the luxuriant plain presents a striking contrast to the magnificent mountain scenery that closes round its upper waters. The surface of this lake is at an elevation of abt. 320 ft. above the Mediterranean: it is generally deep; its waters are remarkably pure and limpid; and it is well stocked with fish. Its surplus waters are carried off by the Mincio, which issues from it at Peschiera. A great number of towns, villages, &c., are built upon its banks, of which the principal, besides Peschiera, are Desenzano, Salo, Gargano, Riva, and Garda. The greater number of these places have safe and commodious harbors, and a good deal of trade is carried on upon the lake.

Gardai'a, or **Ghardei'a,** a walled town of Algeria, in the Sahara desert. *Manuf.* Woollen stuffs, fire-arms, and gunpowder. *Pop.* Unascertained. Lat. 31° 58′ N., Lon. 2° 50′ E.

Gard'ant, *a.* [From Fr. *garder.*] (*Her.*) Applied to an animal when represented full-faced, and looking forward. — See Passant-Gardant.

Gardelegen, a town of Prussian Saxony, 30 m. N.N.W. of Magdeburg. *Pop.* abt. 6,500.

Garde Nationale. [Fr.] See National Guard.

Garden, (*gär'dn,*) *n.* [Ger. *garten;* Dan. *giärde;* A. S. *geard;* Fr. *jardin.*] A piece of ground enclosed and appropriated to the cultivation of herbs and plants, fruits and flowers.

—A rich, fruitful, well-cultivated spot or tract of country; a delightful place.

"I am arrived from fruitful Lombardy,
The pleasant *garden* of great Italy."— *Shaks.*

Kitchen garden, a garden devoted to the cultivation and production of vegetables, herbs, &c., for kitchen-use.

—*v. n.* To lay out a garden; to cultivate a garden; to labor at gardening; to practise floriculture, horticulture, &c.

—*v. a.* To cultivate, as a garden.

Gar'den-engine, *n.* An apparatus used for watering gardens.

Gardener, (*gär'dn-er,*) *n.* One who gardens; one whose occupation is to lay out, tend, and dress a garden; a horticulturist.

Gar'den-house, *n.* An arbor; a summer-house.

—A privy; a necessary. (Used in the Southern States of the Union.)

Gardenia, *n.* (*Bot.*) A gen. of the ord. *Cinchonaceæ*. From the fruits of *G. grandiflora*, *florida*, and *radicans*, beautiful yellow dyes are prepared, which are extensively used in China and Japan. Many species are favorites in our green-houses and hot-houses, on account of their beautiful and fragrant flowers. The corolla is funnel-shaped, the tube much larger than the calyx. The fruit is a berry crowned with the calyx. The genus was named after Dr. Garden, of Charleston, South Carolina, who corresponded with Linnæus.

Gar'dening, *n.* The act of laying out and cultivating pieces of ground, generally of limited extent, and inclosed for the purpose of rearing vegetables, fruits, and flowers. As an art of design or taste, gardening is of very ancient date, and with the exception of certain modern improvements, such as glass-houses, &c., was in a high state of perfection two thousand years ago. The earliest gardens of which there is any account are those of Solomon, which are described as having been of quadrangular form, surrounded by high walls. They contained aviaries, wells, and streams of water. The gardens of Cyrus and other Persian monarchs were of great extent, and generally laid out in romantic situations. They were also distinguished for the great diversity of their uses and products. The first allusion to terraces in gardens is to be found in the description of the celebrated hanging gardens of Babylon. Although Herodotus and others do not mention it in their descriptions, there is little doubt that these terraces were decorated with vases, parapets, &c. Most of the elements of a modern architectural garden are alluded to in connection with those of Babylon. The terraces are described as being furnished with groves, containing fountains, seats, parterres, and banqueting-rooms, and as combining the minute beauties of flowers and foliage with masses of light and shade and extensive prospects. The grove of Orontes, described by Strabo, must be regarded as a park or large garden in the picturesque style: it was nine miles in circumference. In ancient Greece, gardening was rather a neglected art at first, but in process of time great advance was made. The vale of Tempé, the Academus at Athens, and other public gardens, were extremely elegant, and were ornamented with temples, altars, tombs, statues, monuments, and towers. On account of the nature of the climate, the chief qualities required in a garden were shade, coolness, fresh breezes, fragrance, and repose. The Greeks copied their gardening from the Persians; and the Romans, in their turn, copied that of the Greeks. Little is known of the early style of Roman gardening: the vast edifices projecting into the sea, and the immense artificial elevations, are apparently ridiculed by Cicero and Varro. About this time, however, the cultivation of odoriferous trees and plants began to be attended to; and the planting of trees adjoining each other, whose odors assimilated, was then as much a study with the gardener as the harmonious blending of colors at the present day. The early French and Dutch styles of gardening were evidently adopted from the description of Pliny's garden. On this subject Loudon remarks: "The terraces adjoining the house, the lawn declining from thence, the little flower-garden with the fountain in the centre, the walks bordered with box, and the trees sheared into whimsical artificial forms — together with the fountains, alcoves, and summer-houses, form a resemblance too striking to bear dispute." The use of glass in the construction of conservatories was early known to the Greeks and Romans: and the "Gardens of Adonis," mentioned by some of their most eminent authors, were probably of this kind. It is said that in them were to be seen rare trees from India and China, the myrtle and crocus in flower, and the cinnamon and frankincense trees covered with leaves. Cucumbers were also grown there all the year round. The use of hot water in forcing vegetables was also employed at the same time. Gardening, like all the other arts, languished during the dark ages, but with the revival of learning, the invention of printing, and the Reformation, it began again to flourish. The art was revived and patronized by the family of the Medici in Italy; and their gardens, which were of the geometric and architectural style, long served as models for most of Europe. It continued to be imitated in France, Germany, and Britain, until the introduction of the English or natural style. In garden architecture very little progress, as far as hot-houses are concerned, has been made in the south of Europe, the warmth of the climate rendering them all but useless. There are, however, plant-houses in many places in Spain and Portugal. The French and Dutch styles of gardening resemble each other closely: symmetry and profuse ornament are the characteristics of both. The Dutch style is eminently adapted to the nature of the country, where there are no inequalities of surface as in England. The French style seems to have arisen about the middle of the 17th century, during the reign of Louis XIV. The most celebrated gardener of the period was Le Nôtre, who laid out the famous gardens of Versailles. Le Nôtre's style spread rapidly into other countries, and was extensively adopted in this country. The first erection of hot-houses in France occurred toward the end of the reign of Louis XIV., by M. Fagon, in the Jardin des Plantes. The first magnificent attempt at hot-house building was that of Francis I., of Austria, in 1753. They were in five ranges, extending altogether to the length of 1,290 feet, many of them being 30 feet high. From about 1760, landscape gardening, and the adoption of the English style, rapidly spread into France, Germany, and Russia, where it still prevails. The art of cultivating flowers and fruits in gardening will be found more particularly described under the art. Horticulture. See also Grafting, Green-house, Hot-house, Hot-bed, Stove, &c.

Gar'den, in *Ohio*, a post-office of Athens co.

Gar'den City, in *Minnesota*, a post-village of Blue Earth co., abt. 12 m. S.W. of Mankato.

Gar'den Cottage, in *Kentucky*, a P. O. of Pulaski co.

Gar'den Grove, in *Iowa*, a post-village and township of Decatur co., about 50 m. S. of Fort Des Moines. It has a flourishing academy.

Gar'den Island, or Buache, an island of W. Australia, co. of Perth, in the Indian Ocean, 5 m. from the mainland: length, from N. to S., about 5 miles; average breadth, 1 m.

Gar'denless, *a.* Not possessing a garden.

Gar'den-mould, *n.* Rich earth, or mould, fit and suitable for a garden.

Gar'den Plain, in *Illinois*, a post-village of Whiteside co., abt. 95 m. N.N.W. of Peoria.

Gar'den-plot, *n.* A plot formed when planting a garden.

Gar'den Prairie, in *Illinois*, a P. O. of Boone co.

Garden Prairie, in *South Dakota*, a township of Brown co.

Garden-stand, *n.* A stand for holding flower-pots in a garden.

Garden-stuff, *n.* A colloquialism for vegetables, herbs, etc., grown in a garden for culinary use.

Garden Valley, in *California*, a post-village of El Dorado co., about 11 miles N. of Placerville.

Garden Valley, in *Texas*, a P. O. of Smith co.

Garden Valley, in *Wisconsin*, a township of Jackson county.

Gard'enville, in *New York*, a post-office of Erie co.

Gardenville, in *Pennsylvania*, a P. O. of Bucks co.

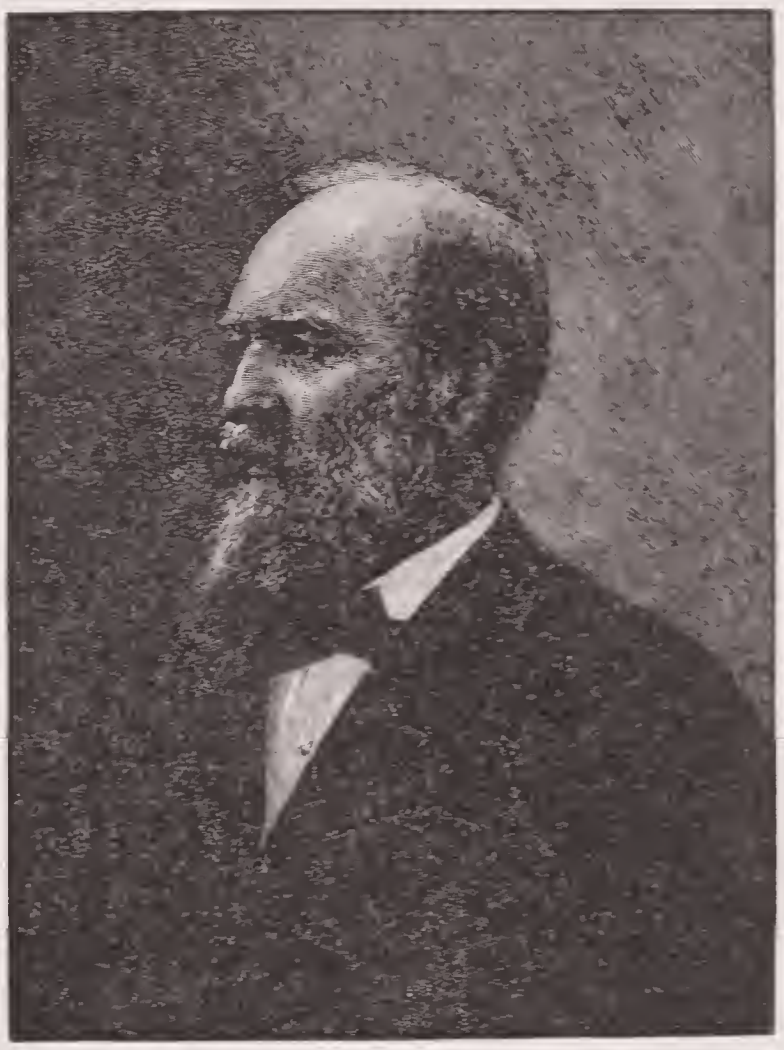
Gar'diner, Stephen, a celebrated English prelate and statesman, b. at Bury St. Edmund's, in Suffolk, 1483, was the illegitimate son of Dr. Woodville, bishop of Salisbury, and brother of Elizabeth, queen of Edward IV. He was educated at Trinity Hall, Cambridge; from whence he went into the family of the Duke of Norfolk, and afterwards into that of Cardinal Wolsey, who made him his secretary. In this situation he acquired the confidence of Henry VIII., to whom he was serviceable in procuring his divorce from Queen Catharine; he also defended the king's supremacy, and for these services he was appointed secretary of state, and soon after promoted to the see of Winchester. *G.* drew up articles accusing Henry's last queen, Catharine Parr, of heresy; but the queen avoided the storm, and he fell into disgrace. At the accession of Edward VI. he opposed the Reformation, and was committed first to the Fleet, and afterwards to the Tower, where he was a prisoner during the remainder of the reign. He was also deprived of his bishopric; but on the accession of Mary he was restored to his see, and appointed Chancellor of England. D. 1555. He was a learned man, but artful, dissembling, ambitious, and proud.

Gar'diner, in *Maine*, a city of Kennebec co., on the Cobbessecontee River, abt. 7 m. S. of Augusta. The river here has a succession of falls which afford considerable water-power. *Manuf.* Paper, woollen goods, flour, machinery, leather, lumber, &c. The city is well built, and has every facility for an extensive trade. *Pop.* (1897) about 5,950.

Gard'iner's Island, in *New York*, belongs to Suffolk co., and lies off the E. end of Long Island, from which it is separated by Gardiner's Bay. *Area*, about 4 square miles.

Gar'dyloo, *n.* [Fr. *gare l'eau*, beware of the water.] A common cry, in former days, of the dwellers in the high flats of the houses of Edinburgh, who were in the habit of throwing urine, slops, &c. out of the window.

Gar'field, James Abram, twentieth President of the U. States, b. in Cuyahoga co., Ohio, Nov. 19, 1831, graduated from Williams College, Mass., in 1856, and adopted the profession of law. In 1856–60 was a member of the Ohio Senate, in 1861 entered the army as Col. of the 42d O. Vol. In 1863 he was appointed Chief of Staff to Gen. Rosecrans, and was promoted to Major-General of Volunteers (Sept. 19, 1863). He resigned from the army to take his seat in the 38th Congress from Ohio, and continued to serve in Congress up to 1880, when he was elected Senator from Ohio. On June 8 of that year he was selected as the nominee of the Republican party for President of the U. S., and elected the following November. On July 2, 1881, he was shot in the back in the Potomac Railroad depot at Washington, by Charles J. Guiteau, a disappointed office-seeker, and died at Long Branch, Sept. 19, after a prolonged agony. The mourning of the nation was as spontaneous and universal as it was deep, and surpassed in its expression anything of the kind ever seen in America. The sympathy of foreign countries was also most profound. After a long protracted trial, and in spite of his claim that he was insane at the time he committed the crime, Guiteau was condemned, and hung June 30, 1882. Garfield was



James Abram Garfield

1831–1881

buried at Cleveland, Ohio, and his funeral cortége is said to have numbered over 100,000 followers.

Gar'-fish, *n.* (*Zoöl.*) The common name of *Bellona*, a gen. of abdominal Malacopterygious fishes, fam. *Scomberesocidæ*, including the Greenboue, Mackerel-guide, Sea-needle, &c. It generally precedes the mackerel in their annual visit to shallow water for the purpose of spawning. It is from 20 to 24 in. in length, with long, narrow, beak-like snout, the under jaw projecting; the teeth are numerous and minute, the eyes large; the dorsal and anal fins opposite each other; pectoral and ventral fins small; and the tail considerably forked. The upper part of the head and back is of a dark green hue, the sides paler, and the belly a silvery white. It is a very vivacious fish, and seizes the bait with avidity. The flesh of the *G.* has somewhat the flavor of mackerel, but is more dry; and the bones are green.



Fig. 1118. — GAR-FISH.

Gar'galize, *v. a.* To gargle.

Gar'ganey, *n.* (*Zoöl.*) *Anas querquedula*, a species of duck.

Garga'no, a town of N. Italy, on the Lake of Garda, 24 m. from Brescia; *pop.* abt. 4,500.

Gar'garism, *n.* [Fr. *gargarisme*; Gr. *gargarismos.*] (*Med.*) A wash for the throat; a GARGLE, *q. v.*

Gar'garus, a mountain of Anatolia, in Asia Minor, 10 m. from Adramyti, forming the highest elevation in the Mt. Ida ridge. It may be divided into three zones; the first consisting of cultivated land, the second of forests, and the third of snow.

Gar'get, Gar'gut, *n.* A disease occurring in the udders of cows. — A distemper found among hogs, the symptoms of which are hanging down of the head, moist eyes, staggering, and loss of appetite. (Written also GARGOL).

Gar'gil, *n.* A distemper affecting the heads of geese.

Gargle, (*gär'gl,*) *v. a.* [Fr. *gargouiller*, to dabble, to paddle, from Lat. *gurgulio*, the gullet; Gr. *gargareōn*, formed from the sound.] To wash, as the throat and mouth, with a liquid preparation, which is kept from descending into the stomach by a gentle expiration of air.

—*n.* (*Med.*) A lotion or wash for the throat. It is used by taking a mouthful of the liquid, and then throwing back the head, by which it is passed into the throat, where, by expelling air from the lungs, it is agitated and made to wash all parts of the inner surface. Gargles are extremely useful in various diseases of the throat, and differ in their composition according to the purpose which they are intended to serve. In order to allay inflammation or reduce swelling, warm water with a little vinegar is the best that can be used. When a stimulating effect is required, a mixture of infusion of Peruvian bark, port wine, and tincture of capsicum, to promote suppuration, or barley-water and infusion of linseed used warm; and, as a pure astringent, a decoction of Peruvian bark, with alum or borax, will be found useful.

Gar'gol, *n.* A disease among swine. See GARGET.

Gar'goyle, Gur'goyle. [Fr. *gargouille.*] (*Arch.*) An ornamental spout projecting below the battlements of a tower or the parapets of a wall, through which the rain that falls on the roof is discharged at a little distance beyond the face of the wall. The gargoyle forms a striking feature in Gothic architecture, being frequently in the form of a dragon, or lion, or some heraldic monster, and sometimes a grotesque representation of the human face and figure. It was introduced to mask the unsightly appearance of a piece of leaden pipe sticking out of the wall, the pipe being passed through a block of stone, which was subsequently carved into a form corresponding to the general character of the architecture of the building.



Fig. 1119. — GARGOYLE.

Gar'gyle, *n.* (*Arch.*) See GARGOYLE.

Garibal'di, GIUSEPPE, an Italian partisan-general and patriot, was B. at Nice, of poor parents, July 4, 1807. Being fond of the sea, he made several voyages in early youth, and in 1832, becoming implicated with Mazzini in a conspiracy against Charles Albert, king of Sardinia, he was compelled to quit his country. Two years afterwards, he became again involved in political troubles, and was condemned to death in his absence for an attempt to subvert the existing government. He escaped to France, and landing at Marseilles, there signalized himself by his devoted attention to the patients of a cholera hospital, whom the nurses had deserted. Thence he sailed in an Egyptian corvette, and offered his services to the Bey of Tunis; but the life in that service not being stirring enough for his active and intrepid spirit, he sailed for South America, in 1836, and fought for the republic of Rio Grande, then at war with Brazil. *G.* commanded a vessel of 30 tons, with 16 men, and having been taken prisoner at Gualagnay, upon trying to escape, experienced the most cruel treatment. After effecting his liberation, he again fought for Rio Grande, and, attended by his devoted wife Anita, passed through the extremes of peril and privation. *G.* next commanded an Italian legion of 800 men against Rosas, Dictator of Buenos Ayres, and fought the battle of Salto Sant' Antonio. In 1847, on hearing of the elevation of Pius IX. to the Pontificate, *G.* offered his services to Charles Albert, and upon the latter's declining them, he transferred, in 1848, the offer to the Provisional Government then sitting in Rome. There he was received with enthusiasm, and distinguished himself in the very thickest of the struggle when that city was stormed by the French troops. On the entry of the latter, *G.* fled, hotly pursued by French and Austrian cavalry. During the terrible time which followed, *G.* was hunted down like a wild beast; he lost his brave wife, who sunk down by his side overcome with the terrors and hardships she had endured. *G.* eventually succeeded in making his escape to the U. States, where



Fig. 1120. — GARIBALDI.

he settled on Staten Island, N.Y., as a soap and candle manufacturer. In 1854 he visited England, and was presented with a sword of honor by the citizens of Newcastle-on-Tyne. He afterwards settled on the rocky island of Caprera, adjoining that of Sardinia, in the Mediterranean, where he commenced to practise the pursuits of agriculture and gardening with great success. On the breaking out of the war between France and Italy against Austria in 1859, which resulted in the cession of Lombardy and Venetia to Italy, *G.* organized a volunteer force of 17,000 men, called the *Cacciatori dell' Alpi* ("Chasseurs of the Alps"), with which he coöperated with the regular army of his countrymen, forming its flying column of tirailleurs. At the head of this force, *G.* fought in the battles of Varese, Camerlato, Como, Brescia, Magenta, Montebello, Solferino, &c. Next year (1860), *G.* fitted out a small expedition, with funds subscribed by his English admirers, and landing at Marsala, Sicily, in May, took Palermo, and after several engagements with the Neapolitan troops drove them out of the island. Following up his success, with a largely increased force, Gen. *G.* marched on to Gaëta, meeting there Victor Emanuel, whom he saluted as "King of Italy," and with him entered Naples in triumph. After the fall of Gaëta and Capua, and the full accomplishment of his great design in uniting Italy under one constitutional monarch, Gen. *G.*, refusing all honors and rewards, and poor as when he set out, returned to his humble island-home at Caprera. His insular retirement was not, however, of long duration. In 1862 he published at Palermo an inflammatory address to the Hungarian people, inciting them to revolt; Gen. Klapka, and others of his judicious friends, endeavored, but without success, to restrain him from what they well deemed to be a Quixotic enterprise. In August of that year, Gen. *G.*, at the head of a body of volunteers (including a number of enthusiastic Englishmen), crossed in two French steamers from Catania to Melita, a small port on the Calabrian coast. They were followed by a strong body of the royal troops under Col. Pallavicini, and were attacked on the mountain plateau of Aspromonte, when they surrendered, *G.* himself being severely wounded by a rifle-bullet in the ankle. He was conveyed to Spezia, where the bullet was extracted. The wound, however, continued a source of painful annoyance. Though guilty of *de facto* treason, he was pardoned by the king on account of his eminent services in the cause of Italian independence in 1860, and returned to Caprera. In 1864, Gen. *G.* visited London, where he received an ovation from the people which almost amounted to delirium. During the Austro-Prussian campaign of 1866, *G.* again took the field, was engaged in operations in the Tyrol, sustained a severe repulse from the Austrians, July 22, and retired upon the Soro. This reverse he retrieved next day, and was preparing to advance when the war was brought to a close. In 1867, a body of Italian volunteers, under *G.*'s command, set out on an expedition to effect the liberation of Rome, were defeated by the combined forces of the French and Papal troops at Mentana, Nov. 3. *G.* took part with the French in the Franco-Prussian war, and was given commaud of the Army of the Vosges. He published, in 1869, *The Rule of the Monk*, a novel, and in 1875 was elected to the Italian Parliament, and took an active part in introducing a plan for the irrigation of the Campagna. The latter years of his life, owing to failing health, were mostly passed in retirement at Caprera, devoting himself, like another Cincinnatus, to the cultivation of his farm. Here he died, June 2d, 1882. His last public appearance was at Palermo, Sicily, where he participated in the sixth centennial of the Sicilian Vespers.

Gariep, (*ga-rēēp',*) in S. Africa. See ORANGE RIVER.

Garigliano, (*ga-rēēl-ya'no,*) a riv. of Italy, after a course of 75 m. falls into the Mediterranean, 10 m. from Gaëta.

Gar'ish, *a.* [See GAIRISH.] Showy; glaring; dazzling; ostentatious in light and color; as, "the *garish* sun." (*Shaks.*)—Flighty; extravagantly gay.

Gar'ishness, *n.* State or quality of being garish.

Gar'land, *n.* [Fr. *guirlande*; It. *ghirlanda*; Sp. *guirnalda*, from Lat. *gyros*, a circle; Gr. *guros*, a ring, a circle.] A circle, wreath, or chaplet, made of branches of flowers; a coronal; an ornament of flowers, fruits, and leaves intermixed.

"The sweetest *garland* to the sweetest maid."—*Tickell.*

—The top; the principal part; the thing most prized. (*Arch.*) A sculptured representation of a wreath or coronal.

—A collection of little printed pieces of prose or verse; an anthology; as "The Truelover's *Garland.*" (*Naut.*) A netted bag with a hoop to widen its mouth, used by sailors as a receptacle for provisions.—A grommet or lashing for a mast.

—*v. a.* To deck or crown with a garland or wreath.

Gar'land, in *Maine*, a post-township of Penobscot co., 75 m. N. N. E. of Augusta. *Pop.* (1897) about 1,000.

Gar'land, in *Pa.*, a post-village of Warren co.

Garlandless, *a.* Having no garland,

Gar'lasco, a town of N. Italy, in Piedmont, 24 m. S.E. of Novara. Near this place the Austrians crossed the Po, when invading Italy in 1849.

Gar'lic, *n.* [A.S. *garlic*, or *garleac*—*gar*, a lance, and *leac*, a leek.] (*Bot.*) See ALLIUM.

Gar'lic, (Oil of,) *n.* (*Chem.*) See ALLYL.

Gar'licky, *a.* Having the nature of garlic; containing garlic.

Gar'lic-pear'tree, *n.* (*Bot.*) The *Crataeva gynandra*, a S. American tree of the order *Capparidaceæ*, q. v. The bark of its root blisters like cantharides.

Gar'liestown, a seaport of Scotland, co. Wigtown, at the head of a small bay, W. coast of Wigtown Bay; *pop.* 1,100.

Gar'mana, or **Garom'na,** an island off the coast of Galway, Ireland, about 6 m. N.E. of S. Arran Isles.

Gar'man's Mills, in *Pennsylvania*, a post-office of Cambria co.

Gar'ment, *n.* [O. Fr. *garnement*; Fr. *garniment*—*garnir*, to deck, to furnish.] Any article of clothing, as a coat, gown, &c.

—*pl.* Clothing in general; as, cast-off *garments.*

Gar'mented, *a.* Wearing a garment. (R.)

Gar'mouth, a seaport of Scotland, co. Moray, at the mouth of the Spey, 35 m. N.W. of Aberdeen, and 7 N.E. of Elgin; *pop.* 897.

Garnavil'lo, or **Gar'naville,** in *Iowa*, a post-township of Clayton co., about 45 m. N. W. of Dubuque.

Gar'ner, *n.* [Fr. *grenier*; Lat. *granaria*, a place where corn is kept, from *granum*, a grain, a small kernel: Sp. *granéro.* See GRANARY.] A granary; a place for storing grain.

—*v. a.* To store for preservation, as in a garner or granary.

Gar'net, *n.* [Fr. *grenat*; It. *granata*, from the resemblance of its small red crystals to the seeds of the pomegranate.] (*Min.*) A mineral, of which there are several varieties, all of which are silicates of different bases. Crystals, rhombic dodecahedra. Lustre, vitreous. Color, red, brown, yellow, white, green, black, varying with the compositions. The following varieties or sub-species are named: Grossularite (*q. v.*), or lime-alumina *G.*; Pyrope (*q. v.*), or magnesia-alumina *G.*; Almandite (*q. v.*), or iron-alumina *G.*; Spessartite (*q. v.*), or manganese-alumina *G.*; Andradite, or lime-iron *G.*; Bredbergite, or lime-magnesia *G.*; and Ouvarovite (*q. v.*), or lime-chrome *G. Sp. gr.* 3·15–4·3. In jewelry, the lighter, clear garnets are often called *hyacinths.* The deep and



Fig. 1121. — GARNET.

1, a detached crystal; 2, portion of rock with imbedded crystals.

clear red, like Burgundy wine in shade, is the true precious *G.*, which is either pyrope or almandite. The Latin name *carbunculus*, from *carbo*, coal, alludes to the internal fire-like color and reflection. *G.* is found very common in mica-schist, gneiss, chlorite-schist, syenitic gneiss, and hornblende. Also in granite, syenite, and sometimes in other rocks. *G.* occurs in many localities in this country. Pulverized *G.* is sometimes used as a substitute for emery for cutting gems and polishing metals and stone. See CARBUNCLE, CINNAMON-STONE. The mineral leucite (*q. v.*) is sometimes called *white G.* The *G.* can be produced artificially.

(*Naut.*) On shipboard, a tackle depending from the mainstay, used in the hoisting in and out of the cargo.

Garnetif'erous, *a.* Productive of garnets.

Gar'netsville, in *Ky.*, a post-village of Meade co.

Gar'nett, in *Kansas*, a city, cap. of Anderson co., on the A., T. & S. F. and Mo. Pac. R. Rs., 50 m. S. of Lawrence. *Pop.* (1895) 2,145.

Gar'nier-Pagès, LOUIS ANTOINE, a French politician and historian, B. 1803. He was a commission-agent in Paris when the revolution of July, 1830, broke out, and played a conspicuous part at the barricades. Being subsequently elected a deputy, he took his seat in the Chamber on the "Left," occupying himself chiefly with financial and commercial subjects. *G.-P.* was one of the leaders in the organization of the reform banquets, which preceded the revolution of 1848, at which time he was appointed Mayor of Paris, and was Minister of Finance under the Provisional government. In the latter capacity he had to deal with a financial crisis, and introduced several important reforms; among others, the system of bonded warehouses and dock-warrants. He was elected a member of the Executive Commission, and of the Legislative Assembly in 1864. *G.-P.* is the author of *L'Histoire de la Revolution de* 1848, 8 vols. pub. in 1860–2, and a continuation in 1867. D. 1878.

Gar'nish, *v. a.* [Fr. *garnir*, to equip with necessaries; It. *guarnire*, to furnish; allied to A. S. *gearwian*, to prepare. See GEAR.] To adorn; to decorate with appendages; to set off with accessories; to embellish.

"All the streets were *garnished* with the citizens in their liveries." *Bacon.*

—To ornament or embellish, as a dish with something encircling it; as, a turkey *garnished* with sausages. — To furnish, as a fortified position with troops. — To equip with fetters. (Used in an ironical sense.)

—*n.* Ornament; decoration; adventitious embellishment.

"So are you sweet
Ev'n in the lovely *garnish* of a boy."—*Shaks.*

(*Cookery.*) Trimmings, &c., strewed round or upon a dish as a decoration or embellishment.

—Fetters. — An entrance-fee paid by a prisoner on first entering a jail to those already incarcerated, by way of premium of admission into the fraternity. (Cant.)

Garnishee', *n.* (*Law.*) A person who has money or property in his possession belonging to a defendant, which money or property has been attached in his hands, and who has had notice of such attachment; he is so called because he has had warning or notice of the attachment. From the time of the notice, the *G.* is bound to keep the property in his hands, to answer the plaintiff's claim, until the attachment is dissolved, or he is otherwise discharged.

Gar'nishment, *n.* Ornament; embellishment; as, "*garnishment* of sculpture." (*Sir H. Wotton.*) — A fee.

(*Law.*) A warning to any one for his appearance, in a cause in which he is not a party, for the information of the court and explaining a cause. For example, in the practice of Pennsylvania, when an attachment issues against a debtor, in order to secure to the plaintiff a claim due by a third person to such debtor, notice is given to such third person, which notice is a *G.*, and he is called the garnishee.

Gar'niture, *n.* [Fr., from *garnir.*] Decorative accessories; ornamental appendages; embellishment; furniture; equipment; dress.

"Plain sense without the *garniture* of show."—*Granville.*

Garo'ga, in *New York*, a post-village and township of Fulton co., about 40 m. E. of Utica. *Manuf.* Flour and lumber.

—A small lake in Fulton co.

Garoga Creek, in *New York*, enters the Mohawk River in Fulton co., near Fort Plain.

Gar'on, GAR'RON, or GER'ON, a promontory of Ireland, in co. Antrim, Ulster, extending into the Irish Sea, between Glenarm and Red bays, abt. 6 m. N. of Glenarm.

Garonne, (*ga-ron'*,) one of the largest rivers of France, rising in the Spanish Pyrenees, near Mt. Maladetta, takes, at first, a N.E. course as far as Toulouse, from which city it flows generally N.W. to its month (or rather the mouth of its æstuary, which bears the name of the Gironde), in the Bay of Biscay, about 55 m. N.N.W. of Bordeaux, and 130 S.S.E. of the mouth of the Loire. The entire length of its course, including the Gironde, is estimated at about 350 m., nearly 294 of which are navigable. It receives some considerable tributaries, as the Tarn, the Lot, the Dordogne, the Save, Gers, Gimone, &c. Toulouse, Agen, and Bordeaux are situated on the *G.*, which is connected with the Mediterranean by the Canal du Midi.

Garonne, (Haute,) a dep. of France, region S., formerly comprised in the prov. Languedoc, between Lat. 42° 40′ and 43° 55′ N., and Lon. 0° 27′ and 2° 3′ W., having N. the dept. Tarn-et-Garonne, E. those of Tarn and Aude, S.E. Ariège, W. Gers and Hautes-Pyrénées. *Area*, 628,988 hectares. *Surface.* Its S.W. portion is covered with lofty mountains, the highest of which, Monte Maladetta, is 11,190 feet above the level of the sea, and among which there are numerous glaciers. In the N.E. there are some plains of considerable importance. *Rivers.* The Garonne, Tarn, Ariège, and Salat. *Clim.* Temperate. *Soil.* Highly fertile. *Prod.* This is essentially an agricultural dept., and is esteemed one of the most productive of grain; large quantities of wine are made annually. Near Toulouse, corn-fields, vineyards, gardens, and country-houses occupy every inch of land, and the appearance of the country-people bespeaks health and happiness. *Min.* Iron, copper, antimony, bismuth, zinc, and lead; valuable marble quarries are also worked. Mineral springs are numerous; among which may be mentioned those of Bagnères de Luchon. *Manuf.* Hardware, coarse woollens, cotton and woollen fabrics, leather, sail-cloth, watches, hats, and mathematical instruments. *Chief towns.* Toulouse (the cap.), Muret, St. Gaudens, and Villefranche. *Pop.* 532,489.



Fig. 1122.—THE CAPITOL, (TOULOUSE.)

Garoo', a trading station of the Chinese empire, near a source of the Indus, 16,000 feet above sea-level; Lat. 31° 40′ N., Lon. 80° E. Here an active commerce is carried on in exchanging Chinese and Thibetan commodities for those of India and Cashmere.

Garook'uh, *n.* A fishing-vessel employed in the Persian Gulf.

Garon'pas. See PORTO BELLO.

Gar'ous, *a.* [From Lat. *garum.*] Pertaining to garum; resembling pickle made of fish; as, "a *garous* excretion." — *Browne.*

Gar'-pike, *n.* (*Zoöl.*) See SAURIDÆ.

Gar'ran, Gar'ron, *n.* [Gael. and Ir. *garran.*] A small horse; a galloway.

Gar'rard, in *Kentucky*, an E. central co.; *area*, about 250 sq. m. *Rivers.* Kentucky and Dick's rivers, and Paint Lick Creek. *Surface*, undulating; *soil*, fertile. *Cap.* Lancaster.

Garrard's Fort, in *Pennsylvania*, a vill. of Greene co.

Gar'rattsville, in *New York*, a post-village of Otsego co., about 85 m. W. of Albany.

Gar'ret, *n.* [Scot.; O. Fr. *garite*, a place of refuge, a little lodge for a sentinel, built on high; from *garer*, to beware, to take heed of.] That part of a house which is on the upper floor, immediately under the roof; an apartment in the highest story of a house; an attic.

"Born in the *garret*, in the kitchen bred."—*Byron.*

Garreteer', *n.* An inhabitant of a garret; — hence, a poor author; a literary hack, (from such being formerly accustomed to sleep in garrets.)

Gar'reting, *n.* (*Building.*) Small splinters of stone inserted in the joints of coarse masonry; they are stuck in after the work is built. Flint walls are very frequently filled up with garreting.

Gar'rett, in *Kentucky*, a post-office of Meade co.

Gar'rettsburg, in *Kentucky*, a post-village of Christian co., about 214 m. W.S.W. of Frankfort.

Gar'rettsville, in *Ohio*, a post-village of Portage co., on the Mahoning River, about 37 m. S.E. of Cleveland. *Manuf.* Quite extensive, iron, carriages, &c.

Gar'rick, DAVID, the most celebrated actor that has ever appeared on the English stage, was descended from a French family, who, being Protestants, fled to England on the revocation of the Edict of Nantes. His father, Peter Garrick, was a captain in the army, and generally resided at Lichfield; but being on a recruiting party at Hereford, *G.* was B. there in 1716. He received his education partly at the grammar-school at Lichfield, and partly under Dr. Johnson, with whom he first came to London in 1736, and prepared himself for the study of the law. The death of his father, however, disturbed



Fig. 1123. — GARRICK.

this arrangement; and having been left $5000 by his uncle, he went into partnership with his brother in the wine-trade. A love for the stage had long been deeply rooted in his mind, and, abandoning the wine-trade, he resolved on being an actor. His first attempt was at Ipswich in 1741, under the assumed name of *Lyddal;* and the applause he met with induced him to make his appearance at the theatre Goodman's Fields, in the character of Richard III. The effect of this was immediate and decisive. The other theatres were quickly deserted, and Goodman's Fields became the resort of people of fashion, till that theatre was shut up. *G.* then formed an engagement with Fleetwood, the lessee of Drury Lane Theatre. The remainder of his career was a long and uninterrupted series of successes until its close, which took place in 1776, when he determined upon retirement, and sold his moiety of the concern for $185,000. The last part which he performed was "Don Felix," in *The Wonder*, for the benefit of the Theatrical Fund. At the conclusion of the play, he addressed a brief farewell to the audience. The general feeling with which this was delivered and received rendered it truly impressive; and few persons ever quitted the stage amid plaudits so loud and unanimous. In 1769 he projected and carried into effect the famous Stratford Jubilee, a striking proof of his enthusiasm for Shakspeare. It occupied three days there, and its representation at the theatre lasted for 92 nights. This great actor D. Jan. 20th, 1779, his remains being interred with great pomp in Westminster Abbey. As an actor, *G.* seems never to have been equalled for truth, nature, variety, and facility of expression, though perhaps surpassed by some of his contemporaries in the enunciation of calm, sentimental eloquence. He wrote, or adapted for the stage, nearly 40 pieces, besides producing a great number of prologues and epilogues. The style of acting introduced by *G.* was the very opposite of that formal declamation practised before his time; it was natural, vigorous, and impassioned; the plays of Shakspeare grew into greater repute; and a reform both in the conduct and license of the drama, favorable to his taste and genius, was effected by his example. There is a fine portrait of *G.*, painted by Pine, in the National Portrait Gallery, London. His correspondence was published with a memoir in 1831.

Gar'rison, WILLIAM LLOYD, an American philanthropist, B. Dec. 12, 1804, in Newburyport, Mass. *G.* was early put to service, as errand-boy and cabinet-maker's apprentice, but first found his true vocation on entering into a printing-office in his native town. At the age of 17 he wrote anonymously for the paper on which he worked, and at 22 owned and edited the "Free Press," and, upon that failing, edited in Boston the first paper ever devoted to total abstinence, and at Bennington, Vt., a semi-political, semi-reformatory paper. In 1829 he was persuaded by Benj. Lundy to join him in editing in Baltimore the "Genius of Universal Emancipation." Here, for an article on the domestic slave-trade, he was prosecuted for libel, and, upon conviction, imprisoned till a friend paid his fine. Removing to Boston, he founded the "Liberator," (weekly,) in Jan., 1833, and continued to edit it to its close in Dec., 1865. In this paper he advocated not only immediate and unconditional emancipation, but also other reforms, such as peace, temperance, woman's suffrage, abrogation of capital punishment, and religious freedom. In Jan., 1833, he assisted in founding the "New England (afterwards Massachusetts) Anti-Slavery Society," and, in 1838, the "American:" of which latter he was president almost from the first to his withdrawal from the society in 1865. From these sprung numerous other societies, until the Abolitionists became an appreciable and formidable body, though acting wholly outside of politics. The doctrines of the "Liberator" caused great excitement at the South, and, in Dec., 1831, the Georgia legislature offered $5,000 for the apprehension of the editor or publisher. In Oct., 1835, *G.* was mobbed at a public meeting in Boston, by "gentlemen of property and standing." Partly stripped, and with a rope about his middle, he was with difficulty rescued by the authorities, and lodged in jail for safety. *G.* foresaw the inevitable fate of slavery in the civil war, and celebrated its downfall on the ruins of Fort Sumter, and among the freed people of Charleston. In 1832, 1840, 1846 he visited England as a representative Abolitionist, and again in 1867 for his health, which was much impaired. On this last occasion he was fêted by the most eminent Englishmen, and presented with the freedom of the city of Edinburgh. His collected writings consist of *Thoughts on African Colonization*, published in 1832; *Sonnets and Other Poems*, (1843,) and *Selections*, chiefly prose, (1852.) D. 1879.

Garrison, (*găr're-sn,*) *n.* [Fr. *garnison*, from the low Lat. *garnisio*, ammunition, military stores.] (*Mil.*) A body of troops stationed in any town or fortified place, either to defend the position against an enemy, to keep the inhabitants under subjection, or merely to be subsisted. By military writers, the term garrison is generally applied to a fort or fortress, to the body of troops or guard placed in a citadel, or to any troop of soldiers quartered in a town.

In garrison, quartered as a garrison; performing duty as one of a garrison.

—*v. a.* (*Mil.*) To place troops in a fortress for its defence; to furnish with soldiers, as a town: to secure or defend by fortresses manned with troops; as, to *garrison* a conquered country.

"Others *garrison* the conquests near the Rhine."—*Dryden.*

Gar'rison's, in *New York*, a P. O. of Putnam co.

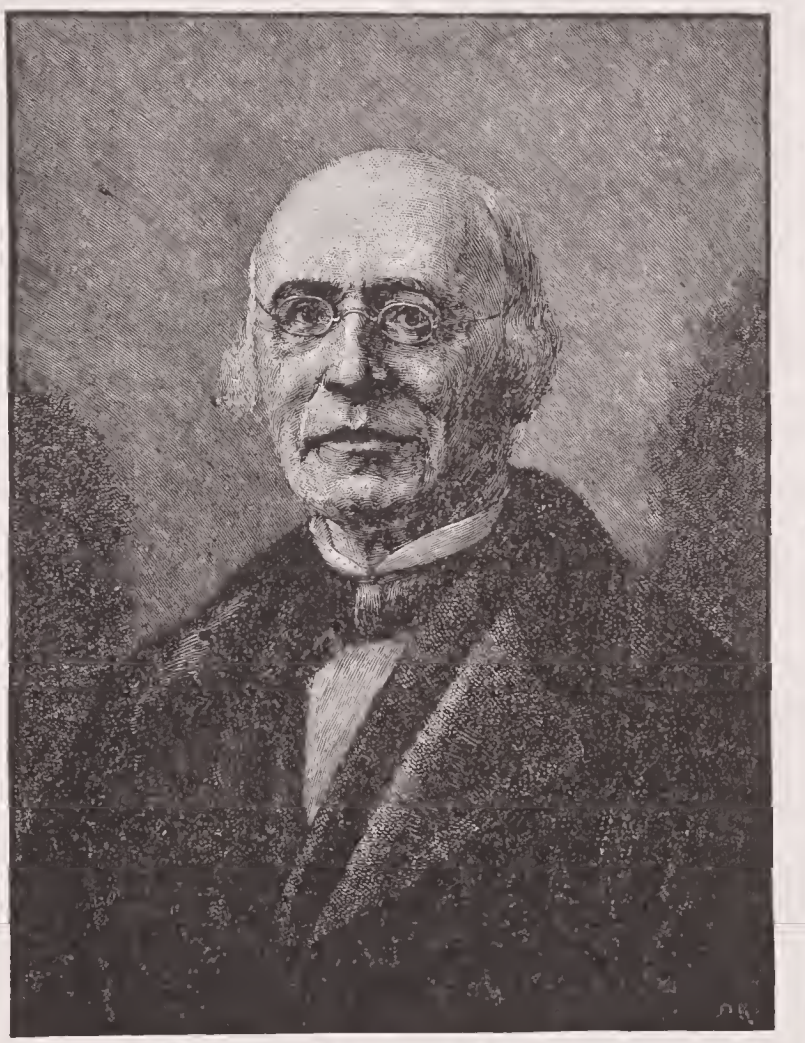
Gar'risonville, in *Virginia*, a P. O. of Stafford co.

Gar'ron, *n.* See GARRAN.

Gar'ron, in Ireland. See GARON.

Gar'rot, *n.* [Fr.] (*Surg.*) A compressing bandage, tightened by twisting a small cylinder of wood, by which the arteries of a limb are compressed, for the purpose of suspending the flow of blood in cases of hemorrhage, aneurism, amputation, &c.

(*Zoöl.*) A genus of the Duck family, widely distributed over the colder and temperate regions of both America and Europe. The head is large, compressed, rounded above; bill shorter than the head, higher than broad at the base; neck short and thick; body ovate and depressed; eyes small; legs very short, and placed



William Lloyd Garrison

1804–1879

tar behind; hind-toe lobed. They breed in the colder regious of Europe and America, returning to more temperate climes in winter. They haunt rivers, lakes, æstuaries, and feed chiefly on mollusca, and also on larvæ, crustacea, and sometimes small fish, for which they dive.

Gar'rote, (sometimes written GAROTTE,) *n.* [Sp. *garóte*, a cudgel, a post, or stake.] A mode of capital punishment in Spain, by seating the criminal on a stool, with his back to a stake, placing an iron collar about his neck, and tightening it with a screw until life is extinct.

—*v. a.* To effect strangulation by means of a garrote;—hence to seize one by the throat from behind, with an intent to rob, by a partial or entire strangling of the victim.

Garrote, *(gar-ro'ta,)* in *California*, a post-village of Tuolumne co., abt. 17 m. S.E. of Sonora.

Gar'roter, (sometimes written GAROTTER,) *n.* One who seizes a person from behind with an intent to render him unconscious by semi-strangulation, and then rob him.

Gar'row Mountains, a range of Farther India, surrounded by Bengal, Assam, and Jynteah; height from 3,000 to 4,000 feet. It is inhabited by an independent people, who carry their surplus produce into Bengal.

Garru'lity, *n.* [Lat. *garrulitas — garrulus, garrio*, to chatter, to talk; probably from Gr. *gēryō, garyō*, to speak, to cry; Sansk. root *gri*, to sound, to cry.] Talkativeness; loquacity; practice or habit of being garrulous or talking much.

Gar'rulous, *a.* [Lat. *garrulus.*] Talkative; loquacious; prone to practise and indulge in prosy talk, with frequent repetitions; as, *garrulous* old age.

Gar'rulously, *adv.* In a garrulous, talkative manner.

Gar'rulousness, *n.* Loquacity; talkativeness; incessant prattling.

Gar'ry, a river in Scotland, co. Perth, joining the Tummel after a course of 20 miles. It is celebrated for its picturesque scenery, and the poet Hogg (the "Ettrick Shepherd") speaks of it in his beautiful song of *Bonnie Prince Charlie*, thus:

"Came ye by Athol, lad, wi' the philaheg,
Down by the Tummel, or banks o' the *Garry*."

Garrya'ceæ, *n. pl.* (*Bot.*) The *Garrya* fam., a small ord. of plants, alliance *Garryales*. There are but two genera, which include six species, all shrubs found in this country or in the West Indies. Nothing is known of their properties.

Garrya'les, *n. pl.* (*Bot.*) A small alliance of plants of the sub-class *Diclinous exogens*. DIAG. Monochlamydeous, sometimes amentaceous flowers; inferior fruit; and a minute embryo lying in a large quantity of albumen. This alliance is divided into the two orders *Garryaceæ* and *Helwingiaceæ*.

Gar'ry Island, an island of British N. America, on the Arctic Ocean, off the mouth of Mackenzie River; Lat. 69° 30′ N., Lon. 135° W.

Gar'ry Lake, a lake of British N. America, Lat. 66° N., Lon. 93° 30′ W.

Garry Owen, *(gar're-ōne,)* in Ireland, a locality in co. Limerick, whence the famous Irish national air of *Garry Owen* takes its name.

Gar'ry Owen, in *Iowa*, a post-village of Jackson co., abt. 15 m. S of Dubuque.

Gar'rysburg, in *N. Carolina*, a post-village of Northampton co., abt. 8 m. N. of Weldon.

Gars'tang, a town of England, co. Lancaster, 12 m. from the town of Lancaster. *Manuf.* Calicoes, cottons, and worsted.

Gar'ter, *n.* [Fr. *jarretière — jarret*, ham, hough; W. *gardas, gardys*, from *gar*, the leg; Gael. *gartan*, a garter; Armor. *gïr*, or *garr*, the leg.] A band, string, or ligament used to tie a stocking to the leg, so as to prevent it from slipping down.

"Handsome *garters* at your knees." — *Swift.*

—The badge of the highest order of knighthood in Great Britain, called the *Order of the Garter*: also, the order itself; as, the blue ribbon of the *Garter*.

"Now by my George, my *Garter*." — *Shaks.*

(*Her.*) The half of a bend.

—*v. a.* To bind or fasten with a garter.

"He being in love, could not see to *garter* his hose." — *Shaks.*

—To invest with the Order of the Garter.

Gar'ter, (Order of the.) (*Her.*) One of the most celebrated and ancient of all the orders of knighthood in Europe, instituted by Edward III of England. The origin of this decoration is ascribed to a trifling accident, which occurred at a ball at which the king and the Countess of Salisbury were present. The countess is said to have dropped her garter whilst dancing: the king picking it up, and, observing some of the courtiers smiling, restored it to the countess, with the remark, *Honi soit qui mal y pense*, "Evil be to him who evil thinks;" and he shortly afterwards is said to have instituted the Order of the Garter, with the above motto, as an incentive to chivalry amongst his knights. Another account states that it dates its origin from the reign of Richard Cœur de Lion, who, during his battles in the Holy Land, ordered his knights to wear a white garter above their knee, to distinguish them from their Saracen foes; and that Richard, on his return to England, instituted the order in commemoration of that circumstance. Still, according to Ashmole, the date of the order is 1441; and as the first of its statutes is dated 1450, this seems tolerably accurate: whence it follows that it was established in the reign of Edward III. Upon the original constitution of the order, it consisted of the sovereign and 25 knights-companions. From time to time, nevertheless, statutes were passed for the admission of foreign sovereigns, and extra knights; but the latter are always admitted in among the 25 companions, as soon as vacancies occur. The Military Knights of Windsor are also considered as adjunct to the Order of the Garter. The officers of the order are, firstly, the *Prelate*, which dignity was first filled by William de Edyngtou, bishop of Winchester, and which is now vested in the bishop of Winchester for the time being; the office enabling him to take his seat in parliament next to the bishop of Durham. The next officer is the *Chancellor*, who, until the year 1837, was the bishop of Salisbury (for the time being), but since the see of Oxford has included Berkshire (and consequently the town of Windsor), the chancellor is always the bishop of Oxford. The *Registrar*, who is the Dean of Windsor, is the next official, and after these come the *Garter King-at-Arms*, and the *Usher of the Black Rod*. All these officers are bound to attend the chapters of the order held in St. George's Chapel, Windsor, on St. George's Day, where the installations of knights are held, and they are sworn to adhere to all the institutes of the order, and to promote its well-being to the best of their ability. The peculiar dress which distinguished the Order of the Garter from other similar institutions, at its first establishment, was a *mantle, tunic*, and *hood of blue cloth lined with ermine*, that of the sovereign differing from the knights by the *fur of the lining being of miniver instead of ermine*. All these three garments were embroidered with garters of blue and gold; and the garter itself was worn under the left knee, and was composed of dark blue velvet edged with gold, with the motto "Honi soit qui mal y pense" inscribed upon it in letters of gold; the buckle and pendant were likewise of the same precious metal. Henry VIII. added a collar, composed of pieces of gold worked in the fashion of garters, the centres of each being alternately white and red (alluding to the junction of the York and Lancaster families in the House of Tudor), and these links, or garters, were exactly 26 in number, typical of the strength of the order. He also added the greater and lesser "Georges," which consist of gold medallions with the figures of St. George and the Dragon worked in relief. Charles II. made the last alterations, substituting crimson for the surcoat and hood, and a lining of white taffeta instead of ermine. The ribbon by which the medallion of St. George is suspended over the left shoulder is of blue — whence the expression "receiving the *blue ribbon*," employed sometimes to denote the being installed a member of the Order of the Garter. Down to the reign of Edward IV., some ladies, as the queens, &c., were admitted to share in the honors of this noble order; and the splendid appearance of Queen Philippa, clad in the habiliments of the Garter, is mentioned by Froissart as being very imposing. The dress and ceremonies are at present exactly as they were when first instituted, with the exception of the alterations above mentioned; and the Garter is still held to be, and will no doubt continue to hold its fame of being, the first knightly order in Europe.



Fig. 1124.
ORDER OF THE GARTER.
(Star, Collar, Badge, and Garter.)

Gar'ter-fish, *n.* (*Zoöl.*) See LEPIDOPUS.

Gar'ter-snake, *n.* (*Zoöl.*) The name of two species of harmless striped snakes, of the *Coluber* fam., common in the U. States.

Garth, *n.* [W. *gardd*, a garden.] A garden, croft, or paddock.

—A hoop; a band; a garter. (Used in some parts of Eng.)

—A dam or fish-weir.

Gartside's, in *Illinois*, a post-office of St. Clair co.

Ga'rum, *n.* [Lat.] See ANCHORY.

Gas, *n.* [Probably from the German *geist*, a spirit.] The term applied to all permanently elastic fluids or airs. The different gases will be described under their respective heads; in this article those properties only will be explained that are common to all gases as a class. Gases have no cohesion; the peculiar properties of a gas seem to depend on the fact, that the repulsive forces existing between its particles are greater than the attractive forces. Consequently, the particles of a gas tend to recede from each other; and were it not for extraneous causes, the *G.* would expand — so far as is known — indefinitely into space. This natural tendency of gases is restrained on the surface of our globe by the pressure which the atmosphere exerts in consequence of its weight; but when this pressure is removed, the expansive tendency becomes at once manifest. The air which is contained in the India-rubber bag (Fig. 1125), for example, is prevented from expanding by the pressure of the atmosphere on its exterior surface. If, however, we place the bag under the receiver of an air-pump, and remove the pressure by exhausting the air, the bag will at once expand; and this expansion will continue until the expansive tendency of the air is balanced by the elasticity of the bag. The force with which a gas tends to expand is called its *tension*; and it is evident that, when in a state of rest, the *tension* of a gas must be exactly equal to the pressure to which it is exposed; for were this not the case, the force which was in excess would cause a motion in the particles, which is inconsistent with the supposition. It appears, therefore, that in a gas, as in a liquid, the particles are in a condition of equilibrium; the only difference being, that in a liquid the equilibrium exists between the attractive and repulsive forces in the liquid itself, but in the gas, between the excess of repulsive forces in the body and an external pressure. In consequence of this condition of equilibrium, the particles of gases are endowed with perfect freedom of motion, and gases are therefore fluids. Gases are readily compressible, and are perfectly elastic. By subjecting them to pressure in tight vessels their bulk can be greatly diminished, but however long the pressure may continue, when it is removed they regain at once their original volume. If two gases be brought into communication with each other, they will gradually mix or diffuse through each other, although this diffusion may have to take place in opposition to gravity. Thus if a bottle of carbonic acid be connected, even by a narrow tube, with a bottle of hydrogen placed vertically above it, some of the heavy carbonic acid will make its way into the upper bottle, and a corresponding volume of the light hydrogen will descend into the lower, and in a few days the two gases will be completely mixed. The same result will ensue if the two gases be divided by a porous diaphragm, as a piece of unglazed porcelain, a plate of gypsum, or a thin membrane, and is called the *osmose* of gases. Were it not for the diffusive property of gases, the constituents of the air, differing as they do in specific gravity, would not maintain a constant mixture, but would form separate layers floating one above the other. The relative diffusibilities of different gases are inversely as the square roots of their specific gravities. The *effusion* of gases is a term used to signify the passage of a gas into a vacuum through a fine and infinitely short tube as through a minute aperture in a thin plate of metal. It has been proved that the velocity of effusion is the same as that of diffusion, that is, gases flow into a vacuum at rates inversely proportional to the square roots of their specific gravities. The *transpiration* of gases is the term applied to the passage of gases through capillary tubes. The other physical properties of gases, as weight, pressure, expansive force, compressibility, &c., possessed by them in common with atmospheric air, are fully explained under the head PNEUMATICS. — *Liquefaction.* The solid, liquid, and gaseous conditions of bodies depend upon temperature and pressure. Thus mercury at 40° below zero Fahr. is a solid; from that temperature to 662° Fahr. it is a liquid, and above that temperature a gas. All gases, if sufficiently cooled and under very great pressure, become liquid. Many of them which are permanent at ordinary atmospheric pressure and temperature, become liquids on increasing the pressure and diminishing the temperature, and some even solidify when cooled sufficiently. Thus sulphurous acid gas liquefies at 32° if the pressure be increased by half an atmosphere. At —105° it is a solid. Carbonic acid liquefies at a pressure of 38 atmospheres, and at —70° is a solid. Cyanogen, hydriodic acid, ammonia, sulphuretted hydrogen, nitrous oxide, euchlorine, hydrobromic acid, fluoride of silicon, chlorine, arseniuretted hydrogen, olefiant gas, ethyl, fluoride of boron, and hydrochloric acid gases can be liquefied. It has recently been proved that oxygen, nitrogen, air, carbonic oxide, &c., can also be reduced to the liquid state.

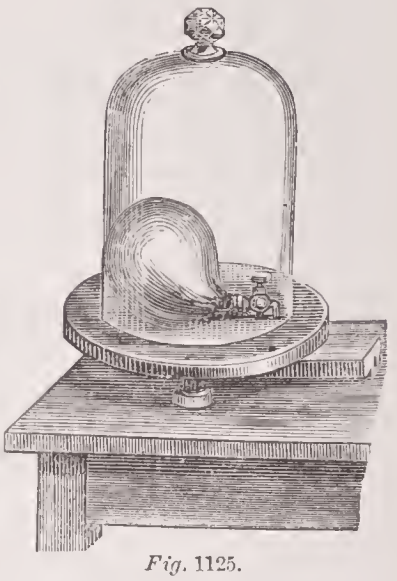


Fig. 1125.

Gasalier, (*gas-a-lēēr'.*) *n.* A chandelier for burning gas; a gas-lamp.

Gas'-burner, *n.* The extremity or point of a gas-fixture, where the gas is burned. The ordinary burners are either *bat-wing* or *fish-tail*. The bat-wing burner is a nipple, generally of cast-iron, across which a narrow slit is sawn, through which the gas escapes in a thin flame. In the fish-tail burner the nipple is pierced with two holes, so that two streams of gas impinge against each other and produce a flat flame. The Argand burner consists of a ring pierced with holes and sur-



Fig. 1126.
ARGAND BURNER

rounded with a glass shade to regulate the supply of air and steady the flame. The *sun-light* consists of a ring of common burners set in the base of a reflecting cone that passes through the ceiling, and conducts away the products of combustion, and thus lights and ventilates the room at the same time.

Gas'coines, *n. pl.* Same as GALLIGASKINS, *q. v.*

Gas'con, *n.* (*Geog.*) A native of the former prov. of Gascony, in France.

Gasconade', *n.* [Fr. *gasconnade*, from *Gascon*, an inhabitant of Gascony, the people of which prov. were notorious for boasting.] A boast, or boasting; a vaunt; a bravado; a bragging.

—*v. n.* To boast; to brag; to bluster; to vaunt; as, he is a *gasconading* fellow.

Gasconade', in *Missouri*, a river formed by the union of several branches in Pulaski co., and flowing a general N.E. course through Maries and Osage cos., enters the Missouri River from Gasconade co.

—An E. central co.; *area*, about 510 sq. m. *Rivers.* Missouri and Gasconade rivers, and Bourbeuse creek. *Surface*, uneven; *soil*, not very fertile. *Min.* Copper, iron, and sulphur. *Cap.* Hermann. *Pop.* (1890) 11,706.

—A post-village of Gasconade co., abt. 36 m. S. of Jefferson City.

Gasconad'er, *n.* A vaunter; a braggart; a blustering fellow.

Gas'cony, the name of one of the old provs. of France, which comprised, prior to the revolution, the country now included in the depts. *Hautes-Pyrénées*, *Gers*, and *Landes*, and portions of the territory now included in the depts. of *Basses Pyrénées*, *Haute-Garonne*, and *Lot-et-Garonne*. From 1152 to 1453, *G.* belonged to England, but in the last-named year it was definitely united to France by Charles VII. In the chronicles of the time the terms Gascony and Guienne are used as though they were synonymous. They were, however, distinct provs. Auch was the chief town of *G.*

Gase'ity, *n.* State or quality of being gaseous. (R.)

Gaseous, (*gaz'ē-us,*) *a.* In the form of gas, or an aëriform fluid.

—Tenuous; fragile; wanting solidity.

Gas'-fitter, *n.* One who fits up the pipes, brackets, burners, &c., for gas-lighting.

Gas'-fitting, *n.* The business of a gas-fitter. The term gas-fittings is applied to the different contrivances for the application of gas-lighting, consisting of pipes, services, meters, burners, &c. Pipes laid in the ground are of cast-iron, and those through the building generally of wrought-iron, sometimes of lead; they should incline toward the meter, so as to allow the condensed moisture to flow back into it. If this inclination is not uniform, or is interrupted, an arrangement called a drip must be introduced to remove the water.

Gas'-fixture, *n.* One of the ornamental fittings or appendages at the extremity of the pipes which conduct gas from the meter to the different apartments of a building; a bracket, or chandelier for gas, including a stop-cock and burner.

Gas'-governor, Gas'-regulator, *n.* An apparatus employed to regulate and equalize the pressure of gas when flowing for burning.

Gash, *n.* [See the verb.] A deep and long cut; an incision of considerable length, particularly in flesh.

—*v. a.* [Seemingly allied to *hack* and *hash*, and to Heb. *gazar*, to cut, to cut in two, to divide.] To cut; to make a gash, or long deep incision.

"*Gashed* with honourable scars."—*Montgomery.*

Gash'ful, *a.* Covered with gashes; — hence, by implication, forbidding, frightful.

Gas'-holder, *n.* A vessel for holding gas. See GAS-LIGHT.

Gasifica'tion, *n.* Act or process of converting into gas.

Gas'ify, *v. a.* [*gas*, and Lat. *facio.*] To convert into gas or an aëriform fluid by combination with caloric.

Gas'ket, *n.* (*Naut.*) A plaited cord fastened to the sail-yard of a ship, and used to furl and tie up a sail firmly to the yard, by wrapping it around both six or seven times, the turns being at a competent distance from each other.

(*Mach.*) The plaited hemp used for packing the piston of the steam-engine and its pumps.

Gas'kill, in *New York*, a post-office of Tioga co.

Gas'kill, in *Pennsylvania*, a township of Jefferson co. *Pop.* (1890) 682.

Gas'kins, *n.* Same as GALLIGASKINS (*q. v.*).

Gas'-lamp, *n.* A lamp lighted by gas; a gasalier.

Gas'-light, or **Illuminating Gas,** *n.* The mixture of inflammable elastic fluids obtained by the destructive distillation of coal or other carbonaceous substances. While many attempts, more or less successful, have been and are still made to use other substances, coal, on account of its cheapness, is almost altogether used for the production of gas in large quantities, and for this purpose those species of bituminous coal are chosen that contain the most hydrogen and are most free from sulphur. When coal is burned in the open air, or in an ordinary stove, the principal products are carbonic acid and water, small quantities of ammonia and sulphurous acid, and finely-divided carbon in the form of soot. When it is burned in close vessels, the products are much more numerous and complicated. The most important gaseous matters are light and heavy carburetted hydrogen gases, hydrogen, carbonic oxide, carbonic acid, sulphurous acid, sulphuretted hydrogen, and ammonia. These separate as liquids coal-tar naphtha, and coal-tar; and coke remains as a solid. To render the gaseous products available for lighting purposes, all the above-named must be removed except the light and heavy carburetted hydrogen, since they not only interfere with the illuminating power of the gas, but their presence or the products of their combustion are injurious to health. The outlines of the process of manufacturing gas from

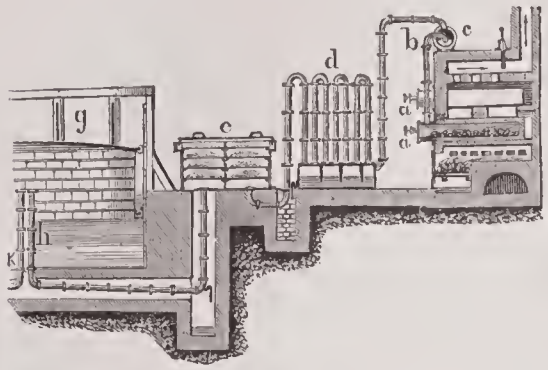


Fig. 1127.—MANUFACTURE OF COAL-GAS.

coal are briefly as follows:—Coal is heated in long flattened D-shaped cylinders of clay or iron called *retorts*, (*a a*, Fig. 1127,) arranged in long brick furnaces. The mouths of the retorts are fitted with movable lids, rendered air-tight by a luting of clay. An iron pipe, *b*, rises from the upper side of the front of the retort, and is covered at the upper extremity, which passes into the side of a much wider tube, *c*, called the *hydraulic main*, running above the furnaces, at right angles to the retorts, and receiving the tubes from all of them. The hydraulic main is always kept half full of the tar and water that condenses from the gas, and the delivering tubes from the retorts dip below the surface of this liquid, so that, although the gas can bubble freely through it as it issues from the retorts, none can return through the tubes while the retorts are open for a fresh charge. The aqueous portion of the liquid deposited in the hydraulic main is called the *ammoniacal liquor*, from its consisting chiefly of a solution of various salts of ammonia, principally the sesquicarbonate; sulphide, cyanide, and sulpho-cyanide of ammonium are also found in it. From the hydraulic main the gas passes into the *condenser*, *d*, which is a series of bent iron tubes kept cool either by the large surface which they expose to the air, or sometimes by a stream of cold water. In these are deposited the remaining water and any of the volatile hydro-carbons and salts of ammonia that escaped condensation in the hydraulic main. As the ammoniacal salts are not completely removed in the condenser, it is usually necessary to pass the gas through a *scrubber* or case containing fragments of coke, over which a stream of water is allowed to trickle in order to absorb the remaining ammoniacal vapors. The gas is now passed through the *lime-purifier*, *e*, in order to absorb the carbonic acid and sulphuretted hydrogen. The lime-purifier is an iron box, in which the gas is made to pass over a mixture of slaked lime and sulphate of iron (green vitriol or copperas), mingled with saw-dust, to prevent their caking together; or sometimes it is a vessel in which a mixture of hydrate of lime and water is kept in a state of agitation while the gas is passing through it. The next operation, which is often omitted, is to pass the gas through dilute sulphuric acid, to remove the last portions of ammonia. The purified gas now passes into the *gas-holder*, (*g*,) from which it is supplied for consumption. The general shape of gas-holders is that of a cylinder, closed at the top, and floating or suspended with its open end in a reservoir of water. Since, with a given surface, a cylinder has the greatest capacity when its height is equal to ½ its diameter, the gas-holders are generally so constructed. They are made of sheet-iron plates, riveted, and coated with tar on both sides to make them gas-tight. They are suspended in the water by means of chains, and counterbalanced and guided by weights and wheels, so as to rise and fall with ease. Two tubes pass under and through the water, reaching above its surface into the hollow of the gas-holder. One

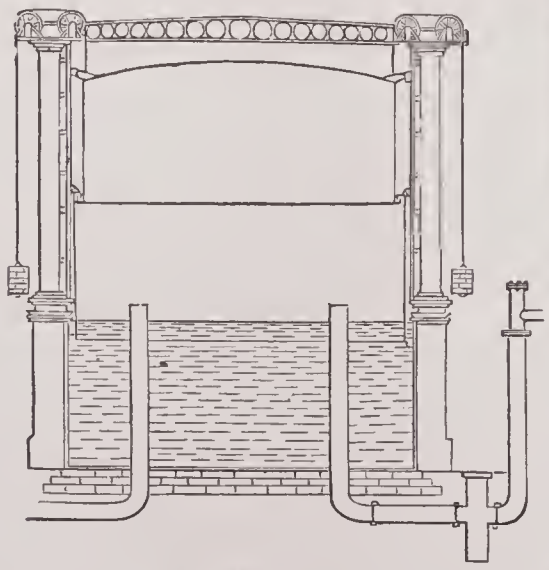


Fig. 1128.—TELESCOPE GAS-HOLDER.

of these, *h*, admits the gas from the purifiers, and the other, *k*, carries it off for use. As gas is admitted to the gas-holder it rises in the water; and by lessening the counterbalancing weight, it presses down, and the gas is forced out through the pipe *k* to the street-mains. As the gas is discharged, the holder fills with water, and is ready to receive a fresh supply of gas. Most gas-works have a number of holders—some filling while others are emptying; and most holders are furnished with some contrivance for indicating the exact quantity of gas which they contain. The *telescope gas-holder* (Fig. 1128), with the same diameter, holds a larger volume of gas than the one above described, and consequently requires less space of ground. It consists of two, three, or more concentric cylinders, the bottoms and tops of which, except the upper one, are furnished with flanges turned in opposite directions,—the flanges at the bottom turning outward and upward, and the one at the top turning inward and downward. When the gas is introduced, the innermost cylinder rises first; and when its bottom reaches nearly to the surface of the water, its curved flange catches the flange of the next cylinder, which also rises,—and this in turn lifts the next, and so on. The escape of gas and the admission of air are prevented by the lower flange taking up a quantity of water, which acts as a water-lute. The temperature at which the gas is produced should be regulated with great care. If too low, the coal distils into the tar, and the gas is diminished in quantity and impaired in quality. If too high, the retorts are quickly burned out, and the olefiant gas, the most valuable constituent of the gas, is decomposed. The use of the gases produced by the destructive distillation of coal for the purposes of illumination is of modern invention; but so long ago as 1688 Rev. Dr. Clayton, dean of Kildare, described the method of filling bladders with what he called the *spirit of coal*, obtained by distilling coal in a retort upon an open fire. He says: "I have frequently taken one of these bladders and pricked a hole therein with a pin, and compressing gently the bladder near the flame of a candle, till it once took fire, it would then continue flaming until all the spirit was compressed out of the bladder; which was the more surprising because no one could discern any difference between these bladders and those that were filled with common air." In 1792, Mr. Wm. Murdoch, of Redruth, in Cornwall, constructed a small gas apparatus, and in 1798 a larger and improved one, for lighting Boulton and Watt's large factory at Soho, near Birmingham, which, on the occasion of the peace of Amiens in 1802, was publicly illuminated by this means. In 1803–4 the Lyceum Theatre in London was lighted by gas, and in 1813–14 Westminster Bridge and part of the streets of London were illuminated by the same means. From that time its use steadily increased, until now it has become general in the towns and cities of the civilized world. In the United States attempts were made to introduce gas about the year 1821. It began to be used in Boston in 1822, in New York in 1827, and in Philadelphia in 1835. From the best foreign cannel-coal are sometimes produced as high as 15,000 cubic feet of gas per ton; but from the coals in ordinary use, 9,000 to 10,000 feet per ton is an average yield. The illuminating power of gas is ascertained by comparing the flame of a burner consuming a given number of cubic feet per hour with that of a spermaceti candle burning a given number of grains per hour. A burner consuming 5 feet of gas per hour has an illuminating power equal to that of from 15 to 20 candles, each burning 120 grains per hour. *G.* is used on cars and steamboats by compressing it in strong cylinders. The flow is regulated so as to increase the escape as the pressure diminishes. Gas is extensively used for heating purposes. By the use of improved regenerative furnaces and stoking machines, the cost of *G.* has been greatly reduced, and it is now supplied in the principal cities at one-third or one-fourth its former cost. This reduction in price is largely due to the introduction in many cities of *water gas* (*q. v.*). The waste products of gas manufacture have a considerable value, particularly the coal-tar, which, once rejected, now yields a great variety of useful products, including numerous important coloring substances. Coal-tar is very rich in carbon, and can be made to yield gas, but as yet not economically. Gas of high illuminating power is produced from oil, and is largely used on railways, in lighthouses, &c.

Gas'-main, *n.* One of the chief or main pipes for conveying gas from the works, and with which the ordinary service pipes are connected by nozzles.

Gas'-meter, *n.* [*Gas*, and Gr. *metron*, a measure.] An apparatus used for measuring the volume of gas. The term is usually restricted to an instrument used in measuring the illuminating gas supplied to consumers. The *wet meter* consists of a drum, divided into 4 chambers, and caused to revolve on an axis by the ingress and egress of the gas. This drum revolves in water, and its revolutions are communicated to a set of multiplying wheels on the face of the meter, by which the rate of consumption is noted. The *dry meter* consists of a vessel in which the gas is introduced into expansible chambers of definite volume, the alternate expansion and contraction of which are registered by clock-work. The dry meter has the advantage of not freezing in winter, and the gas in passing through it takes up no additional moisture to be condensed in the pipes.

Gasom'eter, *n.* A term often applied to the gas-holder in gas-works; but it more properly means a smaller and more delicately constructed instrument, capable of accurately measuring the quantity of gas passing into and out of it. They are sometimes constructed of glass and iron, and contain mercury instead of water, so as to be used for gases that absorb water.

Gasomet'ric, *a.* Relating or pertaining to the measurement of gases.

Gasom'etry, *n.* [Fr. *gazometrie.*] Art or practice of

the moasurement of gases and aöriform fluids. See ENDIOMETRY.

Gas'oscope, *n.* [*Gas*, and Gr. *scopeo*, to behold.] An apparatns for indicating the presence of bi-carburetted hydrogen gas in buildings, mines, or other places.

Gasp, *v. n.* [Dan. *gisp*, a gasp, *gispe*, to gasp; Icel. *geispa*, to open the month widely; allied to *gape*.] To open the mouth wide in catching the breath or in laborious respiration, particularly in dying; to labor for breath; to pant violently.

"The sick for air before the portal *gasp*." — *Dryden.*

—To long after with panting eagerness; as, "they *gasped* after their liberty." — *Spectator.*

—*v. a.* To emit, as breath, by opening wide the mouth convulsively; — used with *out*, *away*, or *forth*; as, "he *gasps away* his breath." — *Dryden.*

Gasp, *n.* Act of opening the month to catch the breath; the short catch of the breath in the agonies of death; labored or spasmodic respiration.

"Montagu to the latest *gasp* cried out for Warwick." — *Shaks.*

At the last gasp, in great extremity; at the point of death.

"His name is *at last gasp*." — *Shaks.*

Gasparil'la, or GASPARIL'LO, in *Florida*, the name of a sound and island on the W. coast, near Charlotte Harbor.

Gas'par Strait, a passage with a width of abt. 60 m., in the islands of Banca and Billiton in the China Sea.

Gaspé, a dist. of prov. of Quebec, containing the cos. of Bonaventure and Gaspé, on the S. shore of the St. Lawrence River.

—An E. co., comprising the peninsula of that name; *area*, about 4,063 sq. m. *Rivers.* St. Louis, Magdeleine, York, St. John's, and Mal Bay rivers. *Surface*, broken; *soil*, infertile. *Cap.* Gaspé.

—, or GASPÉ BASIN, a town, port of entry, and the cap. of the above co., on Gaspé Bay, about 496 m. E. by N. of Quebec.

Gas'per, in *Ohio*, a twp. of Preble co., traversed by the C. H. and I. R.R.

Gas'per, (Grand,) an island of S. America, in the Gulf of Paria, off the N.W. extremity of the island of Trinidad.

Gas Port, in *New York*, a post-village of Niagara co., abt. 30 m. N.N.E. of Buffalo.

Gas'-regulator, *n.* See GAS-GOVERNOR.

Gas'-retort, *n.* A form of retort used in the manufacture of gas.

Gassen'di, PIERRE, a French philosopher and mathematician, B. in 1592, at Chantersier, near Digne; in the words of Tennemann, the most learned among the philosophers, and the ablest philosopher among the learned, of the seventeenth century. In speculative thinking, *G.* represented the *Sensational* School, of which he may be considered the founder in modern times; as such, he may stand against the *Meditations* of Descartes. In the eager polemics between these remarkable men, the critical question of Sensationalism, almost in the form in which it still presents itself, was fairly raised; it must be conceded that the temper and moderation lay with *G.*, although, in the estimation of the writer of this notice, the weight of argument belonged to his illustrious opponent. During the disputation, Gassendi had the merit of insisting that every mental conception of *Principle* is necessarily preceded by the *fact of an Experience*, — an assertion by no means sufficient to establish his philosophy, but remarkable as having first given expression to a maxim now held alike by Sensationalists and Idealists, — that in sensation is the beginning or the occasion of all knowledge: a maxim of which Descartes himself, perhaps, saw enough to render unjustifiable Locke's subsequent singular misrepresentation of the doctrine of innate ideas. This proposition granted, however, it in no wise follows, as *G.* contended, that the content of sensation is the measure of human knowledge; or that an Absolute and Necessary Truth is a mere generalization. Rational Psychology, according to Descartes, contradicts this: the attributes of universality and necessity cannot attach to simple generalizations; and these attributes belong to many of our ideas. It is hardly requisite to say that the dispute thus raised exists still; nay, the student desirous to master it will scarcely find better instructors than Descartes and *G.* — *G.* was one of our most distinguished reformers, at a period when many great minds pushed forward the work of reform, — claiming independence for thought. It may be forgiven, perhaps, that in his early work against the authority of Aristotle he was not careful to separate the true doctrines of the immortal Stagyrite from wretched and sapless formulæ deduced from him by the Schoolmen; or that in his youthful zeal he failed to approach with rightful respect that great Shade to which so many ages have done willing reverence. His attack on Aristotle is the weakest of his writings, and cannot be acquitted of rashness; nevertheless, he was not wanting in respect for antiquity, — witness his treatment of *Epicurus*. His life of this philosopher is one of the best and most appreciatory memoirs, among the many that have been given of him; he wrote it *con amore*. The Atomic Philosophy suited *G.*'s predilections; and one respects the just ardor with which he vindicates the character of his master, and clears his doctrines from vulgar misapprehension. *G.*'s attachment to physical inquiries was strong; although not an original discoverer, the labors of no man of that day contributed more to diffuse right principles regarding the method of physical inquiry. In this department, his superiority to the Cartesians cannot be questioned; Descartes himself knew too little of that sphere of pure Induction, within which what we term Law or general Truths can be nothing other than *generalizations*. As might have been expected, he adopted the Copernican system of the Universe, cautiously but intelligently; and greatly contributed to bring about a right understanding of its significance. He was a friend and correspondent of Galileo; he avowed himself the disciple of Bacon, and unquestionably his writings prepared the way for those of Locke. *G.*'s personal character was of the highest order; gentle, serene, and dignified; modest, notwithstanding his wide repute; impartial and forbearing. D. in Paris, 1655.

Gas'sing, *n.* (*Manuf.*) The process of singeing net, lace, &c., in order to remove the hairy filaments from the cotton; — performed by passing the material between two rollers, and exposing it to the action of a large number of minute jets of flame.

Gas'sinville, or GASSENVILLE, in *Louisiana*, a village of St. Charles parish.

Gas'sy, *a.* Full of gas; gaseous; — hence, inflated; bombastical; full of empty and insincere talk.

Gas'-tar, *n.* Same as COAL-TAR, *q. v.*

Gas'teropod, *n.* [Gr. *gaster*, stomach, and *pous*, *podos*, foot; *i. e.*, belly-footed.] (*Zoöl.*) One of the *Gasteropoda*.

Gasterop'oda, *n. pl.* (*Zoöl.*) A class of molluscous animals which move from place to place by means of a fleshy disc, or foot situated under the abdomen. The greater part of these mollusca consist of animals inhabiting a univalve shell, which is cone-shaped and rolled into a spiral; and of such the snail is a familiar specimen. Some species, on the contrary, have no shell; of which the slug is an example. The body is elongated, and terminated in front by a head, more or less developed, with a mouth provided with from two to six tentacula; the back is enveloped in a mantle, which secretes the shell; and the belly is covered on its under side by the fleshy mass of the foot. In most aquatic Gasteropoda whose shell is spiral, there is a horny or calcareous disc, called the *operculum*, which is attached to the hinder part of the foot, and is used for closing the entrance of the shell when the animal withdraws itself. Some of the Gasteropoda inhabit fresh waters, but most of them are marine animals. The class is composed of three orders: GASTEROPODA PROPER, HETEROPODA, and PTEROPODA.

Gasterop'odous, *a.* Belonging or relating to the Gasteropods.

Gas'ton, in *Alabama*, a post-office of Sumter co.

Gas'ton, in *North Carolina*, a S.W. co., bordering on S. Carolina; *area*, about 340 sq. m. *Rivers.* Great Catawba and S. Catawba rivers. *Surface*, diversified; *soil*, fertile. *Cap.* Dallas. *Pop.* (1890) 17,764.

—A village of Halifax co., on the Roanoke river. Its P. O. is SOUTH GASTON.

Gas'ton, in *Oregon*, a post-village of Washington co., on the Southern Pac. R.R.

Gastral'gia, (*-jē-a,*) *n.* [Gr. *gaster*, stomach, and *algos*, pain.] (*Med.*) Impaired appetite, with gnawing or burning pain in the stomach or epigastrium.

Gas'tric, *a.* [Gr. *gaster*, the stomach.] (*Anat.*) Pertaining to the stomach.

Gas'tric Juice, *n.* (*Physiol.*) The digestive fluid secreted by the lining membrane of the stomach. It is a clear, transparent fluid, a little saltish, and containing hydrochloric and lactic acids, also a peculiar organic substance called *pepsine*, q. v. The *G. J.* dissolves the food in the stomach, reducing the nutritious portions of it to a state fit for absorption into the system. See DIGESTION.

Gas'tricism, *n.* [Fr. *gastricisme*.] (*Med.*) A theory which refers most diseases to disorder in the digestive passages, or gastric region.

Gastril'oquist, *n.* [Fr. *gastriloque*, from Gr. *gaster*, the belly, and Lat. *loquor*.] A ventriloquist.

Gastril'oquous, *a.* Ventriloquous. (R.)

Gastril'oquy, *n.* Ventriloquy.

Gastri'tis, (Gas'tro-enteri'tis,) *n.* [Gr.] (*Med.*) Inflammation of the stomach. It is known by pain in the epigastric region, (increased when anything is taken into the stomach,) vomiting and hiccough; the pulse small and hard; and general prostration of strength, attended by fever and anxiety. It is produced by poisons of various kinds taken into the stomach, as arsenic or corrosive sublimate; by food of an improper nature; by draughts of any cold liquid when the body is much heated. It is a rapid and very dangerous disease, and requires prompt measures to be adopted. The means employed are copious and repeated general bleedings; the application of leeches to the epigastrium, followed by fomentations or the hot bath, after which a large blister may be applied. When acrid substances have been taken, mucilaginous drinks may be of use to aid their evacuation and protect the stomach, and when it arises from active poisons, the stomach-pump may require to be used.

Gas'trocele, *n.* [Gr. *gaster*, and *kēle*, tumor.] (*Med.*) Hernia formed by the stomach through the upper part of the *linea alba*.

Gastrocephali'tis, *n.* [Gr. *gaster*, *kephalē*, head, and *itis*.] (*Med.*) Inflammation of the stomach and head.

Gastrodyn'ia, *n.* [Gr. *gaster*, and *odyne*, pain.] (*Med.*) Same as GASTRALGIA, *q. v.*

Gastrol'ogy, *n.* [Gr. *gaster*, and *logos*, speech.] A treatise on the stomach.

Gastrone'mius, *n.* [Gr. *gaster*, the stomach; *kneme*, the leg.] (*Anat.*) The belly or calf of the leg; the term is also applied to two of the muscles of that part. The *gastronemius externus* arises by two distinct heads from the inner and outer condyles of the os femoris, which unite a little below the joint, and below it unites with the *gastronemius internus*, to form the tendon Achilles. The *gastronemius internus*, called also the *soleus*, is situated immediately under the above, and rises by two heads from the posterior part of the head of the fibula and the upper and posterior part of the tibia. The use of both these muscles is the same; namely, to raise the heel and extend the foot.

Gas'tronome, Gastron'omer, *n.* [Gr. *gaster*, and *nomos*, a rule.] An epicure; a gourmand; one who is fond of good eating; a gourmet; a glutton.

Gastronom'ic, Gastronom'ical, *a.* [Fr. *gastronomique*.] Having reference or pertaining to gastronomy; as, the *gastronomic* art.

Gastron'omist, *n.* A gastronome; a bon-vivant.

Gastron'omy, *n.* [Fr. *gastronomie*, from Gr. *gastronomia* — *gaster*, the belly, and *nomos*, a rule.] Cookery is the art of preparing food so as to render it fit for digestion by the human body; and gastronomy is the science of good living, or of enjoying plentifully, though with prudent moderation, the pleasures of the table. Between cookery and gastronomy stands the cook, the greatest, or at least the most useful, of all functionaries, if we consider that there cannot be a sound mind where the stomach is not in a healthy condition, and that the cook is its great ruler. We therefore propose to illustrate in this article *cookery*, *cooks*, and *gastronomy*, as things essentially connected and almost inseparable. It appears that the attractive luxuries of the table were first appreciated by the Assyrians and the Persians, those voluptuous Asiatics who, by reason of the enervating mildness of their climate, were powerless to resist sensual seductions. Greece, "beloved daughter of the gods," speedily embellished the culinary art with all the exquisite delicacy of her poetic genius. Rome was long renowned for her austere frugality; and it is remarked that during more than five centuries the art of making bread was there unknown, which says little for her civilization and intelligence. Subsequently, the conquest of Greece, the spoils of the subjugated world, and the peculiar refinement of the Syracusans, gave to the conquered nations, says Juvenal, a complete revenge on their conquerors. The unheard-of excesses of the table swallowed up patrimonies which seemed to be inexhaustible, and illustrious gourmands obtained a durable but sad renown. A passage in Macrobius, (a curious monument of Roman cookery,) gives the following account of a supper given by the pontiff Lentulus on the day of his reception: — "The first course (*ante-cœna*) was composed of sea-hedgehogs, raw oysters in abundance, and all sorts of shell-fish, and asparagus. The second course comprised a fine fatted pullet, a fresh dish of oysters and other shell-fish, different kinds of dates, univalvular shell-fish (as whelks, conchs, &c.), more oysters (but of different kinds), sea-nettles, beccaficoes, chines of roe-buck and wild boar, fowls covered with a perfumed paste, a second dish of shell-fish, and *purples* — a very costly kind of crustaceæ. The third and last course presented several *hors-d'œuvre*, — a wild boar's head, fish; a second set of *hors-d'œuvre*, — ducks, potted river-fish, leverets, roast fowls, and cakes from the marshes of Ancona." Many of these delicacies would very much surprise an epicurean of the present day, particularly if they were offered to him in the order indicated by Macrobius. The author of a rare and very curious book, *Medicus at Palatum*, formed the charitable project of reconciling medicine and gastronomy, by proving that culinary preparations do not poison — as it has been said — the food which nature gives us, and that cooks, far from being the destroyers, are the great benefactors of mankind; indeed, it is a common thing in men to throw upon cooks all the blame for which they ought to accuse their own intemperance. *Gourmandise* would never rebel against the kitchen if all polyphagists had obtained from the goddess Ceres the gift she granted to Pandarea — a celebrated cater, who could pass days and nights at table without experiencing the slightest inconvenience. Seneca, the atrabilarious preceptor of Nero, combats, it is true, "those dangerous men who are busied with a single stomach, and who lay the foundation for a train of maladies," (*Epist.* 95;) but it must be noted that the pedant Seneca, attacked with an incurable consumption, could eat but very little, which much enraged him, and that his denunciations of the excessive riches and prodigious luxury of the Romans of his age neither hindered him from possessing and unceasingly adding to a more than royal fortune, nor from feeding several thousand slaves, and pompously displaying in his palace 500 tables of the most elaborate workmanship, of the rarest wood, all alike, and ornamented with precious incrustations. (*Dio, in Nerœ.*) How often have people extolled the Lacedæmonians and their legislator Lycurgus — strange lawgiver of a strange people, who never learned to eat, and yet who invented the celebrated "black sauce," the *jus nigrum*, for which the entrails of the hare served as a foundation. Hence, true it is that cookery always preserves certain imprescriptible rights over the most fervent disciples of frugality. Mankind had long obeyed that imperious and periodical necessity which has been called *hunger*, before any one thought to form a code of doctrine calculated to guide a sensation which, if its demands be judiciously gratified, procures us the most unique and lasting pleasures. The primitive nations, no doubt, gave themselves up to their mere native gluttony. They *ate* much, but they *fed* badly. They had no idea of gastronomy; and consequently they had no cooks in the serious and most complete acceptation of the word. Homer's heroes prepared their repasts with their own hands, and prided themselves on their culinary talents. Ulysses surpassed all others in the art of lighting the fire and laying the cloth. (*Athen.* i. 31.) Patroclus drew the wine, and Achilles very carefully turned the spit. (*Homer. Iliad.*) The conquerors of Troy shone more in the combat than under the tent which served them as

kitchen. At length the aurora of the magian ages began to dawn. Man had hitherto known only hunger; he was now to become acquainted with satistying that hunger on gustatory principles. The king of Sidon learns how to eat; and it is Cadmus, grandfather of Bacchus, the future founder of Thebes, who takes upon himself to instruct his own august palate. In the time of Alcibiades the best cooks came from Sicily; Trimialcio was one of the most celebrated. Athenæus tells us that, when he could not procure rare and highly esteemed fish, he understood so well how to imitate their form and flavor with common fish, that even the most cunning epicures were invariably deceived; — which reminds us of the cook of Louis XIV., who, on a Good Friday, served the king with a dinner, apparently composed of poultry and butcher's meat, but which, in reality, consisted of vegetables only, and prepared, too, *au maigre*. The Romans, inheritors of the luxury of Asia and Greece, did not erect a temple to the greedy Adephagia, goddess of good cheer, who possessed altars in Sicily (*Elian. Var. Hist.* i. 27); but they thought it impossible to remunerate too highly those who knew how to extend the limits of the pleasures of the table. Antony gave a supper to Cleopatra, and that princess praising the excellence of the repast, her lover immediately called for the cook, and presented him with a city in recompense. How far the most sumptuous banquets of us moderns are behind the most modest collations of Greece and Rome! Lucullus caused to be served to Cicero, and Pompey a little *ambigu*, which cost $5,000. There were only three of them to partake of it! The Emperor Claudius had generally 600 guests at his table (*Sueton. in Claud.* 32). Vitellius did not spend less than $16,000 upon each of his repasts, and the composition of his favorite dishes required that vessels should regularly ply between the Gulf of Venice and the Straits of Cadiz, in the pursuit of delicacies (*Sueton. Dio*). Galba breakfasted before daybreak, and the breakfast would have enriched a hundred families. Ælius Verus invented the *pentapharmacum*, a kind of *macédoine*, composed of sows' flanks, pheasants, peacocks, ham, and wild boars' flesh (*Spartian. In Vero*, 5). Geta insisted upon having as many courses as there were letters in the alphabet, and each of these courses must contain all the viands whose name began by the same letter. These follies continued to astonish the world until the moment when Rome crumbled beneath the invincible weight of that horde of barbarians which Divine vengeance reserved for the punishment of unheard-of crimes. But the culinary art always survives revolutions and ruins of empires. Modern Italy inherited the wrecks of Roman cookery, and, thanks to her, Europe is at the present day acquainted with the delights of good cheer, and the charm of joyous and digestible repasts. In the Middle Ages, poultry, butchers' meat, and roast game, were never eaten dry, as they are now, any more than fried fish. There were different sauces for all those dishes, and even for the different parts of each animal. The cooks of those days strove to acquire a reputation by inventing strange and grotesque sauces, which had no other merit than that of being surprising and difficult to make, as, for example, *eggs cooked on the spit; butter fried or roasted*, &c. We recognize in some of our most common *ragoûts* those of which our ancestors were so fond in the Middle Ages, such as the *bœuf à la mode, à la persillade, au vinaigre et persil, le miroton de bœuf, veau percé de gros lard, fricassée de poulet, blanquette de veau rôti*; but we have lost the *pot pourri*, composed of beef, veal, mutton, bacon, and vegetables, and the *gallimafrée* (gallimaufry), a kind of *fricassée* of fowl, seasoned with wine, verjuice, and spices, and thickened with the famous sauce *Cameline*. The cooks frequently placed on their masters' tables *ragoûts* and other dishes borrowed from other nations; as, for example, a German *brouet*, a Flemish *chaudeau*, eggs *à la Florentine*, and partridges *à la Catalane*. They knew the

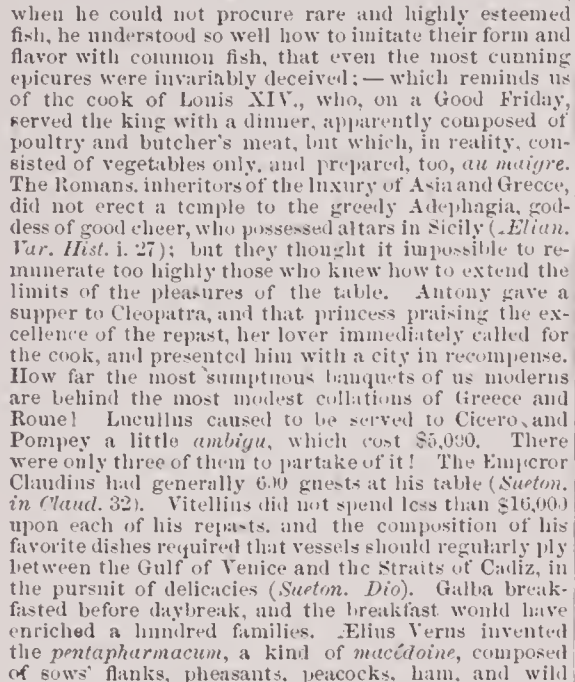


Fig. 1129. — JEWISH SUPPER.

olla, a mixture of all sorts of vegetables cooked with different kinds of meats, an invention of the Spaniards, as well as the ragout of fowl called *à la Chipolata*, and the *kenefles*, a kind of forced-meat balls made of bread and meat, to which the Shabians are very partial, and the *pilau*, a dish of muttou, fowl, and rice, borrowed from the Turks.—The Jews originally sat down to their meals; but when they became subject to Persia, they laid on couches at their repasts (see Fig. 1129), like their conquerors, and other Oriental nations from whom the Greeks and Romans borrowed their custom (*Hor. Sat.* ix. 8, 9). The most distinguished place was at the head of the table, at the extremity of the room, near the wall. Under the reign of Solomon, the Hebrews still used seats. The Egyptians were early acquainted with the effeminate sumptuousness of table couches (*Petron. à Nodot. tom.* i. p. 124). Homer's heroes sat down to table, and Alexander the Great appears to have preserved the custom. That prince, giving a repast to 10,000 persons, caused all to be seated in silver armchairs, covered with purple. Italy always imitated Greece, and like her had table couches, which at first were used only by men; a feeling of propriety interdicted their use by women. But the relaxation of morals, seconded by fashion, soon banished this seeming reserve, and the two sexes could only eat in a reclining posture. (*Athen.* iv.) Among the Persians, the middle place was reserved for the king. In Greece the most distinguished personage occupied the head of the table. The Celts seated themselves at their repasts on hay, before very low tables; the Belgians reclined on a kind of couch; the Gauls on the skins of dogs or wolves (*Martial.* xiii. 44). As an example of the magnitude and component substances of a dinner of the Middle Ages, we give the following bill of fare of the banquet given by the great Earl of Warwick (the "King-maker") on the occasion of his brother's installation as Archbishop of York, in 1479: 300 qrs. of wheat; 300 tuns of ale; 104 tuns of wine; 1 pipe of spiced wine; 10 fat oxen; 6 wild bulls; 300 pigs; 1,004 wether sheep; 300 hogs; 3,000 calves; 300 capons; 100 roast peacocks; 200 cranes; 200 kids; 2,000 chickens; 4,000 pigeons; 4,000 rabbits; 4,000 ducks; 204 bitterns; 400 herons; 200 pheasants; 500 partridges; 5,000 woodcocks; 400 plovers; 100 curlews; 100 quails; 100,000 eggs; 200 roes; 4,000 roebucks; 155 hot venison pasties, and 4,000 cold ditto; 1,000 dishes of jellies; 2,000 hot custards, and 4,000 cold ditto; 400 tarts; 300 pikes (fish); 300 bream; 8 seals, and 4 porpoises. At this monster "spread," the earl himself acted as steward; the Earl of Bedford was treasurer, and Lord Hastings, comptroller, with many other noble officers; 1,000 servitors or waiting-men; 62 chief cooks, and 515 under-cooks and scullions. — An inexhaustible fund of information respecting *G.* and the noble art of cookery may be found in the works of Brillat Savarin (*Physiologie du Goût*), Ude, Carême, Francatelli, Soyer, and Baron Brise.

Gas'tropod, *n.* (*Zoöl.*) See GASTEROPOD.

Gastrop'odous, *a.* Same as GASTEROPODOUS, *q. v.*

Gastroraphy, (*gas-trôr'a-fē.*) *n.* [From Gr. *gaster*, and *raphe*, a sewing.] (*Surg.*) The operation of sewing up wounds of the abdomen.

Gastrot'omy, *n.* [Gr. *gaster*, and *tomē*, a cutting.] (*Surg.*) The operation of cutting into the abdomen, — an operation sometimes resorted to in desperate cases, as when, in consequence of a rupture of the uterus, the child escapes into the peritoneal cavity.

Gas'-water, *n.* Water through which illuminating gas has passed from the retorts to the gasometer, used as manure.

Gas'-works, *n. pl.* A place or works where gas is manufactured.

Gat, *imp.* of GET, *q. v.*

Ga'ta, (Cape.) a headland of Spain, on the coast of Granada, bounding the bay of Almeria; Lat. 36° 43′ N., Lon. 2° 22′ W.

Gatch'ellville, in *Pennsylvania*, a P. O. of York co.

Gate, *n.* [A. S. *geat, gat;* Dut. *gat*, a hole; Icel. *gata*, a way, path; Sansk. *gartâ*, a way; root *gâ*, to go.] A large door which gives entrance into a walled city or large edifice; also, the entrance; a frame of timber, iron, &c., which opens or closes a passage into any inclosure; also, the passage. — The frame which shuts or stops the passage of water through a dam, lock, &c.; an avenue.

(*Script.*) Power; dominion.

"The *gates* of hell shall not prevail against it." — *Matt.* xvi. 18.

(*Founding.*) The gutter or ridge through which the molten metal is poured.

—In Scotland, a provincialism for a way, path, or passage.

Gat'ed, *a.* Having gates.

Gate'-house, *n.* A structure forming the entrance to a park, or nobleman's demesne. (Now generally called *lodge.*) — A house forming an entrance to a private mansion, or to any palace, public building, &c.

Gate'house, a river-port of Scotland, co. Kirkcudbright, on the Fleet, 28 m. S W. of Dumfries. *Trade.* Agricultural. *Pop.* 1,798.

Gate'less, *a.* Having no gate.

Gates, HORATIO, an American officer, b. in England, 1728. He served with distinction in the British army till the year 1763, when he bought an estate in Virginia, where he resided until the organization of the continental army in 1773. Appointed adjutant-general with the rank of brigadier, he accompanied Washington to Cambridge in July, 1775, and, in June, 1776, received the chief command of the army which had just retreated from Canada. In Oct., 1777, the surrender of the British army at Saratoga gave to him a brilliant military repute, soon after blasted by the disastrous battle of Camden, Aug. 1780. He was then superseded by Gen. Greene, and it was only after the surrender of Cornwallis that he was restored to his military position. On the conclusion of peace, he returned to his estate in Virginia, whence, after emancipating all his slaves, he removed to the city of New York. Died in 1806.

Gates, in *Missouri*, a post-office of Greene co.

Gates, in *N. Carolina*, a N. N. E. co., bordering on Virginia; *area*, about 360 sq. m. *Rivers.* Nottoway, Meherrin, and Chowan rivers. *Surface*, level; *soil*, fertile. *Cap.* Gatesville. *Pop.* (1890) 10,252.

Gates, in *New York*, a post-town of Monroe co., 3 m. W. of Rochester. *Pop.* (1897) about 3,200.

Gates, or **Gates' Mills,** in *Ohio*, a post-village of Cuyahoga co., on the Chagrin river, about 16 m. E. of Cleveland.

Gates'head, a borough of England, co. Durham, on the S. bank of the Tyne, which divides it from Newcastle, 275 m. N. of London. *Manuf.* Iron-smelting, working, and glass. *Pop.* (1895) 87,790.

Gates'ville, in *N. Carolina*, a post-village, cap. of Gates co., on Chowan river, abt. 140 m. N. E. of Raleigh.

Gates'ville, in *New York*, a village of Washington co., about 53 m. N. by E. of Albany.

Gates'ville, in *Texas*, a city, cap. of Coryell co., on Leon river, 80 m. N. of Austin. *Pop.* (1897) about 2,650.

Gate'-vein, *n.* (*Anat.*) The *vena porta*, which conveys the blood to the liver.

Gate'-way, *n.* (*Arch.*) A way under an arch, or through the gate of some inclosure; also, the gate or entrance itself. The gate-ways or gate-houses of the Middle Ages were often large and imposing structures; they were erected over the principal entrances of the precincts of religious establishments, colleges, &c., and sometimes also of the courts of houses, as well as castles and other fortifications. In military edifices the entrance usually consists of a single archway, large enough to admit carriages, with a strong door, and *portcullis* at each end, and a vaulted ceiling pierced with holes through which missiles can be cast upon an enemy; the sides of the gateway are generally flanked with large projecting

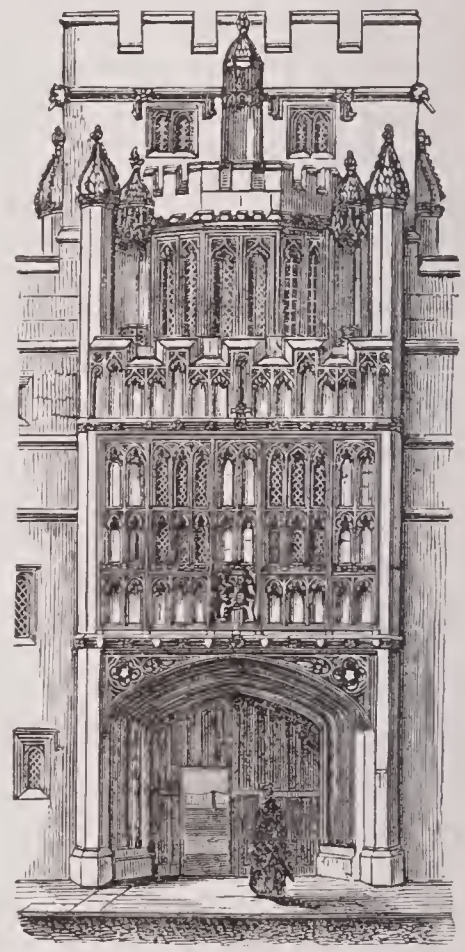


Fig. 1130.

GATEWAY OF BRASENOSE COLLEGE, OXFORD, (England.)

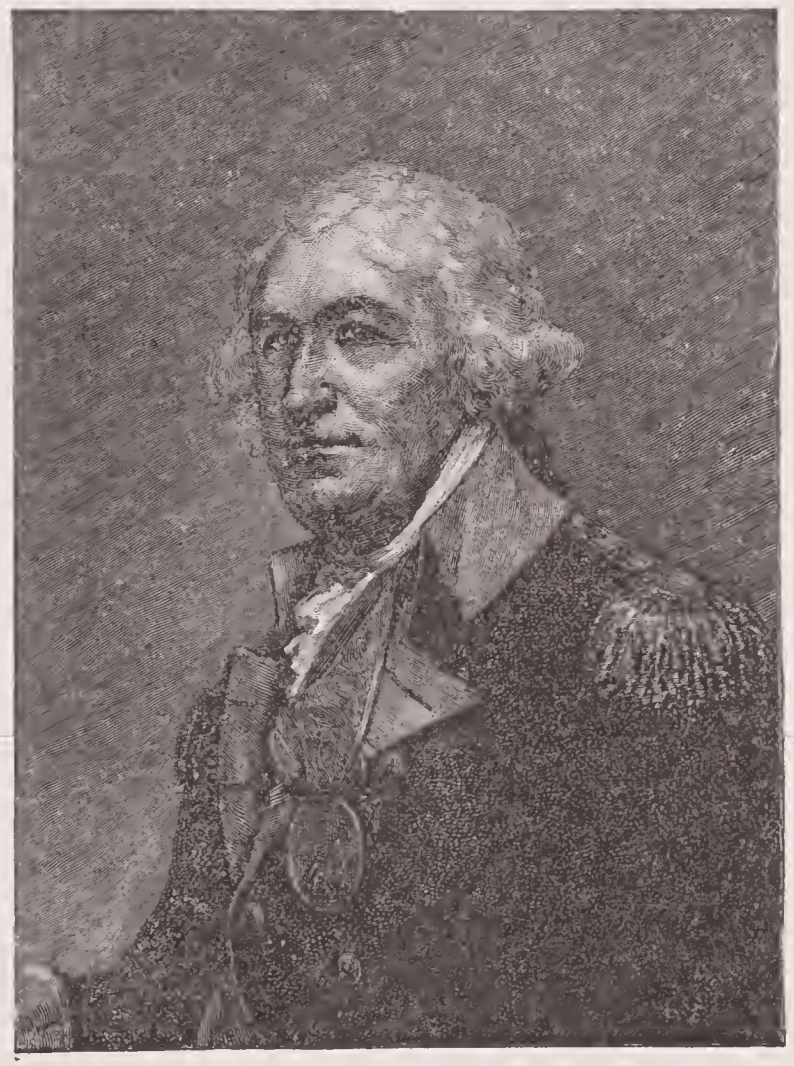
towers pierced with loop-holes, and the upper part terminates with a series of *machicolations* and battlemented *parapets*. In civil edifices there is much greater diversity in the forms and architectural arrangements of gate-houses; sometimes they resemble plain square towers of rather low proportions, with a single turret containing a staircase, or with a turret at each of the front angles, and occasionally at all the four angles; but in this case those on the front are generally the largest and the most ornamental. When the building is of sufficient height to allow of it, there is generally a room over the archway, with one or more large windows. Fig. 1130 represents the fine gateway of Brasenose College, at Oxford.

Gath, a city of the Philistines, and one of their five principalities. It was the home of Goliath, and here David sought a refuge from Saul. Its inhabitants were called *Gittites*.

Gath, in *Tennessee*, a post office of Warren co.

Gath'er, *v. a.* [A. S. *gaderian, gadrian;* D. *gaderen; te-gader*, together; allied to Icel. *gadda*, to press together, and probably to Gr. *ageirō*, to bring together, from *agō*, to lead.] To bring together; to collect; to accumulate; to amass; to congregate; to muster; to assemble.

"And Belgium's capital had *gathered* then
Her beauty and her chivalry." — *Byron.*



Horatio Gates

1728–1806

—To pick up; to glean; to harvest; to get in small parcels and bring together; to collect by cropping, picking, or plucking, as fruit; to cull; to select.

"*Gather* ye rose-buds while ye may." — *Herrick.*

—To sweep together; to bring into one body or interest; to gain; to accumulate; to amass in large quantity or numbers; to heap up; as, "to *gather* up money by degrees." (*Locke.*) — To compress; to contract; to make compact; to bring closely together; to pucker; to plait; as, to *gather* cloth or needle-work.

"*Gathering* her brows like *gathering* storm." — *Burns.*

—To collect logically; to deduce by inference; to infer by reasoning; to conclude.

"Let me say no more;
Gather the sequel by that event before." — *Shaks.*

To gather breath, to take breath; to suspire; to recover wind; to take respite.

Gath'er, *v. n.* To assemble; to congregate; to muster; to collect; to unite.

"The evening is beginning to *gather* in." — *Hazlitt.*

—To increase; to grow larger by accretion of similar matter; as, a snow-ball *gathers* by degrees. — To generate pus or matter; to come to a head, as a sore; as, a *gathered* finger. — To come to a conclusion; to make inference by deduction.

—*n.* A plait or fold in cloth, made by drawing the thread through; a plait; a pucker; a wrinkle.

Gath'ered, *p. a.* Assembled; collected; plaited. — Drawn by way of inference.

Gath'erer, *n.* One who collects.

Gath'ering, *n.* The act of collecting or assembling. — A collection; a crowd; an assembly. — A collection of pus; an abscess.

(*Printing.*) The making up the sheets, after they are printed, into a complete set ready for the book-binder.

Gatinais, (*gā'te-nai,*) an old division of France, now subdivided into the departments *Loire, Seine-et-Marne, Nièvre,* and *Yonne.*

Gatineau (*gat-e-no'*), a river of Quebec, rises between Lat. 48° and 50′ N., and about 75° 30′ W., and, flowing S., enters the Ottawa river opposite Ottawa. *Length,* about 300 miles.

Gat'to, Ga'to, or AGAT'TON, a town of W. Africa. See BENIN.

Gatun (*ga-toon'*), in the Republic of Colombia, a river of the Isthmus of Panama, which enters the Chagres River abt. 8 m. from the Caribbean Sea. — A town at the confluence of Gatun and Chagres rivers.

Gauche, (*gōsh.*) *a.* [Fr., left-handed.] Unskilful; awkward; unhandy; diffident; ignorant of the rules of good breeding and society; as, a *gauche* manner.

Gaucherie, (*gōsh'er-ee,*) *n.* An act so awkwardly done as to be ridiculous.

Gau'chos are scattered tribes of Indians, who have intermarried among the Spanish descendants, and who, mixed in religion as in blood and manners, may be regarded as the wild sovereigns of those vast plains called the *Pampas,* extending from the Paraguay to the frontiers of the Gran Chaco. These native *G.* are possessed of vast herds of wild horses and horned cattle, and roam over the country in a semi-savage independence. They are the most expert horsemen in the world, and keep their hold of the animal in any position, whether under his counter, along his flank, or hanging by the bent knee from their courser's neck. The arms of the *G.* are a lance, and the *bolas,* and *lasso,* with a knife stuck into the girdle. In the use of the bolas and lasso they are dexterous to a degree of accuracy perfectly surprising; with the former — which is a weapon composed of two balls of heavy wood, attached, like chain-shot, by a long thong of leather — they capture the largest animal and the smallest bird, which they effect by throwing it in such a manner that it shall involve either the two fore or hind legs, and thus throwing the animal down, keep him captive till the hunter has time to reach and dispatch his conquest. With birds, the bolas, twining round the body, firmly bind the wings to the side, and brings the captive powerless to the ground. In woods and where there is not space to cast the lasso, the bolas is singularly serviceable, and can be used as effectually against an enemy as against beasts of prey, or in the chase. As an arm in their wars, the bolas is very formidable for swinging through the air with immense momentum and speed; no agility can escape it, and, encircling the neck of the victim in three or four rapid and tight ligatures, it produces strangulation long before the captive can raise a hand to free himself from the deadly garrote. Where torture is intended, it is so thrown as only to prostrate or pinion the prisoner. Their dwellings are constructed of wicker-work, with a hole in the roof for the escape of the smoke; a pound or enclosure for cattle, called a *corral,* adjoins the hut, and the whole is surrounded by a fence of impenetrable cactus.

Gaud, *n.* [Lat. *gaudium.*] An ornament; a fine thing; anything worn as a sign of joy.

"All the *gauds* the simple natives wear." — *Dryden.*

Gaud'day, *n.* See GAUDY.

Gau'dens, (St.,) a town of France, dep. Haute-Garonne, cap. of arrond., on a hill near the Garonne, 48 m. S.W. of Toulouse. *Manuf.* Serge and tape. *Pop.* 5,781.

Gau'dery, *n.* Finery; ostentatious luxury of dress.

"The triumph was not pageants and *gaudery*." — *Bacon.*

Gaud'ful, *a.* Showy; joyful.

Gaud'ily, *adv.* With vain show; ostentatiously.

Gau'diness, *n.* Showiness; tinsel appearance; ostentatious finery.

Gau'dish, *a.* Same as GAUDY, *q. v.*

Gaud'less, *a.* Void of ornament.

Gau'dy, *a.* Showy; pompous; splendid; ostentatiously fine; gay beyond the simplicity of nature or good taste.

"Gallant in arms, and *gaudy* to behold." — *Phillips.*

—Gay; merry; festive.

"Let's have one other *gaudy* night." — *Shaks.*

—*n.* A feast; a festival; a day of revelry. (Oxf. Univ.)

Gauf'fer, *v. a.* [Fr. *gaufrer,* to figure, or work figures on cloth, velvet, &c.; from Sp. *guafla;* L. Lat. *gaflum.* Cf. Eng. *waffle,* q. v.] To goffer; to plait; to crimp; to flute.

Gauf'fering, *n.* A manner of plaiting or crimping, where the flutes are unusually wide.

Gauge, (*gage,*) *v. a.* [Fr. *jauger,* a word of uncertain etymology; possibly from Lat. *qualificare.*] To measure or ascertain the contents of a cask or vessel. — To measure in respect to proportion, capacity, or power; to estimate; to measure.

"Taking measure or *gauging* his heroes." — *Pope.*

—*n.* [O. Fr. *gauge;* Fr. *jauge,* the instrument with which a cask is measured.] An instrument or apparatus for measuring any special force or dimension; thus we have *pressure-G., wind-G.* (see ANEMOMETER), *rain-G.* (q. v.), *wire-G., button-G.,* &c. The simplest form of gauge of dimensions is the common *wire-G.,* by which the diameter of wire is measured. It is simply an oblong plate of steel, with notches of different widths cut upon the edge; these are numbered, and the size of the wire is determined by trying it in the different notches until the one is found which it exactly fits. The thickness of sheet-metal is tried by the same *G.* A very elegant and delicate *G.* has recently come into use for measuring watch-glasses, and is applicable to many other purposes. On an oblong piece of sheet-metal, two straight metal ridges are fixed in such a manner that they shall be inclined at a given angle to each other, as *a b* and *c d* (Fig. 1131). Now, let us suppose the angle to be such that the distance between *a* and *c* is 2 inches, and that between *b* and *d* is 1 inch, while the lengths *a b* and *c d* are 10 inches. It is evident that for every inch of descent from *a* and *c* towards *b* and *d*, there will be a narrowing equal to $\frac{1}{10}$ of an inch; and for every tenth of an inch of such descent there will be a narrowing of $\frac{1}{100}$ of an inch, and so on: thus we may, by graduating downwards from *a c* to *b d*, measure tenths by units, hundredths by tenths, and so on to still finer quantities, if required. This is applicable to lengths as well as diameters. By means of fine screws with large graduated heads, small pieces of steel to the one-millionth of an inch have been measured (see MICROMETER). Pressure-*G.*, wind-*G.*, &c. will be treated under the special subjects.



Fig. 1131.

(*Naut.*) The number of feet a ship sinks in the water. Pointing of a ship with respect to another ship and to the wind.

(*Railroads.*) The distance between the rails.

(*Gun.*) The calibre of a gun.

(*Masonry.*) A mixture of fine stuff and plaster, or putty and plaster, or coarse stuff and plaster; used in finishing the best ceilings and for mouldings, and sometimes for setting walls.

Gauge'able, *a.* That may be gauged or measured.

Gauge'-cock, *n.* (*Mach.*) One of the two or three small cocks fixed in front of the boiler of a steam-engine, for the purpose of ascertaining the height of the water.

Gauge'-glass, *n.* (*Mach.*) A strong glass tube, connected with the boiler of a locomotive-engine by two cocks attached to the gauge-cock pedestal. The water is admitted to this tube by the lower cock, the steam by the upper cock. It thus becomes an index to what is going on inside the boiler, exhibiting the height or agitation of the water in it. A small cock is placed below the glass for blowing out any sediment which may be deposited in it.

Gauge'-point, *n.* A term used in gauging, to denote the diameter of a cylinder whose altitude is 1 inch, and its content equal to that of a unit of a given measure. For example, the old wine gallon contained 231 cubic inches. The diameter of a cylinder of the same capacity, and whose altitude is 1 inch, is 17·15 inches; which, therefore, is the gauge-point for this measure.

Gauger, (*gā'jer,*) *n.* An officer whose business is to ascertain the contents of casks; a surveying officer under the board of excise.

Gauging, (*gā'jing,*) *n.* (*Com.*) The method of determining by actual measurement the number of gallons contained in vessels intended to hold goods, — chiefly casks, barrels, vats, &c. The principal use of *G.* is in the collection of the revenue, in which it is necessary to measure the bulk of vessels, without disturbing their contents. The principles of gauging are those which are furnished in geometry for the measurement of solids. As, however, the men who are engaged either in commerce or by the excise for the purpose of *G.* are not likely, in general, to be acquainted with the principles upon which the art depends, a set of technical rules and appropriate instruments have been contrived, by which the art can be practised by any one of moderate intelligence. The instrument usually employed is the *G.* rod, or diagonal rod, by which the contents of a cask are inferred from its diagonal length, measured from the bung-hole to the extremity of the opposite stave at the head. A scale of inches, for taking the measure of the diagonal, is described on one face of a square rule, usually about four feet long; and on the opposite face is a scale expressing the corresponding contents of the cask in gallons. Although this method, obviously, can only give approximate results, yet, by using larger sliding-rules for calculation, and the aid of habit, derived from experience, it is possible to attain considerable accuracy in measuring the contents of casks, which do not depart from a given standard of form.

Gau'ging-rod, *n.* See GAUGING.

Gaul, *n.* [Lat. *Gallia.*] This name, when used alone, was applied to that part of W. Europe bounded N. and W. by the sea, S. by the Pyrenees, and E. by the Alps and the Rhine, thus comprising modern France, Belgium, and a part of Switzerland, Germany, and Holland. Nevertheless, in modern language, the name is generally applied exclusively to France. — See GALLIA.

Gaul'ish, *a.* Pertaining to ancient Gaul, or to modern France.

Gau'ley Bridge, in *W. Virginia,* a post-village of Fayette co., at the junction of the Gauley and New or Kanawha rivers, abt. 160 m. S. of Wheeling.

Gau'ley River, in *W. Virginia,* enters the New or Kanawha rivers in Fayette co., abt 36 m. above Charleston.

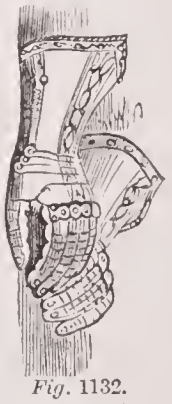
Gault, (*gawlt.*) (*Geol.*) A local name for a series of dark blue marls or calcareous clays found in the middle cretaceous system of England. It can be well examined at Cambridge and Folkestone. The word *G.* is a provincial term for the clay itself, which is much used for brickmaking. It contains marine shells, and decomposes into a very fertile soil.

Gaulthe'ria, *n.* (*Bot.*) A genus of plants, order *Ericaceæ,* the fruit of which is a 5-valved capsule, covered with the enlarged and fleshy tube of the calyx. They are natives of temperate regions. *G. procumbens* (see Fig. 144) is a common plant in this country as far south as Virginia, and bears the names of *Partridge-berry, Deer-berry, Winter Green, Box-berry, Checker-berry,* and *Mountain Tea.* It is about 4 or 5 inches in height, with small whitish flowers and red berries, which are eatable, but not safe in any considerable quantity, because of the pungent volatile oil which they contain. Braudy in which they have been steeped is used as a tonic. The whole plant has an agreeable aromatic odor and taste, owing to the presence of volatile oil, which, when extracted, is used in medicine as a stimulant, also by druggists for flavoring syrups, and to a considerable extent in perfumery, under the name of *Oil of Winter Green.* The leaves are used both as an astringent and as a stimulant; and an infusion of them is sometimes used as a substitute for tea. The oil is isomeric with anisic acid.

Gaunt, *a.* [A. S. *gewaman,* to lessen, pp. *gewaned.*] Lean; meagre; thin; attenuated; hollow; empty,—as an animal after long fasting.

"Two mastiffs *gaunt* and grim." — *Dryden.*

Gaunt'let, *n.* [Fr. *gantelet,* from *gant,* a glove.] A covering for the hand with metallic plates on the hinder part, worn in former times as part of the armor of defence. It was (Fig. 1132) a large leather glove cased with plates of polished iron, along the backs of the fingers and hands, so that when the hand was clenched either on battle-axe or sword, each piece was so hinged and riveted, that, like the shell of a lobster, the member beneath was defended at all points from assault or danger. It was in former times the custom, where one wished satisfaction of an enemy, to throw down before him the glove, *gantelet,* and if he (the adversary) took it up, that was equivalent to the acceptance of a challenge in modern times.


Fig. 1132.
GAUNTLETS.

—A long glove that covers the wrist; as, a hunting *gauntlet.*

—A kind of punishment for soldiers. See GANTLET.

Gaunt'leted, *a.* Wearing a gauntlet.

Gaunt'ly, *adv.* Leanly; meagrely.

Gaun'tree, Gaun'try, *n.* A frame set up for the support of barrels or casks; a stillage.

Gau'ra, *n.* [Gr. *gauros,* superb.] (*Bot.*) A gen. of plants, order *Ornagraceæ,* represented in the U. States by two species, the most conspicuous of which is *G. biennis,* the Biennial Gaura, found from Canada to Georgia; stem 3 to 5 feet high; leaves sessile, pale green, acute at each end; flowers numerous, sessile; calyx reddish; beautiful corolla, at first rose-color, changing to a deep red, blossoming in August.

Gauss, (*gows.*) KARL FRIEDRICH, a distinguished German mathematician and astronomer, B. at Brunswick, 1777. While attending the public school of his native city, his extraordinary intelligence attracted the notice of his teacher, on whose representation of his merits to the Duke of Brunswick the boy was furnished with the means of pursuing his studies, first at the college at Brunswick and subsequently at Göttingen. Here he made several of his greatest discoveries in analysis, which induced him to make the cultivation of science the chief object of his life. His first great work, the *Disquisitiones Arithmeticæ,* published in 1801, attracted the attention of all the scientific world, and stamped its

author as one of the most profound and original mathematicians of the age. In 1807 he received the appointment of Ordinary Professor and Director of the Observatory at Göttingen, which situation he held for nearly 48 years. During this long period he gave to the world a host of treatises on pure mathematics, geodesy, astronomy, and the cognate sciences, which all bear the impress of original genius, besides contributing largely to scientific journals, and making observations on terrestrial magnetism which have proved of great utility to the cultivation of science. In fact, there are hardly any of the scientific men of Europe or America at the present time, who have not directly or indirectly derived great advantage from his labors. D. 1855.

Gautier, (*gō't-yĕ̄,*) THEOPHILE, a French poet and man of letters, B. 1808. He had a notion that he was born to be a painter, but, discouraged by his first attempts, he turned his attention to literature. In 1830 he published a first volume of *Poésies*, followed by *Albertus*, a legend in verse, and in 1838 by another poem *La Comédie de la Mort*. He has also written numerous novels, vaudevilles, books of travel, and critiques. All his works contain a manifestation of the love of external beauty, and a worship of form — art for him being a kind of religion. M. Gautier was long connected with the newspaper *La Presse*, from which he transferred his services to the *Moniteur* in 1865. He has travelled in Europe and the East, and published accounts of his journeys. He is unquestionably the most able critic of art, and one of the best French writers of the time. *Mademoiselle de Maupin*, an eccentric and somewhat licentious novel, was the foundation of his literary fame, but prevented him from being, elected to the French Academy. D. 1872.

Gautnl'co, a harbor of Mexico, on the Pacific Ocean, about 110 miles S.E. of Oajaca.

Gauze, (*gorz,*) *n.* [Fr. *gaze.*] (*Manuf.*) A light transparent silken fabric, supposed to have derived its name from having first been manufactured at Gaza, a city of Palestine. France and Switzerland produce considerable quantities of *G.* The openness of texture is obtained by crossing the warp threads between each thread of the weft, so that the weft passes through a succession of loops in the warp, and the threads are thus kept apart, without the liability to sliding from their places, which would take place if simple weaving were left so loose and open. Inferior qualities of *G.* are made of a mixture of silk and cotton.

Gauze'-burner, *n.* An open cylinder surmounted by a wire gauze. Placed over a gas-burner, a supply of gas is drawn in by the ascending stream of gas, and the mixture burns above the gauze with a very hot, smokeless flame, the meshes preventing the flame from passing down to the gas below.



Fig. 1133. GAUZE-BURNER.

Gauze'-wire, *n.* (*Manuf.*) A kind of open cloth, made of fine wires of copper, brass, or iron.

Gau'zy, *a.* Thin as gauze.

Gavar'ni, the pseudonymic name of one of the most popular of modern French caricaturists, whose real name was SULPICE PAUL CHEVALIER, born in Paris, 1801. He began life as a mechanical draughtsman, but in 1835 discovered his genius for burlesque, in hitting off the peculiarities of manners and persons. He at once rose into fame, and taking the passing and ever-varying modes of Parisian life for his subjects, has produced an endless variety of caricatures, unequalled for the originality and tone they display. Besides illustrating the universally known pages of the *Charivari*, and other periodicals, he has lent the aid of his pencil to the works of popular authors. The most successful of these were the designs for the *Wandering Jew* of Eugène Sue, and the *Diable à Paris* of Balzac. A selection from his *Sketches of Parisian Life* was made and published in Paris in 1845–1850. They are comprised in 6 vols. 8vo., to which notes were appended by Theophile Gautier and others. D. 1866.

Gavar'nie, a hamlet of France, dep. Hautes-Pyrénées, 35 m. from Tarbes, at an elevation of 4,300 ft. above sea-level, on a small stream which rushes over a height of 1,260 feet and forms the *Falls of Gavarnie*, so much admired by tourists.

Gavazzi, ALESSANDRO, (*gah-vat'ze,*) an Italian ecclesiastic and orator, born at Bologna in 1809, was admitted into minor orders in the Church of Rome in 1825, and was appointed professor of rhetoric at Naples, illustrating the theory of the art by his eloquence in the pulpits of the chief Italian cities. He took a prominent part in the Roman insurrection of 1848, and, after the fall of the Holy City, he left Italy an exile and repaired to England, in which country, and afterwards in the U. States, he lectured with brilliant success. In 1860, Father *G.* was present with Garibaldi during the expedition to Palermo.

Gave, *imp.* of GIVE, *q. v.*

Gave, (*gav.*) [Basque, water.] The general name of the rivers which flow through the French prov. of Bearn, and which have their source in the Pyrenees.

Gav'el, *n.* [Fr. *javeau, javelle;* Sp. *gavilla*, from *capulus*, a handle, from *capere*, to seize, to take hold of.] A loose-lying heap of wheat, rye, or other grain.

—The chairman's hammer, in a deliberative or legislative body.

Gav'elock, *n.* [A. S. *gafeloc*, javelin; O. Fr. *gavelot;* Fr. *javelot.*] A spear. (Prov. Eng.)—An iron crow or lever.

Ga'vers, in *Ohio*, a post-office of Columbiana co.

Gaves'ton, PIERS, favorite of Edward II., king of England, was a Gascon by birth, and on account of his father's services to Edward I. was chosen companion to the Prince of Wales. He acquired a complete and very mischievous ascendancy over the prince, corrupting his morals, wasting his resources, and breeding dissension between him and his father. Edward I. banished him in 1307, but dying the same year, Edward II. at once recalled him, made him earl of Cornwall, and gave him in marriage his niece, Margaret de Clare. Intoxicated with his elevation and honors, he became intolerably insolent, and exasperated the nobles. He was again banished, again recalled, and in 1312, the barons having declared war, *G.* was besieged in Scarborough castle, captured, and executed near Warwick.

Ga'via, a mountain of Brazil, in the province of Rio de Janeiro.

Ga'vial, *n.* (*Zoöl.*) A gen. of enormous reptiles, family *Crocodilidæ*, distinguished from the crocodile of the Nile and the alligator by the peculiar form of its mouth, the jaws being remarkably long, narrow, and straight, constituting the anterior part or beak, spreading out at its base, and terminating in front so as to remind the observer of the beak of the Spoonbill. The head, properly so called, has its sides straight and perpendicular, the upper surface being quadrilateral; and the mandible, instead of being continued from the forehead by a gradual slope, sinks suddenly to follow a straight and nearly horizontal direction. This powerful animal frequently attains the length of 25 feet; and, from its strength and ferocity, is truly formidable. In one respect, however, it is found very serviceable, viz., in devouring the numerous dead bodies of men and animals which are committed to the "sacred river."

Gav'ot, Gavotte, *n.* [Fr. *gavotte.*] A dance consisting of two light lively strains in common time, each being played twice. The first usually contains 4 or 8 bars, and the second 8 or 12, and sometimes more. The 1st strain should close in the dominant or fifth of the key, for it has its termination in the tonic or key-note; it is not a *gavot*, but a *rondeau*. This dance, introduced upon the stage in the 18th century, was adapted by Gardel to private drawing-rooms, in 1794. Its popularity declined early in the 19th century.

Gaw'by, *n.* Same as GABY, *q. v.*

Gawel'ghur, an elaborately fortified stronghold of Hindostan, in the N. part of the Nizam's dominions, on the crest of a high and rocky hill, 11 m. N.W. of Ellichpore. In 1803 it was taken by storm by the British under Gen. Wellesley (afterwards Duke of Wellington).

Gawk, *n.* [A. S. *geac.*] A cuckoo.

—A fool; a simpleton; an imbecile.

Gaw'ky, *a.* Awkward; clumsy; clownish; foolish.

—*n.* A person who is awkward and ridiculous, either from over-bigness or stupidity.

Gawn, *n.* [Corruption of *gallon.*] A small tub, or lading vessel.

Gawn'-tree, *n.* A frame on which casks are set for convenience in drawing; a gauntry; a stillage.

Gay, *a.* [Fr., from Lat. *gaudere.*] In high spirits; merry; joyous; sportive; gleeful; airy; sprightly; jolly; jovial.

"Belinda smiled, and all the world was *gay.*" — *Pope.*

—Fine; showy; gaudy; meretricious.

"A virgin that loves to go *gay.*" —*Bar.* vi. 9.

Gay, JOHN, an English poet, born at Barnstable, Devon, 1688. In 1711 he published his *Rural Sports*, which he dedicated to Pope, then a young poet like himself; a compliment that introduced them to each other, and proved the foundation of a friendship which lasted for life. The year following he was appointed secretary to the Duchess of Monmouth. About this time came out his burlesque poem, entitled *Trivia, or the Art of Walking the Streets of London;* which was succeeded, in 1714, by the *Shepherd's Week, a series of Pastorals*, in ridicule of Philips. After producing many ingenious and agreeable works, some instances of court favor encouraged him to employ himself in his well-known *Fables*, written professedly for the instruction of the Duke of Cumberland, and published with a dedication to that prince in 1726; but though they were popular, they failed to serve him at court. He thereupon wrote *The Beggar's Opera*, which was first acted in 1727, and ran for 63 successive nights; but it so offended the persons in power, that the lord chamberlain refused to license for performance a second part of it, entitled *Polly*. The cause of *G.* was taken up by the Duke and Duchess of Queensberry, who gave him a residence in their house, where he died, 1732.

Gay'a, a city of British India, pres. Bengal, prov. Bahar, on the Phalgu, a tributary of the Ganges, 46 m. S.W. of Bahar, and 56 S.W. by S. of Patna. Many Buddhic remains are found in the vicinity. *Pop.* estim. at 45,000.

Gay'diang, *n.* (*Naut.*) A vessel of Annam with two or three masts, and lofty triangular sails.

Gay'ety, Gai'ety, *n.* [Fr. *gaieté.* See above.] Merriment; mirth; airiness; liveliness; festivity.—(Now frequently written *gaiety.*) Fluery; show; as "the *gaiety* of his appearance."

Gay Head, in *Massachusetts*, a promontory and light-house on the S.W. extremity of Martha's Vineyard. It exhibits a revolving light 173 ft. above the sea. Lat. 41° 21′ N., Lon. 70° 50′ 40″ W.

Gayhead, in *New York*, a post-office of Greene co.

Gaylesville, (*gails'ville*), in *Alabama*, a post-village of Cherokee co., abt. 150 m. N.E. of Montgomery.

Gay'lordsville, in *Connecticut*, a post-village of Litchfield co., abt. 40 m. W.S.W. of Hartford.

Gay-Lus'sac, NICOLAS FRANÇOIS, an eminent French philosopher, B. at St. Leonard, Haute-Vienne, 1778. In 1804, in conjunction with M. Biot, he ascended in a balloon, lent by the government of France for the purpose, to the height of 13,000 ft. above the Seine, and ascertained that the influence of terrestrial magnetism there is nearly as great as it is on earth; that the electricity of the atmosphere increased as they rose, and was always negative; that the hygrometer discovered increased dryness, and that the thermometer sank from 64° Fahr. on the earth, to 51°. He made another ascent alone, and attained an elevation of 4½ miles, where he had great difficulty in breathing, and the thermometer fell to 20° Fahr. After sailing six hours through the atmosphere, he descended at a village 20 m. from Rouen. The result of this aërial flight was the discovery that air obtained at the highest point, was composed of the same elements as that found on the surface of the earth. These experiments brought Gay-Lussac greatly into notice, and he rose both in fame and position. In 1804 he became a member of the society of Arcueil, and was introduced to Humboldt, with whom he prosecuted an investigation of the polarization of light and other subjects. He also devoted much of his time to the study of chemistry, and to him we are indebted for the discovery of the hydro-sulphuric and oxy-chloride acids. In 1830 he became a member of the Chamber of Deputies, and in 1839 was created a peer of France. He enjoyed several official appointments, and was professor of chemistry at the Jardin du Roi. D. at Paris, 1850.

Gay-Lus'site, *n.* [Named after *Gay-Lussac.*] (*Min.*) A hydrous compound of the carbonates of lime and soda, found on a small island in Little Salt Lake, Nevada. Crystals, lengthened, prismatic; lustre, vitreous; color, white, yellowish-white, translucent. *Sp. gr.* 1·92–1·99. *Comp.* Carb. soda 35·9, carb. lime 33·8, water 30·3. *G.-L.* has been produced artificially by mixing 8 parts by volume of a saturated sol. of carb. soda with one of a sol. of chloride of calcium.

Gay'ly, Gai'ly, *adv.* Merrily; with mirth and frolic. —Finely; splendidly; pompously.

"*Gaily* dressed ladies."—*Gay.*

Gay'ness, *n.* Gayety; finery.

Gayo'so, in *Missouri*, a post-village, cap. of Pemiscot co., abt. 310 m. S.E. of Jefferson City. The earthquakes of 1811 and 1812 exhibited their greatest violence in this vicinity. The village was laid out in 1851.

Gays'port, in *Ohio*, a village of Muskingum co., abt. 14 m. S.S.E. of Zanesville.

Gays'port, in *Pennsylvania*, a borough of Blair co., on a branch of the Juniata River, opposite Hollidaysburg, abt. 120 m. W. of Harrisburg.

Gays'ville, in *Vermont*, a post-village of Windsor co., abt. 3 m. S. by E. of Montpelier.

Ga'za, [Heb., strong.] A town in the S.W. of Palestine, is situated about 3 m. from the sea and 50 m. from Jerusalem, on the borders of the desert which separates Palestine from Egypt. It originally belonged to the Philistines, and was a place of importance at the period of the conquest of Canaan by the Israelites. It is frequently mentioned in the history of Samson; and after many vicissitudes in the wars between the Israelites and the Philistines, it was allotted to the tribe of Judah, in whose possession it finally remained. In the year 333 B. C., *G.* was taken by Alexander the Great; and from that period down to 1799, when it was taken by the French under Kleber, it has been the scene of many battles and sieges. The modern town, called *Guzzeh*, is an entrepot for the caravans passing between Syria and Egypt. *Pop.* abt. 15,000.

Gaze, *v. n.* [A. S. *gesean*, to look at; allied to Heb. *chaza*; Ar. *lahaz*, to see.] To fix the eyes and look steadily and earnestly; to look with eagerness or curiosity; to stare; to gaze.

"A lover's eyes will *gaze* an eagle blind."—*Shaks.*

—*n.* A look of eagerness, wonder, or admiration; a continued look of attention; as, a modest *gaze.* — The object gazed on; that which causes one to gaze.

"Made of my enemies the scorn and *gaze.*"—*Milton.*

—*v. a.* To consider or view fixedly.

Gazee'bo, Gaze'bo, *n.* [From *gaze*, q. v.] A trivial name for a summer-house affording a view of the surrounding country.

Gaze'ful, *a.* Looking intently; given to gazing.

Gaze'-hound, *n.* [*Canis agasæus.*] A hound that pursues not by the scent but by the eye.

Gaz'er, *n.* One who looks fixedly or intently upon anything.

Gazelle', *n.* [Fr., from Ar. *gazal*, a wild goat.] (*Zoöl.*) The *Antelope dorcas*, one of the most beautiful and graceful of the antelopes, chiefly inhabiting Arabia and Syria. It is about three feet six inches in length, and in height measures less than two feet at the shoulder. The horns of the adult male rise nearly perpendicularly above the orbits, are black, almost cylindrical, bending at first gently backwards, and finally forwards. The ears are long, narrow, and pointed; eyes large, mild, and black. The size of the gazelle about equals that of the roebuck; but the legs of the former are considerably longer, and the entire form more graceful. The face and cheeks are reddish-fawn color, with a dark stripe down the nose; on each side of the face, passing over the eyes, from the horns down to the nose, there is a broad white stripe, and beneath this, from the anterior canthus of the eye, a narrower dark stripe parallel to it, and separating it from the fawn-color of the cheek. The remainder of the body is dark-fawn above and white beneath, the latter color being separated by a broad, brown band along the flanks. The knees are furnished with brushes of dark hair, and the ears are filled internally with long white hair. It lives in large troops, and when pursued by the hunter, flees at great speed for some distance, then stands still to gaze on him, then bounds off again. When brought to bay, these animals defend themselves with courage and obstinacy, meeting

in a close circle, with the females and fawns in the centre, and presenting their horns at all points to their enemies. Wild and timid as the *G.* is, when taken young it is readily domesticated; and it is frequently seen at large in the court-yards of houses in Syria, their exquisite form, general bearing, and playfulness rendering them special favorites.

Gazette', *n.* [Fr.; It. *gazzetta*.] (*Lit.*) The name given to certain newspapers in Europe, and in the U. S. It is said to be taken from *gazzetta*, the name of a Venetian coin worth somewhat less than a farthing, and which was the price of the earliest newspaper published in Venice (1563). According to others, it is derived from *gaza*, a treasure, or *gazza*, a magpie. The first Gazette published in France (under that name) appeared in 1631, the first in England in 1665.

—*v. a.* To announce or publish in a paper; to announce officially.

Gazetteer, (*gāz-et-teer'*,) *n.* (*Lit.*) A dictionary of geography, a work giving an account of the different places on the face of the earth, under their particular names, in alphabetical order. The first work of this kind with which we are acquainted is that of Stephen of Bysantium, who lived about the beginning of the 6th century. The first modern work of the kind is the *Dictionarium Historico-Geographicum* (Geneva, 1565), by Charles Stephens, with additions by N. Lloyd, (Oxford, 1670, and London, 1686.) The works of Ferrari, *Lexicon Geographicum*, and Bandrand, *Geogr. rdine Literarum dispos.* (1682), are full of the strangest errors. Those of Maty (1701), Thomas Corneille (3 vols. folio, 1708), and Savonarola (1713), were based on the former, with additions and corrections. *The Dictionnaire Géographique, Historique, et Critique*, of La Martinière (Hague and Amsterdam, 10 vols. folio, 1726; Paris, 6 vols., 1768), superseded all that had gone before it, though still retaining many errors. The *Geographisch-Statistisches Handwörterbuch*, by Hassel (2 vols., 1817, with a supplement of 2 vols.), was the most complete and accurate work of its time. The *Edinburgh Gazetteer* (6 vols. 8vo., 1817–22) was a tolerably accurate book. Since that time, however, numerous valuable works of this class have appeared, both in this and in other countries. Among the more important of those that have recently appeared in this country may be mentioned Lippincott's *Complete Pronouncing Gazetteer of the World* (Philadelphia, 1880), and Harper's *Statistical Gazetteer of the World*. Of other countries may be mentioned McCulloch's *Geographical Dictionary* (4 vols., new edition, London, 1866); A. K. Johnston's *Dictionary of Geography* (2d ed., London, 1855): W. G. Blackie's *Imperial Gazetteer* (2 vols., Glasgow, 1855); the *Gazetteer of the World*, published by Fullarton & Co. (7 vols., Edinburgh); Möller's *Geographisch-Statistisches Lexikon* (1847); Ritter's *Geographisch-Statistisches Lexikon* (4th ed., Leipsic, 1855); Hoffman's *Encyclopædie der Erd-, Völker- und Staatenkunde* (Leipsic, 1855, *et seq.*); Kramer's *Geographisch Woordenboek* (Gouda, 1853); Carrio's *Gran Dizionario Geografico* (Milan, 1855); *Dictionnaire Géographique universal, par une Société de Géographes* (10 vols., Paris, 1822–33); *Dictionnaire Géographique universal. par une Société de Geographes* (13 vols., Brussels, 1839); Bescherelle's *Grand Dictionnaire de Géographie universelle, ancienne et moderne* (4 vols., Paris, 1856–7).—One of the most extensive and valuable Gazetteers of particular countries is the *Diccionario Geografico-Estadistico-Historico de España*, by Pascual Madoz (Madrid, 1847–8), in 16 volumes.—A valuable dictionary of ancient geography is the one recently edited by Dr. William Smith.

Gazetteer', *n.* A writer or publisher of news.—A newspaper; a gazette.

Gaz'ing-stock, *n.* A person regarded with scorn or abhorrence; an object of curiosity or contempt.

"To make us *gazing-stocks* to others."—*Ray.*

Gaz'ogene, *n.* (*Chem.*) A neat apparatus employed to extemporize soda-water, ginger-beer, sherbet, and other popular summer drinks.

Gazon', *n.* [Fr. *gazon*, a turf.] (*Fort.*) Sod laid over newly made earthwork, to consolidate it, and prevent the soil from rolling down.

G. C. B., Grand Cross of the Bath. (England.) See BATH.

G. C. M. G., Grand Cross of St. Michael and St. George.

G. D., Grand Duke.

Ge, an inseparable particle often prefixed to verbs and verbal nouns, in A.S. and the cognate languages.—See GA.

Géant, (*zhaī'a.*) one of the peaks of the Pennine Alps in Savoy, 5 m. from Mont Blanc, having an elevation of 13,100 ft. above the level of the sea.—The *Col* (pass) *du Géant* is upwards of 11,100 ft.

Gear, *n.* [A.S. *gearwian, gyrian*, to prepare, to procure; whence the noun *gearwa*, clothing.] Apparatus; preparation; furniture; accoutrements; dress; ornaments; habit.

"Stript from her *gear*."—*Fairfax.*

(*Mach.*) The several working parts of a locomotive steam-engine, or of any machinery.—See GEARING.

—*pl.* (*Naut.*) Same as JEARS, *q. v.*

—*v. a.* To put harness on; to dress.

Gear'ing, *n.* (*Mach.*) A term applied to the parts of machinery by which motion in one part of a machine is communicated to another. *G.* consists in general of toothed-wheels, friction-wheels, endless bands, screws, &c., or of a combination of these. When the communication between the two parts of the machine is interrupted, the machine is said to be *out of gear*; and when the communication is restored, it is said to be *in gear*. In the case of a threshing-mill, e.g., driven by a steam-engine, the *G.* usually consists of an endless band which communicates motion from the axle of the fly-wheel to that of the drum. If the band were slipped off from one wheel, or slackened so that motion could not be communicated by means of it, then the machine would be *out of gear*. *G.*, which can be put in and out of gear is called *movable gearing*; that which cannot, as, for instance, the wheelwork of a watch, is called *fixed gearing*. *G.* which consists of wheelwork or endless screws (*q. v.*), is put out of gear either by means of one of the wheels sliding along its axis, or being moved out of its place horizontally or vertically by means of a lever. *Straight gearing* is used when the planes of motion are parallel to each other; *bevelled gearing*, when the direction of the plane of motion is changed. *G.* has also for its object the increasing or diminishing of the original velocity, and in reference to this is distinguished by the term "multiplying" or "retarding."—See WHEELS, (TOOTHED.)

Gear'kusite, *n.* [*Ge*, earth, and *arksutite* (q. v.), from its earthy aspect.] (*Min.*) A mineral found with the cryolite of Greenland. Lustre, dull. Color, white, opaque. Comp. fluorine 41·18, aluumina 15·52, calcium 19·25, sodium 2·46, water 20·22.

Gear'y, in *Kansas*, a post-village of Doniphan co., on the Missouri river, about 13 m. above Atchison.

Gear'y, in *Michigan*, a post-office of Clinton co.

Gear'y, in *Oklahoma*, a post-office of Blaine co.

Gear'y, in *Pennsylvania*, a post-office of Westmoreland county.

Geas'hill, a parish of Ireland, Kings co., Leinster, about 8 m. N.W. of Portarlington. It contains the ruins of a castle heroically defended, during the civil war of 1641 by Lady Digby.

Geat, *n.* (*Founding.*) The hole through which the metal runs into the mould.

Geauga (*je-aw'ga*), in *Ohio*, a N.E. co.; *area*, about 400 sq. m. *Rivers.* Chyahoga, Grand, and Chagrin rivers. *Surface*, hilly; *soil*, fertile and adapted to pasturage. *Cap.* Chardon. *Pop.* (1890) 13,489.

Ge'ba. (*Script.*) A Levitical town of Benjamin, situated 6 or 7 m. from Jerusalem, and not far from the N. border of the kingdom of Judah. Near *G.*, David defeated the Philistines, (2 *Sam.* v. 25.)

Geba River. See SENEGAMBIA.

Ge'ber, a great Arabian chemist of the 8th century, of whose history little is known, but whose writings contain notices of so many important chemical facts, not found in any previous writer, that he is considered entitled to the designation of the father and founder of chemistry. He was acquainted with nearly all the chemical processes in use down to the 18th century: with the sulphuric and nitric acids, corrosive sublimate, saltpetre, potash, and soda. But he did not, as a philosopher, rise above the spirit of his age and countrymen—explaining phenomena by *occult causes*, and firmly believing in and seeking the *philosopher's stone*. Geber's work was translated from Arabic into Latin by Golius of Leyden, who entitled it *Lapis Philosophorum*. In 1678 an English translation by Richard Russell appeared. It is the oldest chemical treatise known.

Geb'hard, or GEB'HART, in *Indiana*, a village of Cass co., about 5 m. N.W. of Logansport.

Geb'harts, in *Pennsylvania*, a P. O. of Somerset co.

Geck, *n.* [A.S. *geac*, a cuckoo; Ger. *geck*, a silly fellow Cf. GAWK.] Contempt or scorn. (Prov. Eng.)

Geck'o, *n.*; *pl.* GECK'OES. [The name is an assimilation to the sound which the animal utters.] (*Zoöl.*) A family of Saurian reptiles, of small size and generally of repulsive aspect. The tongue is fleshy, and not extensible; their jaws are furnished with a range of very small teeth; and their toes have a flattened disc, which enables them to move even on walls and ceilings. Many genera and species are known in the warmer parts of both continents.



Fig. 1134.—WHITE'S GECKO. (*Phyllurus platurus.*)

Gee, (*jē,*) *v. n.* To agree.—To turn from the side where the driver stands;—used mostly in driving, and having for its opposite and correlative the verb *to haw*.

Geelong, (*jē'long,*) the second city of Victoria, in Australia, at the head of the westerly arm of Port Philip, about 40 m. S.W. of Melbourne, with which it is connected by railroad.

Geese, *pl.* of GOOSE, *q. v.*

Géflé, a town of Sweden, at the mouth of the river Géflé, on an inlet of the Gulf of Bothnia, about 100 m. N.N.W. of Stockholm. Its exports are iron, timber, tar, flax, and linen.

Gehen'na. (*Script.*) [Lat.; Gr. *geenna*, from Heb. *gehinnon*, the valley of Hinnom.] The valley of Hinnom, where the Jews burnt their sons and daughters in the fire to Moloch, is in the authorized version of the Scriptures translated by *hell*. By mediæval writers it was used not only in this sense, but generally in that of pain and suffering.

Gehl'enite, *n.* (*Min.*) A silicate of alumina and lime found in the Tassa valley in the Tyrol. Crystals, square prisms. Lustre, resinous. Color, grayish-green to brown. *Sp. gr.* 2·9–3·067. *Comp.* Silica 29·9, alumina 21·5, sesquioxide of iron 6·6, lime 42. *G.* occurs as an artificial product in furnace scoria in thin square tables or 8-sided prisms.

Ge'ic Acid, or GEINE, *n.* [Gr. *geinos*, of earth.] (*Chem.*) A soluble brown matter extracted from the organic matter of soils. As it does not crystallize, its existence as a definite acid is doubtful.

Gei'erite, *n.* (*Min.*) A variety of LOLINGITE, *q. v.*

Gei'ger's Mills, in *Pennsylvania*, a post-office of Berks co.

Gek'ko. Same as GECKO, *q. v.*

Ge'la. (*Anc. Geog.*) A town in the S. part of Sicily, about 10 m. from the sea, built by a Cretan colony, 713 years B. C. The inhabitants were called Gelenses, Geloi, and Gelani.

Gelable, (*jel'a-bl,*) *a.* Susceptible of congelation.—Capable of being converted into jelly.

Gelasius I., (*je-lai'se-us.*) Pope, succeeded Felix III. in 492. He had an acrimonious contest with the patriarch of Constantinople, and condemned the practice of communicating only with bread, as was the custom of the Manichean sect, and made it imperative on the laity to use both bread and wine in the Lord's Supper. D. 496.

GELASIUS II., succeeded Pascal II. as pope in 1118. Cencio, Marquis di Frangipani, consul of Rome, aided by the emperor Henry V., drove him from Rome, and Maurice Bourdin, as Gregory VIII., was elected in his stead. *G.*, after an unsuccessful attempt to regain the pontificate, retired to France. D. at the abbey of Cluny, 1119.

Gelatig'enous, *a.* [Fr. *gélatine*, and Gr. *genesthai*, to be born.] Producing gelatine.

Gelat'inate, *v. a.* To convert into gelatine.—*v. n.* To be converted into gelatine.

Gelatine, (*jĕl'a-tine,*) *n.* [Fr. *gélatine*; L. Lat. *gelatina*, from Lat. *gelare, gelatus*, to freeze, to congeal, from *gelu*, icy coldness.] (*Chem.*) An azotized principle obtained from animal tissues only. All the solid parts of the animal body yield it when boiled, though it does not appear to exist in a free state in any of them. *G.* softens and swells in water, but requires heating to dissolve it. When the solution cools, it solidifies to a firm jelly, hence the name. It is insoluble in alcohol and ether, and may be precipitated from its aqueous solution by the former. With infusion of galls or tanuic acid it gives a whitish insoluble precipitate that is incapable of putrefaction, and forms the basis of leather. See TANNING. It is also precipitated by solution of corrosive sublimate and bichloride of platinum. By continued boiling *G.* is converted into *metagelatine*, which does not gelatinize as the liquid cools. A solution containing 1 per cent. of *G.* will set on cooling. It is much used for food, but its value as a nutritive has been much questioned.

(*Arts.*) See GLUE.

Gelatin'iform, *a.* Having the form of gelatine.

Gelat'inize, *v. a.* & *n.* To make or become gelatinous.

Gelat'inous, *a.* [Fr. *gélatineux.*] Viscous; stiff and cohesive, as gelatine.

Geld, *v. a.* [A.S. *gelden*, to castrate.] To emasculate; to deprive of the testicles.

"*Geld* hull-calf and ram-lamb, as soon as they fall."—*Tusser.*

—To deprive of any essential part.

—To deprive of anything immodest or exceptionable; to purify; to purge.

Geld'er, *n.* One who castrates or gelds.

Gel'derland, in the Netherlands. See GUELDERLAND.

Gel'der-rose, *n.* Same as GUELDER-ROSE, *q. v.*

Geld'ing, *n.* Act of castrating.—A castrated animal, but chiefly a horse. In one of the old copies of the Bible, it is used as applying to the male of the human kind.

"And Philip and the *gelding* went down into the water."

Gelid, (*jel'lid,*) *a.* [Lat. *gelidus*, from *gelare*, to congeal, from *gelu*, frost.] Icy cold; very cold.

Gelid'ity, *n.* State of being extremely cold.

Gelid'ium, *n.* (*Bot.*) A genus of Algales. From the species *G. corneum*, commonly known as *Algue de Java* in France, M. Payen first obtained the principle to which he has given the name of *gelose*. According to the researches of this chemist, one part of gelose dissolved in 500 parts of boiling water will afford, upon cooling, a colorless jelly; thus forming ten times more jelly than a like weight of the best animal gelatine. Jellies made from this sea-weed are much employed for food in Japan.

Gel'idly, *adv.* In an extremely cold manner.

Gel'idness, *n.* Extreme coldness.

Gel'lius, AULUS, a Roman writer of the 2d cent. He studied philosophy at Athens, held a judicial post at Rome, and is known as author of *Noctes Atticæ*, a kind of commonplace book, made up of selected passages from many ancient authors on all sorts of subjects, with some origiual observations, critical and philological.

Gel'ly, *n.* Same as JELLY, *q. v.*

Ge'lon, or GELO, tyrant of Syracuse, was a native of Gela, and commanded with distinction in the wars carried on by Hippocrates, tyrant of Gela, and seized the sovereign power himself, B. C. 491. In 485, through the influence of the aristocratical party at Syracuse, he became sovereign there, and gave up Gela to his brother Hieron. He greatly increased the power and importance of Syracuse by his conquests and good government, and his aid was sought by the Greeks against Xerxes. A formidable invasion of the Carthaginians, however, detained him in Sicily, and he won a great victory over them near Himera on the day, it is said, either of the battle of Salamis or Thermopylæ. D. B. C. 478. His memory was long held in honor at Syracuse.

Ge'lose, *n.* (*Chem.*) See GELIDIUM.

Gelt, *pp.* of GELD, *q. v.*

Gem, *n.* [Fr. *gemme*; Lat. *gemma*, from Gr. *geneslhai*, to be born.] (*Fine Arts.*) A term applied to all precious stones, particularly to those used in jewelry. The chief ends aimed at in objects of this kind, are bril-

liant lustre, transparency, and richness of hue. Among the gems that are cut, the diamond is the most valued for brilliancy of lustre, or *water*, as it is termed. The other stones that are chiefly used for gems are the ruby, sapphire, emerald, aquamarine, topaz, garnet, chrysolite, hyacinth, tourmaline, and many varieties of quartz, as opal, amethyst, agate, onyx, &c. These stones are all described in this work under their various names. The art of carving gems is of great antiquity, though it is doubtful whether the ancients were able to cut the diamond or carve the emerald and topaz. The Eastern nations are yet unacquainted with the proper mode of cutting and polishing the diamond. Among the Greeks the art of gem-cutting was carried to great perfection. Many celebrated names of engravers before the æra of Alexander have been handed down. Theodore of Samos engraved a lyre on a celebrated emerald belonging to King Polycretes 750 years B.C., which the owner, to immortalize himself, threw into the sea. The Egyptians and Hebrews practised the art. The Egyptians used green jasper, chalcedony, and cornelian, and many interesting specimens of their work are preserved in the British Museum. With the introduction of Christianity, the art languished, and after the 7th cent. almost entirely disappeared, until it was revived by the Italians in the 15th cent. In 1500 Ambrose Caradopo, an Italian, engraved the portrait of a father of the church on a diamond, and sold it to Pope Julius II., a great patron of the arts, for $27,500. Since its revival, modern masters have more than rivalled the productions of the ancient engravers.



Fig. 1135.
GREEN JASPER ABRAXAS, WITH FIGURE OF JAO.
(British Museum.)

G. artificial. Many of the precious stones have been produced artificially by crystallizing mixtures containing their component parts at a very high temperature. Artificial rubies, corundum, spinelle, garnet, opal, and emerald have been thus produced, possessing the properties of the real stones in color, hardness, and form. Minute crystals of carbon have been obtained by voltaic action, but as yet no diamond of any appreciable size has been formed artificially.

G. imitations, are made by a transparent and dense glass, or *paste*, containing a large percentage of oxide of lead, and colored by metallic oxides. In many of these, the tints of the real stone are so exactly imitated, and they are cut and polished with such skill, as to deceive any but the most experienced judges.

(*Bot.*) The bud or compendium of a plant.

—*v. a.* To bespangle; to embellish, as with detached beauties.

—*v. n.* To breed; to germinate.

Gemara, *n.* [Chald. *Ghemára*, complement.] That portion of the two Talmuds which contains the annotations, discussions, and amplifications of the Mishnah by the academies of Palestine on the one hand, and those of Babylon on the other. The Babylonian Gemára, more complete as well as more lucid than the Palestinensian, possesses a much more highly valued authority. The final redaction of this latter falls in the middle of the 4th cent. A.D., while the former was not completed till 500 A.D. See MISHNAH and TALMUD.

Gemar'ic, *a.* Belonging to the *gemara*.

Gem'el, *n.* [Lat. *gemellus;* Fr. *jumeau.*] (*Her.*) A pair; two things of a sort.

Gem'el-ring, *n.* A ring with at least two links; a gimbal.

Gem'inate, *a.* [Lat. *geminatus*, from *geminare*, to double.] (*Bot.*) Doubled; in pairs; binary.

Gem'ini, *n. pl.* [Lat., the twins.] (*Astron.*) The third constellation, or sign of the zodiac. The title is referred by the Greeks not only to the fable of Castor and Pollux, but also to those of Hercules and Apollo, Triptolemus and Iasion, Amphion and Zethus, &c. The name of the Twins is given to the constellation from two remarkable stars of the first and second magnitude, to which the names of Castor (or *α* Geminorum) and Pollux (or *β* Geminorum) are given. These two stars, when once known, can be easily recognized on account of their proximity. By drawing a straight line through the belt of Orion and the two bright stars, the line of which cuts through the belt, the *G.* may be easily found; for the straight line, when lengthened upwards, will pass very near the two stars. They are also about half-way between Regulus and Aldebaran; and when Orion and the Great Bear are seen together, Capella on one side, and Castor and Pollux on the other, form the most conspicuous boundary-marks of the space between.

Gem'inous, *a.* [Lat. *geminus;* Sp. & It. *gemino*, double.] In pairs; double.

Gem'ma, *n.* [Lat.] A leaf-bud.

Gemma'ceous, *a.* Pertaining to leaf-buds. — Belonging to, or like, gems.

Gem'mate, *a.* Having buds; reproducing by means of buds.

Gem'mated, *a.* Adorned with gems or jewels.

Gemma'tion, *n.* [Fr., from Lat. *gemmatio.*] The state of budding; arrangement of parts in the bud.

—The time or season when the buds expand.

Gem'meous, *a.* Of the nature of, or resembling gems.

Gemmi, (*zhem'me,*) a mountain-pass leading into Switzerland, between the cantons Valais and Berne, and abt. 25 m. from Thun, at an elevation of 8,000 feet above sea-level.

Gemmif'erous, *a.* [Fr. *gemmifère*, from Lat. *gemma*, and *ferre*, to produce.] (*Bot.*) Multiplying by buds.

Gem'miness, *n.* State of being in germination.

Gemmipar'ity, *n.* [Lat. *gemma*, a bud, and *parere*, to produce.] (*Zoöl.*) The quality of propagating by buds, as the *hydra*, or fresh-water polype, &c.

Gemmip'arous, *a.* [Fr. *gemmipare.* See above.] Producing gems or buds.

(*Zoöl.*) Endued with the power of propagation from the growth of the young, like a herd from the parent.

Gem'mule, *n.* [Fr., from Lat. *gemmula*, dim. of *gemma*, a jewel or bud.] (*Bot.*) A small bud; a plumule.

(*Zoöl.*) The embryos of the radiated animals at that stage when they resemble ciliated mounds.

Gemmulif'erous, *a.* [Lat. *gemmula*, dim. of *gemma*, a jewel, a bud, and *ferre*, to bear.] (*Bot.*) Bearing gemmules.

Gem'ny, *a.* Bright; glittering; neat; spruce; smart.

Gems'bock, *n.* [Ger. *gemse*, chamois, and *bock*, a buck.] (*Zoöl.*) The *Antelope Oryx*, or *Oryx Gazella*, a species of antelope, perhaps the *Oryx* of the ancients. Its size is somewhat superior to that of a deer, and it is more easily distinguished than many others in this extensive race: the horns affording a character perfectly clear and constant, being three feet long, nearly straight, annulated half-way up, and gradually tapering to the point. The head is white, with triangular patches of black on the forehead and under the eyes; the neck and upper



Fig. 1136. — THE GEMSBOCK.
(*Antelope Oryx.*)

part of the body are of a pale bluish-gray; the belly and insides of the limbs are white; and a dark stripe runs along the back to the tail, which much resembles that of a horse. The hoofs and horns are black; the hair under the throat, along the ridge of the back, and over the shoulders, is long and rough. It inhabits different parts of Africa, and is met with also in Persia, India, and Arabia. It is resolute and dangerous when hard-pressed, its long sharp horns being used with amazing energy and address.

Gems'horn, *n.* (*Mus.*) An organ-stop in German organs, the pipes of which are made of tin, and are conically shaped, being much narrower at the open end; while at the mouth, at the broad end, there are ears on each to regulate the tuning. It has a peculiarly pleasant tone, of a different character from either an open cylinder pipe or a stopped pipe. The pitch of the *G.* is generally 8 feet tone; sometimes it is 4 feet, and in the pedal organ 16 feet.

Ge'na, *n.* [Lat., the cheek.] (*Anat.*) The region between the eye and the mouth, generally extended over the zygomatic arch.

Ge'na, in *Michigan*, a village of Delta co., about 13 m. N.E. of Escanaba.

Genappe, (*zhe-nap',*) a town of Belgium, in the province of South Brabant, 15 m. from Brussels. Many battles have been fought here at different times. It is, however, chiefly memorable as the site of the first of that series of battles which, in June, 1815, were terminated on the field of Waterloo.

Gendar'merie, *n.* [Fr.] The collective body of the GENDARMES, *q. v.*

Gendarmes, (*zhān(g)lārm',*) *n. pl.* [Fr., from *gens d'armes*, men-at-arms.] (*Mil.*) A body of military police in France, comprising both infantry and cavalry. In the 15th and 16th centuries, the *G.* constituted the most distinguished cavalry corps in the French army. Afterwards, in 1660, the name was transferred to a squadron of the royal household troops, who constituted a kind of body-guard of the king. In 1791 this corps was abolished, and the name given to a body of police. It consists principally of soldiers taken from the army, generally on account of intelligence and good behavior, and it is regarded as a kind of promotion, as they have better pay, and enjoy greater liberty. The corps still constitutes a part of the army, and is liable, in case of necessity, to be sent on active service. They have the character of being well behaved and trustworthy men, and are frequently intrusted by the government with the execution of matters of importance and delicacy. They amount to about 25,000 men. The German *Land-Dragoner* is about the equivalent of the French *gendarme*.

Gen'der, *n.* [Fr. *genre;* Lat. *genus, generis*, from *gignere*, to produce.] Sex, male or female.

(*Gram.*) The distinction of nouns according to sex. Nouns denoting the male sex are said to be masculine; those denoting the female sex, feminine; and those which denote neither male nor female are said to be neuter (Lat. *neutrius generis*, of neither gender); and hence grammarians have come, somewhat incorrectly, to speak of three genders. There can, properly speaking, be but two genders, the masculine and the feminine; as the sexual distinction is the basis upon which this doctrine is built. There are many animals, however, of which it is difficult, or useless, to determine the sex: and there are also many things which cannot be so distinguished at all. These are generally regarded as belonging to what is termed the neuter gender. There are, however, certain ideas, as magnitude, strength, vigor, &c., which are considered as characteristics of males, while gentleness, timidity, submission, &c., are regarded as properties of females, which, when they come to be associated with a neuter noun, raise it to the masculine or feminine; thus we speak of the sun as *he*, and of the moon as *she*. Abstract nouns and general terms are also usually regarded as feminine. The masculine and feminine are sometimes denoted by different words, as *boy, girl, horse, mare, cock, hen;* sometimes by a change in the termination, as *count, countess, executor, executrix, songster, songstress;* and sometimes by the addition of a word, as *cock-sparrow, hen-sparrow, he-goat, she-goat.*

Gender, *v. a.* To beget; to engender. — To produce; to cause; as, to *gender* strife.

—*v. n.* To copulate; to breed.

Geneagen'esis, *n.* See PARTHENO-GENESIS.

Genealog'ical, *a.* [Fr. *généalogique;* Gr. *genea*, a race, and *logos*, a discourse.] Pertaining to, or exhibiting the descent of persons or families from an ancestor. — According to the descent of a person or family from an ancestor.

Genealog'ically, *adv.* By genealogy.

Geneal'ogist, *n.* He who traces descents of persons or families.

Geneal'ogize, *v. a.* To relate the account of descents.

Genealogy, (*jen-e-ăl'o-je,*) *n.* [Fr. *généalogie;* Gr. *genealogia*, from *genea*, a race, and *logos*, a discourse.] An account or enumeration of the ancestors or relations of a particular person or family. No nation was more careful to trace and preserve its genealogies than the children of Israel. Their sacred writings contain genealogies which extend through a period of more than 3,500 years, from the creation of Adam to the captivity of Judah, and even after that time. Josephus informs us that he traced his own descent from the tribe of Levi by means of public registers, and that, however dispersed and depressed his nation were, they never neglected to have exact genealogical tables prepared from authentic documents which were kept at Jerusalem. Since, however, their destruction as a nation by the Romans, all their tables of descent seem to have been lost; and even the Levites, who are still distinguished from the rest of the people by the exercise of special, honorary, religious functions, are known as such only by being acknowledged as descendants of parents who exercised the same. The inequalities of rank and right which prevailed during the Middle Ages made genealogical inquiries highly important, and it was then that researches of this kind assumed the form of a science, which became closely connected with heraldry, (*q. v.*) Very little critical care, however, was usually employed in such cases, the chief object being to trace the origin of families into the remotest antiquity. Attempts to carry this to an absurd length are frequently manifested in the earlier genealogical works. Critical genealogical studies were not begun before the 17th century. Genealogical accounts are not only interesting to persons who feel a more or less natural curiosity about their ancestors, but are also useful to the historian, as elucidating the often complicated relations of dynasties, families, claims, and controversies of successions, &c. They are also of importance in legal cases concerning claims of inheritance; and, indeed, are indispensable in States in which the enjoyment of certain rights is made to depend upon lineage or descent. A genealogy, or lineage, is frequently represented in the form of a tree (*arbor consanguinitalis*), giving a distinct view of the various branches of the family, and the degrees of descent from the common progenitor, who is generally represented in the root or stem. Genealogical tables are either descending or ascending. The former are chiefly used in historical records, presenting the descendants of a certain person in the order of procreation; the latter, in documents of nobility, serving to show the claims of any man or family to the titles of paternal and maternal ancestors. Sometimes both forms are used together. Persons descended one from another successively, form a direct line; those descended from a common progenitor, but not one from another, a collateral line; the collateral line embraces the *agnates*, or the kindred on the father's side, and the *cognates*, or kindred on the mother's side.

Genegants'let River, in *New York*, enters the Chenango River in Chenango co.

Gen'era, *n. pl.* of *genus.* See GENUS.

Gen'erable, *a.* [Fr., from Lat. *generabilis;* from *generare*, to beget.] That may be begotten or produced.

Gen'eral, *a.* [Fr. *général;* Lat. *generalis*, from *genus*, a kind, from *gignere*, to produce.] Relating to a whole class or order; comprehending many species of individuals. — Not special or particular; not restrained or limited to a particular import; not specific; public; common; relating to or comprehending the entire

PRECIOUS GEMS AS THEY ARE FOUND.

1 TOURMALINE (New York).
2 TOURMALINE (Ural).
3 CHRYSOPRASE.
4 EMERALD (Peru).
5 CHRYSOBERYL (Ural).
6 TURQUOISE.
7 DIAMOND.
8 SPINEL RUBY.
9 GARNET.
10 TOPAZ (Ural).
11 AQUAMARINE (Ural)
12 LAPIS-LAZULI.
13 BLOODSTONE.
14 TOPAZ (Brazil).
15 OPAL.
16 AMETHYST.



DRAWN BY F.E. WRIGHT

community. — Common to many or to the greatest number; not directed to a single object; common to the whole; extensive though not universal; usual.
—This word, when attached to the name of an officer, usually denotes superiority, superintendence, or the conceutrated command of a large sphere of duty; as, postmaster-*general*; director-*general*, &c.

Gen'eral, *n.* The whole, without descending to particulars; the total; that which comprehends all, or the chief part.

"In particulars our knowledge begins, and so spreads itself by degrees to *generals*." — *Locke.*

(*Eccl.*) In the Roman Catholic Church, the supreme head, under the Pope, of the aggregated communities throughout Christendom belonging to a religious order; as, the *general* of the Jesuits.

(*Mil.*) In our army, the name of the highest military rank that can be conferred on officers. General officers are of four grades — general, lieutenant-general, major-general, and brigadier-general. The title seems to have originated in France about 1450, when John, Count de Dunois, was made lieutenant-general of the French forces, or commander-in-chief, representing the sovereign, who had delegated to his lieutenant-general the performance of the duties that would otherwise have devolved upon himself as actual commander-in-chief of the armies. The title came into use in England in the reign of Henry VIII., when the appellation of *captain-general* was given to the commander-in-chief of the English forces, instead of that of lord-marshal of England. From that period the title of general, both alone and distinguished by various prefixes, has been preserved in the British service, as in almost all the European armies.
—[Fr. *générale.*] (*Mil.*) A beat of the drum serving as signal to an entire army.

In general. For the most part; generally.

Generalis'simo, *n.* [It.; Fr. *généralissime.*] The chief commander of an army or military force; especially, the commander of an army of two or more grand divisions, each under command of a separate general.

"Alexander was *generalissimo* of Greece."—*Sir T. Browne.*

General Issue, *n.* (*Law.*) A plea which thwarts or denies at once the whole declaration of the plaintiff, without offering any special matter whereby to evade it; as in action for wrong, "not guilty," or for debt, "not indebted." They are called the general issue because, by importing a general and absolute denial of what is alleged in the declaration, they amount at once to an issue, by which is meant a fact affirmed on one side and denied on the other.

General'ity, *n.* [Fr. *généralité;* Lat. *generalitas.*] State of being general, or quality of including species, kinds, or particulars. — The main body; the bulk: the major part; as, the "*generality* of mankind." (*Addison.*)
—That which is general; that which is other than special; a general or vague statement, condition, or phrase.

"Let us descend from *generalities* to particulars."—*Landor.*

Gen'eralizable, *a.* That may be generalized, or brought under a general head, rule, or system.

Generaliza'tion, *n.* [Fr. *généralisation.*] Act of making general; act of reducing particulars to generals or to their genera.

"*Generalization* is only the apprehension of one in the many."
Sir W. Hamilton.

(*Logic.*) The act of comprehending under a common name several objects, agreeing in some point which we abstract from each of them, and which that common name serves to indicate. When we contemplate several objects resembling each other in some part of their nature, we can, by attending to that part alone, assign them one common name, which will express or stand for them all as far as they agree, and this is what is called generalization. Another kind of generalization is from observing that, when two or more objects have certain things or properties in common, that therefore they have others also in common, as where Newton, from the fall of an apple, discovered the law of gravitation. In this process of generalizing there is involved a principle which experience does not furnish, by which we affirm not only that all heavy bodies which have been observed gravitate, but that all heavy bodies, whether they have been observed or not, do so. In this there is implied a belief that there exists a certain order in nature, and that, under the same circumstances, the same substances will present the same phenomena. See INDUCTION, CLASSIFICATION.

Gen'eralize, *v. a.* [Fr. *généraliser.*] To make general, or common to a number. — To extend from particulars or species to genera.

"When a fact is *generalized*, our discontent is quieted."
Sir W. Hamilton.

—To reduce, as particulars to generals or to their genus; as, to *generalize* a conclusion from deductions.
—*v. n.* To form classes or genera; to view generally and comprehensively in relation to classes.

Gen'erally, *adv.* In general; extensively, though not universally; most frequently; commonly; usually; as, he is *generally* behind time. — Chiefly; principally; in the main; in the whole taken together; without detail.

Gen'eralness, *n.* State or quality of being general, but not universal; frequency; commonness; as, "the *generalness* of the cause." — *Sidney.*

Gen'eralship, *n.* Rank, office, or station of a general.
—Exercise or practice of the official functions of a general; as, the campaign was carried on under his *generalship.* — Military skill and conduct of a military general officer; as, he showed able *generalship*

Gen'eralty, *n.* Generality; totality. (R.)

Gen'eral Wayne, in *Pennsylvania*, a village of Montgomery co. Its post-office is ACADEMY.

Gen'erant, *n.* [Lat. *generans, genero.* See GENERATE.] That which generates; the power or principle that produces.

(*Geom.*) A point, line, or surface by whose motion another curve or surface is or may be conceived to be described or defined.

Gen'erate, *v. a.* [Lat. *genero, generatus—genus*, race, kind.] To beget; to procreate; to propagate; to engender; to produce or bring forth similar to the parent.

"Those creatures which being wild *generate* seldom, being tame, *generate* often." — *Bacon.*

—To bring into life or existence; to cause to be.

"Or find some other way to *generate* mankind." — *Milton.*

—To cause; to originate; to produce.

Gen'erating Surface, *n.* (*Steam-engine.*) The heating surface of a boiler, or that on which heat is applied to generate steam.

Genera'tion, *n.* [Fr.; from Lat. *generatio.*] Act of generating or of begetting; procreation; propagation. — Production; formation; as, the *generation* of sounds, heat, &c. — A single succession in natural descent, as the children of the same parents; hence, an age; the people of the same period, or living at the same time; a series of children or descendants from the same stock.

"All *generations* and ages of the Christian Church." — *Hooker.*

—A family; race; kind; breed; stock.

"Y' are a dog. —
Thy mother's of my *generation;* what's she, if I be a dog?" *Shaks.*

(*Geom.*) The formation or production of a geometrical figure.

(*Physiol.*) See PHYSIOLOGY and REPRODUCTION.

Alternation of generation. (*Physiol.*) A term applied by Prof. Steenstrup to a series of phenomena connected with the mode of reproduction of many of the lower animals. In their development from the ovum to the adult state, a large number of these beings not only pass through various stages, as exemplified in the insect tribe, but also possess the power of multiplying themselves at certain periods of their growth. The animals which exhibit this peculiarity have been called *nurses*, and the phenomenon has been particularly observed in the *Acephalæ, Entozoa, Polypifera, Salpæ*, and *Vorticellæ*. In the translation of Prof. Steenstrup's work by the Ray Society, the alternation of generations is fully described. The mode of development by means of "nurses," or intermediate generations, is shown to be an ordinary phenomenon in nature. "The circumstance," he observes, "of an animal giving birth to a progeny permanently dissimilar to its parent, but which itself produces a new generation, which either itself or in its offspring returns to the form of the parent animal, is a phenomenon not confined to a single class or series of animals: the vertebrate class is the only one in which it has not yet been observed. It would consequently appear that there is something intrinsic in this mode of development, and that it occurs, as it were, with a certain necessity; on which account it will undoubtedly soon be recognized to a greater extent and more generally. If the whole system of development by means of "nursing" generations be collected and regarded in one view, it appears, as the essential feature in this course of development, that the species is not fully represented in the solitary, full-grown, fertile individuals of both sexes, nor in their development; but that to complete their representation, supplementary individuals, as it were, of one or of several precedent generations are necessary. The greatest incompleteness and the highest degree of mutual dependence is to be observed in the *Campanulariæ* and similar polypes, in which the generations representing the unity of the species are very unlike each other, and in which all the individuals are fused into an outward unity, or into a set of polypes. . . . They exist organically connected with each other, and are normally free only in their first generation, and, indeed, only in their earliest stage of development, and only for a short time; since the free-swimming ciliated embryo swims about in the water at most for some hours, in order to find a suitable place for the foundation of a new polype-stem. In the *Coryne*, claviform polypes, the organic connection between the individuals and generations is rather more lax; the perfect gemmiparous or ovigerous individuals are usually quite free, often even at an early age; so that they do not attain their full development until after their separation from the "nursing" generations. In the *Medusæ* and *Scalpæ*, the generations which are connected together into one whole become more like each other." Among the *Entozoa*, similar attempts at becoming free and accomplishing a perfect growth are also described. The development of animals which do not belong to the water, but to the air, also presents similar phenomena, but in a still higher and more free stage. The propagation of the *Aphides* through a series of generations has been long known. In the spring, a generation is produced from the ova, which grows and is metamorphosed, and, without a previous fertilization, gives birth to a new generation, and this again to a third; and so on for ten or twelve weeks; so that in certain species which have been observed nine such changes have been noted. At last there occurs a generation consisting of males and females, the former of which, after their metamorphosis, are usually winged; fertilization and the deposition of eggs take place, and the long series of generations recommences in the next year and in the same order. Some advantage in food getting in the partly developed state may cause this phenomenon. See ALTERNATION OF GENERATION.

Gen'erative, *a.* [Gr. *gennētikē.*] Having the power of generating or propagating its own species; having the power of producing; as, "the *generative* faculty."

Gen'erator, *n.* [Lat.; Fr. *générateur.*] He or that which generates, or which begets, causes, or produces.

(*Steam-engine.*) A vessel for generating steam.

(*Mus.*) The principal sound or sounds by which others are produced. (Sometimes called *generating-tone.*)

Gen'eratrix, *n.* [Lat.] (*Geom.*) That which generates a line, surface, or solid.

Gener'ic, Gener'ical, *a.* [Fr. *générique.*] Pertaining or relating to a genus or kind; comprehending the genus; as, a *generic* name. — Comprehensive in a high degree.

Gener'ically, *adv.* With regard to a genus, as distinct from a species: as, two plants *generically* allied.

Gener'icalness, *n.* State or quality of being generic.

Generifica'tion, *n.* Act, act, or process of making general, or generalizing.

Generos'ity, *n.* [Fr. *générosité;* Lat. *generositas.*] Quality of being generous; nobleness of soul: magnanimity: a disposition to give liberally or to bestow favors.
—Munificence; open-handedness; bounty; liberality in bestowing; as, an act of *generosity.*

Generos'tee Creek, in *S. Carolina*, enters the Savannah River in Anderson district.

Gen'erous, *a.* [Fr. *généreux;* Lat. *generosus—genus*, race, descent, high or noble birth.] Noble; honorable; magnanimous; openhearted.

"Such was Roscommon, not more learn'd than good,
With manners *gen'rous* as his noble blood."—*Pope.*

—Liberal; bountiful; munificent; open-handed; bounteous; free to give; beneficent; as, a *generous* master.
—Strong; enlivening; full of vigor and spirit; exciting and exhilarating the body; as, *generous* wine.
—Abundant; plenteous; characterized by generosity; as, he keeps a *generous* table.
—Courageous; full of life and mettle; sprightly.

"His op'ning hounds . . . a *generous* pack."—*Addison.*

Gen'erously, *adv.* Honorably; nobly; magnanimously; liberally; munificently.

Gen'erousness, *n.* Quality of being generous; nobleness of mind; magnanimity.

"The overflowing *generousness* of the divine nature."—*Collier.*

—Generosity; open-handedness; munificence; liberality; bountifulness.

Genesee', in *California*, a post-office of Plumas co.

Genesee' (*jen-e-see'*), in *Michigan*, an E. central co.; *area*, about 640 m. *Rivers.* Flint and Shiawassee rivers, and the Thread and Kearsley creeks. *Surface*, hilly; *soil*, fertile. *Cap.* Flint. *Pop.* (1894) 40,553.
—A township of the above co.

Genesee', in *Minnesota*, a village of Kandiyohi co., about 16 m. W. by S. of Forest City.

Genesee', in *Nevada*, a village and mining district of Douglas co., on the E. side of Carson Valley, opposite Genoa.

Genesee', in *New York*, a W. co.; *area*, about 500 sq. m. *Rivers.* Towanda, Allen's, and Oak Orchard creeks. *Surface*, undulating; *soil*, fertile. *Min.* Iron and limestone. *Cap.* Batavia. *Pop.* (1890) 33,265.
—A township of Allegany co.

Genesee', in *Pennsylvania*, a township of Potter co.
—A post-office of Potter co.

Genesee', in *Wis.*, post-township of Waukesha co.

Genesee' Depot, in *Wisconsin*, a post-village of Waukesha co., about 28 m. W. by S. of Milwaukee.

Genesee' Falls, or PORTAGEVILLE, in *New York*, a village of Genesee Falls township, Wyoming co., on the Genesee river, about 50 m. E.S.E. of Buffalo. The river at this place flows between almost perpendicular walls about 400 feet in height, and has several fine falls of from 60 to 110 feet each. The stream is here spanned by the famous "Portage bridge."

Genesee' Grove, in *Illinois*, a village of Whiteside co., about 94 m. N. by W. of Peoria.

Genesee' River, in *Pennsylvania* and *New York*, rises in the N. part of Potter co. in the former State, and enters New York in Allegany co.; thence flowing a general N.E. and N. course through Wyoming, Livingston, and Monroe cos., it enters Lake Ontario near Charlotte, about 7 miles below Rochester, after a course of about 145 m. The *G. R.* is not only notable for the varied and romantic character of its scenery, but is also famous for its extraordinary falls. Of these falls, which are five in number, three occurring within a distance of two miles, in the vicinity of the town of Portage, about 90 m. from the mouth of the river, are respectively 60, 90 and 110 ft. high. The other two, the one occurring immediately above Rochester, and the other about 3 m. below that city, are both of about 100 feet.

Genese'o, in *Illinois*, a city of Henry co., on the C., R. I. & P. R.R., 23 m. E. of Rock Island; has some manufactories, and is seat of Northwestern Normal College. *Pop.* (1897) about 3,550.

Genese'o, in *Iowa*, a township of Cerro Gordo co.
—A post-township of Tama co.

Genese'o, in *New York*, a post-village and township, capital of Livingston co., on the Genesee river, about 25 m. S.S.W. of Rochester. *Pop.* of village (1890) 2,286.

Gen'esis, *n.* [Gr., from *gennaō*, to beget, to procreate, to bring forth.] Act of producing; generation; birth; creation.
—A theoretical description of the origin of anything.

(*Geom.*) Same as GENERATION, *q. v.*

(*Script.*) The name given to the first book of the Bible, on account of its containing a narrative of the generation or production of all things. The Hebrew name is *Bereshith* ("in the beginning"), from its commencing with that word. Its history goes back to the very earliest ages of the human race, and extends over a period of at least 2,370 years. It gives an account of

the creation, the fall of man, the settlements, genealogies, arts, religion, corruption, and destruction of the antediluvian world; of the repeopling and division of the earth, the dispersion of its inhabitants, the calling of Abraham, the rise and progress of the Jewish nation, &c. It is divided into two main parts,—one *universal* and one *special;* the former being the ancient history of the whole human race, contained in chapters i.–xi., the latter the early history of the children of Israel (xii.–l.). There are some critics who maintain that this book was not written by Moses; and there are certainly some passages of it that must have been written by some one after his death, as they refer to subsequent events; but that the book as a whole was written by Moses, there is little room to doubt. Much ingenious speculation has been expended as to the manner in which Moses was made aware of what had taken place so many centuries before his own time. According to some, the different events recorded in the book were divinely revealed to him; others hold that he acquired his knowledge of them by tradition; and a third class, that he obtained it from old documents. (Regarding the various subjects of controversy in this book, see CREATION, DELUGE, &c.) The authenticity of Genesis was distinctly recognized by Christ; and passages from it are cited in the New Testament, twenty-seven times literally, and thirty-eight times substantially.

Gen'et, *n.* [Fr.] A small horse.—See JENNET.

—[Fr. *genette.*] (*Zoöl.*) A carnivorous animal, belonging to the family *Viverridæ*. It has a very beautiful soft fur, and is about the size of a very small cat, but is of a longer form, with a sharp, pointed snout, upright ears slightly pointed, and very long tail. The color of the *G.* is usually a pale reddish-gray, the sides of the body being spotted with black, and a dark line running along the back, where the hair, being longer than on the other parts, resembles a slight mane; the muzzle is dusky; beneath each eye is a white spot; the cheeks, sides of the neck, and the limbs, are spotted in a proportionally smaller pattern than the body; and the tail is marked with black and white rings. Easily tamed, and of a mild disposition, the *G.*, at Constantinople and various other parts of the East, is domesticated like the cat, and is said to be equally, if not more, serviceable in clearing houses of rats and other vermin. It is a native of the western parts of Asia, and is also occasionally found in Spain; but though it requires a warm climate for its subsistence and propagation, it has not been discovered in India or any part of Africa. This animal, like the civet, produces an agreeable perfume; it is, however, less powerful, and its scent much sooner evaporates.



Fig. 1137.—THE GENET.
(*Viverra Malaccensis.*)

Genet', Genette', *n.* Cat-skin made into muffs, tippets, &c.

Geneth'liac, Genethli'acal, *a.* [Gr. *genethliakos*—*genethlē*, birth, race, descent,—*ginomai*, to be born.] Pertaining to nativities as calculated by astrologers.

—*n.* One who calculates nativities; an astrologer.

(*Poet.*) An ode or other short poem composed in honor of the birth of an individual.

Geneth'liacs, *n. sing.* The science of casting nativities.

Genethlial'ogy, *n.* [Gr. *genethlialogia.*] Act or art of casting nativities; astrology.

Genet'ic, Genet'ical, *a.* [Gr. *gennētikos*, fit for begetting, from *gennaō*, to beget. See GENESIS.] Pertaining to the origin of a thing, or its mode of production.

Gene'va, (Canton of,) the smallest canton of Switzerland, at the S.W. extremity of which, and of the lake which bears its name, it is situated, having N. the canton Vaud, E. and S. Savoy, and W. France; *area*, 913 sq. m. This canton, which ranks 22d in the Confederation, is composed of the territory of the ancient republic of Geneva, together with some communes formerly belonging to Savoy and France, annexed to it in 1815. *Surface*, flat, or but slightly uneven, being enclosed between the Jura Mountains on the N.W., and some Alpine ranges in the opposite direction. *Rivers.* Rhone and Arve. *Clim.* Mild. *Soil*, tolerably fertile, but not producing sufficient crops for home consumption. The canton furnishes a contingent of 880 men to the army of the Swiss Confederation. *Cap.* Geneva. *Pop.* (1895) 111,540.

GENE'VA, the most populous city of Switzerland, and cap. of above canton, situated in a picturesque country, abounding in the most enchanting and magnificent prospects, at the S.W. extremity of the Lake of Geneva, 81 m. S.W. of Berne, and 70 N.E. by E. of Lyons. The Rhone divides *G.* into three parts,—the city on the right bank, the quarter of St. Gervais on the left, and the island between them, enclosed by two arms of the river. The city, or upper town, is the largest portion, and is in part built on an eminence, rising to nearly 100 feet above the level of the lake. Its streets are narrow, crooked, and steep; but many of its private edifices are good. It consists almost entirely of the residences of the burgher aristocracy. The lower town, or quarter of St. Gervais, is the chief seat of commercial activity, and has narrow streets and lofty houses. The island is upwards of a furlong in length, by abt. 200 feet broad, and connected with the other quarters by several bridges. Of late years, an entirely new quarter has sprung up on the right bank of the Rhone, called the *Quartiers des Bergues*, displaying a handsome frontage of tall houses, among which is the *Hotel des Bergues*, lined with a broad and fine quay towards the lake. The unsightly houses that formerly lined the margin of the lake in the lower town have been modernized and beautified; and a broad belt of land has been gained from the water to form a quay. This is connected with the *Quai des Bergues* on the opposite bank by a handsome suspension-bridge; and another bridge, communicating with a small island situated at the point where the Rhone leaves the lake, is ornamented with a bronze statue of Rousseau. *G.* is surrounded on the land side by ramparts and bastions, constructed about the middle of last century. These are of little use as fortifications, the city being commanded by adjacent heights,—but they serve as public promenades; and suspension-bridges have been thrown over them to facilitate the intercourse between the city and the surrounding country. The cathedral, or Church of St. Peter, occupies a conspicuous situation, and is an interesting specimen of the Gothic style of the 11th cent. Among public edifices are the new theatre, cost $1,000,000; the monument erected to the Duke of Brunswick, who died here, leaving his fortune to the city of *G.*, realizing 17,000,000 francs, out of this the monument and opera house were erected in 1879; town-hall, a Gallery of Paintings, a Museum of Natural History (containing the collections of Saussure, Brongniart, De Candolle, and Necker), and the academy founded by Calvin, with faculties of jurisprudence, theology, natural science, and literature, and a library of 40,000 vols. *G.* has, besides, numerous literary, scientific, and educational institutions. *Manuf.* The principal source of the prosperity of this city lies in its manufactures of watches, jewelry, musical boxes, and objects of *virtù*, &c. The number of working watch-makers and jewellers is estimated at nearly 6,000; and the number of watches annually made is estimated at upwards of 70,000,—and of these at least 60,000 are of gold. In watch-making and jewelry, it is also estimated that between 70,000 and 80,000 oz. of gold, and about 50,000 oz. of silver, are used yearly. The other industrial arts in operation here comprise combs, carriages, saddlery, agricultural implements, hardware, tools, cutlery, fire-arms, musical and philosophical instruments, printing-types, &c. Lithography and engraving is also extensively engaged in. *G.* is the seat of the council of state, the supreme court of justice for the canton, a court of appeals, and a chamber of commerce. *Pop.* (1893) 78,777; with suburbs, 96,441.—*G.* is very ancient, and is mentioned by Cæsar (*De Bello Gallico*, i. § 6.) In 426 it was taken by the Burgundians, and became their capital. It afterward belonged successively to the Ostrogoths and the Franks, and formed a part of the kingdom of Arles and the second kingdom of Burgundy. On the fall of the latter, it fell under the sole dominion of its bishops, between whom and the counts of Genevois, in Savoy, there existed incessant contests for its possession. At the Reformation, the bishop was expelled, and the city, with its territory, became a republic. Calvin having sought refuge in *G.* in 1536, was solicited to settle there, and was subsequently raised to the highest rank in the state, which he in a great measure governed for 23 years, with a severity and strictness that impressed deep and abiding traces on its jurisprudence and manners. In 1782, owing to internal dissensions, *G.* was occupied by the troops of France, Sardinia, and Berne. In 1798 it was taken by the French revolutionary forces, and subsequently became the cap. of the dept. Leman. It was, with its territory, united to Switzerland as an independent canton in 1814. Few cities have produced more eminent individuals. Among others may be specified Rousseau, Casaubon the critic, Lefort (the friend of Peter the Great), Necker and his daughter, Madame de Staël, the naturalists Saussure, Deluc, Bonnet, and Jurine, De Candolle and Huber, the philosopher Abauzit, J. B. Say the political economist, and Sismondi the historian. In 1872, the Alabama Question was settled at a convention held here.

Gene'va, (Lake of,) or LAKE LEMAN. [Ger. *Genfer See*, anc. *Lacus Lemanus.*] The largest lake of Switzerland, near the S.W. extremity of which country it is situated. It has N., E., and S.E. the canton of Vaud or Leman; S.W. that of Geneva; and S. Savoy. It fills up the lower portion of an extensive valley enclosed between the Alps and the Jura. It is crescent-shaped, the convexity being directed N.N.W. and the horns facing S.S.E. Its greatest length—a curved line passing through its centre from Geneva at its W. extremity to Villeneuve at its E.—is abt. 45 m.; but along its N. shore the distance from end to end is abt. 55 m., while along its S. it is no more than abt. 40 m. Its breadth varies from 1 to 9 m.; its area is estimated at abt. 240 sq. m. Its greatest depth, near Meillerie, towards its E. extremity, is said to be 1,012 (950 Fr.) ft.; its level is abt. 1,200 ft. above that of the Mediterranean. It is divided, in common parlance, into the *Great* and *Little* lake; the latter is more exclusively called the *Lake of Geneva*, and extends from that city for a distance of 14 m., but with a breadth never more than 3½ m., to Point d'Yroire; beyond which Lake Leman widens considerably. The Rhone enters it near its E. extremity, bringing with it so much alluvial soil, that considerable encroachments are continually made on its upper end. Port Vallais, near 1½ m. distant, was formerly on the margin of the lake, the basin of which is said to have originally extended upwards as far as Bex. The Rhone emerges from the lake at its S.W. extremity, where its waters, like those of the lake itself, are extremely clear, and of a deep-blue color: circumstances which have been often adverted to by Lord Byron, (*Childe Harold*, iii. s. 58, 85.) Lake Geneva receives upwards of 40 other rivers, the principal of which are the Venoge, from the N., and the Drause, on the side of Savoy. It seldom freezes, and has never been known to be entirely frozen over. It is subject to a singular phenomenon called the *seiches*. This consists in a sudden rise of its waters, generally for 1 or 2 ft., but sometimes as much as 4 or 5 ft., followed by an equally sudden fall; and this ascent and descent goes on alternately, sometimes for several hours. This phenomenon is most common in summer and in stormy weather; its cause has not been satisfactorily ascertained; but it would seem to depend on the unequal pressure of the atmosphere upon different parts of the lake. Lake Geneva abounds with fine fish. Its banks are greatly celebrated for their picturesque beauty and sublimity. Their scenery is the most imposing at its E. extremity; but the whole of the S. shore exhibits great boldness and grandeur. The N. shore is of a softer character; it is adorned with a succession of low hills covered with vineyards and cultivated lands, and interspersed with numerous towns, villages, and chateaux. Nyon, Rolle, Morges, Ouchy, (the port of Lausanne), Vevay, Clarens, and the Castle of Chillon, are on the N. bank; on the S., or Savoy side, are Meillerie, Thonon, and the *Campagna Diodati* in the Genevese territory, the residence of Byron in 1816. Steamers ply daily upon the lake, which is also encircled by a line of railroad.

Gene'va, in *Alabama*, a post-town, cap. of Geneva co. *Pop.* (1890) 637.

Geneva, in *Georgia*, a post-office of Talbot co.

Geneva, in *Illinois*, a city of Kane co., on C. & N. W. R. R., 35 m. W. of Chicago; has good water power and varied manuf. *Pop.* (1897) about 2,000.

Geneva, in *Indiana*, a post-town of Adams co.

Geneva, in *Iowa*, a post-township of Franklin co.

Geneva, in *Kansas*, a post-village of Alleu co.

Geneva, in *Michigan*, a village of Kalamazoo co.

Geneva, in *Minnesota*, a post-village and township of Freeborn co. *Pop.* (1890) 290.

Geneva, in *Nebraska*, a city, cap. of Fillmore co., on the C., B. & Q. and F., E. & M. V. R. Rs., 60 m. W. S. W. of Lincoln. Has creamery, cannery, &c., and a fine trade in farm products. *Pop.* (1897) about 2,200.

Geneva, in *New York*, a beautiful town of Ontario co., at the N. end of Seneca lake, 26 m. W. of Auburn; has a variety of manuf., and is the seat of Hobart College (P. E.), a State Agricultural Experiment Station, a fine observatory, &c. *Pop.* (1897) about 8,000.

Geneva, in *Ohio*, a post-town and township of Ashtabula co., on L. S. & M. S. R. R., 10 m. S. W. of Ashtabula. *Pop.* (1890) 2,194.

—A village of Fairfield co., 32 m. S. W. of Zanesville.

Geneva, in *Wisconsin*, a village of Walworth co.

Gene'va, *n.* [Fr. *genièvre*, juniper, juniper berry; *gin*, from Lat. *juniperas*, the juniper-tree.] A spirit distilled from grain or malt, and flavored with juniper berries.

Gene'va Bay, in *Wisconsin*, a village of Walworth co., about 64 m. S. E. of Madison.

Gene'va Bible, *n.* (*Bibliog.*) A copy of the Bible in English, first printed at Geneva in 1560.

Gene'va Lake, in *Wisconsin*, a beautiful sheet of water in Walworth co.; *area*, about 8 sq. m.; is a famous summer resort. On its N. shore, at Williams Bay, is located the great Yerkes Observatory, containing the largest telescope in the world, completed in May, 1897.

Gene'van, *a.* Of or belonging to Geneva; Genevese.

—*n.* A native or inhabitant of Geneva.

Gene'vanism, *n.* [From *Geneva*, Calvin's birthplace.] The strict doctrine of the Calvinists.

Genevese', *a.* Pertaining to Geneva, in Switzerland.

—*n.* [Fr. *Genevois;* Lat. *Genevensis*, from *Geneva.*] A native or inhabitant of Geneva;—the people of Geneva taken collectively.

Genevese', Gen'evois, an ancient prov. of the Sardinian States, in the W. of Savoy, now included in the French dep. of SAVOIE (HAUTE), *q. v.*

Geneviève, (St.,) (*jen-eh-viev'*,) the patron saint of Paris, B. at Nanterre, abt. 422, was, according to the generally received opinion, a simple shepherdess. On the advice of St. Germain of Auxerre, she consecrated herself to God, and, after the death of her parents, came to Paris to live with her godmother, where she led a devout and abstinent lifetime. According to tradition, at the time of Attila's invasion of Gaul (451), the affrighted Parisians were ready to abandon their city, which St. Geneviève prevented, by telling them that the city would be spared, and her prediction was verified. On another occasion she procured provisions for the Parisians, who had been for some time suffering from famine. At her instance, Clovis built in the upper portion of Paris a church in honor of SS. Peter and Paul, which afterwards received the name of the saint herself. The Church honors her on the 3d of January, the date of her death. Her relics were exposed to the veneration of the faithful in the church which bore her name, but after the destruction of that church they were transferred to the church of St. Etienne du Mont. Since 1852 they have been transferred to the magnificent basilica, formerly called the Pantheon, to which its original name of St. Geneviève has been restored. D. 512.

Genevieve, in *Missouri*, a township of St. Genevieve co.

Genevois, (*ghen'ev-woi'*,) *n. pl.* The people of Geneva; the Genevese.

Genèvre, (*zhe-nāvr'*.) **(Mount,)** a summit of the Cottian Alps, between the Italian prov. of Susa and the French dep. Hautes-Alpes. It is crossed by a road constructed by Napoleon I., at an elevation of nearly 6,000 feet. Height of the summit, 11,615 feet.

Geng'his-Khan, or ZINGIS-KHAN, the son of a petty Mongolian prince, was B. in Tartary in 1163. After

much intestine warfare with various Tartar tribes, this renowned conqueror was proclaimed khan of the united Mongol and Tartar tribes. He reorganized his army, published a code of laws, and made preparation for the course of conquest to which he professed he had a divine call. In 1210 he first invaded China, the capital of which was taken by storm and plundered several years later. The murder of the ambassadors whom Genghis-Khan had sent to Turkestan occasioned the invasion of that country in 1218, with an army of 700,000 men; and the two great cities of Bokhara and Samarcand were stormed, pillaged, burned, and more than 200,000 lives destroyed with them. He continued his career of devastation for several years; and in 1225, though more than 60 years old, he marched in person, at the head of his whole army, against the king of Tangut, who had given shelter to two of his enemies and refused to surrender them. A great battle was fought on plains of ice, formed by a frozen lake, in which the king of Tangut was totally defeated, with the loss of 300,000 men. *G.-K.*, whose ravages had cost the human race, if we are to accept the perhaps exaggerated computation of Eastern writers, upwards of 5,000,000 human beings, became, by dint of successive victories, monarch of a territory extending 1,500 leagues, including Northern China, Eastern Persia, and the whole of Tartary. D. in 1227, in the 64th year of his age and in the 52d of his reign,—having, before his death, divided his immense territories between his four sons.

Ge'nial, *a.* [Lat. *genialis*, from *genius*, a tutelar deity, the spirit of social enjoyment, talent; from *gignere*, to produce, to bring forth.] Contributing to propagation or production; that causes to produce.

"Creator Venus, *genial* power of love." — *Dryden.*

—Gay; merry; jovial; joyful; festive; entertaining; contributing to life and cheerfulness; as, a *genial* manner or disposition.

—Supporting life.

"So much I feel my *genial* spirits droop." — *Milton.*

Genial'ity, *n.* [L. Lat. *genialitas*, from *genius*.] Gayety; cheerfulness.

Ge'nially, *adv.* Gayly; cheerfully.

Ge'nialness, *n.* The quality of being genial.

Ge'nian, *a.* [Gr. *geneion*, the chin.] (*Anat.*) Belonging to the chin, as the *genian apophysis* situate at the posterior part of the *symphysis menti*, and formed of four small tubercles.

Genic'ulate, Genic'ulated, *a.* [Lat. *geniculatus*, from *geniculum*, a joint, dim. of *genu*, the knee.] (*Bot.*) Applied to a stem when bent abruptly like a knee.

Geniculation, *n.* [L. Lat. *geniculatio.*] The state of being suddenly or abruptly bent at an angle; resembling the knee.

Genie, (*zhe-nee'*) *n.; pl.* GENII. [Fr.] (*Myth.*) See GENIUS.

Geni'pa, *n.* [From *genipapo*, the Guiana name.] (*Bot.*) A gen. of trees, ord. *Cinchonaceæ*. The Genipa fruit of S. America, as large as an orange and agreeably flavored, is obtained from the species *G. Americana*. In Surinam it is known by the name of Marmalade Box.

Gen'il, or **Xen'il,** a river of Spain, in Andalusia, which, after a course of 130 m., empties into the Guadalquivir, 32 m. from Cordova. The city of Granada is situate on its banks.

Ge'nioglos'si, *n. pl.* [Gr. *geneion*, chin, and *glossa*, tongue.] (*Anat.*) The pair of muscles by which the tongue is protruded.

Genis'ta, *n.* [Lat. *genu*, knee, in allusion to the angular or jointed appearance of its twigs] (*Bot.*) A genus of plants, order *Fabaceæ*. The species *G. tinctoria*, naturalized in the U. States, the Dyer's Brown, yields a good yellow dye, or, when mixed with wood (*Isatis tinctoria*), a green.

Gen'ital, *a.* [Fr., from Lat. *genitalis*, from *gignere*, to beget, allied to and derived from Gr. *gignesthai*.] Pertaining to the act of begetting; causing generation or birth.

Gen'itals, *n. pl.* [Lat. *genitalia;* sc. *membra*.] Those parts of an animal that are the immediate instruments of generation; the sexual organs.

Gen'iting, *n.* [Corruption of Fr. *Jeanneton*, so called from a lady of that name.] An apple that ripens early in June.

Gen'itive, *a.* [Lat. *genitivus*, from *gignere*, *genitum*, to beget, to produce.] (*Gram.*) Pertaining to a case in the declension of nouns, expressing primarily the thing from which something else proceeds, but which has been extended to signify property, possession, &c.

—*n.* The possessive case; the name of the second case in the declension of nouns, generally indicating the relation expressed in English by the preposition *of*. "The Latin *G.*," says Max Müller, "is a mere blunder; for the Greek word *genike* never meant *genitivus*. *Genitivus*, if it is meant to express the case of origin or birth, would in Greek have been called *gennetike*, not *genike*. Nor does the *G.* express the relation of son to father. For though we may say 'the son of the father,' we may likewise say 'the father of the son.' *Genike* in Greek had a much wider, a much more philosophical meaning. It meant *casus generalis*, the general case, or, rather, the case which expresses the genus or kind. This is the real power of the *G.* If I say, 'a bird of the water,' 'of the water' defines the genus to which a certain bird belongs; it refers it to the genus of water-birds." (*Lectures on the Science of Language.*) In English, the genitive or possessive case is marked by the addition of the letter *s* preceded by an apostrophe; as, the *king's* son, my *father's* horse. When the plural ends in *s*, the additional *s* of the *G.* is omitted (excepting sometimes in proper names), and only the apostrophe added; as, the *kings'* sons.

Gen'ito, in *Virginia*, a post-village of Powhattan co., on the Appomattox River, about 29 m. W. of Richmond.

Gen'iture, *n.* [Fr., from Lat. *genitura*, a begetting, from *gignere*, to beget.] The act of begetting; generation.

Ge'nius, *n.; pl.* GENII, and GENIUSES. [Lat., from *gignere*, to beget, to produce.] The term applied by the ancient Romans to a class of spiritual beings which attended upon man. Every human being, according to them, had his special genius allotted to him at birth, to guide and direct him through life, and his general character and conduct was ascribed to the influence of his *G.*; hence the word came to signify the natural powers and abilities of men, more especially their natural inclination or disposition. In modern times it has come to be employed in a still more restricted and special sense, as signifying the very highest condition of the mental powers, the perfection of human intelligence. Like many other words of a similar kind, it is difficult or impossible to define it in words; but there is always associated with it the idea of creative or inventive powers. According to Emerson, it is the "constructive intellect," which "produces thoughts, sentences, poems, plans, designs, systems. It is the generation of the mind, the marriage of thought with nature." "The thought of *G.* is spontaneous, but the power of picture or expression in the most enriched and flowing nature implies a mixture of will, a certain control over the spontaneous states, without which no production is possible." *G.* produces what has never before been accomplished; "it is the advent of truth into the world, a form of thought now for the first time bursting into the universe, a child of the old eternal soul, a piece of immeasurable greatness." Its chief faculties are the reason and the imagination, and according as one or the other of these faculties predominates, it becomes either scientific or artistic. "In the first case it seizes at once those hidden affinities which otherwise do not reveal themselves except to the most patient and rigorous application, and, as it were, intuitively recognizing in phenomena the unalterable and eternal, it produces truth." In the latter it seeks "to exhibit its own ideal in due and appropriate forms; it realizes the infinite under finite types, and so creates the beautiful." *G.* is sometimes used to signify that talent or aptitude which we receive from nature from excelling in any one thing whatever. Thus we speak of a *G.* for mathematics as well as a *G.* for poetry; of a *G.* for war, for politics, or for any mechanical employment. The distinction between *G.* proper and talent is thus given by De Quincey: "Genius is that mode of intellectual power which moves in alliance with *genial* nature, *i. e.*, with the capacities of pleasure and pain; whereas, talent has no vestige of such an alliance, and is perfectly independent of all human sensibilities; consequently, *G.* is a voice or breathing which represents the total nature of man, and therefore his enjoying and suffering nature; whilst, on the contrary, talent represents only a single function of that nature." And hence, also, it is, that, "besides its relation to suffering and enjoyment, *G.* always implies a deeper relation to virtue and vice; whereas talent has no shadow of a relation to moral qualities, any more than it has to vital sense."

(*Myth.*) According to the Romans, not only every man had his *G.*, who, after guiding him through life, conducted him out of the world at the close of his career; but places, and even inanimate objects, were fabled to have their genii. The collective Roman people also had their *G.*, who was sometimes represented on coins. Those of the women were called *Junones*. They sometimes held that each person was accompanied through life by two genii, a white and a black, the former good and favorable, the latter bad and unfavorable; at other times they believed in but one, which was black and white by turns. Divine honors were paid to the *genii*, and it was usual for each one to offer sacrifices to his *G.* on his birthday. — The *genii*, or *djinns*, of the East bear little resemblance to those of the Romans. They are regarded as an intermediate class of beings, between angels and men, but inferior in dignity to both, and are not objects of worship. In poetry they are described as having been created out of fire, and as having inhabited this world before its occupation by man, as the subjects of a certain *Ján Ibn Ján*. They rebelled, and God sent his angel *Iblis*, or *Eblis*, who, after conquering *Ján Ibn Ján*, rebelled against God, and set himself up in his room; whereupon God condemned him to eternal punishment. The *djinns*, like men, are some good and some evil. They eat and drink, are subject to passions and death, but may live for centuries. They are capable of becoming invisible, or assuming the forms of men, beasts, or monsters, at pleasure. They frequent baths, wells, ruined houses, seas, rivers, cross-roads, and market-places. The evil *genii* delight in mischief for its own sake, raise and direct whirlwinds, and dry up the springs of the desert. The *ghouls* are a subordinate class of evil *genii*, haunting deserts and burial-grounds, and killing and devouring men and women that fall in their way. The *peris*, or fairies, are beautiful female *genii*, who believe in God, and in Mohammed, his prophet, and do good to man. The Mussulman doctors believe in the existence of *djinns* as supernatural beings, but their ideas of them differ much from those of the poets and romancers.

Ge'nius lo'ci, *n.* [Lat.] In Roman mythology, the presiding deity of a place;—hence the prevalent feeling; the pervading atmosphere of a place, or establishment, as of a college.

Gennes'areth, (Lake of,) in Palestine. See GALILEE (SEA OF).

Gen'oa. [It. *Genova.*] A maritime prov. of N. Italy, forming a long tract, which extends along the shores of the Gulf of Genoa. *Area*, 3,000 sq. m. *Desc.* This prov. is traversed by the Apennines, which yield pasture to numerous herds of cattle, whilst the valleys are fertile, producing abundance of grain. *Rivers.* The Bisagno, Magra, Polcevera, and Vara. *Min.* Marble is the most valuable. *Cap.* Genoa. *Pop.* 707,718.—This territory corresponds nearly to the *Upper Liguria* of the Romans, and, in 1798, was joined to France under the title of the *Republic of Liguria*. In 1815 it was assigned to Sardinia, and called the *Duchy of Genoa*. Now a province of Italy, with an area of 1,588 sq. m.

Genoa, (*jen'o-a.*) [It. *Genova.*] A celebrated fortified maritime city of N. Italy, (and birthplace of Christopher Columbus,) once the cap. of an independent republic, and now of the above province, at the head of the gulf of the same name; 75 m. S.E. of Turin, and 90 N.W. of Leghorn. *G.* is built round, but principally on the E. side of its port, which is semicircular, the chord being about 1 m. in length. Two gigantic moles (*Molo vecchio* and *Molo nuovo*) project into the sea from either angle, and inclose and protect the harbor. The land on which the city is built rises amphitheatre-wise round the water's edge to the height of from 500 to 600 ft., so that its aspect from the sea is strikingly grand and imposing. The white, snowy houses form streets at the base of the acclivity, while the upper part is thickly studded with detached villas. Behind all, the Apennines are seen towering at the distance of 10 or 12 m., their summits snow-covered during a part of the year. The older or E. portion of the city consists of a labyrinth of excessively narrow, crooked, and dark streets, their breadth being generally no more than from 6 to 12 ft.; they are, however, paved with broad flags of lava, and present the smoothness and durability of good masonry. The newer part of the city, which stretches along the N. side of the port, is more regularly laid out, and contains some broad and very handsome streets, one of which, the *Strada Balbi*, is entirely formed of palaces, more magnificent than those of Rome, and neater in their interior. In Italy, *G.* has acquired, and deserves, the title of *Genova la Superba*. It exhibits fewer remains of ancient splendor than Venice, but more actual wealth and comfort. Its most splendid palaces are the two *Palazzi Doria*, in one of which the emperors Charles V. and Napoleon I. resided during their stay in Genoa; the other is now a residence of the king of Italy. The *Durazzo, Serra, Spinola, Balbi, Brignole, Carrega, Mari*, and *Pallavicini* palaces are among the most remarkable of the others. The ancient palace of the Doges was almost wholly destroyed by fire in 1777, but the modern building erected on its site is a fine structure, and contains the city council-hall. *G.* possesses many fine, but too gaudily decorated churches. There are here, too, 3 large hospitals, the Exchange, the old bank of St. George, and 3 fine theatres; the university is also a fine building. *G.* has, likewise, a royal college, a naval school, a good public library of 50,000 vols., and numerous learned societies and schools. The harbor of *G.* is excellent, having a light-house, a refitting dock, and an arsenal. *Clim.* Healthy. *Inhab.* The women of *G.* have long been quoted for their exceptional beauty; while, as fishers and seamen, her sons have been celebrated for generations, throughout Europe, for their intrepidity and spirit of enterprise. *G.* is the entrepôt of a large extent of country, and her commerce, though inferior to what it once was, is still very considerable. She is a free port. The various duties and custom-house fees formerly charged on the transit of goods through Genoa and the Italian territories have recently been abolished. The Bank of St. George, here, was one of the oldest banks of circulation in Europe, (see BANKING.) *Manuf.* Velvets, silks, damasks, paper, soap, and articles in marble, alabaster, and coral. — *G.* is of great antiquity. After a variety of vicissitudes she became, in the 11th century, the cap. of an independent republic; and was early distinguished for the extent of her commerce, and by her settlements and dependencies in various parts of the Mediterranean and of the Black Sea. Their conflicting pretensions and interests involved the Genoese in long-continued contests with the rival republics of Pisa and Venice. The struggle with the latter, from 1376 to 1382, is one of the most memorable in the Italian annals of the Middle Ages. The Genoese having defeated the Venetians at Pola, penetrated to the lagoons which surrounded Venice, and took Chioggia. Had they immediately followed up this success, the probability is that they would have taken Venice; but having procrastinated, the Venetians recovered from their consternation, and compelled the Genoese to retire. The ascendancy of Venice dates from this period. The government of *G.* was long the most turbulent that can be imagined; and the city was agitated by continual contests between the nobility and the citizens, and between sections of the nobility themselves.



Fig. 1138. — A GENOESE FISHER.

For their protection, the citizens placed themselves, at different periods, under the protection of France, the Marquis of Montferrat, and the dukes of Milan. Indeed, from 1464 down to 1528, *G.* was regarded as a dependency of the latter. In the last-named year, however, it recovered its independence, and was, at the same time, subjected to a more aristocratical government. In 1576 further modifications were made in the constitution, after which it enjoyed a lengthened period of tranquillity. The conquest of Constantinople, and of the countries round the Black Sea, by the Turks, and the discovery of the passage to India by the Cape of Good Hope, proved destructive of a great portion of the Genoese trade. *G.* was, also, successively stripped of all her foreign possessions. Corsica, the last of her dependencies, revolted in 1730, and was ceded to France in 1768. In 1797 *G.* was occupied by the French. *Pop.* (1895) 214,310.

Gen'oa, in *Illinois*, a post-village and township of De Kalb co., about 220 miles N. by E. of Springfield. *Pop.* (1897) 724.

Genoa, in *Iowa*, a post-village of Wayne co., about 16 m. S. E. of Corydon.

Genoa, in *Michigan*, a township of Livingston co.

Genoa, in *Nebraska*, a post-village of Nance co.

Genoa, in *Nevada*, a post-village, cap. of Douglas co., on Carson river, near the E. base of the Sierra Nevada, about 14 miles S. of Carson City.

Genoa, in *New York*, a post-village and township of Cayuga co., on Cayuga lake, about 160 miles W. of Albany.

Genoa, in *Ohio*, a township of Delaware co., on the C., Mt. V., and C. R. R.

—A post-village of Ottawa co., about 15 m. S.E. of Toledo.

—A village of Pickaway co., about 14 miles S. by W. of Columbus. Now called COMMERCIAL POINT, a post-vill.

Genoa, in *Wisconsin*, a post-township of Vernon co.

Genoa Bluff, in *Iowa*, a post-village of Iowa co.

Genoese', *a.* Of, or belonging to, Genoa.

—*n. sing.* and *pl.* A native or inhabitant of Genoa.

Genouillere, (*zhnool-yare'*) *n.* [Fr. *genou*; Lat. *genu*, the knee.] (*Mil.*) In fortification, the part of the interior slope of the parapet below the sill of an embrasure. It covers the lower part of the gun-carriage. — In armor of the 14th century, the knee-piece or knee-bow.

Genre, (*zhon'r,*) *n.* [Fr.] (*Painting.*) A term applied to express a class of pictures which belong to none of the higher or specific classes of art. It refers commonly, as the full French expression implies, to ordinary scenes of vulgar life. Yet a *peintre de genre*, or genre-painter, is not necessarily a painter of low subjects, nor need a *genre* picture be vulgar in the common acceptation of the word. The Dutch are the great *G.* painters.

Gens, [Lat.] (*Rom. Hist.*) A clan or sect, forming a subdivision of the Roman people next in order to the curia or tribe. The members and houses (*familiæ*) composing one of these clans were not necessarily united by ties of blood, but were originally brought together by a political distribution of the citizens, and bound by religious rites, and a common name, derived generally from some eponymous hero. This common name, which distinguished the *gentiles* or members of the same clan, was the second of the three borne by a Roman citizen, and was specially termed the *nomen*. It is supposed that each of the *curiæ* originally contained ten *gentes*, and that each of these was represented in the senate by one of its members.

Gen'seric, a famous Vandal prince, B. at Seville, 406. He passed from Spain to Africa, where he took Carthage, and laid the foundation, in Africa, of the Vandal kingdom, which was composed of Numidia, Mauritania, Carthage, Corsica, Sardinia, and the Balearic Isles. In the course of his military expeditions he invaded Italy, and sacked Rome in 455. D. 477.

Genteel', *a.* [Fr. *gentil*; Lat. *gentilis*, from *gens*, race, clan, or family.] Easy and graceful in manners and behavior; polite; well-bred; refined; polished; having the manners of well-bred people; becoming well-bred persons; as, a *genteel* appearance, *genteel* people, &c.—Graceful in mien or form; elegant; fashionable; decorous; free from anything low or vulgar.

"So spruce that he can never be *genteel*."—*Tatler.*

Genteel'ish, *a.* Somewhat genteel.

Genteel'ly, *adv.* Elegantly; politely; gracefully; handsomely.

Genteel'ness, *n.* Quality of being genteel; gentility; elegance; gracefulness; politeness.

Gen'thite, *n.* (*Min.*) An amorphous incrusting mineral; quite soft. Lustre resinous, color pale apple-green, or yellowish. *Comp.* Silica 35·36, oxide of nickel 30·64, oxide of iron 0·24, magnesia 14·6, lime 0·26, water 19·09. Occurs at Texas, Pa., on chromic iron, and at Webster, N. Carolina.

Gentiana, (*jen-she-ai'na,*) *n.* [Lat., from *Gentius*, king of Illyria, said first to have discovered the properties of the plant.] (*Bot.*) The typical genus of the order *Gentianaceæ*. The species are numerous, natives of temperate parts of Europe, Asia, and America, many of them growing in high mountain pastures and meadows, which they adorn by their beautiful blue or yellow flowers. The common *G.*, called also Yellow *G.*, or Bitter-wort, *G. lutea* (Fig. 1139), is abundant in the meadows of the Alps and Pyrenees, at an elevation of 3000 to 6000 ft. It has a stem about 3 feet high, ovate-oblong leaves, and numerous whorls of yellow flowers. The part employed in medicine is the root, which is cylindrical, ringed, and more or less branched; and which appears in commerce in a dried state, in pieces varying from a few inches to more than a foot in length, and from half an inch to two inches in thickness. *G.* is a highly valued medicine, a simple tonic bitter without astringency, and is much used in diseases of the digestive organs, and sometimes as an anthelmintic. It may be administered in the form of infusion, tincture, or extract. Among the American species are *G. pneumonanthe*, the Calathian violet, a fine plant, with large, showy violet or blue flowers; and *G. catesbæi*, that is often used as a substitute for the officinal gentian, from which it differs only by the color of its flowers, which are blue, while those of the foreign gentian are yellow.

Gentiana'ceæ, *n. pl.* (*Bot.*) An order of plants, alliance *Gentianales*. DIAG. No stipules, simple stigmas at the end of a manifest style, parietal placentæ, and regular flowers. They are herbs, or rarely shrubs, usually smooth. Leaves usually simple, entire, opposite, sessile, and strongly ribbed; rarely alternate, or stalked, or compound; always exstipulate. Flowers almost always regular, variously colored, axillary or terminal. Calyx inferior, persistent, usually with five divisions, occasionally four, six, eight, or ten. Corolla persistent, its divisions corresponding in number to those of the calyx; æstivation imbricate, twisted or in duplicate. Stamens as many as the segments of the corolla, and alternate with them. Ovary 1-celled, or rarely partially 2-celled, from the projection inwards of the placentas,



Fig. 1139. — COMMON GENTIAN.
a, capsule; *b*, capsule cut across; *c*, vertical section of seed, magnified.

with numerous ovules; placentas 2, anterior and posterior to the axis, and frequently turned inward; style 1. Fruit capsular, 2-valved, with septicidal dehiscence, or a berry. Seeds numerous and small; embryo minute, in the axis of fleshy albumen. The order has been divided into two sections or sub-orders, the characters of which are taken from the æstivation of the corolla. These are, *Gentianeæ*, with the corolla imbricate-twisted, and *Menyantheæ*, with the corolla plaited, or in duplicate. The plants included in the order are found in nearly all parts of the world, even in the coldest and the hottest regions. A bitter principle almost universally pervades them; hence many are used medicinally for their tonic, stomachic, and febrifugal properties. There are 64 genera and about 450 species.

Gentiana'les, *n. pl.* (*Bot.*) An alliance of plants of the sub-class *Perigynous Exogens*. DIAG. Dichlamydeous monopetalous flowers, axile or parietal placentæ, and a minute embryo, or with the cotyledons much smaller than the radicle, lying in a large quantity of albumen. — This alliance is divided into the orders *Ebenaceæ*, *Aquifoliaceæ*, *Apocynaceæ*, *Loganiaceæ*, *Diapensiaceæ*, *Stilbaceæ*, *Orobanchaceæ*, and *Gentianaceæ*.

Gen'tianin, or GENTIANIC ACID, *n.* (*Chem.*) A crystallizable body contained in Gentian root, or which constitutes its bitter principle.

Gen'til, *n.* [Fr. *faucon-gentil.*] A species of falcon or hawk, supposed to be the Goshawk, *Astur palumbarius*.

Gen'tile, *n.* [Lat. *gentilis*, from *gens*, a race or family.] (*Script.*) A pagan, or worshipper of idols. The Jews classed all the inhabitants of the earth, with the exception of their own peculiar race, under the general name of *goïm*, which is equivalent to the Latin *gentes*, nations; and after a time the term Gentiles began to be applied in a reproachful instead of a general sense. All who were not circumcised and Jews, were regarded as Gentiles or heathens, and as such they were excluded as much as possible from all those privileges and relations by which the Jewish nation became so exalted. As the Gentiles were, consequently, considered as outcasts and aliens from the favor of God, it is not much to be wondered at that the Jews were very prejudiced against a Saviour and a Gospel which inculcated the union of the two different sects, and placed the Gentiles on an equal footing with the Jews. Those of the Gentiles who embraced Judaism, but were not Jews, were called *proselytes*: and the term *Greeks*, which is used often in the New Testament, is sometimes identical with Gentiles.

Gen'tile, *a.* (*Gram.*) Denoting a family, race, or nation; as, American, German, Irish, &c. are *gentile* adjectives.

—Belonging to pagans or heathens.

Gen'tilism, *n.* [Fr. *gentilisme*. See GENTILE.] Heathenism; paganism.

Gentil'ity, *n.* [Fr. *gentilité*, from *gentil*; Lat. *gentilis.*] Politeness of manners; easy, graceful behavior; the manners of well-bred people; genteelness; gracefulness of mien.

Gen'tilize, *v. a.* To make or render gentle.

Gentilly, a village of Pr. of Quebec, co. of Nicolet, about 75 m. S.W. of Quebec.

Gen'tle, *a.* [Lat. *gentilis*, from *gens*, *gentis*, a race or nation.] Of respectable birth, though not noble. — Free from coarseness or vulgarity of manners. — Urbane; courteous; affable; mild; meek: placid: soft; bland; docile; tame. — Soothing, as music. — Treating with mildness; not violent.

Gentlefolk, (*gen'tel-fōke,*) *n.* Persons of family and good breeding. It occurs more frequently in the plural form, as *gentlefolks*.

Gen'tle-hearted, *a.* Having a kind or gentle disposition.

Gen'tleman, *n.*; *pl.* GENTLEMEN. [Fr. *gentilhomme*, i. e. *homo gentilis*, a man of ancestry.] Strictly speaking, every man above the rank of yeoman, including noblemen; a man who, without a title, bears coat-armor, or whose ancestors have been freemen.

"All the wealth I had ran in my veins; I was a *gentleman*."*Shaks.*

—In common language, every man whose education or occupation raises him above menial service or any ordinary trade. —A man of good family, breeding, politeness, correct manners, and educated mind; as distinguished from the vulgar, illiterate, and clownish.

"A long-descended race makes *gentlemen*." — *Dryden.*

—A term of complaisance. — A man of strict integrity and honor, of self-respect and intellectual refinement, as well as of refined manners and good breeding.

—One who serves a man of rank and attends his person; as, he is my lord's *gentleman* (i. e. valet), a *gentleman*-usher, &c.

(*Hist.*) It is a matter of difficulty to give a correct definition of what entitles a man to the appellation of *G.*, or to determine a standard by which persons who claim to hold this rank may be distinguished from those who possess no right to it. The original derivation of the word is from the Lat. *gentilis*, belonging to a tribe or *gens*, and *homo*, a man. In the early days of Rome, the inhabitants of that city were divided into two classes, — the *populus*, or that portion of the community in whom all power lay, and the *plebs*, or commonalty. The *populus*, or body of the patricians or nobles, was further divided into tribes or *gentes*, and each *gens* into families, all the members of which bore the common appellation of the tribe. To belong to a *gens* or tribe, was to take rank among the nobles, and in after-times, when the privilege of admission to a tribe was conceded to men of plebeian origin, it was equivalent to the grant of a title of nobility by letters-patent from the crown in our own time. Hence the term *gentilis* was applied to all who were free-born, being descended from free-born ancestors, and belonging to a noble family; while that of *sine gente*. ("without family or standing,") was applied to men of low rank and origin, and those that were born of slaves. The term has been adopted in all European languages of which Latin forms the foundation-stone and parent stock: while it is found in our own language in the word "gentleman," and gives the clue to the meaning of the expression *gentle*, well-born, in contradistinction to its opposite *simple*.

Gen'tleman-farmer, *n.* In England, a man of property, who has his own farm cultivated under his direction.

Gen'tlemanlike, *a.* Like a gentleman; gentlemanly; genteel; well-bred; as, a *gentlemanlike* person.

Gen'tlemanliness, *n.* Behavior of a gentleman.

Gen'tlemanly, *a.* Becoming a gentleman; polite; gentlemanlike; genteel; well-bred; as, a *gentlemanly* manner.

Gentlemen-at-Arms. (*Eng. Hist.*) A corps of 40 gentlemen whose duties are to attend the sovereign on state occasions. The corps was established by Henry VIII. in 1509, under the name of *The Band of Gentlemen Pensioners*. It consisted entirely of men of noble blood, and was called *His Majesty's Honorable Corps of Gentlemen-at-Arms* by William IV. in 1834, and is now recruited entirely from retired army officers.

Gen'tleness, *n.* Softness of manners; mildness of temper; sweetness of disposition; courteousness or urbanity of manners, or disposition; meekness; tenderness. —Mild treatment; suavity.

Gentlewoman, *n.* A woman of good family or breeding; a lady; a woman above the vulgar.—A woman who waits upon the person of a lady of high rank.

Gen'tly, *adv.* Softly; tenderly; meekly; kindly; without roughness or asperity.

Gentry, (*jen'try,*) *n.* [Corrupted from *gentlery.*] In England, people of birth, property, and good breeding. — The quality of people between the nobility and the trading classes.

Gentry, in *Arkansas*, a post-office of Benton co.

Gentry, in *Missouri*, a N.N.W. co.; *area*, about 450 sq. miles. *Rivers*. Grand river, and numerous smaller streams. *Surface*, generally level; *soil*, fertile. *Cap.* Albany. *Pop.* (1890) 19,018.

Gentry's Mills, in *Georgia*, a P. O. of Dawson co.

Gentryville, in *Indiana*, a post-village of Spencer co., about 17 miles N. of Rockport.

Gentryville, in *Missouri*, a post-town of Gentry co., about 90 miles N. of Independence.

Genuflex'ion, Genuflec'tion, *n.* [Fr., from Lat. *genuflectio*, from *genu*, the knee, and *flectere*, to bend.] The act of bending the knee, more especially in worship.

Genuine, *a.* [Lat. *genuinus.*] Natural; belonging to the original stock; real; pure; veritable; true; unalloyed; not spurious, false, or adulterated; as, a *genuine* article.

Gen'uinely, *adv.* Without adulteration or foreign admixture; naturally; purely.

Gen'uineness, *n.* State or quality of being genuine, or of the true original.
—Freedom from adulteration or foreign admixture; freedom from anything false or counterfeit; purity; reality.

Ge'nus, *n.; pl.* GEN'ERA. [Lat., from Gr. *genos*, from *genesthai*, to be born.] A race; descent; kind; family; stock; lineage; kindred; extraction; breed.

(*Zoöl.*) A distinct group of species, allied by common characters, and subordinate to an order, family, tribe, or sub-tribe. A genus is often an arbitrary group, since, although it is a natural assemblage, nearly every naturalist has his own views with regard to the propriety of uniting or separating particular assemblages of species. The synonymy of genera has thus become more copious as the study of natural history has progressed, and presents one of the difficulties which the student of zoölogy has to contend against. — See SPECIES.

(*Bot.*) The term *genus* is applied to a collection of species of plants which resemble one another in general structure and appearance more than they resemble any other species. Thus the various kinds of brambles constitute one genus; the roses, another; the heaths, willows, clovers, oaks, &c., form also, in like manner, so many different genera. The characters of a genus are taken exclusively from the organs of reproduction, while those of a species are derived generally from all parts of the plant. Hence a genus may be defined as an assemblage of species which resemble one another in the structure and general characters of their organs of reproduction. It does not necessarily happen that a genus should contain a number of species, for if a single one presents peculiarities of a marked kind, it may of itself constitute a genus.

(*Logic.*) One of the predicables, which is considered as the material part of the species of which it is affirmed.

(*Mus.*) Any scale of music. If a scale proceed by tones, it is called the *diatonic* genus; if between the tones semitones are introduced, it is called the *chromatic* genus. When the subdivisions are smaller, as quarter tones, it is called the *enharmonic* genus.

Genzano, (*jain-za'no,*) a town of Italy, in the Pontifical States, 18 m. S E. of Rome, on the Appian Way. An annual festival held here, called the *Infiorata di Genzano*, is attended by numerous visitors from Rome. *Pop.* abt. 4,700.

Geocen'tric, Geocen'trical, *a.* [Fr. *géocentrique*, from Gr. *gē*, the earth, and *kentron*, a centre or sharp point.] (*Astron.*) An expression applied to the position of a planet as it would appear to an observer stationed at the centre of the earth. It is in opposition to the term *heliocentric*, which is used to denote a planet's position as it would be seen by an observer at the centre of the sun.

Geocen'trically, *adv.* In a geocentric manner.

Geocer'ellite, *n.* (*Min.*) An oxygenated hydro-carbon, obtained from the dark-brown coal of Gesterwitz. It is white, brittle, soluble in hot alcohol, and melts at 144°. *Comp.* Carbon 78·61, hydrogen 12·79, oxygen 8·69.

Geocer'ic Acid, *n.* The chemical name for GEOCERELLITE, *q. v.*

Geoc'erite, *n.* [Gr. *ge*, earth, and *keros*, wax — from its wax-like appearance.] (*Min.*) Another product of the dark-brown coal of Gesterwitz. *Comp.* Carbon 79·06, hydrogen 13·13, oxygen 7·81.

Geoc'ronite, *n.* [Gr. *ge*, earth, and *kronos*, Saturn, the alchemistic name for lead.] (*Min.*) A sulphuret of antimony and lead, from the silver mines of Sala in Sweden, also from Merida in Spain. Lustre, metallic. Color, light lead-gray to grayish-blue. Sp. gr. 6·4–6·6. *Comp.* Sulphur 16·5, antimony 16·7, lead 66·8.

Geocyc'lic, *a.* [Gr. *gē*, the earth, and *kuklos*, a circle.] Circling periodically about the earth; having the same centre with the earth.

Ge'ode, *n.* [Fr. *géode*; Gr. *geodēs*, from *gē*, *gaia*, the earth, and *eidos*, form or figure.] (*Min.*) Round hollow concretions of mineral matter. The interior, when empty, is generally lined with crystals of quartz, calc-spar, &c., and when broken open present a beautiful appearance. Sometimes they contain a solid movable nucleus, or are filled with earthy matter. They are sometimes called *potato-stones* from their size and shape.

Geodes'ic, Geodes'ical, *a.* [Fr. *géodesique*. See SUPRA.] Pertaining to geodesy; geodetic.

Geodesic line. (*Geom.*) A curve traced on a surface, so that its osculating plane at every point contains the normal to the surface at that point. A *geodesic* may also be defined as the curve which a string, lying on the surface, would assume if subjected to tension at its extremities. From this definition it follows that a *G.* must, under ordinary circumstances, be the shortest line that can be drawn on the surface between any two of its points. The geodesics on a sphere are its great circles; the geodesics on a developable surface become, of course, right lines when the surface is unfolded into a plane.

Geode'sian, *n.* One versed or skilled in geodesy.

Geod'esy, Geodæ'sia, *n.* [Gr. *geodaisia*, from *gaia*, *gē*, the earth, and *daiein*, to divide.] (*Math.*) That part of geometry which enables us, by measurement and direct observation, to determine approximately the shape or figure of the earth, and ascertain the area of its entire surface, or any part of it, as well as the variations in the force of gravitation at different parts of the earth. The figure of the earth was known to be nearly spherical some time prior to the Christian æra, and even in the present day we are taught to consider its form to be that of a regular oblate spheroid, or sphere flattened at the poles, which is a sufficiently close approximation to its actual shape for all general and practical purposes. If the latitudes and longitudes of places on the earth's surface, deduced from geodetic measurements, coincided with those obtained from astronomical observations, the form of the earth would be that of a regular spheroid of rotation; but there is such a difference in the results obtained by the two methods, that no regular shape can be assigned to the earth by which these results can be reconciled. The measurements of arcs of the meridian that have been made during the 18th and 19th centuries, in various parts of the world, have, however, tended to show that the diameter of the earth from pole to pole is to its diameter at the equator as 299 to 300; but they have also served to prove that there is a dissimilarity of shape between the northern and southern hemispheres, and that the curvature of the earth's surface is different in meridianal arcs of either hemisphere that are at no great distance from each other: which shows that the earth cannot be a regular spheroid. The discrepancy in the shape of the hemispheres, and the irregularity of curvature in different parts of the same hemisphere, can only be accounted for by the supposition that the earth was once in a fluid state, and that the irregularity in the cooling and consequent solidification of various parts had produced a corresponding irregularity of form in its surface, and a departure from the uniform spherical shape which it would have undoubtedly assumed, under the influence of centrifugal force, if the whole mass had been homogeneous, and the conditions under which it had cooled had been the same at all parts of its surface. The following is a brief notice of some of the more important attempts that have been made to obtain accurate measurements of arcs of the meridian at different parts of the earth's surface, with some account of the methods by which trigonometrical surveys are made for this purpose, and for determining the area and obtaining correct delineations of large tracts of country. Eratosthenes was the first who attempted to determine the length of a geographical degree, about 250 B. C. A degree was also measured in the plains of Mesopotamia, rather more than a thousand years after, by order of the caliph Al Mamoun; and in 1617, Willebrod Snell measured a degree of the meridian at Leyden, and estimated it at about 66·75 English miles. There were, however, some errors in Snell's calculations, which he had detected himself, but which he was prevented from correcting by his death in 1626. In 1633, Norwood measured the meridian from London to York, and obtained a tolerably accurate value of the degree. In 1671, Picard and La Hire effected the measurement of the meridian between Amiens and Paris, and obtained a result of 69·1 English miles as the length of a degree. This was followed, in the commencement of the 18th century, by the extension of the measurement of the meridian begun by Picard, to Dunkirk towards the N., and Collioure, in the Pyrenees, towards the S., when James Cassini, under whose direction the operation was completed, found the length of a degree between Paris and Dunkirk to be rather less than the result which was obtained by Picard, and also less than the length of a degree between Paris and Collioure, which gave rise to an idea that the length of a degree of the meridian must grow less in proportion to its distance from the equator, instead of greater, as it must do of necessity, if the form of the earth be that of an oblate spheroid. This caused Cassini and others to conjecture that the earth must be in the form of a prolate spheroid; but this idea was shown to be erroneous by the measurement of an arc in 1736, in Lapland, to the N. of the Gulf of Bothnia, from which it appeared that there was an increase, instead of a decrease, in the length of a degree of the meridian in proportion to its distance from the equator, although it was discovered that their computation erred in excess when a re-measurement of the arc was made by Svanberg in 1802. While Maupertuis was measuring an arc of the meridian in Lapland, Bouguer and La Condamine, assisted by some Spanish officers, were performing the same operation near Quito in Peru, an iron toise being used as the standard of measurement, which has since been adopted as the standard for the expression of the length of the greater number of the degrees that have been measured on the continent of Europe, all of them, indeed, having been ultimately referred to this as the unit of measurement. In the measurement of the arc effected in Peru, the length of a degree was found to be about 68·72 English miles by the French mathematicians, and rather more by the Spaniards. The results, however, of the two measurements effected simultaneously in Peru and Lapland went far to prove that the form of the earth was that of an oblate spheroid. In 1752, Lacaille measured an arc of the meridian at the Cape of Good Hope, from which operation he obtained a result nearly equal to the length of the degree measured by Picard between Paris and Amiens, although the scene of his labors was about 30° S. of the equator, while that part of France selected by Picard is 50° to the N. of it; and according to the received theory of the oblate-spheroidal form of the earth, the length of the degree measured at the Cape ought to have been less than that which was assigned to it by Lacaille. The discrepancy has, however, been accounted for and explained by Maclear, who has lately remeasured Lacaille's arc. In 1791, the arc of the meridian of Paris was remeasured from Dunkirk to Barcelona, by order of the French Convention, to establish the length of the mètre, the new French standard of measurement, which was to be the ten-millionth part of a quadrant of the meridian. This was carried out with great care by Delambre and Mechain; but an error has since been discovered in the work which affects the length of the measured arc to the extent of nearly sixty-eight toises, and makes the mètre to be shorter than it should be by a very small and trifling fraction of its present length. The French *mètre* has been used in the measurements of the U. S. Coast Survey, the latest example, we believe, and certainly the most perfect, of large geodesical operations.

Geodet'ic, Geodet'ical, *a.* Pertaining to geodesy or the admeasurements therein.

Geodet'ically, *adv.* In a geodetic manner.

Geodet'ics, *n. sing.* Same as GEODESY, *q. v.*

Geodif'erous, *a.* [*geode*, q. v., and Lat. *ferre*, to bear.] Producing geodes.

Geof'frey of Monmouth, the English author of a famous chronicle or history of the first British kings, often quoted by men of letters, and remarkable for its curious legends. Geoffrey was successively archdeacon of Monmouth, bishop of St. Asaph, and abbot of Abingdon, where he died, 1154.

Geof'frin, MADAME, a Parisian lady celebrated for her wit and beauty, who lived in the eighteenth cent., and by the grace and vivacity of her manners, aided by a refined and cultivated taste, drew around her all the fashion, wit, and learning of Europe. Early left a widow, with an opulent fortune, her charities to the poor, and her benevolent aids to literature, endeared her as much to society, as her wit and virtue delighted. D. 1777.

Geoffroy Saint-Hilaire, ETIENNE, a distinguished zoölogist and comparative anatomist, sprung from a family well-known in science, was B. at Etâmpes, 1772. He was originally destined for the Church, but he preferred dedicating himself to science, a taste for which he had imbibed from the instructions of Brisson, at the college of Navarre, and in the company of Haüy, his colleague, at the college of Cardinal Lemoine. During the massacres of September, 1792, he saved, at the risk of his life, several priests, among others Haüy, who had been imprisoned for recusancy. This act of devotion so endeared him to his teachers, especially Daubenton, that he was, through their instrumentality, in 1793, appointed to an office in the Jardin des Plantes, where he founded the vast zoölogical collections, which are one of the glories of Paris. In 1798 he accompanied the great scientific expedition to Egypt, explored all the



Fig. 1140.— GEOFFROY ST. HILAIRE.

conquered countries, and was one of the founders and most active members of the Institute, of which he afterwards became professor. In 1808 he went on a scientific mission to Portugal; in 1815 he was a member of the Chamber during the Hundred Days; but on the return of the Bourbons he retired from political life, and thenceforward devoted himself solely to study. The great merit of Geoffroy Saint-Hilaire as a naturalist consists in his discovery of the law of unity that pervades the organic composition of animal bodies — a theory glanced at by Buffon and Gœthe; and in his having founded the theory of *Analogues*, or the method by which the identity of organic materials is determined in the midst of all their transformations. With him, too, originated the doctrine of *development*. His chief works are *Philosophie Anatomique*, *Principles de la Philosophie Zoölogique*, *Etudes Progressives*, &c. Died 1844. His *Life, Works, and Theories* has since been published by his son, the subject of the following notice.

Geoffroy Saint-Hilaire, ISIDORE, a distinguished French zoölogist, son of the preceding, was B. at Paris, in 1805. He was appointed, at the age of nineteen, assistant naturalist to his father, and five years later graduated M. D. In 1830 he commenced his career as lecturer by a course on ornithology; taught, for several years, zoölogy at the Royal Athenæum, and was received at the Academy of Sciences in 1833. He became inspector of the Academy of Paris in 1840 soon after succeeded his father in his chair at the Museum, was named successively inspector-general of the university of Paris, member of the Council of Public Instruction, and in 1850, professor of zoölogy. Among his later labors was the establishment of the Acclimatization Society. His principal works are, *Histoire générale et particulière des Anomalies de l'Organization chez l'Homme et les Animaux; Essais de Zoölogie générale; Vie, Travaux, et Doctrine Scientifique d'Etienne Geoffroy Saint-Hilaire; Histoire Naturelle générale des Règnes Organiques; and Acclimatation et Domestication des Animaux utiles.* He wrote a large number of memoirs on zoölogy, anatomy, &c., for the principal scientific journals of France. D. November, 1861.

Geoglos'sum, *n.* [Gr. *ge*, the earth, and *glossa*,

tongue.] (*Bot.*) The Earth-tongue, a genus of *Fungales*, growing on earth, and found in bogs and meadows.

Ge'ognost, *n.* [Fr. *géognoste*, from Gr. *geognostes*, from *gea*, earth, and *gignoskein*, to know.] A geologist; one conversant with the phenomena presented in the science of geology.

Geognos'tic, Geognos'tical, *a.* Belonging or relating to a knowledge of the structure of the earth; geological.

Geog'nosy, *n.* [Fr. *géognosie*, from Gr. *gea*, earth, and *gnosis*, knowledge, from *gignoskein*, to know; Lat. *noscere*.] A term sometimes still used as a synonym of geology, or more properly, of geology as restricted to the observed facts, apart from reasonings or theories built upon them.

Geogon'ic, Geogon'ical, *a.* Of, or pertaining to, geogony.

Geog'ony, *n.* [Fr. *géogonie*, from Gr. *gea*, earth, and *gonē*, generative, from *genein*, to be born, to come into being.] The doctrine, or theory of the generation or formation of the earth.

Geographer, (*jē-ŏg'ra-fer.*) *n.* [Fr. *géographe*, from Gr. *gea*, earth, and *graphein*, to describe.] One who is versed in geography; one who compiles a treatise on the subject.

Geograph'ic, Geograph'ical, *a.* [Fr. *géographique*; L. L. *geographicus*; Gr. *geographikos*. See above.] Relating to, or containing, a description of the terraqueous globe.

Geograph'ically, *adv.* In a geographical manner.

Geog'raphy, *n.* [Fr. *géographie*, from Gr. *geographia*, from *gē*, earth, and *graphein*, to describe.] That science by means of which we obtain a knowledge of this earth, both as it is in itself and as it is connected with a system of other similar bodies. It comprises a knowledge of its figure and dimensions; of the natural features, divisions, and productions of its surface; of the position of the various places upon it; and of its various inhabitants. It is usually arranged under three principal branches,—Mathematical, Physical, and Political. *Mathematical Geography* deals with the earth principally in its planetary relations as a member of the solar system, — a great part of this being common to it with astronomy; and hence it is sometimes termed *astronomical geography*. It treats of the figure, magnitude, density, and motion of the earth; of the movements of the other heavenly bodies which exert an influence upon it; the relative positions and distances of the various places upon its surface; and the representation of the whole or portions of its surface upon globes or maps. By mathematical geography, we ascertain that the earth is spherical in form, or rather what is called an oblate spheroid, being a little flatter at the poles than at any other part of its circumference; that its mean diameter is 7,913 English miles, the equatorial exceeding the polar by 26 miles; that its orbit around the sun is slightly elliptical, while its mean distance from that luminary is about 95,000,000 of miles; that it performs its revolutions in 365 days, 5 hours, 48 minutes, 50 seconds, the mean rate at which it travels being about 68,000 miles an hour; that the earth has also a motion around its own axis, which it completes every twenty-four hours, and that it revolves around the sun with its axis constantly inclined to the plane of its orbit at an angle of 66° 32′. To the former of these motions we are indebted for day and night; to the latter, for the vicissitudes of the seasons. In order to determine the relative positions of different places upon the earth's surface, geographers have supposed certain lines or circles traced upon it. One of these, the equator, being equally distant from both poles or points of rotation, divides the earth into two hemispheres, — the northern and southern. Another encircling line, drawn at right angles to the equator, and passing through the poles, divides it into the eastern and western hemispheres. Parallel to the equator, and numbered from it, are the lines or degrees of latitude, of which there are ninety in the northern, and as many in the southern hemisphere. The equator is divided into 360 equal parts, and lines drawn perpendicularly from the points of division to the poles constitute the lines or degrees of longitude. They are numbered east and west from a certain meridian, as that of Greenwich, Paris, Washington, &c. The meridian of a place is a line passing through that place to the poles at right angles to the equator. All places lying in the same latitude have equal length of day and night at the same time, while all places in the same longitude have mid-day at the same time. Degrees of latitude and longitude are of the same length at the equator; but the former, on account of the flattening of the surface of the globe, are slightly elongated towards the poles, while the latter gradually diminish in length as they recede from the equator. The length of a degree of longitude at the equator is 69·06 English miles. Each degree is divided into 60 equal parts, termed minutes, and every minute into 60 equal parts, termed seconds; marked thus, ° ′ ″. On maps, the latitude is denoted by figures at the sides; the longitude by figures at the top and bottom. The top of a map is the North, the bottom the South, the right hand the East, and the left hand the West. As the earth revolves around the sun with its axis constantly inclined to the plane of its orbit at a considerable angle, it follows that the sun does not remain perpendicular to the equator, but is one half of the year to the north and the other to the south of it. An imaginary circle, marking the sun's vertical position with regard to the earth, is termed the ecliptic, and cuts the equator obliquely at two points, termed the equinoctial points or nodes, the sun being then vertical to the equator. The vernal equinox occurs on the 21st of March, the autumnal on the 21st of September. The sun is vertical at different times of the year to all that portion of the earth's surface lying between 23° 28′ N. and 23° 28′ S. of the equator; and this region being subject to the greatest amount of heat, is called the Torrid Zone, and is bounded on the north by a circle termed the Tropic of Cancer, and on the south by another termed the Tropic of Capricorn. The sun is on the parallel of 23° 28′ N. on the 21st of June, and on the parallel of 23° 28′ S. on the 21st of December, — termed respectively the summer and winter solstice. From this inclination of the earth's axis it also follows that the whole region within 23° 28′ of either pole, or, in other words, above 66° 32′ of N. or S. latitude, is for a certain period of the year involved in continual night or continual day. The northern of these regions is termed the North Frigid Zone, and is bounded by the Arctic Circle; the southern, the South Frigid Zone, and bounded by the Antarctic circle. Between the Tropic of Cancer and the Arctic circle is the North Temperate Zone; and between the Tropic of Capricorn and the Antarctic circle is the South Temperate Zone. — *Physical Geography* comprehends a description of the principal features of the earth's surface, as consisting of land and water, the different animal and vegetable products; climate, elevation, and direction of mountain-chains, &c. (See PHYSICAL GEOGRAPHY.) — *Political Geography* describes the countries and nations of the earth as they are politically divided, and deals with mankind in their social aspect and organization. It gives an account of the laws and governments of the different countries, their language, religion, civilization, resources, all which will be treated of under the names of the different countries. Geography, in its practical application, "has for its object the determination of all those facts, as to any given country, which will enable us to judge of its fitness to provide man with food and to promote his civilization." It is thus a subject of the utmost importance; for it is well known that outward circumstances exert a very manifest influence upon mankind. The climate and physical characteristics of a country determine, in a great measure, the nature of its inhabitants, and its productions guide their pursuits. — *Hist.* The earliest idea formed of the earth by nations in a primeval condition seems to have been that it was a flat circular disc, surrounded on all sides by water, and covered by the heavens as with a canopy, in the centre of which their own land was supposed to be situated. The Phœnicians were the first people who communicated to other nations a knowledge of distant lands; and although little is known as to the exact period and extent of their various discoveries, they had, before the age of Homer, navigated all parts of the Euxine, and penetrated beyond the limits of the Mediterranean into the Western Ocean. So rapid was the advance of geographical knowledge between the age of the Homeric poems (which may be regarded as representing the ideas entertained at the commencement of the 9th century B. C.) and the time of Hesiod (800 B. C.), that, while in the former the earth is supposed to resemble a circular shield, surrounded by a rim of water, spoken of as the parent of all other streams, and the names of Asia and Europe applied only, the former to the upper valley of the Caïster, and the latter to Greece N. of Peloponnesus, Hesiod mentions parts of Italy, Sicily, Gaul, and Spain, and is acquainted with the Scythians, and with the Ethiopians of S. Africa. During the 7th century B. C., certain Phœnicians, under the patronage of Neku, or Necho II., king of Egypt, undertook a voyage of discovery, and are supposed to have circumnavigated Africa. The 7th and 6th centuries B. C. were memorable for the great advance made in regard to the knowledge of the form and extent of the earth. Thales, and his pupil Anaximander, reported to have been the first to draw maps, exploded many errors, and paved the way, by their observations, for the attainment of a sounder knowledge. But with Herodotus of Halicarnassus (B. 484 B. C.), the father of geography as well as of history, a new æra began in regard to geographical knowledge, for although his chief object was to record the struggles of the Greeks and Persians, he has so minutely described the countries which he visited in his extensive travels, that his history gives us a complete representation of all that was known of the earth's surface in his age. In the next cent., the achievements of Alexander the Great tended materially to enlarge the bounds of human knowledge, for while he carried his army to the banks of the Indus and Oxus; he at the same time promoted science, by sending expeditions to explore and survey the various provinces which he subdued, and to make collections of all that was curious in regard to the organic and inorganic products of the newly united territories. An important advance in geography was made by Eratosthenes (B. 276 B. C.), who first used parallels of longitude and latitude, and constructed maps on mathematical principles. During the interval between the ages of Eratosthenes and Strabo (B. 66 B. C.), many voluminous works on geography were compiled, which have been only partially preserved in the records of the later writers. Strabo's great work on geography has been considered as a model of what such works should be in regard to the method of treating the subject. The greatest service was done to geographical knowledge by the survey of the Roman empire, which was begun by Julius Cæsar, and completed by Augustus. This work comprised a description and measurement of every province by the most celebrated geometricians of the day. Pliny (B. 23 A. D.), who had travelled in Spain, Gaul, Germany, and Africa, has left us a compendium of the geographical and physical science of his age in the 4 books of his *Historia Naturalis* which he devotes to the subject. The study of geography in ancient times may be said to have terminated with C. Ptolemy, who flourished in the middle of the 2d cent. of our æra. His work on *G.*, in 8 books, which continued to be regarded as the most perfect system of the science through the dark and middle ages down to the 16th cent., gives a tolerably correct account of the well-known countries of the world, and of the Mediterranean, Euxine, and Caspian seas, but it added little to the knowledge of the N. of Europe, or the extreme boundaries of Asia or Africa. Yet, from his time till the 14th century, when the records of the travels of the Venetian, Marco Polo, opened new fields of inquiry, the statements of Ptolemy were never questioned; and even during the 15th century, it was only among a few German scholars at Nürnberg that the strange accounts given of distant eastern lands by the Venetian traveller were received as trustworthy where he differed from Ptolemy. The momentous discovery of America by Columbus (1492), which had been preceded in 1486 by the exploration of the African coast as far as the Cape of Good Hope (which was doubled by Vasco de Gama in 1497), was followed by a rapid succession of discoveries; and within 30 years of the date of the first voyage of Columbus, the whole coast of America from Greenland to Cape Horn had been explored, the Pacific Ocean had been navigated, and the world circumnavigated, by Magellan; the coasts of E. Africa, Arabia, Persia, and India had been visited by the Portuguese, and numerous islands in the Indian Ocean discovered. The 16th cent. was marked by continued attempts, successful and unsuccessful, to extend the sphere of oceanic discovery; and the desire to reach India by a shorter route than those by the Cape of Good Hope or Cape Horn, led to many attempts to discover a N.W. passage, which, though they signally failed in their object, had the effect of very materially enlarging our knowledge of the Arctic regions. The expeditions of Willoughby and Frobisher, in 1553 and 1576, of Davis (1585), Hudson (1607), and Baffin (1616), were the most important in their results towards this end. The 17th and 18th centuries gave a new turn to the study of *G.*, by bringing other sciences to bear upon it, which, in their turn, derived elucidation from the extension of geographical knowledge; and it is to the aid derived from history, astronomy, and the physical and natural sciences, that we owe the completeness which has characterized modern works on *G.* In the 17th cent., the Dutch, under Tasman and Van Diemen, made the Australasian islands known to the civilized world; and in the latter half of the 18th cent., Captain Cook extended the great oceanic explorations by the discovery of New Zealand and many of the Polynesian groups; but he failed to find the Antarctic continent, which was first visited in 1840 by American, English, and French expeditions, under their respective commanders, Wilkes, Ross, and Dumont d'Urville. This will probably prove to have been among the last of great oceanic discoveries; and the attention of explorers is now turned to the interior of the great continents. In America, the travels of Humboldt, Lewis and Clark, Fremont, and others, have done much to make us acquainted with broad general features, but much remains to be done in regard to the special districts of Central and Southern America. In Asia, numerous travellers, geographers, and naturalists have contributed to render our knowledge precise and certain in respect to a great part of the continent, whose natural characteristics have been more especially represented by the great physicist Ritter: while we owe a large debt of gratitude to the Jesuit missionaries, whose indefatigable zeal has furnished us with a rich mass of information in regard to minor details of Asiatic life and nature. Much light has been thrown on the character and condition of the African continent by many of its greatest explorers—as Bruce, Park, Clapperton, Adamson, the Landers, Beke, Burton, Speke, Barth, Vogel, Livingstone, Nachtigal, Duveyrier, Baines, &c. In Australia the obscurity which had hitherto hung over the interior has been to a great extent diminished by the explorations of Sturt, Eyre, Leichhardt, and the brothers Gregory; and still more by the labors of Burke, Forrest, and Warburton, who have laid open most of the secrets of the interior of Australia. The progress which has marked recent discovery has been materially aided by the encouragement and systematic organization which have been given to plans of exploration by the public governments of different countries, and by the efforts of the numerous geographical societies which have been formed during the present century; while the constantly increasing mass of information collected by scientific explorers is rapidly diffusing correct information in regard to distant regions, and thus effectually dispelling the numerous fallacies which have hitherto obscured the science of geography.

Geoire, (St.,) (*zhwär,*) a town of France, dep. Isère, 19 m. N.N.W. of Grenoble; *pop.* 4,895.

Geol'oger, Geolo'gian, *n.* One versed in the phenomena of geology.

Geolog'ic, Geolog'ical, *a.* [Fr. *géologique.*] Pertaining to the science of the structure of the earth.

Geolog'ically, *adv.* In a geological manner.

Geol'ogist, *n.* One versed in the science of geology.

Geol'ogize, *v. n.* To make investigations in geology.

Geol'ogy, *n.* [Fr. *géologie*; Gr. *geologia*, from *gea*, *gē*, the earth, and *logos*, a discourse.] The science which treats of the structure and history of the earth. It considers the nature, the various conditions and order of arrangement of the rocks and their contents; the changes that have taken place in the materials of the earth's crust, and the causes that induced them; and describes the progress of life upon its surface, or the nature and order of introduction of its vegetable and animal tribes. In the examination and description of

the structure of the earth, application must be made of a knowledge of all the physical sciences; and the fact that *G.* thus rests upon the natural sciences accounts for its modern origin. Until some considerable progress had been made in these sciences, the geologist would lack the means necessary for his investigations. When the chemist was able to explain the true nature of the mineral substances of which the rocks are composed; when the geographer and meteorologist had explored the surface of the earth and learned the extent and the form of land and water, and the powers of winds, currents, rains, glaciers, earthquakes, and volcanoes; and when the naturalist had classified, named, and accurately described, the greater part of existing animals and plants, and explained their physiological and anatomical structure, and the laws of their distribution;—then only could the geologist, with any chance of arriving at sure and definite results, commence his researches into the structure and composition of rocks, and the causes that produce them, or utilize his discoveries of the remains of animals and plants that are enclosed in them. Then only could he discriminate with certainty between igneous and aqueous rocks, or between the remains of living or extinct species of animals and plants; and until then would he be unable to lay down any of the foundations upon which the science of *G.* was to rest. *G.* was formerly looked upon in the light of a geographical mineralogy; and even yet is regarded to be more or less under this aspect by many. No one indeed could have anticipated, from the mere study of masses of stone and rock,—where, to a partial and local view, all seems confusion and irregularity,—the wonderful order and harmony that arise from more extended observation, and the almost romantic and seemingly fabulous history which becomes at length unfolded to our perusal. To understand the records on which this history is founded, and to understand their meaning aright, frequent, long-continued, and wide-spread observation and research in the field, and patient and continuous registration of the observed facts, are absolutely necessary. This collection and coördination of facts is the proper and peculiar business of the geognost. The ditch, the cutting, the quarry, and the mine; the cliff, the gully, and the mountain side are his *subjects*. These he has to study, to examine, to describe the minutiæ of the structures they expose, and classify and arrange the facts they may afford, depicting their lineaments on maps and sections, and recording them in written descriptions. The business of the geognost, then, is to make out, from indications observed at the surface, and in natural and artificial excavations, the internal structure, the *solid geometry* of district after district, and country after country, until the whole earth has been explored and described. If, while so doing, he notes all those facts which may enable him or others to understand and explain how that structure has been produced, he then becomes a *geologist*. It is one of the most remarkable results of geological science, that an acquaintance with organic, and especially animal forms, is at least as necessary for a geologist, as a knowledge of minerals; and that a correct knowledge of organic remains (portions of fossil plants and animals) is a more certain and unerring guide in unravelling the structure of complicated districts than the most wide and general acquaintance with inorganic substances. The cause of this necessity may be stated as follows: When we come to examine the crust of the globe, we find that its several parts have been produced in succession; that it consists of a regular series of earthy deposits (all called by geologists *rocks*), formed one after another during successive periods of time, each of great but unknown duration. The animals and plants living at one period of the earth's history were different from those living now, and different from those living at other periods. There has been a continuous succession of different races of living beings on the earth, following each other in a regular and ascertainable order; and when that order has been ascertained, it is obvious that we can at once assign to its proper place of production, and therefore to its proper place in the series of rocks, any portion of earthy matter we may meet with, containing any one, or even any recognizable fragment of one of these once living beings. When we find a known fossil in any piece of rock, we are sure that that rock must have been formed during the period when the animal or plant of which that fossil is the remains was living on the globe, and could not have been formed either before that species came into existence or after it became extinct. In cases, therefore, where the original order of the rocks has been confused by the action of disturbing forces, or where the rocks themselves are only at rare and wide intervals exposed to view, their order of deposition and consequent succession of places may be more easily and certainly ascertained by the examination and determination of their fossil contents, than by any other method. *Descriptive G.* considers the facts and appearances as presented in the rocky crust of the earth: *Theoretical G.* attempts to account for the phenomena, and arrange them into a connected world's history; and *Practical G.*, guided in its researches by the other two, treats of the mineral products of the globe, the methods of obtaining them, and their application to industrial or economic purposes. *G.* may also be conveniently studied under the three sub-sciences—*Physical Geography*, which treats of the surface configuration of the globe, as depending on geological influences; *Mineralogy*, which restricts itself more particularly to a consideration of the mineral substances which compose the crust of the earth; and *Palæontology*, which considers exclusively the fossil remains found in the rocky strata. In *G.*, the history of the earth is divided, for convenient reference and study, into periods named from the prevailing types of animals or

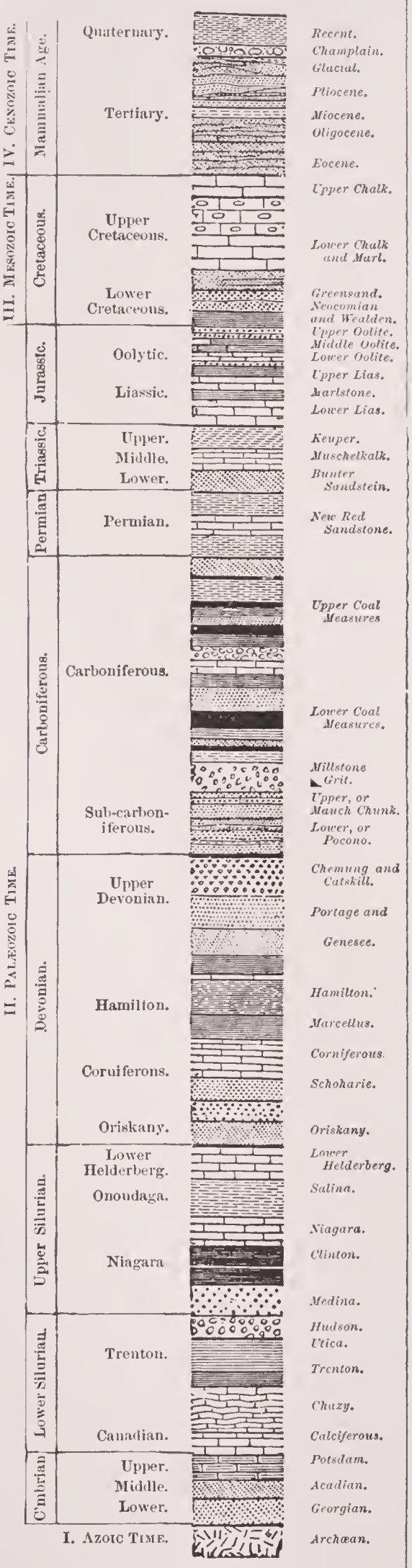


Fig. 1141.

plants then existing. I. The age preceding the appearance of animal life is called the *Azoic* age (Gr. *a*, and *zōon*, life—meaning destitute of life.) The azoic rocks are partly of igneous origin, that is, were once in a state of fusion; but above these lie thick beds of irregular stratified rocks, known as the Laurentian, the Huronian, &c., and composed of gneisses and schists made of disintegrated granite materials, limestones, iron ore, graphite, &c. These, with the later rocks, were of aqueous origin, or deposited in layers or strata by the action of water. II. The *Palæozoic* age (Gr. *palaios*, ancient, and *zōon*), or age of ancient life. This is subdivided into: 1. The *Cambrian*. 2. The *Silurian*. 3. The *Devonian*. 4. The age of coal plants, or the *Carboniferous*. III. The *Mesozoic* age (Gr. *mesos*, middle, and *zōon*), or the age of reptiles. IV. The *Cenozoic* age (Gr. *kainos*, recent, and *zōon*), or the age of mammals. V. The age of man. Each of those ages is described under its proper head. The subdivisions under the ages, the periods and epochs, vary in different countries. The accompanying table presents a general view of those of eastern North America, so far as the Palæozoic is concerned—the Silurian, Devonian, and Carboniferous being well represented on the N. American continent. The rest of the series is from European geology, in which the later ages are far better represented than in America. The names of the epochs for the Palæozoic of America are the same as have been applied to the rocks by the New York geologists. —*Hist.* A rational history of the world may be said to have originated with Aristotle, who carefully observed the changes going on upon the earth, and referred various phenomena to similar causes of change. After Aristotle, Strabo speculated with singular judgment and profoundness on the causes suggested to explain the frequent occurrence of marine shells where the sea has never been known to reach in modern times. From the time of Strabo down through the earlier centuries of the Christian era there is no proof of research in this department, and it was not until the beginning of the 16th century that geological phenomena again began to attract attention. The origin of fossils was the first subject of inquiry, and the north of Italy the place of discussion. To Fracastoro, in 1520, is due the credit of having clearly put forward the only rational explanation. It was long, however, before this was admitted, and another century elapsed, during which the subject was still under discussion. Even so late as 1670 it was necessary seriously to controvert the notion that fossils were due to accidental causes, or, in other words, were *lusus naturæ*, "tricks of nature." During the whole of the 18th century, the progress of geology proper was irregular. Already, before the commencement of that period, Lister had intimated that many fossils belonged to extinct species, and Leibnitz had theorized on the result of repeated invasions of the sea. It was not till 1760 that any more rational views than those of the physico-theologists were advanced; but from that time commenced the publication of a series of special descriptions which ultimately led to the establishment of the doctrines at present held. The battle between the Neptunists and Vulcanists then raged, and continued to distract the attention of those who would otherwise, perhaps, have devoted themselves to the study of facts. At last, in 1790, appeared the *Tabular View* of William Smith, which laid the foundation of that great series of observations on which all progress of the science has since rested. Smith explored all England on foot, completed a geological map in which, for the first time, the strata were delineated and shown in their proper succession, and was the first to point out that each group of rocks is distinguished by fossils peculiar to itself. He may be considered the founder of historical or statigraphical geology. Since his date the progress of the science has been rapid, one of the most important laborers in this field being Sir Charles Lyell, whose *Principles of Geology* (1830–33), formed an epoch in the science. Previously the seeming breaks in the successions of the strata had been explained as the results of vast catastrophies, world-wide upheavals or depressions and destruction of floras and faunas, with the subsequent creation or introduction of new forms of life. Lyell opposed this view, and declared that the present age is the type of former ages, and that uniformity has prevailed throughout the geological period. He carried this doctrine of unitormity somewhat too far, and the present general belief is that, while the influences in operation during the past were the same in kind with those which are still at work, they differed in degree, these influences at times becoming almost catastrophic in their energy. With this new conception has arisen one of the unbroken continuity of organic life, a conception which was greatly strengthened by the publication of Darwin's *Origin of Species*, and the wide-spread belief that new forms of life arose by descent instead of by creation. In our day a distinguishing feature of *G.* is the great attention paid to petrography, in which much is being learned by the study of thin slices of rocks under the microscope. The study of palæontology, and its bearing upon the doctrine of evolution, also forms a leading characteristic of modern *G.* The present state of, and modern discoveries in *G.* will be noticed in other articles. They are the result of a large amount of patient investigation, and include a variety of facts in various departments of science. The conclusions and theories of modern geologists are generally put forward with a sounder basis of facts, and less reference to merely speculative views, than was formerly the case; and the study of rock composition and the characteristics of fossils are being pursued with a scientific closeness and accuracy that was impossible with the crude methods of the past.

Geo'mancer, *n.* [Gr. *gē*, the earth, and *mantis*, a

prophet.] A fortune-teller; a caster of figures; one who pretends to foretell futurity by other means than those used by the astrologer.

Ge'omancy, *n.* [Fr. *geomance, geomancie*, from Gr. *gē*, earth, and *manteia*, divination.] A kind of divination by means of figures or lines made on the ground, and afterwards transferred to paper.

Geoman'tic, Geoman'tical, *a.* [Fr. *géomantique.*] Of, or pertaining to, geomancy.

Geom'eter, *n.* [Fr. *geomètre;* Gr. *gē*, the earth, and *metrein*, to measure.] One skilled in geometry; a geometrician.

Geomet'ric, Geomet'rical, *a.* [Fr. *géometrique;* Gr. *geometrikos.*] According to the rules or principles of geometry; done or solved by geometry; disposed according to geometry.

Geomet'rical Propor'tion. See RATIO.

Geomet'rically, *adv.* According to the rules or laws of geometry.

Geometri'cian, *n.* One skilled in geometry.

Geomet'ridæ, *n. pl.* (*Zoöl.*) See PHALÆNIDÆ.

Geom'etrize, *v. n.* To proceed according to the principles of geometry.

"Nature yet confined herself to *geometrize*."—*Boyle.*

Geom'etry, *n.* [Fr. *géometrie;* Gr. *geometria*, from *gē*, earth, and *metron*, measure.] *G.* may be strictly defined to be the doctrine of the extension of such things as lines, surfaces, and solids. The attributes or properties of bodies may, in order to be more readily explained, be resolved into two classes, one comprising the general characteristics of all, and the other such only as are included in particular or peculiar bodies. Extension, figure, magnitude, mobility, divisibility, impenetrability, weight, and inertia, may be mentioned as some of the properties which belong to the first class; while some of those in the second are solidity, liquidity, transparency, and such like. Of all these properties mentioned, only *extension*, *magnitude*, *figure*, and *divisibility* come under the special branch of science denominated *Geometry;* the different properties which remain coming under the head of Natural Philosophy, or Physics. The important science of *G.* was first cultivated in Egypt, according to the testimony of Herodotus, which historian dates its origin from the following circumstance: Sesostris, the king of Egypt, shared the lands at Thebes and Memphis between his subjects, and each portion was marked out by different landmarks; but, owing to the inundations of the Nile, these boundaries were frequently destroyed, and it became necessary, as often as this was done, to restore them by measurement; hence a system was invented, which was termed *G.* Thales, a philosopher who lived some 640 years before Christ, brought the science into Greece from Egypt, whither he had, it is related, gone in search of knowledge at rather a late period in life. He is said to have applied a circle to the measurement of angles, and to have instituted various comparisons and relations between triangles, by means of their proportions; one particular point he discovered, too, that all angles in a semicircle are right angles, which must be looked upon as an important discovery, when it is taken into consideration that the science was yet in its infancy. After Thales came Anaximander, who is said to have invented geometrical charts, and the sphere and gnomon; next followed Anaximenes, who invented the sun-dial, and must thus have been acquainted both with astronomy and *G.* Pythagoras instituted the theory of regular solids; and under his school it was improved gradually during the two centuries which elapsed after the introduction of *G.*, until the school of Plato took it in hand. Plato seems to have had the highest opinion of the science, and we read in the classics, that the inscription, "Let no one ignorant of geometry enter here," was placed over the portals of his school. The theory of Conic Sections dates its birth from the Platonic schools, and to the same source may be ascribed the beautiful theory of *geometrical loci*, which is not only interesting from the hidden truths which it contains, but also from its importance in the solution of problems. About 50 years after the time of Plato, Euclid collected the propositions which had been discovered by his predecessors, and formed of them his famous *Elements;* a work which is still regarded by many as the best introduction to the mathematical sciences. It consists of 15 books, of which 13 are known to have been written by Euclid; but the 14th and 15th are supposed to have been added by Hypsicles of Alexandria. Apollonius of Perga, about 250 years B. C., composed a treatise on the *conic sections*, in 8 books; and he is said to have been the first who applied to those curves the appellations by which they have ever since been distinguished, namely: the *parabola*, the *ellipse*, and the *hyperbola.* (See CONIC SECTIONS.) About the same time flourished Archimedes, the most illustrious of the ancient philosophers. He distinguished himself in *G.* by the discovery of the beautiful relations between the sphere and cylinder, by his work on *conoids* and *spheroids*, by his discovery of the exact quadrature of the parabola, and of the approximate rectification of the circle. In the list of names which have come down to our times in connection with *G.*, we may mention Eudoxus, Archytas, Eratosthenes, Aristarchus, Dinostratus, and Nicomedes; but for an account of the discoveries or inventions by which they are individually celebrated, we must refer to Montucla's *Histoire des Mathématiques.* The school of Alexandria produced Pappus and Diophantus; but the Greek *G.*, though it was afterwards enriched by many new theorems, may be said to have reached its limits in the hands of Archimedes and Apollonius; and a long interval of 17 centuries elapsed before this limit was passed. In 1637 Descartes published his *Geometry;* a work which will ever be remarkable, as containing the first systematic application of Algebra to the solution of geometrical propositions. Soon after this followed the discovery of the *Infinitesimal Calculus;* and from that time to the present *G.* has shared in the general progress of all the mathematical sciences. Besides Montucla's work, Chasles' *Aperçu Historique* (Brussels, 1837) may be consulted with advantage with respect to the origin and development of geometrical methods. Of the works on Ancient Geometry, the following may be mentioned: Euclid, *Elements of Geometry*, and *Book of Data;* Apollonius, *Conics;* Archimedes, *Opera;* Pappus, *Mathematicæ Collectiones;* Vieta, *Opera Mathematica;* Huygens, *Opera;* R. Simson, *Opera Reliqua* and *Loci Plani;* Stewart, *Propositiones Geometricæ;* T. Simpson, *Elements of Geometry;* Legendre, *Elements of Geometry;* Leslie, *Elements of Geometry*, &c. For an account of the numerous editions of Euclid's *Elements* (which have been translated into every European language), see Murhard, *Bibliotheca Mathematica;* but to the list contained in that work should be added the more recent edition of Peyrard, in Greek, Latin, and French (Paris, 1814). An edition of the first 6 books, in Greek and Latin, by Camerer and Hauber (Berlin, 1824), also deserves to be noticed, on account of the valuable notes with which it is accompanied. The modern works on Algebraic or Coordinate *G.* are very numerous; we can only mention those of Plücker, *Analyt.-Geom. Entwickelungen*, 1828–31, *System der Analyt. Geom.*, 1835 and 1852, *Theorie der Algebraischen Curven*, 1839, and Mobius' *Barycentrische Calcul.*, 1827, as having marked an epoch in the history of the science; and Salmon's *Conic Sections*, 1863, *Higher Plane Curves*, 1852, and *Anal. Geom. of Three Dimensions*, 1862, as treating the subject from the most modern point of view. The modern works on *pure*, as distinguished from *coördinate G.*, are less numerous. The most important and useful are, Poncelet's *Traité des Propriétés Projectives des Figures*, Paris, 1822; Steiner's *Systematische Entwickelung der Abhängigkeit Geometrischer Gestalten*, Berlin, 1832, and his *Geometrischen Constructionen*, 1833; Chasles' *Cours de Géométrie Supérieure*, Paris, 1847, and his *Traité des Sections Coniques*, 1864; an elementary treatise on *Curves, Functions, and Forces*, by Benjamin Pierce (Boston, 1858); *Differential and Integral Calculus*, by Charles Davies (New York, 1855); and Mulcahy's *Modern Geometry*, 1864.

Geomyr'icite, *n.* (*Min.*) A wax-like substance, obtained also from the dark-brown coal of Gesterwitz. It is obtained from a solution. Color, white; after fusion it has the aspect of yellowish brittle wax. *Comp.* Similar to that of Chinese wax and palm-wax — Carbon 80·59, hydrogen 13·42, oxygen 5·99. Supposed to be the product of fossil wax-bearing trees.

Geophagism, (*je-ŏf'ā-jizm,*) *n.* [Gr. *gea*, earth, and *phagein*, to eat.] A morbid or depraved appetite for eating dirt, clay, chalk, or the like.

Geoph'agist, *n.* [See above.] One afflicted with a diseased appetite for eating dirt, chalk, &c.

Geopon'ic, Geopon'ical, *a.* [Gr. *geoponikos*, from *gē*, earth, and *ponos*, labor, toil.] Pertaining to the labor of the husbandman in tilling the earth; relating to agriculture.

Geopon'ics, *n. sing.* The art of cultivating the earth.

Geora'ma, *n.* [Gr. *gē*, earth, and *horama*, a view, from *horaein*, *horan*, to view.] A large hollow globe having the features of the earth delineated on the concave surface.

Georetin'ic Acid, *n.* (*Min.*) A substance called also *Brucknerellite*, obtained from the yellowish-brown coal of Gesterwitz. Crystallizes in white needles from an alcoholic solution. *Comp.* Carbon 62·61, hydrogen 9·56, oxygen 27·83.

George I., (*Louis,*) KING OF ENGLAND, of the *House of Hanover*, B. at Osnabruck in 1660. Son of Ernest I., first Elector of Hanover, and of the princess Sophia, (p. 2315), grand-daughter of James I., King of England, and succeeded his father in the electorate, in 1698. On the death of Queen Anne, in 1714, he was called to the throne of England, as the nearest heir in the Protestant line, and this was the beginning of the English dynasty of Brunswick. In the internal politics of the country he gave his support to the Whigs, and was prudently neutral as regarded the continental wars of his time, yet he joined the Triple Alliance of 1717, and the Quadruple Alliance of 1718 against Spain. He had as premier, Sir Robert Walpole, whose genius repressed all attempts at disorder, and nullified the efforts of the so-called Pretender, James III. Unfortunate in his family relations, *G.* was obliged to divorce his wife Sophia of Zell, charged with an intrigue, and imprison her in the castle of Ahlen, where she ended her days in 1726, after a confinement of 32 years. D. 1727.

GEORGE II., (*Augustus.*) son of the preceding, B. in 1683, succeeded his father in 1727. He retained as his prime minister the celebrated Sir Robert Walpole, who preserved the country from war during the first twelve years of his reign. After the dismissal of Sir Robert, he undertook some expeditions which resulted disastrously. In the war of the Austrian Succession he declared himself on the side of the Empress Maria Theresa, and against France. His armies, successful at Dettingen (1743), failed signally at Fontenoy (1745), and at Laffeld (1747), but the campaign was closed by the treaty of Aix-la-Chapelle, (1748.) Meantime, however, his throne had been strengthened by the victory of Culloden, gained over Prince Charles Edward Stuart and his adherents in 1746. War having, in 1755, again broken out upon the continent of Europe, England experienced fresh reverses in Germany, and lost her Hanoverian dominions, but these losses were more than compensated by brilliant and valuable conquests in the East Indies, and in America. *G.* was the founder of the British Museum. D. 1760.

GEORGE III., B. 1738. He was the son of Frederick Louis, Prince of Wales, and succeeded his grandfather George II. in 1760. In the early part of his reign he gained brilliant successes over France and Austria, in the Seven Years' War, and in 1763 concluded an advantageous peace, which however did not fully satisfy the country. In 1764 George Grenville succeeded to Lord Bute as premier, and began those measures in relation to the American colonies, the consequences of which proved so momentous; and the American Stamp Act was passed the following year. The aspect of affairs grew more serious every day, and public discontent was at its height, when, at the close of the year 1769, Junius published his famous letter to the king. At the beginning of 1770 the popular clamor kept pace with ministerial folly; blood had been already spilled in America; and the city of London delivered a bold and spirited address and remonstrance to the king, which the king replied to in terms expressive of his displeasure. After a long and fruitless war, the independence of the United States was acknowledged. In 1782, Lord Shelburne was placed at the head of the state, with Mr. Pitt, son of the Earl of Chatham, as Chancellor of the Exchequer. In 1783, the memorable coalition ministry between Mr. Fox and Lord North was formed. To this the king was decidedly hostile; and as soon as Mr. Fox's India bill had been rejected by the Lords, he sent a message to him and Lord North, commanding them immediately to return him their seals of office, by a messenger, as a personal interview with them would be disagreeable to him. On the following day Mr. Pitt became prime minister; and the firmness which the king had displayed in the affair, and the intrepidity with which he opposed the coalition, gained him considerable popularity. In 1789 the king was afflicted with mental aberration, which lasted from the beginning of Nov. till the following Feb. A war with revolutionized France now appeared inevitable; and the views of his ministers met with the king's full concurrence. In 1798, public distress appeared to have reached its climax, and the Irish rebellion broke out. In 1800 the Act of Union between Great Britain and Ireland was passed; and in order to bring those over who opposed the measure, the ministers allowed a tacit understanding to prevail, that it would be followed by certain political concessions. *G.*, however, could never be persuaded that he could admit the Catholics to political power, without violating the spirit of his coronation oath, — the consequence of which was, the retirement from office of Mr. Pitt and his colleagues in 1801, and the formation of a new ministry headed by Mr. Addington. Negotiations were now speedily entered into, which led to the treaty of Amiens. The king, however, consented to it with great reluctance. It was, in fact, very unpopular; and when the resumption of hostilities took place in 1803 there was an evident demonstration of public satisfaction throughout all ranks. The Addington administration proved incompetent to their task, and Mr. Pitt, in 1804, again took the helm of state; but he died in 1806, and the Grenville party, which Fox had joined, went into office. In 1807, Lord Grenville and his colleagues attempted to change the king's opinions with regard to Catholic Emancipation; but *G.* was inflexible, which led to the ejection of the Fox and Grenville party, and the Perceval administration succeeded them. The death of his youngest and darling child, the Princess Amelia, which happened towards the close of 1810, gave the king a shock from which he never recovered. The insanity, which already more than once had visited him, returned, and assumed so violent a character that but slight hopes were entertained of his recovery. The remaining years of the king's life are little more than a blank in biography, for his lucid intervals were "short, and far between;" but it is said that in 1814, when the allied sovereigns visited England, he evinced indications of returning reason, and even expressed a wish to see the royal visitors — a wish which it was not deemed proper to indulge. At length deafness was added to his other calamities, and his manner and appearance are described as pitiable in the extreme. On the 17th of Nov., 1818, the queen died; but the king never became acquainted with her death, or with the subsequent appointment of the Duke of York to the office of custos of his person; on the 29th of Jan., 1820, he breathed his last, in the 82d year of his age, and the 60th of his reign. The political character of George III. may be deduced from the course of policy pursued during his long and eventful reign, for no limited monarch ever had a more decided influence on public affairs. He lived in perilous times, when thrones and States tottered around him; but he was firm and consistent; and rather than give up any opinion he had conscientiously formed, or deviate from what appeared to him to be the strict line of duty, he would have descended from the throne, though it were to mount the scaffold. If his obstinacy were censurable on some occasions, his unflinching firmness, even in the face of danger, was admirable on others. He was religious, temperate, and sincere, and in all his tastes and amusements so plain and practical, that he may be said to have approached to almost patriarchal simplicity. He was particularly fond of music, and afforded encouragement to its professors. He also aided the cause of science by the encouragement he gave to Cook, Byron, and Wallis, the navigators, and to Herschel and other men eminent for their professional attainments.

GEORGE IV., B. 1762, had been virtual sovereign during the long period of his father's last insanity as Prince Regent, when he succeeded to the crown, 1820. Although he had at first declared for the Whigs, he for a long time

gave himself up to Tory influence, and had as his prime-ministers Lord Liverpool and the Duke of Wellington. During his regency occurred the final overthrow of Napoleon and the *carcere duro* of the fallen hero who had confided himself to the hospitality of England. He caused the passage of numerous laws against the liberty of the press, and had incessant troubles in Ireland to put down. In 1823 he again took sides with the Whigs, and selected as premier the celebrated Geo. Canning, (*q.v.*) In 1829, the bill granting Catholic Emancipation was passed. George IV. married in 1795 the Princess Caroline of Brunswick, whom he afterwards caused to be tried before the law courts on a charge of adultery, in regard to which the most generally received opinion is that it was baseless. He had lived with her for little more than a year, when he made overtures for a separation, which was accepted; but the bill before the House of Lords for depriving his wife of her rights and privileges as queen of England did not take place till about the time of his coronation in 1820. He left behind him a most disreputable character for general morality, and his treatment of his wife probably intensified the popular dislike which his habits had first engendered. D. 1830.

George, (Christian William Ferdinand Adolphus,) King of Greece, second son of the reigning king of Denmark, and brother of H. R. H. the Princess of Wales, b. 1845, served for a time in the Danish navy. When in 1863 Otho I. abdicated the sovereignty of Greece, the throne was first tendered by a majority of the Greek people to Prince Alfred of England, but the English govt. refused to accept the nomination. It was then proffered to Ernest Duke of Saxe-Coburg Gotha, who declined it; and finally to Prince Christian, who, with the consent of his own family and of the great Powers, accepted it, and now reigns as George I. — He was betrothed in May, 1867, at St. Petersburg, to the Princess Olga, daughter of the Grand Duke Constantine of Russia, whom he subsequently married.

George, Duke of Clarence, brother of Edward IV., king of England, espoused the cause of Henry VI. and his queen, Margaret of Anjou, against his brother and sovereign. Some years afterwards, he was accused of having sought the hand of Mary, duchess of Burgundy. He subsequently married a daughter of the earl of Warwick (the "king-maker"), and joined him in his revolt against the royal authority. Being taken prisoner, he was condemned to death. The unfortunate prince, being allowed to choose the mode of his death, is said to have drowned himself in a butt of Malmsey wine (1478).

George, Lake, a picturesque sheet of water in the eastern part of the State of New York, remarkable for the transparency of its waters and the beauty of its island and mountain scenery. The lake is 36 m. long and from 1 to 3 wide, extending N.N.E. and S.S.W., and bounded by Warren co. on its N.W. and Washington co. on most of its S.E. border. It is connected by a small stream with Lake Champlain, into which it discharges its waters, it thus forming a southern portion of the grand water system of the St. Lawrence and the Great Lakes. It is studded throughout with islands, comprising some 300 in all, on a number of which are built picturesque summer homes. The waters are, in some places, 400 feet deep. The lake is surrounded by mountains, rising in some instances nearly vertically from its waters, it presenting the aspect of a beautiful mountain basin. It is a favorite place of summer resort, is traversed by steamboats, and is one of the most attractive sheets of water in the eastern U. S. Its history is full of interest. It was first discovered by the French from Canada, and named by them St. Sacrament. Its Indian name was Caniaderioit, and received the provincial name of Lake Horicon, by which it is still sometimes called. At its southern end, Sept. 8, 1755, was fought a severe engagement between the French and English, each with Indian auxiliaries, which ended in the defeat of the French. Subsequently the English built Fort William Henry at its southern extremity and the French Fort Ticonderoga, on the divide between it and Lake Champlain. Both these forts were the scenes of interesting historical events. The English fort was attacked in 1757 by a French and Indian force under the Marquis de Montcalm, and the garrison, capitulating after a gallant defence, were barbarously massacred by the Indians. In the year following the army of Gen. Abercrombie passed up the lake in 1,000 boats, attacked Ticonderoga, and met with a disastrous defeat. This attack on Ticonderoga was repeated in July, 1759, by Gen. Amherst, whose army was similarly transported up the lake in boats. On this occasion the fort capitulated. In 1775 another attack was made on Fort Ticonderoga, this time by Ethan Allen and the "Green Mountain Boys," the fort being taken by surprise. A few years afterward Gen. Burgoyne made his southward march by way of Lake George, taking the fortifications on its banks, and proceeding south to his place of defeat at Saratoga. Picturesque ruins of Fort Ticonderoga remain, and some traces of Fort George, which stood at the southern extremity of the lake.

George-noble, *a.* An English gold coin of the reign of Henry VIII., worth about 5*s.* 8*d.* sterling, or $1.50.

George's Creek, in *Illinois*, a village of Massac co., about 125 m. S. by E. of Vandalia.

George's Creek, in *South Carolina*, enters the Saluda river in Pickens co.

—A post-office of Pickens co.

George's Mills, in *New Hampshire*, a post-office of Sullivan co.

George, St. See St. George.

George, St., a town of Belgium, province Liege, 10 m. N.E. of Huy. Extensive coal and iron mines are worked in the vicinity. *Pop.* 4,214.

George, (St.,) a channel separating Great and Little Nicobar Islands, in the Bay of Bengal; it is 15 to 18 m. long, and from 3 to 6 wide, extending E.N.E. and W.S.W.

George, (St.,) one of the Pribylov Islands, Behring Sea, of granitic formation, rising to the height of 300 ft. above the sea.

George, (St.,) Orders of. There are several orders of St. George. Frederick III., Emperor of Germany, founded one in 1470, as a defence against the Turks. — The military *Russian order of St. George* was founded by Catherine II., Nov. 26, 1769. It was afterwards neglected, but was restored to its original dignity by Alexander I., Dec. 12, 1801. — The order of *St. George of the Réunion* was founded by Joseph Buonaparte as the order of the Two Sicilies, Feb. 24, 1808, remodelled in 1815 by Ferdinand I., and received its present name from King Ferdinand II., Jan. 1, 1819. — The order of *St. George of Lucca* was established by the Duke Charles Louis, June 1, 1833. — The *Hanoverian order* of *St. George* was founded April 23, 1839.

George, (St.,) Gulf of, an inlet of the Atlantic Ocean, on the E. coast of Patagonia, between Lat. 45° and 47° S., and Lon 65° and 67° W.

George's Channel, (St.,) that part of the Atlantic Ocean which is situate between Ireland and Wales, and extends from the island of Holyhead to St. David's on the Welsh coast, and from Dublin to Wexford on the Irish seaboard. It is from 40 to 70 m. wide.

Georges'ville, in *Ohio*, a post-village of Franklin co.

George'town (now St. Louis de Gongagne), a post-village of province of Quebec, co. Beauharnais, 38 m. from Montreal.

George'town, a village of Halton co., province of Ontario, about 29 m. N.W. of Toronto.

George'town, a seaport town, cap., and on the east coast of King's co., Prince Edward Island, in British North America; Lat. 46° 12′ N., Lon. 62° 33′ W.

George'town, in *California*, a post-village and township of El Dorado co., about 15 m. N. of Placerville. In the vicinity are rich gold mines.

Georgetown, in *Colorado*, cap. of Clear Creek co., on the U. P. and D. & G. R. Rs., 50 m. W. of Denver, 8,452 ft. above tide. *Pop.* (1890) 1,927.

Georgetown, in *Connecticut*, a postvillage of Fairfield co., about 14 m. S. by W. of Danbury.

Georgetown, in *Delaware*, a post-village, cap. of Sussex co., about 36 m. S. by E. of Dover. *Pop.* (1890) 1,353.

George'town, in the *District of Columbia*, formerly a separate city, but now the local name of that part of Washington lying along the Potomac above the mouth of Rock creek. It is situated on elevated ground, dotted with handsome villas, and commanding a superb view of the surrounding country. Here are located the U. S. Naval Observatory, and the Georgetown University (R. C.), besides other public institutions and a large number of handsome private residences. The old part is quaintly picturesque, and contains some notable historic spots. The Chesapeake and Ohio Canal crosses the Potomac at *G.* by a magnificent aqueduct, constructed at a cost of $2,000,000.

Georgetown, in *Georgia*, a post-village, cap. of Quitman co., on the Chattahoochee river, nearly opposite Eufaula, Alabama.

Georgetown, in *Illinois*, a village of Clay co., now called Bible Grove.

—A village of Randolph co.; its P. O. is Steeleville.

—A post-village of Vermillion co. *Pop.* (1890) 662.

Georgetown, in *Indiana*, a village of Cass co., about 8 m. W. of Logansport.

—A post-village and township of Floyd co., about 9 m. W. of New Albany.

Georgetown, in *Iowa*, a post-office of Monroe co.

Georgetown, in *Kentucky*, a post-village, cap. of Scott co., on the N. Elkhorn river, about 17 m. E. of Frankfort.

Georgetown, in *Maine*, a post-town of Sagadahoc co., composed of two islands in the Atlantic Ocean, 35 m. S. by E. of Augusta. *Pop.* (1897) about 900.

Georgetown, in *Massachusetts*, a post-town and township of Essex co., about 30 m. N. of Boston. Here are extensive manufactories of boots and shoes, carriage works, and other industries. *Pop.* (1895) 2,117.

Georgetown, in *Michigan*, a post-township of Ottawa co., on Grand river.

Georgetown, in *Minnesota*, a post-township of Clay co., about 80 m. N.W. of Otter Tail City.

Georgetown, in *Mississippi*, a post-village of Copiah co., on the Pearl river, about 40 m S. of Jackson.

Georgetown, in *Missouri*, a post-village of Pettis co., on the W. fork of LaMine river, about 37 m. W.S.W. of Boonville.

Georgetown, in *New Jersey*, a post-village of Burlington co., about 9 m. N.E. of Mount Holly.

Georgetown, in *New York*, a post town and township of Madison co., about 30 m. S.E. of Syracuse. *Pop.* (1890) 1,172.

Georgetown, in *Ohio*, a post-village, cap. of Brown co., about 100 m. S.S.W. of Columbus. *Pop.* (1890) 1,473.

—A village of Columbiana co., 150 m. N.E. of Columbus.

—A village of Harrison co, about 6 m. S.E. of Cadiz. Its post-office is Short Creek.

Georgetown, in *Pennsylvania*, a post-village of Beaver co., on the Ohio river, about 40 m. below Pittsburg.

—A village of Lancaster co., about 15 m. S. of Lancaster.

—A village of Mercer co., about 75 m. N. by W. of Pittsburg.

—A village of Northumberland co., on the Susquehanna river, about 40 m. above Harrisburg.

—A village of Wayne co.

Georgetown, in *South Carolina*, an E.S.E. co., bordering on the Atlantic Ocean; *area*, about 742 sq. m. *Rivers*, Santee, Pedee, Waccamaw, and Black rivers. *Surface*, level; *soil*, not very fertile. *County-town*, Georgetown. *Pop.* (1890) 10,857.

—A city, port of entry, and the cap. of the above co., on the W. shore of Winyan Bay, a short distance below the Union of the Great Pedee, Black and Waccamaw rivers, 15 m. from the Atlantic Ocean, and about 130 m. E.S.E. of Columbia. *Pop.* (1897) about 3,000.

Georgetown, in *Tennessee*, a post-office of Meigs co.

Georgetown, in *Texas*, a post-town, cap. of Williamson co., on the San Gabriel river, about 40 m. N. of Austin. *Pop.* (1897) about 3,000.

Georgetown, in *West Virginia*, a P. O. of Lewis co.

George'ville, a post-village of province of Quebec, co. of Stanstead, about 62 m. S.E. of St. John's.

George'ville, in *Missouri*, a post-office of Ray co.

Georgia (Pers. *Gurdjistan;* Russ. *Grusia;* anc. *Iberia,*) a country of W. Asia, and formerly the center of a monarchy of some extent, but now a part of Russian Transcaucasia, embracing a considerable portion of the isthmus between the Caspian and Black seas; extending from Lat. 40° to 42° 30′ N., and Lon. 43° 20′ to 46° 50′ E.; separated on the N. by the central chain of the Caucasus from Circassia; E. by the Alazan and Kurak (two tributaries of the Kur), from Skehin and Gulistan; S. and S.W. by the Kapan mountains from Armenia; and W. from Imeritia, by a transverse Caucasian range. Thus surrounded on three sides by mountain-ranges, *G.* is in a great measure shut out from communication with the neighboring countries, there being but one pass either across the Caucasus into Circassia, or across the W. range into Imeritia. Length, N.W. to S.E. abt. 175 m.; average breadth, from 100 to 110 m. *Area*, estimated at 18,000 sq. m. *Desc.* The surface is mostly mountainous, consisting of table-lands and terraces, forming a portion of the S. and more gradual slope of the Caucasus. The country, however, slopes from the S. and W. as well as the N. to the centre and S.E., which are occupied by the valley of the Kur, an undulating plain of considerable extent and great fertility. Between the mountain-ranges there are also numerous fertile valleys covered with fine forests, dense underwood, and rich pasturages watered by many rivulets. *Rivers.* All the streams have more or less an E. course. The principal is the Kur or Mthwari (anc. *Cyrus*). This river rises in the range of Ararat, a little N.W. of Kars. Its principal affluents are the Aragwi from the N., which unites with it at Mtskethi, the ancient cap. of E., abt. 10 m. N.W. of Tiflis; and the Aras (anc. *Araxes*) from the S. *Clim.* Generally healthy and temperate, being much warmer than that of Circassia, or the other countries on the N. slope of the Caucasus. *Soil.* Very fertile, producing the cereals, rice, maize, millet, lentils, madder, hemp, flax, cotton, wine, and fruits (especially fine melons and pomegranates). *Min.* Iron, coal, naphtha, &c. *Zoöl.* Deer, antelopes, wild goats, bears, jackals, lynxes, wild boars, &c.; game is very abundant; domestic animals of all kinds are reared, the horses and horned cattle equalling the best European breeds in size and beauty, while the long-tailed sheep yield excellent wool. *Manuf.* Coarse woollens, cottons, and silk fabrics, leather, shagreen, fire-arms, &c. *Inhab.* The Georgian women, though not generally reckoned handsome in Europe, have long enjoyed the highest reputation for beauty in the East; the men are also, on the whole, well formed and handsome. Until lately, the harems of the rich Moslems of Turkey and Persia have been wholly or principally supplied by female slaves brought from *G.*, Circassia, and the adjoining provs.; and they also furnished male slaves to supply the Egyptian corps of mamelukes, and various other bodies, with recruits. In modern times, the Georgians have been divided, with the exception of a few free commoners, into the two great classes of the nobles and their vassals and slaves. *Religion.* Greek Church; little or no education prevails, the clergy themselves being generally very ignorant. *Cap.* Tiflis. *Pop.* (1897) about 605,000.

Georgia, New, or South Georgia, an island in the S. Atlantic Ocean; Lat. 54° 30′ S., Lon. 37° W. It is 90 m. long, by 30 broad.

Georgia, in *Georgia*, a district of Clarke co.

Georgia, in *Indiana*, a post-office of Lawrence co.

Georgia, in *Vermont*, a post-township of Franklin co., on Lake Champlain.

Georgia, one of the United States of America, and the most southerly of the thirteen original States of the Union; between Lat. 30° 22′ and 35° N., and Lon. 81° and 85° 30′ W.; having N. Tennessee, and a small portion of N. Carolina; N.E. and E., S. Carolina and the Atlantic; S., Florida; and W., Alabama. Extreme length, N. to S., 320 m.; maximum breadth, 254. *Area*, 58,000 sq. m., or 37,120,000 acres. Desc. The coast-line of this State extends abt. 100 m., and is skirted by a series of low, flat, sandy islands, leaving but four navigable entrances, viz., at Savannah, Darien, Brunswick, and St. Mary's. The mainland for about 50 m. into the interior is perfectly level; and for several miles from the sea-board consists of a salt marsh of recent alluvion; the whole of the flat country is intersected by swamps, which are estimated to constitute one-tenth part of the whole State. The Okefinoke Swamp, 50 m. long by 30 broad, and 180 m. in circumference, lies at some distance inland, upon the borders of, and partly within, Florida. This swamp is regularly inundated during the rainy season. At the extremity of the low country there is a barren sandy tract of rather greater elevation, which extends N. as far as the river falls, and is generally regarded as dividing the upper from the lower country. Farther N. the surface becomes gradually more hilly and broken, and the N. extremity of the State comprises

some of the most S. ridges of the Appalachian mountain chain, which here rise to about 1,500 ft. above the level of the Atlantic. There are only three harbors on the coast capable of receiving vessels exceeding 100 tons burden, viz., those formed by the months of the rivers Savannah, Altamaha, and St. Mary's. *Rivers, &c.* The Savannah, the Altamaha, and the St. Mary's, *q. v.* Besides these three great rivers, the Ogeechee, flowing S.E. abt. 200 m., is navigable for vessels of small tonnage for a distance of 30 to 40 m., and for keel-boats to Louisville. The Santilla and St. Mary's drain the S.E. counties, and the Flint, Ocklockonee, and Suwanee with their branches, the S.W. The Flint, an affluent of the Chattahoochee, is abt. 300 m. in length, and is navigable to Albany for steamers. The Coosa and Tallapoosa (headwaters of the Alabama), and the Hiawassee (one of the sources of the Tennessee), take their rise in the N. of this State. *Soil.* The soil of *G.* is, for the most part, highly productive. In the low country and the sea-islands, it consists of a light gray sand, gradually becoming darker and more gravelly toward the interior. Farther N. it is a black loam mixed with red earth, called the *mulatto soil;* this is succeeded in the more remote districts by a rich black mould of superior fertility. *Clim. &c.* As the elevation of the N. part of the State is estimated at from 1,200 to 1,500 ft. above the level of the islands on the coast, a difference of more than 7° is estimated to exist between the mean temperature of the two extreme points. The N. parts are very healthy, and the winters mild; frost and snow frequently occur, but are not severe or of long continuance. Hurricanes and thunder-storms frequently occur in the fall, at which season the agriculturists and planters generally remove either to the islands, or the most N. districts of the State. In the low region the thermometer usually ranges during the summer from 76° to 90° Fahr., but it has been known to stand as high as 102° Fahr. *Vegetation.* The tops of the hills are mostly crowned with forests, composed chiefly of the pine, palmetto, oak, ash, cypress, hickory, black walnut, mulberry, and cedar trees. The growth along the riparian bottoms is of canes, cypress, magnolia (*glauca* and *grandiflora*), gum-woods of different species, including the liquid-amber tree, oaks, tulip, sweet bay, and many other genera; while upon the sandy lands pines and scrub oaks form almost the sole arborescence. *Agric. Prod.* Cotton, wheat, and other European grains, maize, tobacco, the sugar-cane, indigo, rice, &c. The coast islands were formerly covered with extensive pine-barrens; but, for several years previous to the period of the civil war, they yielded large quantities of the fine description of long-staple cotton known as *sea-island.* The proportion of productive land is much greater in the hilly country than in the plains. In 1890 *G.* had 171,071 farms, embracing 25,200,438 acres, of which 9,582,866 were improved, and 15,617,569 unimproved land, the estimated value of farming property being $157,771,208, of live stock $31,477,990, of farm products $83,371,482. There are in the State (including water, &c.) about 12,000,000 acres of wild lands, much of it mountainous and covered with a heavy growth of timber, the soil here, when cleared and cultivated, being capable of yielding good crops and well adapted to fruit growing. In other sections these lands are flat and swampy, and of little value except for their timber, which embraces much cypress. The larger portion of the unimproved lands are susceptible of high cultivation, and capable of growing remunerative crops. The yellow pine is one of the most valuable products of the State, and among its largest and most profitable industries are the cutting of pine lumber and the manufacture of turpentine, Savannah and Brunswick being the largest markets for naval stores in the world. Of late years the large Northern demand for early fruits has given rise to an extended cultivation of oranges, lemons, pineapples, bananas and olives in the southern section, while peaches, grapes and melons are raised in great quantities. In the north apples yield well, and pears, cherries, strawberries, and other fruits are widely grown. Other crops of a general character include white and sweet potatoes, tobacco, sugar-cane, peanuts, &c. The leading cereal products are Indian corn, oats and wheat, the 1895 harvest yielding 42,179,481 bushels corn, 6,679,048 oats, and 1,330,706 wheat. In the production of cotton *G.* ranks (in common with Mississippi) second, the product of each state averaging about 1,200,000 bales.—*Manuf.* In the manufacture of cotton goods *G.* has made highly encouraging progress since the Civil War. In 1880 she had 198,656 spindles, and used 33,757,199 lbs. of cotton. In 1890 she had 524,244 spindles and used in manufacture 69,139,410 lbs. of cotton, the value of cotton products increasing 85 per cent. in the decade, while the cost of manufacture was 9·64 cents per pound, as compared with 10·74 cents in New England. This progress still continues at a rapid rate of increase. Other articles of manufacture are woollens, iron and steel, lumber, &c., the value of lumber and mill products in 1890 being $6,216,585; of tar and turpentine, $4,242,255.—*Railroads, &c.* The State possessed in 1880, 2,459 miles of railroad; in 1890, 4,263 miles; and in 1897, 5,370 miles. Its six navigable rivers, with the estuaries and sounds along much of its coast, yield a total of several thousand miles of waterway. Two canals are projected, one from the Flint to the Ocmulgee river, which would permit inland navigation from the waters of the Atlantic to those of the Gulf; the other from the Ocmulgee to the Tennessee.—*Geol. and Min.* In *G.* the older limestones are confined to the N. portion of the State, through which they are somewhat liberally distributed. They occur as marble of good quality in the counties of Gilmer, Hall, White, Cherokee, and Habersham, and in varying forms in the more W. counties, the marbles being practically inexhaustible in quantity. The most eastern development of the great cretaceous bed of Alabama and Mississippi, is found in the counties of Muscogee, Marion and Stewart, manifesting itself as the well-known *rotten limestone.* Immense beds of almost unaltered shells are found in the central part of the State, within 20 or 25 m. of the gneiss and sandstone belt. The marl beds of the tertiary period in *G.*, with the foregoing exception, are similar, as far as is known, to those of South Carolina, both in location and character. The mineralogical resources of this State are, as yet, but only partially developed; gold has been found in considerable quantities in its N. districts. There is yet much room for the vigorous and intelligent prosecution of alluvial mining in *G.;* the surface of a great part of the country being abrupt, and the auriferous rocks subjected by nature to much dislocation and atmospheric exposure; hence, not only the beds of the rivers, but the outlying detritus of their valleys, will unquestionably give large returns to the new and powerful hydraulic and other improved appliances now in use for mining purposes. Near the junction of the limestone with the metamorphic rocks immense deposits of iron are found, in the latter ranging N. E. from the S. E. corner of Cass through Cherokee co. Copper and coal also exist, the latter in extensive deposits, and there are several valuable mineral springs. Good millstone is met with in the central counties and various other valuable minerals are plentifully found.—*Zoöl.* Bears and deer inhabit the forest lands, alligators infest the swamps and entrances of the rivers, the reptile species are well represented, and honey-bees are very numerous in the S. portion of the State.—*Com., &c.* Cotton is the great staple, and it and tobacco, indigo, canes, timber, small fruits, and maize form the leading articles of export; the sugar-cane has hitherto been cultivated mostly for home consumption only. From the distance between the N. part of the State and its ports, and the difficulty of communication by water, the grain and other produce of the interior have a rather limited outlet. The former deficiency in transportation has, however, been amply remedied by the extension of internal improvements. At Atlanta, a city of remarkable commercial progress, having a population in 1890 of 65,533, and now claiming over 100,000 souls, exists a concentration of railroad communication not exceeded, if equalled, in any Southern State. Savannah is another important outlet for the products and manuf. of this great State. In the production of iron and coal *G.* has made great progress since 1870, producing in 1890, 250,755 tons of iron ore, against 9,000 in 1870. The coal product in 1890 was valued at $256,500. The total assessed valuation of real property in the year 1896 was $285,613,778; personal property, $143,399,845.—*Political Divisions, &c. G.*, is divided into 137 counties, as follows:

Appling,	Campbell,	Colquitt,	Effingham,
Baker,	Carroll,	Columbia,	Elbert,
Baldwin,	Catoosa,	Coweta,	Emanuel,
Banks,	Charlton,	Crawford,	Fannin,
Bartow,	Chatham,	Dade,	Fayette,
Berrien,	Chattahoochee,	Dawson,	Floyd,
Bibb,	Chattooga,	Decatur,	Forsyth,
Brooks,	Cherokee,	De Kalb,	Franklin,
Bryan,	Clarke,	Dodge,	Fulton,
Bullock,	Clay,	Dooly,	Gilmer,
Burke,	Clayton,	Dougherty,	Glascock,
Butts,	Clinch,	Douglas,	Glynn,
Calhoun,	Cobb,	Early,	Gordon,
Camden,	Coffee,	Echols,	Greene,
Gwinnett,	Lowndes,	Pickens,	Telfair,
Habersham,	Lumpkin,	Pierce,	Terrell,
Hall,	McDuffie,	Pike,	Thomas,
Hancock,	Macintosh,	Polk,	Towns,
Haralson,	Macon,	Pulaski,	Troup,
Harris,	Madison,	Putnam,	Twiggs,
Hart,	Marion,	Quitman,	Union,
Heard,	Meriwether,	Rabun,	Upson,
Henry,	Miller,	Randolph,	Walker,
Houston,	Milton,	Richmond,	Walton,
Irwin,	Mitchell,	Rockdale,	Ware,
Jackson,	Monroe,	Schley,	Warren,
Jasper,	Montgomery,	Screven,	Washington,
Jefferson,	Morgan,	Spalding,	Wayne,
Johnson,	Murray,	Stewart,	Webster,
Jones,	Muscogee,	Sumter,	White,
Laurens,	Newton,	Talbot,	Whitefield,
Lee,	Oconee,	Taliaferro,	Wilcox,
Liberty,	Oglethorpe,	Tatnall,	Wilkes,
Lincoln,	Paulding,	Taylor,	Wilkinson, Worth.

The principal cities and towns are Savannah, Augusta, Atlanta (capital), Milledgeville (former capital), Macon (once the capital), Columbus, Rome, Athens, Newton, Brunswick, and St. Mary's.—*Educ.* The University of Georgia (now also the Agricultural College), at Athens, was founded in 1788–89, since reorganized; it possesses a philosophical and chemical laboratory, a cabinet of minerals, a good library, and a botanical garden. Other colleges flourish at Milledgeville, Oxford, Penfield, Atlanta, Macon, and a medical college at Augusta. The State has a school-fund, and there are numerous academies in Savannah, Augusta, Atlanta, &c.; several manual labor schools, too, have been successfully established in different parts of the State.—*Govt.* The new Constitution of Georgia was voted upon by the people, and thus ratified, in Dec. 1877. By it, perpetual charters with special privileges are prohibited, passenger and freight tariffs are regulated and all discrimination is forbidden, stringent laws are provided against duelling and lobbying (the latter is made a crime), petty larceny, disfranchises, and the State is prohibited from lending aid to railroads. Ample provision seems to have been provided for the protection and education of the negro, and he enjoys the full right of citizenship. The whipping-post is abolished, and there is no imprisonment for debt. The legislature meets biennially, and the per diem is reduced to $3.00. A popular vote was also taken upon locating the State capital, resulting in favor of retaining Atlanta.—*Hist. G.* was the last settled of the present U. S. founded by the British. It was first colonized by them in 1733, in which year the city of Savannah was founded by General James Oglethorpe. It suffered much during the early period of its settlement from the incursions of the savages, and it was not until 1835 that the Cherokees, the last remnant of the Indian pop., had entirely disappeared from the State. In 1776, it united in the struggle for independence, but continued in the occupation of the British until 1783. On the outbreak of the Civil War, this State passed an Act of Secession by a convention called for the purpose, Jan. 19, 1861, and engaged in active hostilities against the Union in common with the other Southern States. Re-admitted to the Union and to representation in Congress, 1868. *Pop.* (1897) about 2,200,000.



Fig. 1144.—SEAL OF THE STATE.

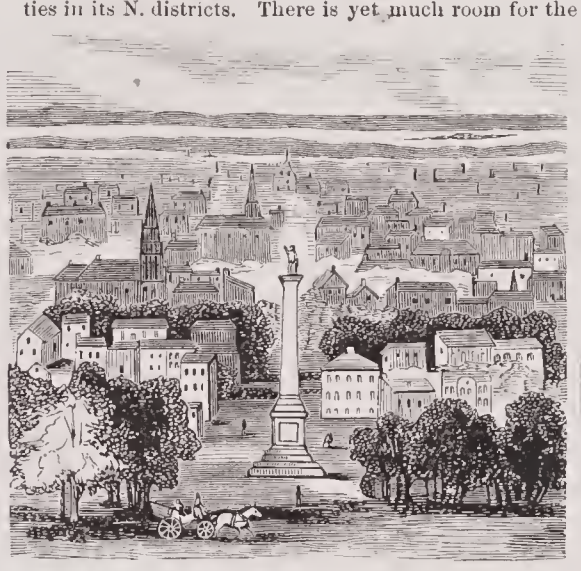


Fig. 1145.—SAVANNAH IN 1850.

Geor'gia, Gulf of, an arm of the N. Pacific Ocean, between Vancouver's Island and the mainland of British Columbia. It averages 30 m. in width, is 250 m. in length, receives Fraser river, and communicates with the open ocean by Queen Charlotte's Sound in the N., and by the Strait of Fuca in the S. Its southerly entrance is about Lat. 49° N., and Lon. 124° W.

Geor'gian, *a.* (*Geog.*) Pertaining to Georgia, one of the States of the American Union; or to Georgia, a country of Asia.

—Belonging or relating to the reigns of the four Georges, kings of Great Britain; as the *Georgian* era.

—*n.* A native or resident of Georgia.

Georgiana, (*jor-je-ā'na,*) a co. of E. Australia, in New South Wales, traversed by the Abercrombie River and its affluents. On the banks of the former gold has been found.

Georgiana, in *California*, a township of Sacramento co.

Geor'gian Bay. See MANITOULIN LAKE.

Geor'gia Plain, in *Vermont*, a P. O. of Franklin co.

Geor'giaville, in *Rhode Island*, a post-office of Providence co.

Geor'gic, *n.* [Fr. *géorgique;* Lat. *georgicum;* Gr. *geōrgikos*, from *gē*, earth, and *erganein*, to work.] (*Lit.*) A rural poem; a poetical composition on the tillage or culture of the earth, or on the subject of husbandry, containing rules for cultivating land, rearing cattle, &c.; as, Virgil's *Georgics.*

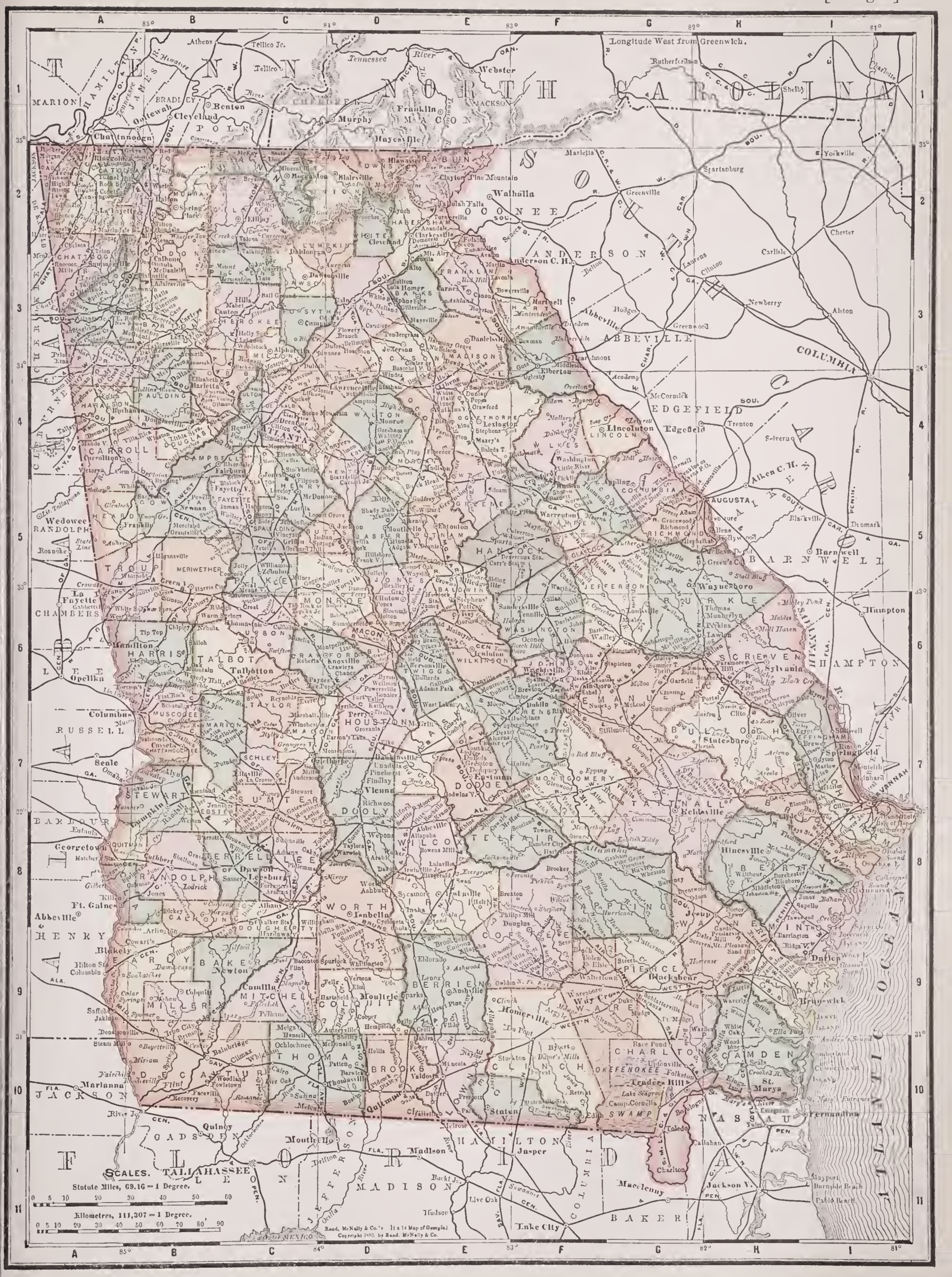
—*a.* Relating to the doctrine of agriculture and rural affairs.

Georgics, (*je-or'jiks,*) *n. pl.* (*Lit.*) A poem on agriculture and rural economy in four books, by Virgil. It is regarded as the most perfect of his works.

Georgievsk, (*gai'or-ge-vesk,*) a fortified town of the Russian empire, govt. Caucasus, 90 m. from Stavropol; *pop.* 3,000, mostly Cossacks.

Geothermom'eter, *n.* [Gr. *gē*, the earth, and Eng. *thermometer.*] (*Phys.*) An instrument for measuring the temperature of the earth at different depths, as in wells or mines, and for determining its rate of increase with the depth.

Ge'pidæ. (*Hist.*) A Germanic tribe, originally inhabiting the shores of the Baltic, expelled the Burgundians from Northern Germany in the middle of the 3d century, and invaded the Roman territory in 269. Having been conquered by the Huns late in the 4th century, they regained their independence on the death of Attila in 453, but are not mentioned after 566 or 567.


Longitude West from Greenwich.
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
ALABAMA
GEORGIA
FLORIDA
Athens
Tellico Jc.
Tellico
Webster
Rutherfordton
Shelby
Charlotte
Chattanooga
Cleveland
Benton
Ooltewah
Murphy
Franklin
Hayesville
Marietta
Yorkville
Spartanburg
Greenville
Walhalla
Clayton
Pine Mountain
Blairsville
Morganton
Dahlonega
Dawsonville
Cleveland
Clarkesville
Demorest
Anderson C. H.
Chester
Carlisle
Laurens
Clinton
Newberry
Alston
Greenwood
Abbeville
Hodges
Hartwell
Lavonia
Carnesville
Canon
Danielsville
Elberton
Middleton
Edgefield
Lincolnton
Trenton
Augusta
Aiken C. H.
Blackville
Denmark
Barnwell
Waynesboro
Sylvania
Statesboro
Sprungfield
Hinesville
Dublin
Eastman
Vienna
Hawkinsville
Abbeville
Kellsville
Georgetown
Leesburg
Dawson
Ft. Gaines
Blakely
Newton
Camilla
Colquitt
Bainbridge
Climax
Donalsonville
Marianna
Quincy
Mount Ilo
Madison
Tallahassee
Jasper
Live Oak
Suwannee River
Jacksonville
Fernandina
Nassau
Callahan
Charlton
Jackson V.
Macclenny
Maxport
Burnside Beach
Pablo Beach
Lake City
Hudson
Buckl Jc.
Quitman
Thomasville
Valdosta
Homerville
Waycross
Brunswick
Darien
Blackshear
Alapaha
Ashburn
Sycamore
Tifton
Moultrie
Nashville
Douglas
Eldorado
Lenox
Ocilla
Fitzgerald
Irwinville
Abbeville
Albany
Arlington

GEORGIA

Land area,
58,980 sq. m.
Water area,
495 sq. m.
Pop. 1,837,353
Male....919,925
Female .917,428
Native 1,825,216
Foreign..12,137
White ..978,357
African .858,815
Chinese 108
Japanese 5
Indian. 68

COUNTIES.

Appling	G	8
Baker	B	9
Baldwin	E	5
Banks	D	3
Bartow	B	3
Berrien	E	9
Bibb	D	6
Brooks	D	10
Bryan	I	8
Bulloch	H	7
Burke	G	6
Butts	C	5
Calhoun	B	8
Camden	H	10
Campbell	B	4
Carroll	A	4
Catoosa	A	2
Charlton	G	10
Chatham	I	7
Chattahoochee	B	7
Chattooga	A	3
Cherokee	C	3
Clarke	E	4
Clay	B	8
Clayton	C	5
Clinch	F	10
Cobb	B	4
Coffee	F	9
Colquitt	D	9
Columbia	G	5
Coweta	B	5
Crawford	D	6
Dade	A	2
Dawson	C	3
Decatur	B	10
Dekalb	C	4
Dodge	E	7
Dooly	D	7
Dougherty	C	8
Douglas	B	4
Early	B	9
Echols	F	10
Effingham	I	7
Elbert	F	3
Emanuel	G	6
Fannin	C	2
Fayette	C	5
Floyd	A	3
Forsyth	C	3
Franklin	E	3
Fulton	C	4
Gilmer	C	2
Glascock	F	5
Glynn	H	9
Gordon	B	2
Greene	E	5
Gwinnett	C	4
Habersham	D	2
Hall	D	3
Hancock	E	5
Haralson	A	4
Harris	B	6
Hart	F	3
Heard	A	5
Henry	C	5
Houston	D	7
Irwin	E	8
Jackson	D	3
Jasper	D	5
Jefferson	G	5
Johnson	F	6
Jones	D	5
Laurens	F	7
Lee	C	8
Liberty	H	8
Lincoln	G	4
Lowndes	E	10
Lumpkin	C	2
McDuffie	F	5
McIntosh	I	9
Macon	C	7
Madison	E	3
Marion	B	7
Meriwether	B	5
Miller	B	9
Milton	C	3
Mitchell	C	9
Monroe	D	6
Montgomery	F	7
Morgan	D	4
Murray	B	2
Muscogee	B	7
Newton	D	4
Oconee	E	4
Oglethorpe	E	4
Paulding	B	4
Pickens	B	3
Pierce	G	9
Pike	C	5
Polk	A	3
Pulaski	E	7
Putnam	E	5
Quitman	A	8
Rabun	E	2
Randolph	B	8
Richmond	G	5
Rockdale	C	4
Schley	C	7
Screven	H	6
Spalding	C	5
Stewart	B	7
Sumter	C	7
Talbot	B	6
Taliaferro	F	5
Tattnall	G	7
Taylor	C	6
Telfair	E	8
Terrell	C	8
Thomas	C	10
Towns	D	2
Troup	A	5

Georgia—cont'd.

COUNTIES.

Twiggs	E	6
Union	D	2
Upson	C	6
Walker	A	2
Walton	D	4
Ware	F	9
Warren	F	5
Washington	F	6
Wayne	H	8
Webster	B	7
White	D	2
Whitfield	B	2
Wilcox	E	8
Wilkes	F	4
Wilkinson	E	6
Worth	D	8

CHIEF CITIES.

Pop.—Thousands.

66	Atlanta	C	4
43	Savannah	I	7
33	Augusta	H	5
23	Macon	D	6
17	Columbus	A	7
9	Athens	E	4
8	Brunswick	I	9
7	Rome	A	3
6	Americus	C	8
6	Thomasville	D	10
5	Griffin	C	5
4	Albany	C	8
3	Marietta	B	4
3	WayCross	G	9
3	Milledgeville	E	5
3	Gainesville	D	3
3	Cartersville	B	3
3	La Grange	A	6
3	Dalton	B	2
3	Newnan	B	5
3	Valdosta	E	10
3	Washington	F	4
2	Cuthbert	B	8
2	Dawson	C	8
2	Madison	E	4
2	Quitman	D	10
2	Barnesville	C	6
2	Covington	D	4
2	Sandersville	F	6
2	Hawkinsville	D	7
2	Fort Valley	D	6
2	Waynesboro	H	5
2	Tallapoosa	A	4
2	Eatonton	E	5
2	Bainbridge	B	10
2	Cedartown	A	3
2	Cordele	D	8
2	Elberton	F	4
2	Sparta	E	5
2	Cochran	E	7
2	Lumpkin	B	7
1	Darien	I	9
1	Carrollton	A	4
1	Conyers	D	4
1	Greensboro	E	5
1	West Point	A	6
1	Lithonia	C	4
1	Thomaston	C	6
1	Talbotton	C	6
1	Roswell	C	3
1	Toccoa	E	2
1	Fort Gaines	A	8
1	Marshallville	C	7
1	Eastman	E	7
1	Decatur	C	4
1	Monroe	D	4
1	Warrenton	F	5
1	Tennille	F	6
1	Cave Spring	A	3

Pop.—Hundreds.

9	Stone Mountain	C	4
9	Rising Fawn	A	2
9	Jackson	D	5
9	Forsyth	D	5
9	Wrightsville	F	6
9	Jesup	H	8
9	Greenville	B	5
9	Dahlonega	C	2
9	Camilla	C	9
9	Douglasville	B	4
9	Senoia	B	5
9	Dublin	F	7
9	Millen	H	6
8	Monticello	D	5
8	Louisville	G	6
8	Thomson	F	5
8	Hartwell	F	3
8	Acworth	B	3
8	Trion	A	2
8	Jonesboro	C	4
8	McRae	F	8
8	Buena Vista	C	7
7	East Point	C	4
7	Social Circle	D	4
7	Norcross	C	4
7	Butler	C	6
7	Mt. Vernon	F	7
7	Montezuma	D	7
7	Smithville	C	8
7	Union Point	E	4
7	Walthourville	H	8

Georgia—cont'd.

Pop.—Hundreds.

7	Fairburn	C	4
7	Calhoun	B	3
7	Dover	H	6
7	Perry	D	7
7	Canton	B	3
7	Abbeville	E	8
7	Blackshear	G	9
7	Grantville	B	5
6	Rochelle	E	8
6	Harlem	G	5
6	Boston	D	10
6	Chauncey	E	7
6	Ellaville	C	7
6	Crawford	E	4
6	Harmony Grove	E	3
6	Milner	C	5
6	Rutledge	D	4
6	Crawfordville	F	4
6	Austell	B	4
6	Knoxville	D	6
6	Harrison	F	6
6	St. Marys	H	10
6	Lawrenceville	D	4
6	Summerville	A	3
6	Kingston	B	3
6	Palmetto	B	4
5	Guyton	I	7
5	Jefferson	D	5
5	Vienna	D	7
5	Adairsville	B	3
5	Adel	E	9
5	Wadley	G	6
5	Cairo	C	10
5	Gordon	E	6
5	Zoar	H	7
5	Hogansville	B	5
5	McDonough	C	5
5	High Shoals	D	4
5	White Plains	F	5
5	Collins	G	7
5	Lexington	E	4
5	Buford	D	3
5	Hamilton	B	6
5	Midville	G	6
5	Oglethorpe	C	7
5	Chipley	B	6
5	Lumber City	F	8
5	Ringgold	A	2
5	Shellman	B	8
5	Richland	B	7
5	Dallas	B	4
4	Allapaha	E	9
4	Lecsburg	C	8
4	Blakely	A	9
4	Bartow	F	6
4	Ellijay	C	2
4	Tifton	D	9
4	Nashville	E	9
4	Villa Rica	B	4
4	Statesboro	H	7
4	Flovilla	D	5
4	Hampton	C	5
4	Arlington	B	9
4	Smyrna	B	4
4	Culloden	C	6
4	Rock Mart	A	4
4	Bronwood	C	8
4	Ashburn	D	8
4	Towns	F	8

Ge'ra, a walled town of Central Germany, principality of Reuss-Schleiz, cap. of lordship of same name, on the Elster, 22 m. N.E. of Schleiz, and 34 S.W. by S. of Leipzig. This place has long been noted for its commercial activity, having manufactures of woollen and cotton fabrics, hats, leather, tobacco, soap, porcelain, oil-cloth, &c.

Geraee, (*ja-rā'cha,*) [anc. *Locri,*] an inland town of S. Italy, prov. Reggio, on a hill within 4 m. of the Ionian Sea, 47 S.S.W. of Catanzaro, and 29 N.N.E. of Cape Spartivento. Some fine Greek antiquities are found here. *Pop.* 7,073.

Ge'rah, *n.* [Heb., a bean.] The smallest coin used among the ancient Jews, of which twenty went to the *shekel*.

Geran'do, MARIE JOSEPH DE, a French metaphysician, B. 1772. His principal works are *Histoire comparée des Systèmes de Philosophie*, and *De la Bienfaisance Publique* D. 1842.

Geraniа'eeæ, *n. pl.* [Lat., from Gr. *geranion*, from *geranos*, a crane.] (*Bot.*) An order of plants, alliance *Geraniales*. DIAG. Usually symmetrical flowers; styles and carpels combined round a long-beaked torus. They are herbs or shrubs, with simple leaves, membranous stipules, and articulated swollen joints. Flowers usually symmetrical; sepals five, imbricated; petals twisted in æstivation; stamens generally somewhat monadelphous. Fruit consisting of five carpels, attached by



Fig. 1146. — GERANIACEÆ.

a, Geranium; *b*, Pelargonium; *c*, Herb Robert (*Geranium Robertianum.*)

means of their styles to an elongated axis or carpophore, from which they separate, when ripe, from below upward, by the curling up of the styles. Seeds, one in each carpel, exalbuminous; embryo convoluted. Some plants of this order are distributed over various parts of the world, but the greater number are found at the Cape of Good Hope. There are four genera, and about 500 species, many very remarkable for the beauty of their flowers.

Geraniа'les, *n. pl.* (*Bot.*) An alliance of plants, subclass *Hypogynous exogens*. DIAG. Monodichlamydeous, symmetrical flowers; axile placentæ; imbricated calyx; twisted corolla; definite stamens; and an embryo with little or no albumen. The *G.* are divided into the five orders; *Linaceæ*, *Chlænaceæ*, *Oxalidaceæ*, *Balsaminaceæ*, and *Geraniaceæ*.

Geranium, (*je-rā'ne-ŭm,*) *n.* (*Bot.*) The Crane's-bill, the typical genus of the order *Geraniaceæ*. Many species are American plants, being generally mere weeds of no interest, while others are extremely showy border-flowers. The favorite plants called Geraniums do not belong to this genus, but to the genus *Pelargonium*, q. v. The Stinking Crane's-bill, or Herb Robert, *Geranium Robertianum*, a common weed in dry, rocky places, with a diffuse habit, deeply divided leaves, and small flowers, has been used medicinally as an astringent, and in nephritic complaints. The Spotted Geranium, *G. maculatum*, with flowers of considerable beauty, is the most valuable medicinal plant of the genus. It is found throughout the U. States and Canada.

Gera'nium, (Oil of,) *n.* (*Perfum.*) An essential oil, known in India as *Roshé*, or *Reosé* oil, and in trade as Turkish Essence, Oil of Geranium, or Oil of Ginger-grass. It is obtained from a plant of the genus *Andropogon*, believed to be the *Andropogon Calamus Aromaticus*. This oil is employed by the Turks to adulterate *attar of roses*, q. v., and is considered by some to be identical with the Grass-oil of Nemaur.

Ge'rar, (*Script.*) An ancient town or place of the Philistines in the times of Abraham and Isaac, in the S. of Judah, not far from Gaza.

Gér'ard, BALTHAZAR, the assassin of William I., Prince of Orange; executed 1584.

Gérard, MAURICE ETIENNE, COUNT, marshal of France, B. in 1774. He entered the army at the age of 18, and soon after was made aide-de-camp to Bernadotte. He served at the battles of Austerlitz and Wagram, in the Peninsula, and in the expedition to Russia, in which he greatly distinguished himself. He took part in the campaigns of 1813, 1814, and 1815, and was severely wounded at Leipsic. He was created marshal in 1830, and held for a short time the portfolio of war. Two years later he besieged and took the citadel of Antwerp; held the office of first minister in 1834, and D. in 1852. He was made Grand Chancellor of the Legion of Honor four years before his death. D. 1855.

Gér'ard, FRANÇOIS, a French historical painter, B. at Rome, 1770. He became, at the early age of 14, a pupil of the celebrated David, and is thought by many to have equalled, if not surpassed, his master. His first and also one of his most celebrated works was the picture of *Belisarius*. His *Entrance of Henry IV. into Paris* is probably his masterpiece. Among his other works are the *Battle of Austerlitz*, *Psyche*, *Thetis*, and a large number of portraits of distinguished men. *G.* was the greatest portrait-painter of his time in France. His studio was visited in 1814 by the emperors of Russia and Austria, and the king of Prussia. He was first painter to Louis XVIII., member of the Institute, and of the Legion of Honor, &c. D. 1837.

Gerard Thorn, or **Tenque,** founder of the order of St. John of Jerusalem, B. at Amalfi, about 1040. He first visited Jerusalem for commercial objects, but about 1100 he assumed the religious habit, and associated with others, who took the vows of chastity, poverty, and obedience; the object of their institution being to defend Christian pilgrims in their journey to and from the Holy Land. Thus arose the powerful order of Knights Hospitallers of St. John, who afterwards became the knights of Malta, and acquired such distinguished fame. D. about 1120.

Gerar'dia, *n.* (*Bot.*) A genus of plants, order *Scrophulariaceæ*. They are American herbs, rarely suffruticose, having opposite leaves, and axillary, solitary, purple or rose-colored flowers.

Gerbier-des-Jones, (*zhair'be-ai,*) a mountain of France in the Cevennes chain, dep. Ardèche, 20 m. from Privas, attaining an altitude of 5,120 ft. above sea-level.

Geremoabo, (*zha-ra-mo-a'bo,*) a town of Brazil, prov. of Bahia; *pop.* abt. 4,000.

Ger'falcon, or JER-FALCON, *n.* [Fr. *gerfaut.*] (*Zoöl.*) The *Falco Gyrfalco*, a species of falcon, (see Fig. 987,) considered as the boldest and most beautiful of the tribe. In size it approaches closely to that of the osprey. Its general color is brownish-gray, of varied tints above and white beneath, and brown longitudinal spots. The tail is crossed with a number of deeper and lighter bands, and the bill and legs are usually of a pale-blue or yellowish color. Three varieties of the gerfalcon are mentioned by Buffon; the first two are similar to the species above described, and the third is entirely white. The gerfalcon is a native of Russia, Norway, Iceland, and Baffin's Bay. Of all the rapacious birds, except the eagle, it is considered the most formidable, the most active, and the most intrepid; it attacks the largest birds boldly, and when transferred from the coldest climate to the warmest, its strength is not diminished, nor is its vivacity checked in any degree.

Ger'hardt, KARL FRIEDRICH, a French chemist, B. at Strasburg, 1816. At the age of 15, he was sent to the Polytechnic School of Carlsruhe, where his attendance at Professor Walchner's lectures first awakened in his mind a taste for chemistry. After two years' residence in this town, he removed to Leipsic, where he attended the lectures of Erdmann, which seem to have developed in him an irresistible passion for questions of speculative chemistry. He worked afterwards for 18 months in the laboratory of Giessen, under Liebig's superintendence; and in 1838 he arrived in Paris, where he was cordially welcomed by Dumas. Here he gave lectures and instructions in chemistry, and, with Chevreul's permission, worked in the laboratory of the Jardin des Plantes, where he commenced his important researches on the essential oils. In 1844, he was appointed professor of general chemistry in the faculty of sciences at Montpelier. About this time, he published his *Précis de Chimie Organique*, in which he sketches the idea of "homologous and heterologous series" (*q. v.*), which at a later period he so successfully developed. In 1848, he resigned his chair and returned to Paris, where he established, between the years 1849 and 1855, in successive memoirs, his views of series and the theory of types, with which his name will be ever associated in the history of chemistry. It was there, also, that he gave to the scientific world his remarkable researches upon the anhydrous acids and the oxides. All his ideas and his discoveries are embodied in his *Traité de Chimie Organique* (1853–1856, 4 vols.) He had hardly completed the correction of the last proof of this great work, when, after an illness of only two days, he died, 1856.

Ger'hardt's Nota'tion, *n.* (*Chem.*) A method of expressing chemical formulæ, differing from that in general use by the doubling of the equivalent numbers of certain elements. By comparing the specific gravities of elements with their equivalent numbers, it will be seen that in a few cases there is a discrepancy between them; — thus:

	Equiv.	*Spec. grav.*
Hydrogen	1	1
Oxygen	8	15·9
Sulphur (vapor)	16	31·7
Chlorine	35·5	34·9
Bromine	80	79·8

To remove this anomaly, the French chemist Gerhardt doubles the equivalent numbers of oxygen, sulphur, carbon, selenium, and tellurium, on the assumption that "equal volumes of elementary gases and vapors contain the same number of atoms when compared under the same conditions of heat and pressure." This is equivalent to saying that the atoms of oxygen weigh 16 times as much as atoms of hydrogen, though of the same bulk or volume, since a cubic foot of oxygen weighs 16 times as heavy as a cubic foot of hydrogen. These doubled equivalents are generally indicated by a line drawn through the letter; — thus, ~~O~~, ~~C~~, ~~S~~ c, &c. Of the compounds mentioned below, the formulæ are given according to both systems, the new equivalents being printed in Italics.

Compound.	*Old Formula.*	*New Formula.*
Water	HO	H_2O
Potash	KO	K_2O
Oxide of silver	AgO	Ag_2O
Alumina	Al_2O_3	Al_4O_3
Sesquioxide of iron	Fe_2O_3	Fe_4O_3
Sulphide of potassium	KS	K_2S
Cyanogen	C_2N	CN
Carbonic oxide	CO	CO

Beside the change in the equivalents described above, Gerhardt introduced a new theory of the constitution of acids and salts. According to the present theory, nitrate of silver, for instance, would be formulated thus, —$AgO.N_2O_5$, being regarded as a compound of nitric acid and oxide of silver; but on comparing this salt with its corresponding haloid, chloride of silver, a discrepancy occurs, which vanishes, if we consider nitric acid as existing in nitrate of silver, to consist of N_2O_6, instead of N_2O_5. From numerous other anomalies, occurring chiefly in organic bodies, Gerhardt came to the following conclusions:—1. That every uncombined acid necessarily contains one or more equivalents of hydrogen. 2. That the bodies hitherto regarded as dry acids possess no acid properties until united with hydrogen and oxygen. 3. That salts are formed by the solution of one or more atoms of hydrogen by one or more atoms of a metal, or some substance acting as such. Thus, the bodies known as $NO_5.So_3CO_2$, are neutral and inert until united with an equivalent of water, when they form respectively nitric, sulphuric and carbonic acids.

	Old view.	*New view.*
Nitric acid	N_2O_5	$H_2N_2O_6$
Sulphuric acid	SO_3	H_2SO_4
Carbonic acid	CO_2	H_2CO_3

This brings the haloid and oxyacid salts into perfect harmony, both being regarded as acids in which the hydrogen is replaced by a metal, or some substance acting as such;—thus:

$$HCl + K = KCl + H$$
$$H_2SO_4 + K_2 = K_2SO_4 + H_2$$

or, in other words, the acid is regarded as the nitrate, sulphate, or carbonate of hydrogen, and the salt formed, as the nitrate, sulphate, or carbonate of the metal; — hence, the terms nitrate of potassium, sulphate of sodium, &c., used by the followers of Gerhardt, instead of nitrate of potash, sulphate of soda, &c.

Gér'icault, JEAN LOUIS THEODORE ANDRÉ, a French historical and *genre* painter, B. at Rouen, 1790; was the pupil of Guerin. His peculiarities are well illustrated in the great and magnificent picture of the *Shipwreck of the Medusa*, painted in 1819, and now in the Louvre at Paris. *G.* died almost at the threshold of his promised great career, in 1824.

Ger'izim and E'bal, two mountains of Samaria, forming the opposite sides of the valley which contained the ancient city of Shechem, the present Nabulus. The valley which these mountains inclose is about 200 or 300 paces wide, by above 3 m. in length; and Mount Ebal rises on the right hand and Gerizim on the left hand of the valley, which extends W.N.W., as a person approaches Shechem from Jerusalem. It was on Mount Ebal that God commanded to be reared up an altar and a pillar inscribed with the law; and the tribes were to be assembled, half on Ebal and half on Gerizim, to hear the fearful maledictions pronounced by the Levites upon all who should violate the obligations of the sacred code,



Fig. 1147.

VIEW OF NABLUS AND MOUNT GERIZIM FROM THE N.W.

and the blessings promised to those who should observe them. The tribes which responded with simultaneous "amens" to the curses were to be stationed on Mount Ebal, and those who answered to the blessings, on Mount Gerizim. This imposing ceremony — perhaps the most grand in the history of nations — could not have found a more fitting scene; and it was duly performed by Joshua as soon as he gained possession of the promised land. (*Deut.* xxvii.; *Josh.* viii. 30–35.)

Germ, *n.* (*jûrm.*) [Lat. *germen*, from Gr. *gen*, root

of *gigeneni*, to produce.] (*Bot.*) The eye of a bud, or any growing point; or an embryo.

—Origin; first principle: that from which anything springs; as, the *germ* of toleration.

Germ Theory. See SECTION II.

Germain', *a.* Same as GERMANE (*q. v.*).

Germain, St. (*zhān-mān'*), the name of many towns, villages and parishes in France, with pop. under 4,000.

Ger'main-en-Laye, (St..) a town of France, dep. Seine-et-Oise, on a hill adjoining the Seine, 6 m. N. of Versailles, and 9 W. by N. of Paris. *Manuf.* Horse-hair goods and leather. It is chiefly noted for its noble palace, originally built by Charles V. in 1370; reconstructed by Francis I.; and embellished by many succeeding sovereigns, especially Louis Quatorze (XIV.), who added to it five extensive pavilions, and constructed the fine terrace which extends from it, with a breadth of nearly 90 feet., for a distance of 1½ m., between the forest of St. Germain and the Seine. That monarch

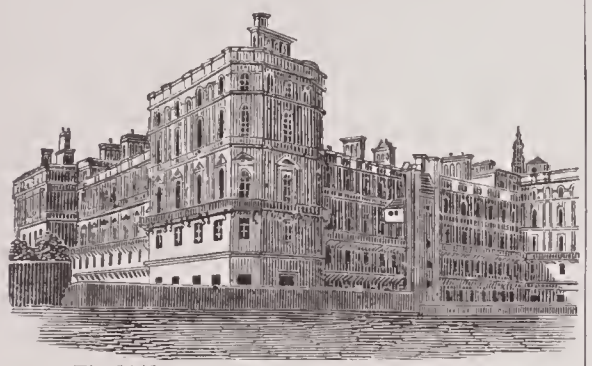


Fig. 1148. — PALACE OF ST. GERMAIN-EN-LAYE.

afterwards became disgusted with, and abandoned the palace, because, it is said, he could see St. Denis, the burial-place of the French kings, from its windows. Charles IX. and Henry II., as well as Louis XIV., were born in this palace. It was the residence of Mdlle. de la Vallière (*q. v.*); and James II., of England, with most of his family, passed their exile, and died in it. It is now used as barracks and a military prison. *Pop.* 19,478. — The FOREST OF ST. GERMAIN, one of the finest of its kind in France, extends N. of the town, enclosed W., N., and E. by the Seine. It is 9 m. in length by 3 in breadth; covers an extent of 8,865 Eng. acres, and is traversed by roads, the aggregate length of which is not less than 1,180 miles.

Ger'man, *a.* [Fr. *germain;* Lat. *germanus*, probably from *germen*, for *gerimen*, an offshoot, a bud, from *gerere*, to bear.] Of the same germ or stock, as brothers or sisters that have the same father and mother. — *Cousins-german* are the sons or daughters of brothers or sisters, or first cousins.

Ger'man, *a.* [Probably from *ger*, corruption of *wehr*, war, and *man*.] Pertaining or relating to Germany.

—*n.* A native or inhabitant of Germany. — The German language.

Ger'man, in *Illinois*, a flourishing township of Richland co.

Ger'man, in *Indiana*, a township of Bartholomew co.

—A township of Marshall co.

—A township of St. Joseph co.

—A township of Vanderburg co.

Ger'man, in *Iowa*, a township of Grundy co.

—A township of Keokuk co.

Ger'man, in *New York*, a post-township of Chenango co.

Ger'man, in *Ohio*, a thriving township of Allen co.

—A township of Auglaize co.

—A township of Clarke co.

—A township of Darke co.

—A township of Fulton co.

—A township of Harrison co.

—A township of Holmes co.

—A township of Montgomery co.

Ger'man, in *Pennsylvania*, a township of Fayette co.

German, in *W. Va.*, a p.-o. of Braxton co.

Ger'man Cath'olics, *n. pl.* (*Eccl. Hist.*) The name of a religious sect which has recently been formed in Germany, by secession from the Roman Catholic Church. It originated in a proclamation of a special pilgrimage and service of Bishop Arnoldi, of Treves, to the "Holy Coat" of that city, to be accompanied by remission of sins. This proceeding called forth a letter from Johannes Ronge, an excommunicated priest of Silesia, dated October 1, 1844, characterizing it as an idolatrous festival, and calling upon the bishop to suppress it. A short time before, another Catholic priest, Johann Czerski, had seceded from the Romish Church, and attempted the foundation of an independent Christian congregation. The letter of Ronge met with many sympathizers, and a union having been effected between Ronge and Czerski, a number of congregations sprang up in a very short time, calling themselves German Catholics. The "Confession of Schneidemühl," drawn up by Czerski, Oct. 19, and presented to the government Oct. 27, 1844, rejected as unscriptural, and as a merely human ordinance, the reception by the priests alone of the Lord's supper in both kinds; the canonization and invocation of the saints; indulgence and purgatory; fasting; the use of the Latin language in divine service; mass and vespers; the celibacy of the priests; the prohibition of mixed marriages; the supremacy of the Pope, and other points. They declared themselves determined to sever their connection with the Pope, to receive the Lord's supper in both kinds, and to recognize the Bible as the only rule of faith. They retained the seven sacraments and the mass, which they celebrated in the vernacular tongue. The "Confession of Breslau," which set forth the views of Ronge, proceeded farther than that of Schneidemühl, — claiming free investigation of the Bible, and freedom of belief for every individual member. It regarded as essential doctrines only, — belief in God, the Creator and Governor of the world; in Jesus Christ, as having, by his doctrine, his life and death, redeemed men from sin and misery; and in the influence of the Holy Spirit upon earth. Of the sacraments of the Catholic Church it retained only baptism and the Lord's supper. A council met at Leipsic on the 22d of March, 1845, in which Ronge, Czerski, and the delegates of twenty congregations, took part; and a new creed was adopted, based principally upon the Confession of Breslau. After that time the principles of German Catholicism spread very rapidly, being adopted not only by many Roman Catholic priests, but also by many Protestant clergymen and laymen. At the end of 1845, they comprised about 300 congregations. They, however, met with much opposition from the various governments, and many vexations and restrictions were imposed upon them in Prussia, Saxony, Bavaria, and other States. A more serious source of disquiet, however, arose among themselves. It has been seen that the tendency of Czerski was towards the doctrines and rituals of the Church of Rome; Ronge, on the other hand, approached towards rationalism. A series of dissensions, in this way, arose among the body, which was very prejudicial to their progress. An attempt was made to unite both parties in an assembly at Rawiez, in the month of February, 1846, in which Czerski, Ronge, and others took part, but it had not the desired effect. The congregations sympathizing with Czerski met at Schneidemühl in the month of July in the same year, in order to effect a closer organization among themselves; but, from the great differences of opinion that prevailed among them, they were unable to come to any agreement. Nor were the followers of Ronge more successful in their attempts to effect the same object. A council was held at Berlin, in May, 1847, attended by deputies from 151 congregations, and new efforts were made to accomplish a union of the two parties, but with little better success. The revolution of 1848 was favorable to the German Catholics, and generally led to the removal of some of the civil restrictions to which they were subjected. A conference was held at Köthen in 1850, at which an alliance was proposed with the free congregations which had formed themselves by secession from the Protestant churches; and a diet was fixed for 1852; but it did not meet. Since that time German Catholicism has been on the decline, partly on account of internal dissensions, and partly from oppressive measures adopted against them by the governments. Many congregations have been disbanded, while others have gone over in a body to the Protestant Church. A conference was held at Gotha, Sept. 10, 1858, at which, however, only forty-two representatives were present. The history of *G. C.* is fully given by Kampe, *Geschichte der religiösen Bewegungen der neueren Zeit*, (vol. iii., Leipsic, 1856.)

Germander, *n.* (*Bot.*) See TEUCRIUM.

Germane', *a.* [Lat. *germanus*] Related; near akin; closely allied. — Appropriate; fitting; relevant.

"The phrase would be more *germane* to the matter." — *Shaks.*

Ger'man Flats, in *New York*, a township of Herkimer co.

Germa'nia, an extensive country of ancient Europe, situate E. of Gaul, from which it was separated by the Rhine. Its inhabitants were warlike and uncivilized, and always proved a watchful enemy against the Romans. Cæsar first entered their country; but he rather checked their aggressions than conquered them; and his successors, or their generals, also attempted to chastise their insolence. Tacitus has delineated their manners and customs with the greatest nicety, and has accompanied his description with the reflections of a philosopher.

Germa'nia, in *Pennsylvania*, a P. O. of Potter co.

Germa'nia, in *Wisconsin*, a post-office of Marquette co.

German'ic, *a.* [Lat. *Germanicus*, from *Germania*, Germany.] Pertaining to Germany; as, the *Germanic* Confederation.

German'ic Confederation. (*Hist.*) See GERMANY.

German'icus, TIB. DRUSUS NERO, son of Drusus Nero and the younger Antonia, B. at Rome about 16, B. C. He was nephew and adopted son of Tiberius, and married Agrippina, grand-daughter of Augustus, while he was yet quite young. Augustus intrusted him with important commands in Dalmatia and Pannonia, and raised him to the consulate A. D. 12. On the death of Augustus (14), he had to repress a terrible revolt of the Germanic legions, who wished to salute him emperor. He refused the title with indignation, and forced the soldiers back to their duty, but Tiberius saw in him from that time a dangerous rival. Being intrusted soon afterward with the command of the war against the Germans, he beat Arminius (Herrman), their chief, A. D. 16, retook the eagles lost by Varus, and, by various feats and exploits, earned for himself the surname of *Germanicus*. Tiberius, jealous of his success, recalled him to Rome, and then sent him to the east. After pacifying the troubles in Armenia, and giving a king to that country, he had a difficulty with Piso, governor of Syria, and an intimate friend of Tiberius, who, according to the current belief both then and since, had incited the quarrel. He succeeded in ousting Piso from his province, but died himself very soon after, viz., A. D. 19. When dying, he asserted that he had been poisoned, and urged his friends to avenge him. Agrippina, his widow, carried his ashes to Italy, and accused Piso of his murder, but the latter anticipated punishment by committing suicide. *G.* was universally beloved for his goodness, generosity, justice, and talent. He was much addicted to literary pursuits, and has left us a translation of the *Phenomena of Aratus*. Tacitus makes him the hero of his *Annales*. His son Caius Cæsar Caligula, afterwards emperor of Rome, did no honor to his memory.

Ger'manism, *n.* An idiom peculiar to the German language.

German Language and Literature. [Ger., *Deutsche Sprache und Literatur.*] The German language is a branch of the Indo-Germanic class of languages, which separated from the parent stock at a very early period. The Germans called the language *Deutsch*, or *Teutsch*, from their ancestors, the Teutons. In its widest sense the Teutonic consists of two branches,—the Northern, or *Scandinavian*, and the Southern, or *German*. The latter has three subdivisions, — the Eastern or *Gothic*, the *High German*, and the *Low German*. The Gothic is the earliest of these of which we possess any literary remains, there being still in existence portions of a translation of the Bible into Gothic made by Bishop Ulfilas in the 4th century; but we possess nothing of the High or Low German till the 7th century. Hence many persons have been led to regard the Gothic as the original source of the German; but, according to Max Müller, the grammatical differences between the two are of such a nature as to show that this was impossible. "There never was," he says, "a common uniform Teutonic language, nor is there any evidence to show that there existed at any time a uniform High German or Low German language, from which all High German and Low German dialects are respectively derived." The Gothic language died out in the 9th century. The Low German (*Platt-Deutsch*) comprehends many dialects in the north or lowlands of Germany, as well as the Frisian, Dutch, and Flemish dialects. The oldest literary document of Low German on the continent is the Christian epic the *Heljand*, (Healer or Saviour,) which is preserved to us in two MSS. of the 9th century. There are traces of a certain amount of literature in Saxon or Low German from that time onward, through the Middle Ages, up to the 17th century, but, little of that literature has been preserved; and after the translation of the Bible by Luther into High German, the fate of Low German literature was sealed. High German (*Hoch-Deutsch*) has been the literary language of Germany ever since the days of Charlemagne. Its history may be traced through three periods, — the Old High German, extending from the 7th to the 12th century; the Middle High German, from the 12th century to the time of Luther; and the New High German, from Luther down to the present time. In the present day there are various dialects of the German spoken in different parts of the country; as the Suabian, Bavarian, Franconian, Saxon, &c. (See Müller's *Lectures on the Science of Language.*) The earliest existing monument of German literature is the translation of the Bible into Gothic by Ulfilas, already alluded to. After the Gothic language ceased to be spoken, nothing was known of this work until toward the close of the 16th cent., when a portion of it — namely, the Four Gospels — was found in the abbey of Werden. The letters are in silver upon purple vellum; whence it is called the *Codex Argenteus*, and it is now preserved in the library of Upsala. Afterwards, in 1818, the Epistles of St. Paul, of the same work, were discovered by Cardinal Mai and Count Castiglione in the monastery of Bobbio, in Lombardy. Of the translation of the Old Testament only a few lines remain. The earliest literature of Germany is known to us only by report or tradition. According to Tacitus, the Germans celebrated in songs, which were old even in his time, the praises of their national deity Tuisco, and his son Mannus, as well as the deeds of their great heroes. When the nations began to migrate, heroes of greater and greater renown march into the scene of song, and the historic forms of Attila, Theodoric, Günther, and others, appear. The two most ancient German poems are the *Lay of Hildebrand and Hadubrand*, and the *Prayer of Weissenbrun*, which belong to the 8th century. Many of the legends of this period were afterwards embodied in the lay of the *Nibelungen*, the most celebrated production of German mediæval poetry. The introduction of Christianity exercised an important change in the early literature of Germany. The Latin language came to be that of the church, the court, and the law. A kind of religious poetry, after the model of the Roman poets, was introduced in place of the ancient heroic and mythical songs, and was fostered by the court as well as by the clergy. Charlemagne, indeed, was fondly attached to the ancient lays of his fatherland, and caused a collection of them to be made; but his successor, Louis the Pious, looked upon everything German as heathenish; and the consequence was, the almost total destruction of every poem which bore a special mythological character. The *Heljand*, a poem giving the life of Christ, was written at the instance of Louis the Pious in the 9th century, and is one of the noblest productions of poetic genius that has ever appeared. Thirty years later appeared another sacred poem, known as the *Krist*, composed by Otfried, a Benedictine monk of Weissenburg. Another poem of this period is the so-called *Ludwigslied*, a poem in honor of the victory of the Frankish king, Louis III., over the Normans in 883. The other poetical remains of this period are chiefly of a religious nature, and, together with the contemporary prose literature, are not worthy of notice. Germany,

by losing its French and Italian provinces, had become Germany again; and a desire to cultivate the national literature again began to manifest itself. The monks of St. Gall, Passau, and other places, translated some of the German epics into Latin verse; such as the poem of the *Nibelungen*, of *Walther of Aquitaine*, and of *Rudo's Lied*, the last two of which have been preserved and published. The stories of the fox, the bear, and other animals, so peculiar to German poetry, attracted the attention of the monks; and it is owing to their Latin translations that this curious style of poetry can be traced back so far as the 10th century. The 11th century presents almost an entire blank in the history of German literature. The old High German had become a literary language chiefly through the efforts of the clergy, and its character was pre-eminently clerical. The Crusades, however, put an end to the clerical element in the literature of Germany. The chivalrous emperors of the Hohenstauffen dynasty formed a new rallying point for all national sympathies; and the interest of the people was with the knight, not with the priest. Poetry changed hands, and the royal courts and knightly castles offered a new and more genial home to the poets of Germany than the monasteries of St. Gall and Fulda. Middle High Ger., the language of the Suabian court, became the language of poetry, and the poets took their inspiration from real life, though they borrowed their models from the romantic cycles of Brittany and Provence. The stories of Arthur and his knights, of Charlemagne, of Achilles, Æneas, and Alexander, imported by French and Provençal knights, served them as their first models; and while foreign influence is seen in every branch of German poetry at this time, yet nothing can be more different than the same subject, as treated by French and German poets. The German *Minnesängers*, in particular, were far from being imitators of the Trouvères and Troubadours. Poets made bold for the first time to express their own feelings, their joys, and sufferings, and epic poetry had to share its honors with lyric songs. The poetry which flourished at the castles was soon adopted by the lower ranks, and the poems of the *Nibelungen* and *Gudrun*, as we now possess them, were composed at that time by poets who took their subjects, their best thoughts and expressions, from the people; but imitated the language, the metre, and the manners of the court poets. Thus there are two kinds of poetry of this period, — the *national*, or people's poetry, the production of strolling minstrels; and the *art* poetry, or that of the courts, composed chiefly by kings and courtiers. Many of the poets were nobles by birth, several of them princes. Among the distinguished poets of this period are Walther von der Vogelweide, Heinrich von Veldecke, Hartmann von Aue, Wolfram von Eschenbach, Gottfried von Strasburg, and Conrad von Würzburg. The fall of the Suabian dynasty of the house of Hohenstauffen, in the latter half of the 13th cent., was the death-blow to German chivalric poetry. Lyric poetry continued to flourish for a time; but it degenerated into an affected sentimentality and unworthy idolatry of the ladies. Didactic poetry, however, began to be cultivated with some degree of success. The middle classes, the burghers of the free cities of Germany, were now beginning to rise into power, and poetry again changed hands. It now passed from the abodes of princes and knights to the homes of burghers and the workshops of artisans; and instead of the Minnesänger, we have the *Meistersänger*, and their strains were more subdued, practical, and homely. Poetry became a trade, like any other, and guilds were formed, consisting of master-singers and their apprentices. Heinrich Frauenlob is called the first Meistersänger, and during the 14th, 15th, and 16th centuries, new guilds or schools were formed in all the principal towns of Germany. The poetry of the 14th and 15th centuries is interesting historically, but is not otherwise of much value. The best songs of the period are those of Halbsuter and Veit Weber, celebrating the victories of Switzerland over Austria and Burgundy. Attempts were made to revive the chivalric poetry of the Crusades, both in the beginning and towards the close of the 15th century, but without success. In the 15th century, prose literature begins to flourish, and several local chronicles appear, — as well as works on jurisprudence, and some sermons. In the 14th century, Germany possessed several mystic theologians, as Eckart and Tauler, men of clear intellect and energy of purpose, whose sermons and writings contributed to pave the way for the Reformation. In 1373 the first complete translation of the Bible into German was made by Matthias of Beheim. An important event in this century, in its general influence upon the future progress of German literature, was the establishment of the university of Prague, followed soon after by universities in almost all parts of Germany. The 15th century was rich in scholars, but poor in men of genius and strong thinkers. The invention of the art of printing was a reform in this century, the benefits of which were chiefly felt by the great masses of the people. It extended to them the privilege which had previously been confined to the rich. Between 1470 and 1500, several thousand editions of books were printed in Germany. The 16th century introduces, along with the Reformation, a new æra in the history of the literature of Germany. Luther's translation of the Bible is so pure in language, and so beautiful in style, that it is still regarded, even in the present day, as a model of elegant expression. The religious quarrels which agitated Germany during the 16th century gave to literature a theological direction, and the first scholars of that time were more or less engaged in religious controversy. Prominent in this class, after Luther himself, stand Zwingli, Johann Arndt, Bugenhagen, Bullinger, Melancthon, and Ulrich von Hutten. Some of the best poets of this period, as Johann Hessius, composed their poetry in Latin; and, indeed, there came out from the universities a tendency to exalt Latin above their mother-tongue, which was very prejudicial to the latter. The period before and after the Reformation was especially fruitful in satirical and allegorical works. One of the most remarkable of the former class was the "Ship of Fools" (*Narrenschiff*), by Sebastian Brant, a metrical satire on the follies of the age; and which was afterwards imitated by Thomas Müruer, in his *Narrenbeschwörung* (Conjuration of Fools.) The most able satirical and didactic poet of the 16th century was Johann Fischart, the author of numerous works; among which may be mentioned *Flohatz*, a remarkably witty poem on fleas; and a romantic poem, *Das glückhafte Schiff*. He has been called the German "Rabelais." Of the popular songs (*Volkslieder*) of this period, some have been much admired. The works of Hans Sachs, the poet and cobbler of Nuremberg, display a very remarkable degree of fertility, liveliness, and humor. A great poet, in the strict sense of the word, he was not; but he possessed an uncommon talent for mastering any given subject, and he was the most popular poet in Germany during that century. His works are numerous, and in all styles of composition, from the most tragic touch of feeling to the most comic turn of thought. This period produced several distinguished scholars and men of science; among whom may be mentioned Melancthon, Camerarius (classics and philology), Cornelius Agrippa, Theophrastus Paracelsus (mystical philosophy and natural history), Copernicus (astronomy), Leonhard Fuchs (botany and medicine), Conrad Gesner (botany and zoölogy), and Agricola (mineralogy). Towards the end of the 16th century, everything seemed drifting back into the Middle Ages; and then came the Thirty Years' War, which, in its consequences, was most disastrous to Germany. The physical and moral vigor of the nation was broken. We meet with no trace of originality, truth, taste, or feeling, in the poetry of that period, except, indeed, in the sacred poetry, many of the hymns of Paul Gerhard being still sung in the Protestant churches of Germany. A rage for everything foreign that then prevailed was utterly opposed to nationality or originality. Opitz, the founder of the so-called Silesian school, is the true representative of the classical poetry of the 17th century. He was a scholar and a gentleman, most correct in his language and versification, never venturing on ground which had not been trodden before by some classic poet, whether of Greece, Rome, France, Holland, or Italy. Literary societies were formed at several of the courts of Germany, professedly for the improvement of the language and poetry of the country, after the model of those of Italy; but they were mere silly imitations, and produced little good. The "First Silesian School" is represented by men like Opitz and Weckherlin, and is characterized as pseudo-classical. It was imitated in the north of Germany by Simon Dach, Paul Flemming, and a number of less gifted poets, who form the "Königsberg school." The chief heroes of the "Second Silesian school" are Hoffmannwaldau and Lohenstein, whose compositions are more ambitious, bombastic, and full of metaphors than those of Opitz; but also more disappointing. There were some independent poets who kept aloof from either of these schools, as Friedrich von Logau, Andreas Gryphius, and Moscherasch. Among the other works of this period, we may mention the *Simplicissimus*, a novel giving a lively picture of German life during the Thirty Years' War; the patriotic writings of Professor Schupp; the historical works of Puffendorf; the pietistic sermons of Spener and of Franke, the founder of the orphan school at Halle; Professor Arnold's ecclesiastical history; the first political pamphlets of Prof. Thomasius; and among philosophers, Jacob Bœhme at the beginning, and Leibnitz at the end of the century. The 18th century was marked by a revolution in the literature and modes of thought in Germany. Johann Christoph Gottsched, professor of eloquence at Leipsic, in the early part of this century, exercised great power as a critic, and was the means of defeating the Second Silesian school. He was, however, an advocate of French models in art and poetry; and it was through the opposition which he roused by his *Gallomania*, that German poetry was at last delivered from the trammels of that foreign school. Gottsched and his friends at Leipsic were opposed by Bodmer and his friends in Switzerland, who advocated the English style of literature; and a long literary warfare was carried on. For a long period Gottsched and his party prevailed; but at length public opinion became too strong against them, and the dictator lived to become the laughing-stock of Germany. Among those who distinguished themselves as advocates of the new school were Gärtner, Gellert, Kärtner, Adolf Schlegel (father of the brothers Schlegel), Kleist, and Gleim. Of greater influence, however, than any of these here named, were Hagedorn of Hamburg, whose fables and songs have immortalized him in Germany; and Albert von Haller, the physiologist, remarkable also as a writer of descriptive and didactic poetry. During this literary struggle, the great names of German poetry sprang up, — Klopstock, Wieland, Lessing, Herder, Gœthe and Schiller. Klopstock's *Messiah* made a profound impression by its mystic, devout, and rapturous faith, as well as a work of art. The fashionable and elegant portion of society was attracted by the semi-Grecian, semi-Parisian muse of Wieland. But it was reserved for Lessing to give a new direction to German literature. He established a new school of criticism, and exerted a powerful influence upon the progress of the drama, by unfolding, for the first time, to the German mind, all the beauty, originality, and vigor of Shakspeare. His tragedy *Emilia Galotti*, his comedy *Minna von Barnhelm*, and his philosophical drama *Nathan der Weise*, are models of dramatic composition. Herder, a man of vast learning as well as of poetic genius, exerted a strong influence upon the poets of his time, and contributed powerfully to promote the study of Oriental poetry, as well as the ancient popular songs of different nations. The crowning work of his life is his *Ideen zur Philosophie der Geschichte der Menschheit*. Another great impulse was given by Winckelmann, whose writings on the remains of ancient art modified all the old theories of the beautiful. Gœthe came forward in 1773 with his *Gœtz von Berlichingen*, which was greeted as the commencement of an entirely new period in German dramatic literature. In 1781 appeared Schiller's first piece, *Die Räuber* (the Robbers), followed by *Fiesco* and *Cabale und Liebe*. These impassioned tragedies gave a new impulse to the literary excitement. His *Don Carlos* (1784) shows greater moderation, and opens a long series of tragedies, in which the highest aspirations for liberty and humanity are interwoven with historical associations expressed in language of the most classic purity. It was only, however, after Schiller's union with Gœthe (1795) that, by their combined labors, German literature was brought to that classic perfection which, from a purely local, has since given to it a universal influence. Schiller, by his enthusiastic and sympathetic eloquence and tenderness, became the favorite of the people: while Gœthe, with his many-sided intellect and boundless sensibilities, controlled by a strong will, became the acknowledged sovereign of German literature. The philosophic spirit of this age also gave birth in rapid succession to the master minds of Kant, Fichte, Hegel, and Schelling. Jean Paul Richter is a peculiar and powerful writer of this period, whose works, though characterized by obscurity and irregularity, are frequently lighted up by flashes of humor and brilliant gems of thought and feeling. Novalis (von Hardenburg) is another strangely-constituted writer, whose works, though few and fragmentary, contain scattered thoughts of such wisdom and genius as to give them a high place in the literature of his country. Ludwig Tieck, a more voluminous and connected writer than his friend Novalis, was also much more of a creative genius. His dramas, and collection of ancient fairy and popular tales, often reflect the romance of mediæval poesy with much beauty and genius, but with a mystic feeling bordering almost on superstition. To the so-called Romantic school belong the brothers Schlegel, — August Wilhelm, author of various critical and æsthetical works, and a metrical translation of Shakspeare; and Friedrich, known as a writer on the history of ancient and modern literature, and the philosophy of history. The other writers of that and the subsequent period to the present time are so numerous, that we can only afford to mention a very few of them. In almost every department of literature, the writers of the present or last century, in Germany, occupy a chief place. In philosophy, the names are numerous; but they are all eclipsed by the great names of Kant, Fichte, Schelling, and Hegel, and generally belong to one or other of these schools. (See GERMAN PHILOSOPHY.) In theology, Schleiermacher, Paulus, Bretschneider, Reinhard, Eichhorn, Hengstenberg, and a host of others, have done good service in the field of biblical inquiry. In philological and critical inquiries, occur the names of Wolf, Hermann, Bœckh, Otfried Müller, W. von Humboldt, the brothers Grimm, Franz Bopp, Bunsen, Benecke, Lachmann, Haupt. In history, Johannes von Müller, Heeren, Wachler, Friedrich von Raumer, Rauke, Lappenberg, Pertz, Niebuhr, Neander, Dahlmann, Gervinus, Menzel, Schlosser. In poetry, besides the names already mentioned, are Arndt, Körner, Heine, Uhland, Kinkel, Rückert, Schwab, Kerner, W. Hauff, Novalis, Mörike, Börne. In dramatic literature are distinguished Kotzebue, Müllner, Houwald, Grillparzer, Raupach, Grabbe, Immermann, Gutzkow, Mosen, Prutz, Laube, Hebbel, and Freytag. In the field of historical or social romance, are Witzleben, Van de Velde, Pichler, Häring, Spindler, Steffens, König, Gutzkow, Prutz, Mugge, Von Sternberg; besides several ladies; as Ida von Hahn-Hahn, Paalzow. Among other literary writers of note may be mentioned F. de la Motte Fouqué, Achim von Arnim, Brentanus, Von Kleist, Amadeus Hoffmann, Chamisso, Kühne, Auerbach, Spielhagen, Mühlbach, Rodenberg, Zschokke, Stifter. The labors of A. von Humboldt in the field of natural science have given a powerful impulse to the German mind in that direction. Among their travellers, are Martius in Brazil, Pöppig in S. America, Tschudi in Peru, Schubert in Greece, Lepsius and Brugsch in Egypt, Schomburgk in British Guiana, Siebold in Japan, Gützlaff in China, Barth and Vogel in Africa, the brothers Schlagentweit in Central Asia, and Leichhardt in Australia. In geography, ethnology, &c., are the works of Berghaus, Petermann, Stein, Hübner, Wappäus, Klöden, Kohl. In astronomy and mathematics, are Bessel, Encké, Struve, Gauss, Mädler; while in medicine and the natural sciences, are J. Müller, Ehrenberg, Burdach, Carus, Oken, Cotta, Schleiden, Von Buch, Liebig, Dove, Burmeister, Poggendorf, Erdmann, Gmelin, Gräfe, Vogt, Rokitansky, Wagner, and Dieffenbach. In the history of language and literature, politics, and the social sciences, are Vilmar, Gervinus, Bouterwek, Becker, Wachler, Waagen, Savigny, &c.

Germa'no, San (anc. *Casinum* or *Casca*), a town of south Italy, situated at the base of Monte Casino, 50 m. N.N.W. of Naples. *Pop.* (1895) 8,750.

Germa'no, in *Ohio*, a former post-office of Harrison co.; now NEW JEFFERSON, a post-village.

Ger'man Philos'ophy. The philosophic spirit which characterizes Germany in the present day is only of comparatively modern origin. The old scholastic

forms retained their place here long after they had been forsaken in France and England. The writings of Lord Bacon, of Descartes, and of Spinoza, which did so much for philosophy in their own countries, had but little influence in Germany. It was more particularly the writings of Locke which first excited any considerable degree of attention. His empiricism, which sought to set up psychology as a regulator of metaphysics, aroused the opposition of Leibnitz, the first German that made an epoch in the history of the new philosophy, and who, from the influence which he exerted on all sides, must be regarded as the originator of the philosophic spirit in Germany. Yet the fundamentals of his system — monodology, preëstablished harmony, the doctrine of innate ideas—wanted a strong systematic basis, being rather genial hypotheses than regularly established propositions. This defect Chr. Wolf set himself to remedy, and sought to establish a system of philosophy complete in all its parts, according to the rules of strict logic; but in so doing, he set aside the very doctrines which most particularly characterized the system of Leibnitz. The wide circulation of his writings, the high esteem in which he was held by his contemporaries, the great number of his scholars and adherents, show the great influence which Wolf exerted for a time. He was destined, however, to outlive his reputation, for there soon came on a period of philosophical deadness in Germany, during which a kind of eclecticism, devoid of principle, prevailed,—the so-called "philosophy of common sense," borrowed from the English and French philosophers of the 18th cent. Nevertheless, there also existed great mental activity of certain kinds. Poetry, the reform of education, politics, and religious enlightenment, deeply occupied men's minds; old customs in family and political life were shaken, and a great and thorough movement was preparing itself in the quiet. With Emmanuel Kant begins the more modern period of German philosophy; and although, at first, his *Critique of Pure Reason* (*Kritik der reinen Vernunft*) was in danger of being overlooked, yet, after a time, this and the principal of his other critical works, which, after long preparation, made their appearance in rapid succession, gave a powerful stimulus to scientific research. The cause of this lay, not only in the novelty and comprehensiveness of his investigations, but in that they exactly corresponded with the tendencies of the age at the time. Excluding all dogmatism and fanaticism, maintaining the independence of speculative inquiry, referring all theoretical speculation to the accessible region of experience, the elevation of the moral to the highest and ultimate of all human endeavor, — these in general constitute the main features of his philosophy, which he wished to be cultivated rather with a view to its social than to its mere philosophic importance. He also entertained the hope that, by means of critical investigations into the nature of the human mind, it might be possible to reconcile the opposing systems of empiricism and rationalism, of sensualism and spiritualism, &c., and to discover a series of comprehensive principles to which the controversies of the philosophic schools might be referred in the last instance. That this hope was disappointed was owing to this, that Kant sought to support the old metaphysic of the schools by a psychology which itself rested on the basis of that metaphysic. Besides, there was wanting in the heyday of Kantism any sufficient point of unity for the several parts of philosophy. Of this want K. L. Reinhold was the first to become conscious; and scepticism, as in Schulze's *Aenesidemus*, and dogmatism, in the writings of Eberhard and others, raised their feeble opposition to the now triumphant criticism. J. G. Fichte believed that he had found that absolute point of unity which the criticism of Kant had indicated, in the fact of consciousness. Fichte, travelling on the path which Kant had pointed out, changed the half-idealism of Kant into a complete idealism, while he declared the "Ego" to be, not only the bearer and source of knowledge, but also the only reality, the representation and act of which is the world. In the Ego, knowing and being were identical; it was at once the principle of existence, and knowledge and nature appeared only as the reflex of its absolute activity. With this idealism began a kind of revolutionary excitement among the philosophic minds of Germany, which contrasted strongly with the quiet and sober spirit of Kant. System followed system, philosophic literature became overwhelming, and the public excitement was general for twenty or thirty years. The meteors which made their appearance in the philosophic heavens of Germany, for the most part disappeared as suddenly as they had blazed forth. Schelling was the first to exert a more general influence, and changed the idealism of Fichte, under the influence of Spinoza (who had been again brought into notice by Jacobi), into the so-called *philosophy of identity*. This system set out originally with the assertion that, as Fichte has deduced nature from the Ego, so, by reversing the process, the Ego may be deduced from nature; that both forms of philosophy find their basis in the absolute, as the identity of all opposites, — the ideal and real, subject and object, spirit and matter. In order to carry out this assertion, Schelling assigned intellectual intuition as alone corresponding to the absolute; yea, as representing, and identical with, the absolute itself. The organ of this intuition was called reason and, as such, was opposed to the reflection of the understanding, which was held to be quite incapable of comprehending absolute identity. The relation of the actual phenomenal world to the absolute was held to consist in this, that the latter represents itself in a multiplicity of appearances, steps out of "indifference" into difference, manifests itself in the latter, &c. He sought to demonstrate this identity in non-identity, and non-identity in identity,—especially with regard to natural philosophy in special cases, in which the highest merit to which he and his followers are entitled is the having opposed the empiricism of mere observation and computation in natural investigations, and to have contributed to the awakened interest in the natural sciences. For in contemning experience and reflection, occasion was also afforded to a fanciful mode of speculation, which frequently had nothing further in common with science than the name, and on this account many dark opinions in the regions of poetry, religion, and social life came to unite themselves with the philosophy of Schelling, and which often led to the most strange aberrations into romanticism, mysticism, and a tendency to Catholicism. In the direction indicated by Fichte and Schelling, the philosophy of Hegel also asserted itself, and attempted to develop in regular succession the contents of the intellectual intuition by the dialectic method. He indeed threw off the lawless play of fanciful combinations; but he sought for the expression of speculative thought, not in those laws of the connection of thought which have been recognized for thousands of years, but in a dialectic, the essence of which consists in the analysis of all the established principles of thought, and whose process consists therein that every conception generates out of itself its opposite, and uniting this with itself, inwardly enriches itself, and in this way proceeds to still higher stages. This method pretended to be identical with the thing itself; Hegel, with enduring perseverance, sought to carry out through the whole field of philosophic inquiry, and divided his system into the three provinces of logic, the philosophy of nature, and the philosophy of mind. While the systems above mentioned form a tolerably straight line of progress, there arose certain other systems, as that of J. F. Herbart, in opposition to the idealism of Fichte, and which took a direction quite contrary to the philosophy of the time. Herbart, Schelling, and Hegel are the only thinkers that can claim to have exerted any general influence since the time of Kant. Among the numerous other thinkers of this time, who were chiefly occupied in defending or remodelling the older systems, we may mention Krug, Fries, and others, who were employed in the development of the Kantean system; Steffens, Oken, Schubert, F. von Baader, and Eschenmayer, who were employed chiefly in physical researches; those who attempted to exhibit systematically the philosophy of Jacobi; the different attempts to bring back philosophy to an empirical psychology; the peculiar speculative attempts of Schleiermacher, J. J. Wagner, Krause, Weisse, the younger Fichte, Braniss, E. Reinhold, A. Trendelenburg, H. Ritter, A. Günther, and others; the different tendencies within the Hegelian school; and, finally, the relation which Schelling latterly took up to his own earlier teaching, as well as to that which had been developed out of them. In the same proportion in which during the last fifty years the science of philosophy has been prosecuted in Germany, has also its history been studied; and indeed the Germans were the first who sought to comprehend and represent the history of philosophy as a whole, and to throw light upon the more important parts of it by valuable special treatises. The rapid change in the philosophic systems, and the extravagances which characterized some of them, have often been much blamed and made sport of, and it seems, as a consequence of that, that there has been for some time a lull in the interest taken in speculation, and a sort of sceptical aversion to all proper philosophic inquiry has taken the place of the former enthusiasm. Yet the influence of philosophy in elevating and strengthening the scientific spirit in Germany has been great and beneficial; and there is almost no region of inquiry in which a deeper and more thorough mode of treatment is manifest as the fruits of this philosophic spirit.

Ger'man Silver, *n.* A useful silver-like alloy composed of copper, nickel, and zinc. Different proportions are given. One of the best is copper 51, zinc 30·6, nickel 18·4. It resembles the *tutenag* of the Chinese, and is used for table-articles and in electro-plating.

Ger'man Settlement, in *West Virginia*, a village of Preston co.

Ger'mansville, in *Pennsylvania*, a village of Lehigh county.

Ger'mantown, in *Illinois*, a post-village of Clinton co. *Pop.* (1890) 537.

Germantown, in *Indiana*, a village of Marion co.

—A village of Wayne co.; the P. O. is E. GERMANTOWN.

Germantown, in *Kentucky*, a post-village of Mason co., about 70 m. N.E. of Frankfort.

Germantown, in *Maryland*, a P.O. of Montgomery co.

Germantown, in *Missouri*, a village of Henry co.

Germantown, in *North Carolina*, a village of Hyde co., on Pamlico Sound, about 135 m. E.S.E. of Raleigh.

—A post-village of Stokes co., 110 m. W.N.W. of Raleigh. Also spelled GERMANTON.

Germantown, in *New York*, a post-town and township of Columbia co. *Pop.* (1890) 1,683.

Germantown, in *Ohio*, a post-village of Montgomery co., 45 m. N. of Cincinnati. *Pop.* (1897) about 1,600.

—A village of Washington co., about 16 m. N.N.E. of Marietta.

Germantown, in *Pennsylvania*, a village of Fayette co., about 135 m. W. by S. of Harrisburg.

—A beautiful suburban section, since 1854 included within the chartered limits of Philadelphia, about 6 m. N.W. of the City Hall. Here, Oct. 4, 1777, a battle took place between the armies under Washington and the English under Howe. After several hours of severe struggle the Americans were defeated, the loss being about equal on both sides.

Ger'mantown, in *Tennessee*, a post-town of Shelby co., about 15 m. E. of Memphis.

Germantown, in *Virginia*, a village of Bath co., abt. half a mile from the Warm Springs.

—A village of Fauquier co., abt. 95 m. N. by W. of Richmond.

Germantown, in *Wisconsin*, a post-village and township of Juneau co.

—A township of Washington co.

Ger'man Valley, in *New Jersey*, a post-village of Morris co., abt. 17 m. W. of Morristown.

Ger'manville, in *Iowa*, a post-office of Jefferson co.

Ger'manville, in *S. Carolina*, a village of Edgefield dist., abt. 30 m. W. of Columbia.

Ger'many. [Ger. *Deutschland*, or *Teutschland*; Fr. *Allemagne*; It. *Germania*, *Slavonia*.] The word *G.* is as uncertain in its derivation, as it is often vague and indefinite in its application. The Germans call themselves *Deutsche*, or *Teutsche*, and their country *Deutschland*. The first syllable of this name is derived by those who use this orthography from the verb *deuten*, signifying to interpret or explain; so that *Deutsche* means the people who were intelligible to one another, in contradistinction to *Welsche* (Welsh), or Celtic nations, whose language they did not understand. Those who write *Teutschland* derive the name of the country from the god *Tuisco* or *Teut*, mentioned by Tacitus. The Latin denomination of the country, which English-speaking people have adopted, is supposed to be derived from the Roman manner of pronouncing the word *wehrmann*, which signifies soldier — the character in which the Germans were mostly known to the Romans. The extent of country comprised under the term *Germany* has varied in every century since it first became known to the Romans. At the present time *G.* comprises the chief countries of Central Europe, and is bounded N. by Denmark and the Baltic; E. by Prussian Poland, Galicia, and Hungary; S. by Italy and Switzerland; and W. by France, Belgium, the Netherlands, and the North Sea or German Ocean.—*Pol. Div.* The ancient Germanic empire, dissolved in 1806, and reconstituted as a confederacy of 39 states (see below) in 1815, has verged again towards unity in consequence of the war between Austria and Prussia in 1866, which ended in the expulsion of the former from the Confederation, leaving Prussia as the ruling power in Germany. Pending their final union under one govt., the old states of the Confederation (excluding Austria) were ranged, provisionally, under two groups, as *North Germany*, and *South Germany*. N. Germany, consisting of 22 states, was under the absolute and entire leadership of Prussia, while S. Germany, numbering 5 states, formed a loosely connected group under the ascendency of Bavaria. The two divisions were bound together, to some extent, by treaties of alliance between Prussia and the principal states of S. Germany,—Bavaria, Würtemberg, and Baden. By these treaties the contracting powers mutually guaranteed the integrity of their respective territories; and it was further stipulated that, in case of war, the king of Prussia was to have the supreme command of the joint armies. After the close of the Franco-German campaign of 1870, the N. German Confederation was dissolved as a political organization, and the states which composed it, together with the S. German powers, aggregated into an autonomy — that of an enlarged reinstation of the old German Empire. The territory of the German nationality, prior to the formation of the new German Empire, was subdivided as follows:

States.	*Area. Eng. m.*	*Pop. 1869.*	*Capital.*	*Pop. 1869.*
N. GER. CONFEDERATION.				
KINGDOM OF PRUSSIA, (including Hanover, Schleswig-Holstein, Lauenburg, Hesse-Cassel, Hesse-Homburg, Nassau, and Frankfort-on-the-Main,)	137,066	24,478,210	Berlin,	702,437
Saxony,	6,777	2,420,795	Dresden,	156,024
Mecklenburg-Schwerin,	4,834	559,212	Schwerin,	25,053
Mecklenburg-Strelitz,	997	97,976	Neu Strelitz,	8,301
Oldenburg,	2,417	246,906	Oldenburg,	14,226
Saxe-Weimar,	1,421	283,044	Weimar,	14,794
Saxe-Altenburg,	509	141,426	Altenburg,	18,482
Saxe-Meiningen,	933	180,335	Meiningen,	8,219
Saxe-Coburg-Gotha,	816	168,735	Gotha,	19,071
Brunswick,	1,526	271,311	Brunswick,	50,502
Anhalt,	869	197,041	Dessau,	16,904
Waldeck,	466	56,807	Arolsen,	1,978
Lippe-Detmold,	445	111,352	Detmold,	6,209
Schaumburg-Lippe,	212	31,186	Bückeburg,	4,214
Schwarzburg-Rudolstadt,	340	75,116	Rudolstadt,	6,953
Schwarzburg-Sondershausen,	318	67,553	Sondershausen,	6,275
Reuss-Schleiz,	297	43,889	Schleiz,	5,092
Reuss-Greiz,	148	88,097	Greiz,	10,644
Hesse-Darmstadt, (prov. Upper Hesse,)	1,570	257,973	Giessen,	10,131
Hamburg,	148	305,196	Hamburg,	224 974
Lübeck,	127	44,836	Lübeck,	36,998
Bremen,	106	109,572	Bremen,	74,945
Total for N. Ger.	163,342	30,235,568		
SOUTH GERMANY.				
Bavaria,	29,617	4,830,778	Munich,	170.688
Wurtemberg,	7,840	1,778,396	Stuttgart,	75,781
Baden,	5,904	1,433,525	Carlsruhe,	32,004
Hesse-Darmstadt, (exclud'g Upper Hesse),	1,670	564,971	Darmstadt,	31,389
Lichtenstein,	64	8,320	Lichtenstein,	3,337
Grand total	208,437	38,851,558		

The duchy of Limburg, and the grand-duchy of Luxemburg (*q. v.*) belonged to the Germanic Confederation prior to its dissolution in 1866; they now belong partly

to the Netherlands, and partly to Belginm. The German Empire consists, at present, of 26 states, of which 4 are kingdoms, 6 grand duchies, 5 duchies, 7 principalities, 3 free cities, and 1, Alsace-Lorraine, an imperial province (*Reichsland*). Berlin is its capital. The actnal pop. and area of each of the 26 states are giveu in the Supplement to this work (see page 1147).—*Gen. Desc. G.* being composed of an agglomeration of states, each possessing individnal features and characteristics of its own, we shall confine ourselves in this article to a generalized view of the country taken as a whole, referring the reader to each separate article, applying to its various component divisions under their proper and distinctive heads. The surface of *G.* is much diversified; its mountain tracts lie chiefly in the S.E. and E., while W. and N. the land spreads in spacions sandy plains, intersected by the rivers which run in the same direction from the higher lands toward the sea. — *Mountains.* The mountains, which may be considered as a N. branch of the great Alpine system of Europe, bear no comparison with the Alps in point of height, for the loftiest summits are not more than 5,000 ft. high; but they occupy a great space, and diverge in so many various directions through the country that it is difficult to trace them without the aid of a map. The *Fichtelgebirge*, however, in the N. part of Bavaria, may be cousidered as the centre and nucleus of the mountains in Central Germany; and from it branch, in four directions, the ranges composing the watershed that divides the rivers of the Black Sea from the Baltic and the German Ocean. 1. The *Erzgebirge*, diverging N.E., forms the boundary between Saxony and Bohemia, and has its scarped side S. towards the Eger. Its E. continnations, called the *Sudetengebirge*, join the Carpathian ridge near the sonrces of the Oder and Vistula. 2. The *Bohemian Forest* (*Böhmerwald*) range separates Bohemia from Bavaria. It runs S.E. abt. 150 m., and taking a N.E turn joins the Sudetengebirge near the sources of the Murch, in Lon. 16° 40′ E. These ranges, by their reunion, inclose an elevated plain, constituting the kingdom of Bohemia. 3. The *Suabian Alps* are a low range, branching off S.W. from the central point, and forming the watershed between the affluents of the Rhine and those of the Danube. S. they join the *Black Forest* range, the connection of which with the Alps is effected by a low chain skirting the Lake of Constance, and joining the main ridge at Mt. Septimer. 4. The *Thuringian range* runs N.W. from the Fichtelgebirge, and after a course of 50 m. divides into two chains, one running N. into Hanover, and forming the *Hartz* chain, the other running W. nnder various names, nearly as far as the Rhine, and separating its waters from those of the Weser and its tributaries. — *Rivers, &c.* The rivers of *G.* are numerous and important. The largest of these is the Danube, whose chief tributaries are the Altmühl, the Raab, and the Murch on its N. bank; and the Iller, the Lach, the Iser, and the Inn on its S. bank. The Rhine, which rises on Mt. St. Gothard, flows W. to Basle; navigable from this place, it turns N., as far as Bingen, whence it flows N.N.E. into the German Ocean. The Rhine is renowned for the picturesque beauty of the scenery in the upper and middle part of its course, and for the almost innumerable series of old castles which adorn its banks and vicinity Hence the appellation of "castled Rhine," given to it by the poet Longfellow. Of these fine architectural remains of the Middle Ages, we give an example in Fig. 1149, which represents the



Fig. 1149. — CASTLE OF RHEINSTEIN, (Hesse-Darmstadt.)

feudal castle of Rheinstein, on the summit of a rugged and almost inaccessible rock, near Bingen. The Rhine's chief affluents, with the exception of the Moselle and the Meuse, are on the E. bank; of these the Neckar and the Main rise in the Suabian Alps; the Lahn, the Ruhr, and the Lippe in the hills of W. Germany. The Weser is formed by the junctnre, at Münden, of the Werra and Fulda, which rise in the *Rhöngebirge*; its course is N. by W. till the junctnre of the Allar, at which point it turns N.E., and falls into the German Ocean abt. 40 m. below Bremen. The Elbe rises on the N. side of the plateau of Bohemia, which, after receiving the Moldau and the Eger, it leaves at Schandau, and enters the great N.W. plain of *G.*, which it traverses to the German Ocean; its chief affluents from the S. are the Mulda and Saale from the Erzgebirge, and its principal N. tributary is the Havel. The Oder rises on the N. side of the Carpathian range, near its W. termination, and after a general N.N.W. course, and receiving many affluents, falls through the Great Haffe into the Baltic Sea. Besides these rivers, which of themselves constitute a most extensive water-system, there are nmmerous lakes connected with the rivers; such as the lakes of S. Bavaria, and the many sheets of water lying on the low plain of N. Germany between the Oder and the Elbe. — *Clim., &c.* The climate of *G.* is far less variable than the nature of its mountain system, and the range of latitudes in which it lies, would lead us to suppose. The vegetation of *G.* resembles, in its general character, that of the N. of France, — all the grains and fruits of the temperate zone having a flonrishing development. In the S. river-valleys the vine flourishes, and walnuts, chestnnts, and plums grow abnndantly; bnt the severity of the winter often checks the growth of garden-shrnbs and flowering-plants. The extreme cold of the winter, although it only lasts, in all its violence, in ordinary winters, for a few days, is rendered often very destrnctive from the continuance of a less, bnt still considerable cold, which often lasts uninterruptedly for months. A few degrees below the freezing-point is the temperature, which frequently lasts for months together in the winter season. The prevailing winds are the W. and N.W.—*Min. and Manuf.* The industrial economy characterizing the German nationality will be found in the articles applying to its several constituent States. — *Inhab.* The great majority of the inhabitants of *G.* belong to the Teutonic race; exceptions, however, are found in Saxony, which contains 51,895 people of Vendic origin, and in the Prussian prov. of Posen, which numbers a population of 825,000 of Slavonic extractiou.—*Religion.* As a rule, the Protestants are most numerous in the N. German States, and the Roman Catholics in those of the S. In Bavaria, but one-third of the inhabitants belong to the Reformed Church; on the other haud there is not a single Roman Catholic in the little principality of Schaumburg-Lippe, and but 30 members of the same confession in the grand-duchy of Mecklenburg-Strelitz.—*Education.* In point of intellectual culture *G.* ranks high. School instruction is obligatory on the whole people, and much is doue by the government for the promotion both of primary and of secondary education. There are no exact statistics, however, of the educational establishments, or of the expenditure incurred in connection with them. *G.* has 20 universities, of which 9 are in Prussia, 3 in Bavaria, 2 in Baden, and 1 each iu Würtemberg, Hesse, Saxony, Saxe-Weimar, Mecklenburg, and Alsace-Lorraine. Sometimes the academies of Münster and Braunsberg are accounted among the German universities.—*Army.* By the constitntion of 1871 the Prussian obligation to serve in the army is extended to the whole empire, and the whole of the land forces of the empire forms a united army, in war and peace, under the orders of the Emperor. The king of Bavaria, however, has reserved to himself the privilege of superintending the general administration of that portion of the German army raised within his dominions. Every German capable of bearing arms has to be in the standing army for 7 years, as a rule, from the finished 20th till the commencing 28th year of his age. Of the 7 years, 3 must be spent in active service, and the remaining 4 in the army of reserves; after which he forms part of the first class of the *landwehr* for 5 years, and of the second class till his 39th year. Collaterally with the army there has existed, since 1875, the *landsturm*, to which all men liable to service belong, from the ages of 17 to 21 and 39 to 45, if they are neither in the line, the reserve, the landwehr, nor the marine. The landsturm is only called to arms in the event of a hostile invasion of the imperial territory being threatened or effected. In time of war the active and reserve army consists of 1,950,000 men and officers. By adding to this force all those who have been trained in military duties the army can be increased to 3,000,000 men. The peace strength of the army was fixed by the army law of 1893 at 479,229 men for the 5 years ending March 31, 1899.—*Navy.* The formation of the German navy was due to the initiative of Prussia and dates from 1848. Rapid progress has been made in it of recent years, it now consisting of 4 first-class battleships, 5 of the second, and 4 of the third-class-12 ships for port defence, 9 first-class, 11 second-class and 23 third-class cruisers, and 25 other effective fighting ships, with 128 first-class torpedo boats and 4 second-class. Others of high power are being constructed.—*Money.* Uniformity of coinage was established in 1872, the unit of account being the *mark* = 28.3 cents, divided into 100 pfennige. The Thaler (about 75 cents) is the only old silver coin now remaining in circulation as legal tender.— *Weights and Measures.* The French metrical system was made compulsory from Jan. 1, 1872.—*Com.* (See ZOLLVEREIN.) (*Hist.*) For a long time known under the name of Germania, this vast country was, after the invasion of the barbarians and the destruction of the Roman empire, divided between a number of independent races, — the Alemanni, Franks, Saxons, Slaves, Avari, and others. Charlemagne (*q. v.*) conquered these various tribes, and incorporated them in his vast empire; but on his death, in 814, all these diverse elements, forcibly brought together, soon separated, and the treaty of Verdun, signed in 843 by the sons of Louis-le-Débonnaire, gave birth to the kingdom of Germany. Separated from France and Italy after the dethronement of Charles the Fat, in 887, Germany was governed by princes of the Carlovingian dynasty. On the extinction of this family, the monarchy became elective, and the crown was conferred, in 911, on Conrad I., duke of Franconia. Henry the Fowler succeeded in 918, and was the head of the house of Saxony, which gave five sovereigns to Germany, and renewed, in the person of Otho the Great, the empire of Charlemagne. Dating from this reign, the imperial crown, which had alternately been worn by the kings of France, Germany, and Italy, belonged exclusively to Germany, which now took the name of *The Holy Roman Empire of the German Nation.* The Saxon dynasty added to the empire Lotharingia, Bohemia, and Italy; and to this family succeeded that of Franconia, which reigned from 1024 to 1137, and added the kingdom of Arles to the possessions of the empire, and especially signalized itself by its quarrels with the Pope. The house of Snabia next succeeded, and, of this line, Conrad III. and Frederick Barbarossa, from 1138 to 1190, raised the imperial power to its utmost height. After them, their successors, assailed by their powerful vassals and the popes, and frequently deposed, fell into the lowest depths of weakness. It was at this period that the internecine struggles of the Guelphs and Ghibelines occurred. On Conrad IV.'s death commenced the long interregnum from 1254 to 1273, which ended in delivering Germauy from anarchy. Rodolph of



Fig. 1150. — RODOLPH, COUNT OF HAPSBURG.

Hapsburg, from 1273 to 1291, began the establishment of the authority of the imperial crown; but under his successors, the influence of the grand feudatories and electors of the empire sensibly increased. Their rights were publicly sanctioned by the famous *Golden Bull*, or charter, granted by Charles IV. in 1356. In 1438 Albert of Hapsburg was elected emperor, and became the chief of the present house of Austria. Charles V., the 4th sovereign of this dynasty, was elected in 1815, and gloriously resuscitated the grandeur of the empire. Ferdinand, his brother, reigned after him with wisdom; and, until the reign of Ferdinand II., no change of importance occurred. Under him the Thirty Years' War began, which, lasting from 1618 to 1648, resulted in the humiliation of Germany, the supremacy of France, and the confirmation of the Lutheran religion. The reigns of Leopold I., Joseph I., and Charles VI. were occupied with long wars with Louis XIV. and XV. of France; and the death of Charles, in 1740, gave rise to the War of the Austrian Succession, which secured the throne to the husband of Maria Theresa, Charles's daughter, and thus placed on the throne a member of the House of Lorraine, in the person of Francis I. Finally, in 1804, the empire of Germany ceased to exist, on the abdication of Francis II., who only preserved his hereditary estates, assuming the title of the emperor of Austria. — *Hist. of the Confederation.* The first Carlovingian sovereigns of *G.* were hereditary monarchs; but, so early as 887, the states, or great vassals of the crown, deposed their emperor, Charles le Gros, and elected another sovereign in his stead. And from that remote period the emperors of *G.* continued to be elected, down to the beginning of the present century. Several of the great vassals of the empire had thus early attained to all but unlimited power; and it consisted of a vast aggregation of states of every different grade, from large principalities down to free cities and the estates of counts. The federal tie by which those different states were held together was exceedingly feeble. Their interests and pretensions were often conflicting and contradictory, and they were frequently at war with each other and with the emperor. There was, in consequence, a great want of security; and the need to repress the nnmberless disorders incident to such a state of things led, at an early period, to the formation of leagues among the smaller states, and the institution of secret tribunals. The privilege of voting in the election of emperors was restricted to a few of the most powerful vassals, being confined by the Golden Bull issued by Charles IV., in 1356, to the archbishops of Mentz, Treves, and Cologne, the duke of Saxony, the count palatine of the Rhine, the margrave of Brandenburg, and the king of Bohemia. The sovereigns of Bavaria, Hanover, and Hesse did not acquire a right to vote till a much later period. Most of the great offices in the empire were hereditary, and the public affairs were transacted in *diets* or assemblies of the great

feudatories and of the representatives of the free cities. But as the diet had no independent or peculiar force to carry its decisions into effect, they were very frequently disregarded. At length, in the reign of Maximilian I., an attempt was made to introduce a more regular system of administration, and a better policy into the empire. As the political division of *G.* at this period was independent of the territorial sub-divisions which the changes in families produced, it lasted as long as the empire itself preserved its unity as a political body; and even after the assumption of independence by the king of Prussia, that part of the kingdom of Prussia which previously formed a part of the empire was still included, nominally at least, in the order to which it belonged. By their refusal to join in this arrangement of internal policy, and to become amenable to the decrees of the Aulic Chamber (*Reichs-Kammergericht*), the Swiss cantons finally severed the last tie which united them to the empire. The influence of the kings of Poland caused a similar separation between the empire and the lands belonging to the Teutonic order, on the right bank of the Vistula. At the period of the outbreak of the French revolution, in 1789, *G.* was divided in 10 circles, each subdivided into many States and territories, viz. — I. *The Circle of Austria*, belonging entirely to the house of Austria; 2. *The Circle of Burgundy*, also belonging to Austria; 3. *The Circle of Westphalia*, divided among clerical and lay princes; 4. *The Circle of the Palatinate*, divided between 1 lay and 3 clerical princes; 5. *The Circle of the Upper Rhine*, divided among a number of territorial princes and nobles, the most powerful of whom was the landgrave of Hesse-Cassel; 6. *The Circle of Suabia*, numbering as the most powerful of its many petty sovereigns, the duke of Würtemberg, and the margrave of Baden; 7. *The Circle of Bavaria*, in which the elector of Bavaria and the bishop of Salzburg took the lead; 8. *The Circle of Franconia*, comprising many principalities, counties, lordships, and free cities; 9. *The Circle of Lower Saxony*, including the duchies of Magdeburg, the two Mecklenburgs, and others, and among the free cities, those of Hamburg, Lübeck, and Bremen; 10. *The Circle of Upper Saxony*, of which Prussia formed the most powerful constituent; the Slavonic countries, which were not included in any circle, were the kingdom of Bohemia, the margraviate of Moravia, the duchy of Silesia, and the margraviates of Upper and Lower Lusatia. Besides these divisions there were numerous counties, lordships, abbeys, and free imperial towns, not belonging to any circle, but held directly of the emperor. Every circle had its diet, in which the clerical and secular princes, the prelates, the counts and barons, and the free imperial cities, formed 5 benches or *colleges*. Affairs of general importance to the empire at large were treated by the imperial diet, which the emperor had the power of summoning wherever he pleased; but which, since 1663, was constantly assembled at Ratisbon. In 1789, the members of the diet were as follows: — 1. The college of electors: Mentz, Treves, Cologne, the Palatinate, Brandenburg, Saxony, Bavaria (since 1623), and Brunswick-Lüneburg (since 1692). 2. The college of the clerical and secular princes, bishops, margraves, counts, &c.; the numbers of the clerical members being 36, and of the secular lords, 63. 3. The colleges of the free imperial cities, then 54 in number. In 1791 began the memorable contest with revolutionary France, which ended in the overturn of the old Germanic constitution. The treaty of Campo-Formio, the first that history records in which the Rhine was acknowledged as the frontier of France, decreed an indemnification to those princes who lost by the cession, and this indemnification could only be obtained by the spoliation of some others whose rights were equally indefensible, in the heart of the empire itself. On Jan. 25, 1803, a decision was come to by the plenipotentiaries assembled for the arrangement of this matter, the import of which was as follows: — The *Holy Roman Empire*, as that of *G.* was styled, remained as it was divided into circles, but which, with the total loss of the Circle of Burgundy, and of the lands on the left bank of the Rhine, were reduced to 9, whose boundaries it was proposed to regulate anew. This regulation was, however, prevented by the wars which so quickly succeeded each other. The right to sit and vote in the diet remained, as formerly, attached to territories held directly as fiefs of the empire; and the place of the convocation of the diet remained at Ratisbon. The colleges remained also 3 in number; the first being the college of electors, who were 10 in number; one clerical, — the elector arch-chancellor; and 9 secular, — Bohemia, Bavaria; Saxony, Brandenburg, Brunswick-Lüneburg, Salzburg, Würtemberg, Baden, and Hesse-Cassel. The electorate of Mentz had merged into that of the arch-chancellor, and the Palatinate into the electorate of Bavaria; Treves and Cologne had disappeared, and 4 new electorates had been created. The second college — of princes — counted 131 votes. The college of towns was composed of 6 with votes; Hamburg, Lübeck, Bremen, Frankfort-on-the-Main, Augsburg, and Nuremberg. The other territories, enumerated above as not being included within the circles, remained as they were, nor did any change take place in the extent or position of the Slavonic countries. Napoleon I., who since 1799 had directed the foreign policy of the French nation, not satisfied with this reduction of the power of the empire, now conceived the idea of effecting its entire dissolution. The treaty of Presburg, in 1805, which followed the battle of Austerlitz, gave him the means of carrying this project into effect, by forming a confederation of German princes, called the *Confederation of the Rhine*, who, uniting into a corporate body, in 1807 placed themselves under the protectorate of the French emperor. The wars which followed, with Prussia in 1807, and with Austria in 1809, gave Napoleon the power of altering the territorial distribution of *G.* at pleasure. He accordingly created for his brother Jerome the new kingdom of Westphalia, and for his brother-in-law Joachim Murat, the grand-duchy of Berg, and raised those members of the Rhenish confederation who supported his cause to new dignities and an openly recognized independence as sovereigns. Under the circumstances, the emperor, Francis II., by a solemn act, renounced the style and title of emperor of Germany, Aug. 6, 1809. In the following year Napoleon incorporated the coasts of the German Ocean with the French empire, and divided them into departments; thus separating from *G.* a district peopled by more than 1,100,000 inhabitants. The termination of the war with Russia, called in Germany the *Liberation War*, restored *G.* to its geographical and political position in Europe, but not as an empire acknowledging one supreme head. A confederation of 35 independent sovereigns and 4 free cities replaced the elective monarchy, that fell under its own decrepitude. In the choice of the smaller princes who were to become rulers, as well as all those who were obliged to descend to the ranks of subjects, more attention was paid to family and political connection than to the old territorial divisions under the empire. The clerical fiefs, and the greater part of the free imperial cities, were incorporated into the States of the more powerful princes, upon the dissolution of the empire, and were not re-established. Only 4 cities remained in the enjoyment of their political rights. The signing and ratification of the Act of Confederation took place, after long discussion, June 8, 1815. As thus settled by the treaty of Vienna, *G.* was divided into 39 sovereign states, or portions of states; but the number became reduced to 34: 1. By the demise of the Saxon princedom of Gotha in 1826, which became incorporated with Saxe-Coburg and Saxe-Meiningen; 2. By the falling away of the duchy of Anhalt-Köthen, which, in 1847, became annexed to Anhalt-Dessau: 3. and 4. By the abdication of the princes of Hohenzollern-Hechingen and Hohenzollern-Sigmaringen, in 1849, in favor of their kinsman the king of Prussia, head of the house of Hohenzollern; and 5. By the extinction of the duchy of Anhalt-Bernberg in 1863. For an account of the Franco-German war and the establishment and subsequent history of the present empire, see GERMAN EMPIRE, SECTION II.

EMPERORS AND KINGS OF GERMANY.

CARLOVINGIANS.

A. D.		A. D.	
800.	Charlemagne, or Chas. I. (the Great.)	876.	Chas. II. (the Bald.)
814.	Louis I. (le Debonnaire.)		Carloman, Louis III. (the Saxon.)
840.	Lothaire I.		Charles III. the Fat, (king.)
843.	Louis II. the German, (king.)	882.	Chas. III. (emperor.)
855.	Louis II. (emperor.)	887.	Arnold I. (king.)
		896.	Arnold I. (emperor.)
		899.	Louis IV. (the Child.)

HOUSE OF FRANCONIA.

911. Conrad I.

HOUSE OF SAXONY.

919.	Henry I. (the Fowler.)	973.	Otho II.
936.	Otho I. (the Great) king.	983.	Otho III.
962.	Otho I. (emperor.)	1002.	Henry II. (the Holy.)

HOUSE OF FRANCONIA, (*restored.*)

1024.	Conrad II. (the Salique.)	1081.	Herman of Luxemburg, (elected by the pope.)
1039.	Henry III. (the Bl'k.)	1087.	Conrad.
1056.	Henry IV.	1106.	Henry VI.
1077.	Rodolph of Suabia, (elected by the pope.)		

HOUSE OF SAXONY.

1125. Lothaire II.

HOUSE OF SUABIA, OR HOHENSTAUFFEN.

1138.	Conrad III.	1208.	Otho IV. (aloue.)
1152.	Frederick I. (Barbarossa).	1215.	Frederick II.
		1246.	Henry (of Thuringia).
1190.	Henry VI.	1247.	William of Holland, (chosen by the pope.)
1197.	Philip.		
	Otho IV. (of Brunswick).	1250.	Conrad IV.

INTERREGNUM.

1254. William of Holland, (merely nominal.)

1257. Richard of Cornwall, "
Alfonso of Castile, "

HOUSE OF HAPSBURG.

1273.	Rodolph (of Hapsburg).	1292.	Adolphus (of Nassau).
		1298.	Albert (of Austria).

HOUSES OF LUXEMBURG AND BAVARIA.

1308.	Henry VII. (of Luxemburg).	1378.	Wenceslaus (of Luxemburg).
1314.	Louis V. (of Bavaria).	1400.	Robert (Count Palatine).
	Frederick (of Aust.)		
1347.	Charles IV. (of Luxemburg).	1410.	Jossus (of Moravia).
	Günther (Count of Schwartzburg).		Sigismund (of Luxemburg).

HOUSE OF AUSTRIA.

1438.	Albert II.	1612.	Matthias.
1439.	Frederick III.	1619.	Ferdinand II.
1493.	Maximilian I.	1637.	Ferdinand III.
1519.	Charles V.	1658.	Leopold I.
1556.	Ferdinand I.	1705.	Joseph I.
1564.	Maximilian II.	1711.	Charles VI.
1576.	Rodolph II.	1742.	Chas. VII. (of Bavaria).

HOUSE OF AUSTRIA, (*Hapsburg-Lorraine.*)

1745.	Francis I.	1790.	Leopold II.
1765.	Joseph II.	1792.	Francis II.

HOUSE OF HOHENZOLLERN.

1871. William I. 1888. Frederick III 1888. William II.

Ger'many, in *Pennsylvania*, a township of Adams co.

Germ'-cell, *n.* (*Physiol.*) The cell which results from the union of the spermatozoön, or spermatic matter conveyed by it, with the germinal vesicle or its nucleus.

Ger'men, *n.* [Lat.] Same as GERM. *q. v.*

Ger'minal, *a.* Pertaining to a germ

(*Physiol.*) *G. area*, the circular or oval space formed by liquefaction and metamorphosis of a peripheral portion of the germ-mass, preparatory to the appearance of the first trace of the proper embryo. It is divided into a central clear part called *area pellucida*, and a peripheral part called *area opaca;* the portion of the latter in which blood and blood-vessels are developed is called the *area vasculosa.*—*G. membrane*, the strata of cells and nuclei of cells originally forming, and afterward extending from, the germinal area. The external stratum is the *vertebral* layer, also called the *serous* and *animal* layer; the internal stratum is the *visceral* layer, also called the *mucous* and *vegetal* layer.—*G. spot*, the nucleus of the germinal vesicle. It consists of a finely granulated substance, strongly refracting the rays of light.—*G. vesicle*, a clear nucleated cell, which is the first formed and most essential part of the ovum. It is surrounded by the yolk, and passes to the periphery of that part prior to impregnation, after which the germinal vesicle becomes opaque or disappears. It is sometimes called, after its discoverer, the *Purkingian vesicle.*

Ger'minal, *n.* [Fr., calendar.] The name given under the French Republic to the seventh month of the year, dating from Sept. 22, 1792. It commenced March 21 and ended April 19.

Ger'minant, *a.* [Lat. *germinans*, from *germinare*, to sprout.] Sprouting; budding.

Ger'minate, *v. n.* [See SUPRA.] To shoot; to begin to vegetate or grow, as seeds.

—*v. a.* To cause to sprout.

Germina'tion, *n.* [Lat. *germinatio*, from *germinare*, to put forth, to bud.] (*Bot.*) The process by which a plant is produced from a seed. The phenomena of *G.* are best observed in dicotyledonous seeds, such, for instance, as the bean, pea, lupin, &c. These seeds consist of two lobes or cotyledons, enveloped in a common membrane; when this is removed, a small projecting body is seen, which is that part of the *germ* which afterwards becomes the root, and is termed the *radicle.* The other portion of the germ is seen on carefully separating the cotyledons, and is termed the *plumule;* it afterwards forms the stem and leaves. When the ripe seed is removed from the parent plant it gradually dries, and may be kept often for an indefinite period without undergoing any change; but if placed under circumstances favorable to its *G.*, it soon begins to grow; these requisite circumstances are a due temperature, moisture, and the presence of air. Where these are present, the seed gradually swells, its membranes burst, and the germ expands. The root is at first most rapidly developed, the materials for its growth being derived from the cotyledons; and when it shoots out its fibres or rootlets, these absorb nourishment from the soil, and the plumula is developed, rising upward in a contrary direction to the root, and expanding into stem and leaves. For this growth the presence of air is requisite; if it be carefully excluded, though there may be heat and moisture, yet the seed will not vegetate. Hence it is that seeds buried very deep in the earth, or in a stiff clay, remain inert, but on admission of air by turning up the soil, begin to shoot forth. From experiments which have been made upon the *G.* of seeds in confined atmospheres, it appears that carbonic acid is evolved, and that part of the starch of the cotyledons passes into gum and sugar; so that most seeds, as we see in the conversion of barley into malt, become sweet during *G.* Light is injurious to the growth of a seed. It is, therefore, obvious that the different requisites for *G.* are attained by placing a seed under the surface of the soil warmed by the sun's rays, where it is moistened by its humidity and by occasional showers, and excluded from light, but within reach of the access of air. The most favorable temperature is between 60° and 80°; at the freezing point none of the more perfect seeds vegetate; and at temperatures above 100° the young germ is usually injured. Certain chemical changes, the most important being the conversion of starch into sugar, take place in the seed, and the embryo is nourished by the products of these changes. Thus nourished, it increases gradually in size, and ultimately bursts through the integuments of the seed. Its lower extremity, or radicle, is commonly protruded first, and, taking a downward direction, becomes fixed in the soil. The opposite extremity soon elongates upwards, and is terminated above by the *plumule* or *gemmule*, which is the first terminal bud, or growing apex of the stem; and at the same time the cotyledonary portion is either left under-ground, or is carried upwards to the surface. During the gradual development, the embryo continues to be nourished from the matters contained in the albumen or cotyledonary portion, and is ultimately enabled to produce its first leaves and root. The young plant is then in a position to acquire the necessary nourishment by itself, for its further support and growth, from the media by which it is surrounded; and being rendered independent of the seed, has no need of the cotyledonary portion, which accordingly perishes. The spores of acotyledonous plants develop roots indifferently from any part of their surface: this mode of *G.* is termed *heterorhizal.* In the *G.* of monocotyledonous embryos, the radicle is not itself continued downwards so as to form the root, but it gives off branches of nearly equal size, which separately

pierce its extremity and become the rootlets. Each of these rootlets, at the point where it pierces the radicular extremity, is surrounded by a cellular sheath, termed the *coleorhiza*. This mode of *G.* is commonly termed *endorhizal*. The radicle of a dicotyledonous embryo is itself prolonged downwards by cell multiplication just within its apex, to form the root; and this mode of *G.* is distinguished as *exorhizal*.—See ROOT; STEM.

Ger'minative, *a.* Relating to germination.

Geroco'mia, Geroc'omy, *n.* [Fr. *gérocomie*, from Gr. *gerōn*, an old man, and *komein*, to take care of.] (*Med.*) That part of the science which relates to the diet and treatment of old age.

Gerona, (*jai-rō'na,*) (anc. *Gerunda,*) a fortified city of Spain, prov. Catalonia, cap. of correg. of the same name, at the foot of a steep mountain on the Ter, 50 m. N.E. of Barcelona. It has a fine cathedral and other churches, which were sacked by the French under Augereau, during the Peninsular War, when the city stood a siege of seven months. *G.* is of great antiquity, and formerly gave the title of prince to the elder son of the kings of Aragon. *Manuf.* Coarse woollen and cotton stuffs and stockings. *Pop.* 14,085.—The corregidorship, or sub-prov. of *G.* is very fertile, and has an area of 4,400 sq. m., with a *pop.* of 342,067.

Ger'rardstown, in *W. Virginia*, a P.O. of Berkeley co.

Ger'ron. See GARON.

Ger'ry, ELBRIDGE, one of the signers of the declaration of American independence, B. at Marblehead, Mass., 1744. After graduating at Harvard in 1762, he was elected, in 1772, representative of his native town in the State legislature. In 1776 *G.* was elected a delegate to the Continental Congress then sitting in Philadelphia, and appointed in 1780 to the presidency of the treasury board. He served four successive years in Congress, and in 1797, in conjunction with Pinckney and Marshall, was sent on a special mission to Paris. In 1810 he was elected governor of Mass., and in 1812 fifth vice-president of the United States. D. 1814.

Ger'ry, or GERRY POST, in *New York*, a post-township of Chautauqua county, about 6 miles north of Jamestown.

Gers, a river of France, which, rising in the Pyrenees, unites with the Garonne at Agen, after a course of abt. 80 miles.

Gers, a dept. of France, region S.W., between Lat. 43° 17′ and 44° 4′ N., and Lon. 0° 18′ W. and 1° 11′ E.; having N. the dept. Lot-et-Garonne, E. those of Tarn-et-Garonne and Haute-Garonne, S. the latter and the Hautes- and Basses-Pyrénées, and W. Landes. Length, E. to W., 74 m., by about 54 in breadth; *area*, 628,031 hectares. *Surface.* The last ramifications of the Pyrenees cover most of this dept., the slope of which is mostly from S. to N. *Rivers.* Numerous, being affluents of the Garonne and Adour. *Soil.* Fertile. *Prod.* Wheat, maize, oats, hemp, flax, wool, wine, and vegetables and fruits. Large numbers of cattle and swine are fattened. *Manuf.* Glass, earthenware, leather, starch, linen, woollen, and cotton cloths, &c. *Chief towns.* Auch (the cap.), Condom, Lombez, and Mirande.

Gers'dorflite, *n.* (*Min.*) Nickel glance, an ore of nickel found at Loos, in Sweden, and elsewhere in Europe, and at Phœnixville, Pa. Occurs in cubes and massive; lustre metallic. Color, silver-white, steel-gray, often tarnished gray or grayish-black. Sp. gr. 5·6–6·9. *Comp.* Arsenic 45·5, sulphur 19·4, nickel 35·1. It is decomposed by nitric acid, forming a green solution with separation of sulphur and arsenious acid.

Gerson, JEAN CHARLIER, (*zhair-sawng'.*) a French divine, chancellor of the university of Paris, B. near Rhetel, 1363. He largely contributed to the election of Pope Alexander V., energetically denounced the murder of the Duke of Orleans by the Duke of Burgundy, and distinguished himself at the Council of Constance. Grave critics, as Bellarmine, Mabillon, Gence, and the Benedictines, attribute to him the authorship of the *Imitation of Jesus Christ.* D. 1429.

Ger'stæcker, FREDERICK, traveller and novelist, was B. at Hamburg in 1816, and emigrated while an apprentice to New York. Thence he journeyed on foot to Canada, Texas, &c., performing any work that was offered to him, having at different times been a sailor, a jeweller, a hotel-keeper, a farmer, and stoker of a steamboat. About 1842 he returned to Germany and published his travels. He spent the years 1849–50–51 and 1852 in travelling through Brazil, Buenos Ayres, California, and Australia; and the narratives of his travels through these countries became very popular, being translated into several languages. His principal novels are, *The Pirates of the Mississippi; The Feathered Arrow; A Wife to Order,* &c. D. 1874.

Ger'trude, the name of three Roman Catholic saints: the *first*, abbess of Nivelle, 626–659; the *second*, an abbess of the order of St. Benedict, and author of *Revelations*, D. 1034; the *third*, a daughter of Saint Elizabeth of Hungary, D. 1297.

Gerund, (*jĕr'und,*) *n.* [Lat. *gerundium*, from *gerere*, to bear.] (*Gram.*) In Latin gram., a part of the verb used to denote something as being done: thus, *legendum*, reading, from *lego*, I read. It is a sort of verbal substantive, being declined like a noun, but having the same power of government as its verb. In English the present participle occupies the place of the gerund.

Gerun'dial, *a.* Pertaining to, or like a gerund.

Gerun'dive, *n.* (*Lat. Gram.*) The future participle in the passive voice.

(*Eng. Gram.*) A participle governed by a preposition, and itself governing an objective case; as, "the time of *delivering* a discourse." — *Worcester.*

Gerun'dively, *adv.* In the manner of a gerund.

Ger'vinus, GEORG GOTTFRIED, a German historian and philosopher, B. at Darmstadt, 1805; was appointed in 1826 Professor of German Literature at the University of Göttingen, from which he was dismissed for the liberalism of his political views. Of his many numerous and important works we may mention the *History of the Nineteenth Century since the Treaty of Vienna*, which has been translated into French and English. D. 1871.

Ger'yon. (*Myth.*) A son of Chrysaor and Calirrhoe, king of Erythia, or of the Balearic Islands. The poets represent him as a giant with three bodies and three heads, who had large herds of cattle which he fed on human flesh. To guard them, he had a two-headed dog and a seven-headed dragon. Hercules slew him and his adherents, and carried away all his herds to offer them to Eurystheus.

Gery'ville, in *Pennsylvania*, a post-office of Bucks co.

Gesecke (*ge-seck'e*) a town of Prussia, in Westphalia, 25 m. N.E. of Arnsberg. *Manuf.* Linen. *Pop.* (1895) 3,600.

Gesh'ur, Gesh'uri, Gesh'urites. (*Script.*) The name of a district and people in Syria. Geshur lay upon the E. side of the Jordan between Basham, Maachah, and Mount Hermon, and within the limits of the Hebrew territory; but the Israelites did not expel its inhabitants, (*Josh.* xii. 5; xiii. 13.)—There was also a people of the same name in the S. of Palestine, near the Philistines, (*Josh.* xiii. 9; 1 *Sam.* xxvii. 8.)

Ges'ner, CONRAD, the "Pliny" of Germany, B. at Zurich, 1516; acquired a thorough literary and medical education, notwithstanding his poverty, and after teaching Greek for a time at Lausanne, began to give lectures in philosophy. His fame as a naturalist circulated throughout Europe, and he maintained a correspondence with the prominent literati of all countries. Without enumerating his translations from the dead languages, his voluminous biographical contributions, his philological, or theological writings, in all of which he has written largely, his repute as a naturalist is mainly based on his *Historia Animalium*, Lat. (1551–89), the most learned work on the subject up to that time; and his various writings on Botany (Nuremberg, 1754–70), in which he was the first to establish a scientific classification founded on fructification. D. 1565.

Ges'ner, SOLOMON, a Swiss poet and painter, B. at Zurich, 1730. His intimacy with Klopstock caused him to devote himself to poetry, and after the publication of a few short poems, in 1756, appeared his *Idylls*, which at once placed him at the head of all writers in that style. The *Death of Abel* (1758) added still more to his reputation. His writings are especially remarkable for an amiable simplicity and for a purity of sentiment, of which his private life also furnished a complete example. D. 1788.

Gesnera'ceæ, *n. pl.* [Named after *Gesner*, the naturalist.] (*Bot.*) The *Gesnera* family, an order of plants, alliance *Bignoniales*. *Diag.* Parietal placentæ, capsular or baccate fruit, an embryo with minute cotyledons, and a long radicle. They are herbs or soft-wooded shrubs; leaves wrinkled, exstipulate, generally opposite or whorled; flowers irregular, showy; calyx half-superior, 5-parted; corolla 5-lobed; stamens diandrous or didynamous, with the rudiment of a fifth. Ovary half-superior, 1-celled, surrounded by an annular fleshy disc, or by glands; style 1. Fruit capsular or succulent, 1-celled, with 2-lobed parietal placentas. Seeds numerous, with or without albumen; embryo with minute cotyledons and a long radicle. The plants of this order are mostly natives of warm or tropical regions. They are chiefly remarkable for beauty of flowers, containing some of the most admired ornaments of our hot-houses, as species of *Gloxinia*, *Achimenes*, &c.

Gess'ler, ALBRECHT, called also G. VON BRUNECK, was in 1300 appointed joint-governor along with Berenger von Landenberg, of the *Waldstädten* or Forest Cantons (Schwytz, Unterwalden, and Uri), by Albrecht I. of Austria. According to the traditions connected with Tell (q. v.), his oppressive edicts and wanton cruelty so enraged the inhabitants that a conspiracy was formed against him, and he was shot by Tell in a narrow pass near Küssnacht in 1307.

Gest, *n.* [Fr. *geste;* Lat. *gestum*, a thing done, from *gerere*, to bear, to perform.] A deed; an action; an achievement.

"And goodly can discourse, with many a noble *gest.*"—*Spenser.*

Ges'tant, *a.* [Lat. *gestans*, pp. of *gestare*, to carry.] Laden; burdened.

Ges'ta Romano'rum. [Lat., the deeds of the Romans.] (*Lit.*) The title of a legendary work of the Middle Ages, written in Latin, and whose tales are chiefly taken from the history of the Roman emperors, or belong to that period, and are accompanied with moralizing expositions; whence it is also called *Historia Moralisata*. The stories are short, and display an almost childish simplicity. They were appointed to be read by the monks, and were generally much read down to the 15th cent. They were translated into several languages, and formed a rich mine for the earlier fabulists and novelists. Grässe, in his German translation of this work, (2 vols. Leipsic, 1842,) assigns its authorship, apparently with reason, to a certain monk named Elimandus, who died in 1227. The newest edition of the original text is that edited by Oesterley (Berlin, 1872).

Gesta'tion, *n.* [Lat. *gestatio*, from *gero*, I carry.] (*Physiol.*) The period that intervenes, in the mammalia, between conception and the delivery of the young. It differs greatly in different animals. In the human species it is 40 weeks or 280 days, but it may be prolonged or shortened by several weeks, the birth sometimes taking place as early as the seventh month. In the cow it is 9 months, in the mare 11, in the dromedary 12, in the giraffe 14, and in the elephant 21. It is much less in the smaller animals, being about 63 days in the dog, 56 in the cat, 28 in the rat, four months in the sow, and about 5 months in the sheep and goat. In the marsupial animals, *q. v.*, it is very short, being 39 days in the kangaroo and 26 in the opossum.

Ges'tatory, *a.* [Fr. *gestatoire;* Lat. *gestatorius.* See SUPRA.] Belonging to pregnancy or gestation.

Ges'tic, *a.* [Lat. *gestus*, carriage, posture, from *gerere.*] Pertaining to deeds of arms; legendary; historical.—Belonging to posture or motion.

Gestic'ulate, *v. n.* [Fr. *gesticuler;* Lat. *gesticulari*, from *gesticulus*, dim. of *gestus*, a posture.] To make gestures or motions, as in speaking; to use postures.

—*v. a.* To represent by gesture; to act.

Gesticula'tion, *n.* [Fr., from Lat. *gesticulatio.* See SUPRA.] Act of making gestures to express passion, or enforce sentiments; gesture.—A motion of the body or limbs in speaking or representation.—Antic tricks or motions.

Gestic'ulator, *n.* [Fr. *gesticulateur;* L. Lat. *gesticulator.*] One who shows postures or makes gestures.

Gestic'ulatory, *a.* Representing in gestures.

Ges'tural, *a.* Belonging to gesture.

Ges'ture, *n.* [L. Lat. *gestura;* Lat. *gestus*, from *gerere*, to behave, to act.] Posture, position, or motion of the body or limbs, expressive of sentiment or passion; any action, attitude, or posture intended to express an idea or a passion, or to enforce an argument or opinion.—General action or motion of the body.

—*v. a.* To accompany with gesture; to gesticulate.

—*v. n.* To make gestures.

Ges'tureless, *a.* Free from gestures.

Get, *v. a.* (*imp.* GOT; *pp.* GOT, GOTTEN.) [A. S. *getan, gytan*, to obtain.] To procure; to obtain; to gain possession of; to acquire; to attain; to reach; to realize; to win; to have; as, to *get* a name, to *get* wealth.—To beget; to procreate; to generate; as, to *get* children.—To learn; to con, as a lesson.—To prevail upon; to induce. "*Get* him to say his prayers." (*Shaks.*)—To cause to be or to occur;—with a participle following; as, to *get* a thing done.—To betake; to carry;—in a reflexive sense.

"*Get thee* out from this land."—*Gen.* xxxi. 13.

—*v. n.* To arrive at any place, state or condition by degrees, followed by some modifying word; as, to *get* home, to *get* along, to *get* up or down.—To gain; to be increased. "We lose, they daily *get.*" (*Shaks.*)—To become;—followed by an adjective; as, to *get* drunk.

Ge'ta, SEPTIMUS, second son of the emperor Severus, was born A. D. 189, and was brother of the infamous Caracalla, with whom he was associated in the empire on the death of his father. Caracalla, who envied his virtues and was jealous of his popularity, after having endeavored to effect his death by poison, murdered him, and wounded their mother, who was attempting to save him, 211 A.D.

Ge'tæ. (*Hist.*) An ancient people of Thracian origin, who, when first mentioned in history, inhabited the country which is now called *Bulgaria.* They were a warlike people, and for a long time successfully resisted the attempts of Alexander the Great and Pyrrhus to subdue them. They afterwards removed to the N. bank of the Danube, having the Dnieper as their boundary on the E., while westward they encroached on the Roman empire, with which from this time they were continually at war. They were subdued by Trajan in 106. The Romans called them *Daci*, and their country DACIA, *q. v.*

Gethsem'ane. [Heb. *gath*, a wine-press, and *shemen*, oil.] (*Script.*) A garden or grove in the valley at the foot of the Mount of Olives, over against Jerusalem, to which Christ sometimes retired, and in which he endured his agony, and was betrayed by Judas, (*Matt.* xxvi. 36–57.) Early tradition locates *G.* near the base of Mt. Olivet, beyond the brook Kidron. The place now enclosed by a low stone wall (Fig. 1151) may be but a part of the original "garden." It is about 52 yards square, and contains eight aged olive-trees, whose roots in many



Fig. 1151.
GARDEN OF GETHSEMANE, AND MOUNT OF OLIVES.

places project above the ground, and are protected by heaps of stones. Here, or at most not far off, the Saviour endured that unspeakable "agony and bloody sweat" so nearly connected with his expiatory death; and here in deep submission he mingled and closed his prayers

for relief with the cry, "Nevertheless, not my will, but thine, be done." From this garden he could readily see the crowd of men "with lanterns and torches" emerging from the city gate, and hastening, under the guidance of Judas, to seize him. It is the spot which the Christian visitor at Jerusalem first seeks out, and where he lingers longest and last ere he turns homeward.

Gethsem'ane, in *Kentucky*, a post-office of Nelson co.

Get'table, *a.* Obtainable; attainable.

Gettatu'ra, *n.* [It.] See FASCINATION.

Get'ter, *n* One who gains, obtains, or acquires.

Get'ting, *n.* Act of gaining, obtaining, or acquiring.

"And with all thy *getting* get understanding."—*Prov.* iv. 7.

—Acquisition; gain; profit.

"To stoop to petty *gettings*." —*Bacon.*

Get'tysburg, in *Ohio*, a post-village of Darke co., abt. 14 m. W. of Piqua.

—A village of Preble co., abt. 102 m. W. of Columbus.

Get'tysburg, in *Pennsylvania*, a post-borough, cap. of Adams co., 114 miles W. of Philadelphia, and 36 S W. of Harrisburg. This is a flourishing little town, in the centre of a fertile farming district, and among its principal buildings are the Pennsylvania Coll and the Lutheran Theological Seminary. *Pop.* (1897) 3,510.—*G.* lies on the N. slope of a gentle eminence known as Cemetery Hill. Near this spot, the National army of the Potomac under Gen. Meade, was attacked by the Confederates commanded by Gen. Lee, July 1, 1863, who compelled the former to take up a strong position on the hill to the S. of the town, where, after a succession of vigorous onslaughts and desperate fighting, the assailants were repulsed, July 2d. On the next day, the struggle recommenced, and resulted in the failure of an attack made upon the Union position by Gen. Pickett's corps, 15,000 strong, and the consequent defeat of the Confederates. The National loss during the three days' fighting amounted to 2,834 men killed, including Gen. Reynolds, 13,709 wounded, and 6,643 missing and prisoners. The Confederate loss was severe, being estimated at about 30,000 men, of whom about 14,000 were prisoners. Among their killed and mortally wounded were generals Barksdale, Garnett, Armistead, Pender, and Semmes.

Ge'um, *n.* [Lat., from Gr. *geuo*, to taste well, in allusion to the taste of the roots.] (*Bot.*) A gen. of plants, ord. *Rosaceæ*. The Avens or Herb Bennet, *G. urbanum*, a European plant, has lyrately pinnate leaves and small yellow flowers. Its root, called by the herbalists Clove-root, has an aromatic clove-like odor, and possesses astringent properties. The American species, *G. rivale* (Fig. 1152), the Water Avens, has the same properties



Fig. 1152.—THE WATER-AVENS, (*Geum rivale.*)
a, carpel and awn; *b*, petal; *c*, stamen; *d*, pistil.

and differs only from the preceding species by its nodding flowers of a brownish hue. It is a fine plant, conspicuous among the grass in wet meadows of the N. and Middle States.

Gevaudan, (*zhaï'vo-da,*) an old division of France, prov. Languedoc, now comprised in the depts. *Lozère* and *Upper Loire*.

Gew'gaw, (*gū'gâw,*) *n.* [Probably from O. Eng. *gaud*, a pleasing trifle, a toy. Cf. Fr. *joujou*.] A showy trifle; a pretty thing of little worth; a toy; a bauble; a splendid plaything.

—*a.* Showy without value; trumpery; tawdry.

Gex, (*zheks,*) a town of France, dep. Ain, 10m. from Geneva. It lies on the E. side of the Jura Mountains, and has a brisk trade in corn, Gruyère cheese, and wool. *Pop.* abt. 3,500.

Geyer, (*gī'er,*) a town of Saxony, circ. Erzgebirge, 20 m. E S E. of Zwickau. *Manuf.* Cotton goods. *Pop.* abt. 4,200.

Gey'serite, *n.* (*Min.*) The name given to concretionary deposits about the Iceland geysers, consisting mostly of silica.

Geysers, (*gī'serz,*) *n. pl.* [Icelandic *geysa*, a raging or roaring.] The name given to certain eruptive fountains of boiling water in Iceland. They are situated about 30 m. from the volcano of Hecla, in plains full of hot springs and steaming fissures. The two principal *G.* are called the *Great Geyser* and the *Strokr*, or Churn, and they are within a few hundred feet of each other. The great *G.* is a circular pool of hot water 72 feet across at its widest part, by abt. 4 feet deep, and contracting in the centre to a pit 8 feet in diameter and 83 feet deep. A stream of hot water is constantly flowing from the crater. Every few hours the water rises rapidly from the pit in jets a few

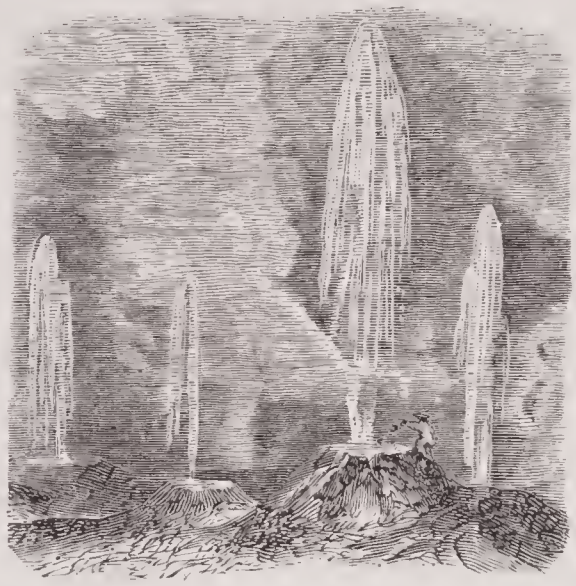


Fig. 1153.—THE STROKR AND OTHER GEYSERS.

feet above the surface of the pool; but about once a day it is thrown upward with terrific force to the height of from 60 to 200 feet, while immense volumes of steam obscure the country for some distance around. The hot water decomposes the lava through which it rises and the silica is deposited in cone-like incrustations around the openings—that around the Great Geyser being about 15 feet in height. The intermittent action of the *G.* is supposed to be owing to the sudden production of steam in subterranean chambers connected with the channels through which the waters flow. There is a large geyser region in New Zealand, and one in California that gives out boracic acid. See also YELLOWSTONE NATIONAL PARK.

Geyserville, (*gī'ser-vil,*) in *California*, a village of Sonoma co., on Russian River, abt. 23 m. N.N.W. of Santa Rosa.

Ghast'fully, *adv.* Dreadfully; frightfully.

Ghast'liness, *n.* [From *ghastly.*] Horror of countenance; a deathlike look; resemblance to a ghost; paleness.

Ghast'ly, *a.* [A.S. *gastlic*, from *gast*, a ghost, and *lic*, like.] Deathlike; pale; dismal; grim; as, a *ghastly* dream, a *ghastly* face.—Horrible; shocking; hideous; frightful, as wounds.

—*adv.* Hideously.

Ghaut, (*gawt.*) (*Geog.*) A name used in the East Indies to signify a pass through a mountain, and also the mountain range itself; it has besides a third signification, and is used to express those steps leading from a water terrace to the brink of the river, and the places at which boats take up and set down their passengers on the rivers of India.—This name is especially given to two mountain ranges, which traverse nearly the entire length, north and south, of the peninsula of Hindostan, and are divided into the *eastern* and *western Ghauts*; the former, however, are of little consequence as mountains, hardly ascending above 1,400 feet above the level of the sea. The western are, on the contrary, grand and rugged steeps, forming a frowning and dangerous barrier between Mysore and the central provinces, and the Malabar and Bombay dependencies, culminating, in some parts, in peaks of 9,900 ft. in altitude.

Ghazipoor', or **Ghazepore',** a dist. of Hindostan, British presidency of Bengal, prov. Allahabad; between Lat. 25° 10′ and 26° 20′ N., and Lon. 82° 40′ and 84° 50′ E.; having N.W. and N. the districts of Azinghur and Gorruckpore, N.E. Sarun, S.E. Shadabad, and W. Benares and Juanpore. *Area*, 2,850 sq. m. The Ganges runs through its S. part; the Ghogra bounds it on the North. *Soil.* *G.* is one of the most fertile divisions of Hindostan, and the sugar-cane, corn, and fruit-trees are extensively cultivated. It has long been celebrated for the excellence of its rose-water and *attar*. *Chief towns.* Ghazipoor (the cap.), Azimpoor, and Doorighaut. Estim. *pop.* 1,600,000.

GHAZIPOOR, a large city of Hindostan, cap. of above dist., on the N. bank of the Ganges, 40 m. E.N.E. of Benares, and 100 W. of Patna; Lat. 25° 35′ N., Lon. 83° 33′ E. It is finely and salubriously situated; but its ancient magnificence is now only seen in its ruined palace, built by the Nawaub, Cossim Ali Khan. Here is the mausoleum of the Marquis Cornwallis, Gov.-Gen. of India, who died in this city; this structure occupied 15 years in building, and cost $1,000,000.

Ghe'a-butter, or GHEAM, *n.* (*Chem.*) A fat oil closely resembling palm-oil It is the product of the *Micadenia* or *Bassia Parkii*, a West-African palm. It is of a grayish-white color, and melts at 97° F.

Ghe'ber, GHE'BRE, *n.* Same as GUEBRE, *q. v.*

Ghee, (*gē,*) *n.* [Hind. *ghi*, clarified butter.] A kind of butter extensively used by the natives of India. To make it the milk is boiled in large earthen pots for an hour or two, cooled, and a little *dhye* or curdled milk added to hasten coagulation. It is then churned, hot water being added during the process, until the butter is formed. In a few days when the butter has become rancid, it is again melted in an earthen vessel, and boiled until all the water is expelled; after which a little salt or betel leaf is added, and it is put up in pots for use. As may be imagined, the smell and flavor are strong and coarse, and it is little relished by Europeans or Americans.

Gheel, (*gēl,*) a town and commune of Belgium, prov. Antwerp, 26 m. E.S.E. of Antwerp city. It is literally an oasis in a desert, being a comparatively fertile spot, inhabited and cultivated by 10,000 or 11,000 peasants, in the midst of an extensive sandy waste, called the *Campine*, where neither climate, soil, nor surroundings invite a settlement. The commune has from time immemorial been a sort of asylum for insane persons, who are lodged and boarded in the houses of the peasantry, and are controlled and employed by them, without recourse to walls or ha-has, or other asylum appliances, and with little coercion of any kind.

Ghelendjik, (*ge-len-jik',*) a bay and seaport of Circassia, on the Black Sea. It has a good harbor, at the entrance of which the bay is about a mile in width. Lat. 44° 30′ N., Lon. 38° 3′ E.

Ghent, (*gont.*) [Fr. *Gand.*] An old city of Belgium, cap. of prov. E. Flanders, lies at the point where the Lys, Lieve, and Moere fall into the Scheldt, 30 m. N.W. of Brussels; Lat. 51° 3′ 12″ N., Lon. 3° 43′ 51″ E. It is divided by numerous canals, (many of which are navigable,) into 26 islands, joined together by means of over 300 small wooden bridges. The circumference of the city within the walls is about 8 m., and the entrance to this, the main portion of the city, is by 7 gates. A large proportion of this space, however, is occupied by gardens, &c., not to speak of what is covered by the canals and rivers. Along the canals are splendid quays, often bordered by magnificent rows of trees, furnishing beautiful promenades. In the old part of the city the streets are crooked and narrow, but present curious examples of the civil architecture of the Middle Ages (Fig. 1154.) Promiucnt



Fig. 1154.—GHENT.

among the objects of attraction are the ramparts, which from their great extent form delightful promenades. The principal of the 13 public squares contains a statue of the emperor Charles V., who was born here, but who loaded the inhabitants with exactions, built a citadel to overawe them, and left the Gantois but little reason to revere his memory. The cathedral, noble as regards its interior decoration, the church of St. Michael, containing a *Crucifixion* by Van Dyk, and the Benedictine Abbey, are edifices well worthy of notice. *G.* is the see of an archbishop, and the head-quarters of the military commandant for Flanders. *Manuf.* Fine lace, cotton, linen, and to a smaller extent, silks, woollens, soap, jewelry, chemicals, and leather. Tanneries, sugar-refineries, and paper-mills also exist, but the great branch of industry is cotton-weaving. It has an active transit trade, being connected with Bruges and Terneuse by ship-canals. *P.* (1895) 161,240.—*G.* is mentioned in history as early as the 7th century. About the year 868, Baldwin Bras-de-Fer, the first count of Flanders, built a fortress here as a defence against the Normans. Under the counts of Flanders, *G.* continued to prosper and increase, until, in the 14th century, it was able to send 50,000 men into the field. The wealth of the citizens of *G.*, and the unusual measure of liberty which they enjoyed, encouraged them to resist with arms any attempt to infringe upon their peculiar rights and privileges. This readiness to arm in their own defence is exemplified in the famous insurrection of Jacob van Artevelde (*q. v.*), and other instances. For many years it maintained a vigorous but unavailing resistance against the dukes of Burgundy—who wished to be recognized as counts of Flanders—and the kings of Spain. In the various wars of which the Netherlands has been the battle-ground, *G.* suffered severely, and was frequently taken. In 1792 the Netherlands fell under the power of France, and *G.* was made the capital of the department of the Scheldt, continuing under French dominion until the fall of Napoleon, in 1814. The treaty of peace between the U. States and Great Britain was signed here Dec. 24, 1814.

Ghent, in *Kentucky*, a post-village of Carroll co., on the Ohio River, about 59 m. N. of Frankfort.

Ghent, in *New York*, a post-town and township of Columbia co., about 25 m. S. E. of Albany. *Manuf.* Flour and paper. *Pop.* (1897) about 3,050.

Ghent, in *Ohio*, a post-office of Summit co.

Gher'iah, a town of British India, pres. of Bombay. It was the principal port of Augria, a famous piratical prince, whose fort was taken and his whole fleet destroyed, by the English and Mahrattas, in 1756. Lat. 15° 45′ N., Lon. 73° 7′ E. *Pop.* Unascertained.

Gherkin, (*gur'kin,*) *n.* [Ger. *gurke*, a cucumber.] A small sort of cucumber much used for pickling.

Ghet'to, *n.* [It.] That quarter of the city of Rome where the Jews are permitted to reside.

Ghib'ellines, *n. pl.* (*Hist.*) On the death of Lothaire II., Emperor of Germany, Dec. 4, 1137, Conrad, Duke of Franconia, son of Frederick of Hohenstauffen, Duke of Suabia, and Lord of Weiblingen, (which by corruption became Ghibelline,) was elected his successor. His right to the imperial throne was, however, disputed by Henry the Proud, Duke of Saxony and Bavaria, (and nephew of Guelph II., Duke of Bavaria,) who was in consequence declared an outlaw, and shortly after died. His adherents transferred their allegiance to his son, Henry the Lion, at that time a boy of ten years old, and the whole empire was divided into the partisans of Conrad, who assumed the name of *Ghibellines*, and those of Henry, or the *Guelphs*. These titles were first used at the battle of Weinsberg in 1140. The strife between the two parties subsided in Germany, but continued in Italy, resulting in war in 1159. The supporters of the popes were termed *Guelphs*, and those of the emperors *Ghibellines*. Charles of Anjou expelled the Ghibellines from Italy in 1268; but the contest between the two factions continued until the French invasion in 1495 united them against a common enemy.

Ghiber'ti, Lorenzo, a distinguished Italian sculptor, b. at Florence, 1381. In 1401 he was the successful competitor for the execution of the bronze-gate of the Baptistery at Florence, Brunelleschi, his only real rival, generously withdrawing from the contest. The gate, in 28 panels, was not completed till 1424, and the same year *G.* undertook to make a second gate. This was finished and set up in 1452. The marvellous beauty of the reliefs on these famous gates drew from Michael Angelo the assertion that they were worthy to be the gates of paradise. During the progress of this, his chef-d œuvre, *G.* executed many statues, bas-reliefs, and pieces of goldsmiths' work; a mitre and cope button for Pope Martin V., a "cassa," or reliquary of St. Zenobius, for the Duomo of Florence, &c. He was for several years joint architect with Brunelleschi of the Duomo, but the engagement only showed his incapacity as an architect, and his mercenary disposition. D. at Florence, 1455, and was buried in Santa Croce. Among the scholars and assistants of *G.* were his two sons, Vittorio and Tommaso, Michelozzi, and Antonio Pollajuolo.

Ghi'lan, also called Dilem, (the country of the *Gelæ* or *Cadusii,*) a province of Persia, between Khirvan on the N.W., and Mazendéran on the S.E., extending along the shores of the Caspian Sea, having a length of about 200 m., by 150 in width. It is supposed to be the *Hyrcania* of the ancients, possesses a fertile soil, and the heat, which would otherwise be very oppressive, is tempered by the breezes from the Caspian. *G.* is one of the provinces ceded to Russia in 1723, by Shah Tamasp. Russia in the next year gave it over to the Sublime Porte, which restored it to Persia in 1737. *Prod.* Silk, wine, oil, rice, tobacco, and excellent fruits. *Cap.* Reshd. *Pop.* 550,000.

Ghir, Gher, (Cape,) (*gēēr,*) a headland of Morocco, 62 m. from Mogadore; Lat. 30° 37′ 30″ N., Lon. 9° 52′ 30″ W.

Ghirlandajo, (*yeer-lan-da'yo,*) Domenico Corradi, a Florentine painter, b. 1451, was the first to attempt the imitation of gilding by the aid of color, and to give depth to paintings by the gradation of tints. His *Massacre of the Innocents*, painted *al fresco* in the church of St. Maria Novella at Florence, is very much admired, and in the Museum of the Louvre is preserved his *Visit of St. Anne to the Virgin*. His greatest claim to distinction is the fact that he was the master of Michael Angelo. D. 1495.

Ghi'zeh, a small town of Egypt, on the W. bank of the Nile, 3 m. from Cairo. In its neighborhood is the Great Pyramid, in which fact is to be found the only claim of *G.* to importance.

Ghizni, Ghuznee, (*giz'nee,*) a fortified city of Afghanistan, built on a hill at the extremity of a mountain range, 7,720 feet high, and 80 m. S.W. by S. of Cabul. Lat. 33° 34′ N., Lon. 68° 18′ E. It was formerly the capital of a powerful empire of the same name. From the great number of illustrious persons there interred, it is sometimes called *the second Medina*. *Pop.* 8,800. It has belonged to the British since 1842.

Ghiz'ni, Ghuz'nee, a river which rises about 10 m. from the town of Ghizni, Afghanistan, and falls, after a course of some 60 m., into the Lake Abistada.

Gho'gra, Gog'ra, a river of India, tributary to the Ganges. It rises nearly 18,000 feet above the sea-level, and joins the Ganges in Lat. 25° 46′ N., Lon. 84° 40′ E. after a course of about 600 m.

Ghole, *n.* Same as Ghoul, *q. v.*

Ghore, (*gōr,*) a town and dist. of Afghanistan, 115 m. S.E. Herat. It was the original possession of Mahmoud of Ghore, who, in the 12th century, founded the Afghan dynasty.

Ghost, *n.* [A. S. *gast*; Ger. *geist*, spirit, breath.] The soul of man: the spirit.

"Oft did I strive
To yield the *ghost*." — *Shaks.*

—The soul of a deceased person; the soul or spirit separate from the body. — A spectre; an apparition.

"Stalked off reluctant, like an ill-used *ghost*." — *Blair.*

Holy Ghost. The third person in the Trinity, called the Paraclete; the Comforter.

Holy Ghost, (*Order of the.*) The principal military order of France under the old regime; instituted in 1574 by Henry III., for nobles only; abolished at the Revolution; reconstituted in 1815; and definitively suppressed in 1830.

To give up the ghost, to die; to yield up the spirit.

Ghost'like, *a.* Resembling a ghost; withered; having sunken eyes; ghastly.

Ghost'ly, *a.* Spiritual; relating to the soul; not carnal, corporeal, or secular; as, "a *ghostly* friar." *Shaks.* —Of, or belonging to, spectres or apparitions.

Ghoul, (*gool,*) *n.* [Per. *ghol, ghūl; ghuwal*, which are respectively the names of imaginary deities or demons inhabiting the groves, mountains, and woods.] A fabled dwarfish fairy or demon of the Eastern nations, that feeds on human flesh.

Ghuzel-hissar, (*goo-zel-his'sar,*) a town of Anatolia in Asia Minor, 55 m. from Smyrna. *G.* is the anc. *Tralles*. *Pop.* 7,000.

Giallolino, (*jal-lo-lē'no,*) *n.* [It. *giallorino*, from *giallo*, yellow, allied to A. S. *gelu*; Ger. *gelb.*] An earth of a bright gold color, found in the Neapolitan territory. It is very fine, and much valued by painters as a pigment.

Gi'ant, *n.* [Fr. *géant*; Lat. *gigas*, Gr. *gigas, gygantos*, from *ge*, the earth, and *genesthai*, to be born.] A man of extraordinary bulk and stature. — A person of extraordinary strength or powers, bodily or intellectual.

(*Hist.*) The existence of a race of *G.*, or of individual instances far exceeding those exhibited in modern times, was fully believed in up to the commencement of the present century. This belief was founded partly upon scriptural evidence, partly upon the discovery of enormous bones supposed to be those of human beings, and partly upon the accounts handed down by ancient and mediæval writers. In the Old Testament, the name of *G.* is applied to several races of men; but the appellation seems to refer more to violence and physical power than to stature. The Anakim and some other tribes seem, however, to have been distinguished from other races by their superior strength and proportions. There are several instances in the Scriptures of individual *G.*; such as Og and Goliath. The height of the former is not mentioned, but the latter, at most, did not exceed 8½ feet in stature. In most of the cases where the existence of *G.* has been based upon the discovery of colossal bones, it has been afterwards discovered that the remains were not those of human beings, but of extinct quadrupeds. In 1456, the bones of a supposed *G.* were exposed by the action of the Rhone. The height of this *G.* was estimated at 30 feet, but the bones were probably those of an elephant. In 1613, the remains of another supposed *G.* were found on the Rhone; it was stated that the skeleton had been found in a tomb 30 feet long, bearing the inscription "Tentobochus Rex." The Parisians crowded to see the bones of the King Tentobochus; but it was afterwards found that the remains were not those of a man, but of a mastodon. Dr. Mather, in 1712, announced the discovery of the bones and teeth of a *G.* in the State of New York. The statement was published in the Philosophical Transactions; but it was subsequently ascertained that the bones in this case also were those of a mastodon. Among classical writers, instances are numerous of *G.*, but not worthy of belief. Plutarch states that, when the grave of Antæus was opened by Sertonius, the body was found to be full 60 cubits long. Pliny also relates that, at an earthquake in Crete, the bones of a *G.* 46 cubits in length were disclosed. Coming to more reliable evidence, it seems certain that a height of even more than 9 feet has been attained. In the museum of Trinity College, Dublin, there is a skeleton 8 ft. 6 in. in height; in the museum of the Royal Coll. of Surgeons of England, is another 8 ft. 2 in.; and another in the Museum at Bonn, 8 ft. Great diversity, as to height and size, prevails among the human race. In northern latitudes, men are below the ordinary standard, many being less than 4 ft. In temperate climates, the height varies from 4½ to 6 ft.; but this is sometimes exceeded, as mentioned above. As a general rule, *G.* are of rarer occurrence than dwarfs; they are usually of a lymphatic temperament, of a delicate complexion, often deformed, and generally badly proportioned. Their muscles also are flabby, and their voices weak. They are seldom long-lived, and in this respect are the reverse of dwarfs. O'Byrne, whose skeleton is in the Royal College of Surgeons of England, died at 22, while Browlaski, the dwarf, died at 98. It has also been observed that *G.* show a want of activity and energy both in body and mind, while dwarfs are usually lively, active, and irascible. The causes which occasion the production of *G.* are not much understood. According to Geoffroy Saint-Hilaire, Bishop Berkeley attempted to manufacture a *G.* He reared an orphan boy, named Magrath, on certain hygienic principles, and succeeded so far that at the age of 17 he was 7 feet in height. He died, with all the symptoms of old age, when he had completed his 20th year, at which time he was 7 ft. 8 in. high. *G.* play a part in the mythology of almost all nations of Aryan descent. The Greeks, who represented them as being of monstrous size, with hideous countenances, and having the tails of dragons, placed their abode in volcanic districts, whither they were fabled to have been banished after their unsuccessful attempt upon heaven, when the gods, with the assistance of Hercules, imprisoned them under Ætna and other volcanoes. Their reputed origin, like the places of their abode, points to the idea of the mysterious electrical and volcanic convulsions of nature, which they obviously typify; and, in accordance with this view, they are said to have been of mingled heavenly and earthly descent, and to have sprung from the blood that fell from the slain Ouranos upon the earth, Gē, which was their mother.

Gi'ant, *a.* Extraordinary in size, strength, or capacity, physical or mental.

Gi'antess, *n.* A female of extraordinary size and stature.

Gi'ant's Causeway, (*-kâw'zi,*) a series of curious basaltic formations, in Ireland, on the N. coast of co. Antrim, between the headlands of Bengore and Fairhead. The whole formation is abt. 8 m. in extent; but the Causeway proper, abt. 2 m. N.N.E. of Bushmills, is a platform composed of closely arranged columns of basalt, generally hexagonal or polygonal prisms of short irregular lengths piled vertically. It is about 25 ft. high, 350 ft. in breadth, and abt. 600 ft. in length, running out from a steep cliff until lost beneath the sea. The regularity of these columns gave rise to the legend that it was the work of giants. It is connected with the town of Portrush, 6 m. off, by an electric R. W., opened in 1883.

Gi'antlike, *a.* Of unusual size; gigantic; huge.

Gi'antship, *n.* Quality or character of a giant.

"His *giantship* is gone somewhat crestfallen." — *Milton.*

Giaour, (*jowr.*) *n.* [Turk. *giâour*; Per. *gâwr*, an infidel.] A term applied by the Turks to all who reject Mohammedanism, especially to European Christians. Though at first used exclusively as a term of reproach, its signification has been since modified, and now it is frequently employed merely as a distinctive epithet. Sultan Mahmoud II. forbade his subjects to apply the term *G.* to any European. — *G.* is the title of a poem written by Lord Byron, published in 1813.

Gi'ard, in *Iowa*, a post-township of Clayton co.

Giarretta, or **Sime'to,** (*jär-ret'ta,*) a river of Sicily, which, with its affluents the Adriano, Trachino, Dettaino, and Chrisas, waters the plain of Catania, and the portion of the island W. of Mount Ætna. It rises 20 m. S.E. of Caronia, and after a very tortuous course of 50 m. enters the Mediterranean 6 m. S. of Catania.

Giaveno, a town of Italy, on the Sangone, at the foot of the Cottian Alps, 16 m. from Turin; *pop.* 10,500

Gib, *n.* (*Mach.*) A piece or slip, notched or otherwise, in a machine or structure, to hold other parts together, or keep them in place: — usually held in its own place by a wedge or key, or by a screw.

Gib and key. (*Mach.*) The fixed wedge and the driving wedge for tightening the strap which holds the brasses at the end of a connecting-rod in steam-machinery.

Gib'ber, (*jib'br,*) *n.* A balky horse.

Gib'berish, *n.* [By corruption from *gabble* or *jabber.*] Rapid and inarticulate talk; unintelligible language; unmeaning words.

"Upon reading this *gibberish*." — *Swift.*

—*a.* Unmeaning; unintelligible, as words.

Gib'bet, *n.* [Fr. *gibet*; Lat. *gabalus*, a word of German origin; Mod. Ger. *gabel*, a fork, the fork of a tree.] A gallows; a post or machine in the form of a gallows, on which notorious malefactors were formerly hanged in chains. — The projecting beam of a crane, on which the pulley is fixed.

—*v. a.* To hang and expose on a gibbet or gallows.

"I'll *gibbet* up his name." — *Oldham.*

Gib'bon, *n.* (*Zoöl.*) The common name of the genus *Hylobates*, order *Simiadæ*, including apes, or tailless monkeys, natives of the East Indies. They are nearly allied to the orangs and chimpanzees, but are of more slender form, and their arms so long as almost to reach the ground when they are placed in an erect posture; there are also naked callosities on the buttocks. The canine teeth are long. The *G.* are inhabitants of forests, their long arms enabling them to swing themselves from bough to bough, which they do to wonderful distances, and with extreme agility. They cannot, however, move with ease or rapidity on the ground. The conformation of the hinder extremities adds to their difficulty in this, while it increases their adaptation to a life among the branches of trees, the soles of the feet being much turned inwards. None of the gibbons are of large size. The common gibbon (*H. lar*), (Fig. 1155,) is black, but the face is commonly surrounded with a white or gray beard. The white-handed gibbon (*H. Albimana,*) native of Sumatra, is black, with the four hands white. Another white gibbon is entirely white, except the face and hands, which are black.



Fig. 1155. — Gibbon, (*H. lar.*)

Gib'bon, Edward, a celebrated English historian, was b. at Putney in 1737; sent to Westminster School, but soon transferred to a private tutor; then to Magdalen College, Oxford, where he became a convert to the Roman Catholic Church; and finally to Lausanne, where he renounced the Catholic faith, without embracing any other, and became a confirmed sceptic. On returning to England, he entered upon the duties of active life, but read much, and prepared himself for authorship. In 1763 he went to Italy; and while sitting amidst the ruins of the Capitol at Rome, he conceived the idea of writing the history of the decline and fall of that city. In the meantime, he joined M. Deyverdun, a Swiss scholar, in publishing a journal called *Mémoires Littéraires de la Grand Bretagne*, which met with no success. In 1770 he began his celebrated history of the *Decline and Fall of the Roman Empire*; the 1st vol. of which, in 4to, appeared in 1776; the 2d and

3d in 1781; and the 3 concluding vols. in 1788. Previous to this undertaking, *G.* was chosen member of parliament for Liskeard: and when hostilities commenced between England and France, in 1778, he was employed to draw up the manifesto on that occasion, after which he was made Commissioner of the Board of Trade, but lost his place on the change of administration in 1783. He then went to reside at Lausanne, where he remained till the French Revolution obliged him to return to England; and d. in 1794. *G.*'s great history abounds with proofs of immense learning, of a mind penetrating and sagacious, and of almost unrivalled talents for ridicule. No other proof of the substantial trustworthiness of the "Decline and Fall" is needed than the fact, perhaps unparalleled, that, notwithstanding the very great advance made in historical studies and criticism during the present century, it still holds its place as *the* history of the period it embraces.

Gib'-boom, *n.* (*Naut.*) Same as JIB-BOOM, *q. v.*

Gibbose', *a.* [Fr. *gibbeax;* Lat. *gibbosus*, from *gibbus*, a hunch or hump; Gr. *kuphos*, bent; Heb. *gab*, convex.] Hump-backed; humped.

—A term applied to a surface which presents one or more large elevations.

Gib'bosite, *n.* (*Min.*) Native hydrate of alumina. It occurs in small stalactitic shapes, or mammillary and incrusting. Color, white, grayish, greenish, or reddish-white. A strong argillaceous odor when breathed upon. *Comp.* alumina 65·6, water 34·4. Occurs at Richmond and Lenox, Mass. Sp. gr. 2·3–2·4.

Gibbos'ity, *n.* [Fr. *gibbosité.*] Protuberance; a round or swelling prominence; convexity.

Gib'bous, *a.* [Lat. *gibbus.* See GIBBOSE.] Swelling; protuberant.—(*Astron.*) The swelling or convex appearance of the moon when more than half full or enlightened. In the telescope, the planets Mercury, Venus, and Mars exhibit a similar appearance.

Gib'bously, *adv.* In a gibbous or protuberant form.

Gib'bousness, *n.* Same as GIBBOSITY, *q. v.*

Gibb's Cross Roads, in *Tennessee*, a P.O. of Macon co.

Gibbs'ville, in *Wisconsin*, a post-village of Sheboygan co.

Gibe, (*jībe,*) *v. n.* [A.S. *gabban;* Icel. *gabba.* See JABBER.] To make a wry mouth or face; to jeer; to deride; to delude; to rail; to utter taunting, sarcastic words; to flout; to fleer; to scoff; to sneer.

"When you pertly raise your snout,
Fleer and *gibe* and laugh and flout." — *Swift.*

—*v. a.* To reproach with contemptuous words; to deride; to scoff at; to treat with sarcastic reflections; to taunt; to ridicule; to jeer; to mock.

"You did *gibe* my missive out of audience." — *Shaks.*

—*n.* An expression of censure mingled with contempt; a word of sarcastic scorn; a scoff; a taunt; a jeer; a sneer; a reproach.

Gib'eah. (*Script.*) The birth-place of Saul, and the scene of Jonathan's romantic exploit against the Philistines, about 5 m. N. by E. of Jerusalem.

Gib'eon. (*Script.*) A considerable city of the Hivites, afterwards a Levitical city of the tribe of Benjamin. It lay on an eminence, 6 m. N. of Jerusalem, near Geba and Gibeah.

Gib'er, *n.* One who mocks, scoffs, jeers, or derides.

Gib'esonville, in *Ohio*, a post-office of Hocking co.

Gib'ingly, *adv.* With censorious, sarcastic, and contemptuous expressions; scornfully.

Gib'let, *a.* Made of giblets; as, a *giblet* pie.

Gib'lets, *n. pl.* [Goth. *gibla;* Chald. *caph*, a wing.] Those parts of poultry usually excluded in roasting, as the head, feet, pinions, heart, gizzard, liver, &c.

Gibraltar, (*jib-rawl'tr,*) a strongly fortified sea-port belonging to Great Britain, in the S. part of Spain, adjoining the narrowest part of the strait connecting the Atlantic and Mediterranean, to which it gives name; 61 m. S.E. of Cadiz, 93 S. by E. of Seville, and 312 m. S.S.W. of Madrid; Lat. 36° 6′ 30″ N., Lon. 50° 21′ 12″ W. *Area*, 1⅔ sq. m. The fortress stands on the W. side of a mountainous promontory or rock (the *Mons Calpe* of the ancients), projecting into the sea S. abt. 3 m., being from ½ to ¾ m. in breadth. Its N. side, fronting the low, narrow isthmus which connects it with the mainland, is perpendicular, and wholly inaccessible; the E. and S. sides are steep and rugged, and extremely difficult of access, so as to render any attack upon, even if they were not fortified, next to impossible; so that it is only on the W. side, fronting the bay, where the rock declines to the sea, and the town is built, that it can be attacked with the faintest prospects of success. Here, however, the strength of the fortifications is such that the fortress seems impregnable, even though attacked by an enemy having command of the sea. The principal batteries are all casemated, and traverses are constructed to prevent the mischief that might ensue from the explosion of shells. Vast galleries have been excavated in the solid rock, and mounted with heavy artillery; and communications have been established between the different batteries by passages cut in the rock, to protect the garrison from the enemy's fire. In fact, the whole rock is lined with the most formidable batteries, from the sea to the summit, and from the land-gate to Europa Point; so that if properly victualled and garrisoned, *G.* may be said to be impregnable. The town, at the foot of the rock on its N.W. side, has a principal street, nearly a mile long, well-built, paved, and lighted. The principal buildings are the governor's house, admiralty, naval hospital, victualling office, and barracks. As a commercial station, *G.* is of considerable importance, and the advantage which its possession confers on Great Britain, though wholly of a political character, is most important. It is, as it were, the key of the Mediterranean; and while its occupation gives the means of effectually annoying enemies in war, it affords equal facilities for the protection of British commerce and



Fig. 1156. — GIBRALTAR.

shipping. *Pop.* (1895) 20,160.—*Hist. G.*, the *Calpe* of the Greeks, formed, with Abyla on the African coast, the "Pillars of Hercules." Its name was changed to *Gibel Tarif*, or mountain of Tarif, at the beginning of the 8th cent., when Tarif Ebn Zarca landed with a large army to conquer Spain, and erected a strong fortress on the mountain side. During the Moorish occupation of Spain, it increased in importance, but was at length taken by Ferdinand, king of Castile, in the 14th cent. It was, however, soon recaptured, and did not become the appanage of Spain till 1462. Its further history till its conquest by the English, in 1704, is unimportant. During the war of the Spanish Succession the English and Dutch fleets, under Sir Geo. Rooke and the Prince of Hesse-Darmstadt, attacked *G.*, which surrendered after a short resistance. The Spaniards, during the 9 years following, vainly endeavored to recover it; and, in 1713, its possession was secured to the English by the peace of Utrecht. In 1727 the Spaniards blockaded it for several months without success. The most memorable, however, of the sieges of *G.* is the last, begun in 1779, and terminated in 1783, when it successfully resisted the combined French and Spanish fleets.

G., (BAY OF.) This inlet of the sea is formed by the headland of Cabrita and Europa Point, 4 m. distant from each other, and is spacious and well adapted for shipping, being protected from all the more dangerous winds; the extreme depth within the bay is 110 fathoms. To increase the security of the harbor, two moles have been constructed, which respectively extend 1,100 and 700 ft. into the bay. The Spanish town and port of Algesiras lie on its W. side.

G., (STRAITS OF,) (anciently the *Straits of Hercules.*) The straits connecting the Mediterranean Sea with the Atlantic Ocean extend from Capo Spartel to Cape Ceuta, on the N.W. coast of Africa, and from Cape Trafalgar to Europa Point on the S.W. seaboard of Spain. They narrow towards the E., their width between Europa Point and Cape Ceuta being only 15 m., while at the W. extremity it is 24 m. Length, E. to W., about 36 m. Through these straits a constant current runs so strongly from the Atlantic that sailing-vessels bound westward can pass them only by the aid of a *Levanter*, or strong breeze from the E. It is believed that the waters of the Mediterranean find an outlet here by means of an undercurrent.

Gibral'tar, in *Michigan*, a post-village of Wayne co., on Detroit River, about 22 m. below Detroit.

Gibral'tar, in *Wisconsin*, a township of Door co., on Lake Michigan, about 65 miles north-east of Green Bay.

Gibral'tar-stone, *n.* (*Min.*) A beautiful variety of stalagmite from Gibraltar Rock. It is cut into small fancy articles.

Gib'son, RICHARD, called *the Dwarf*, an English painter, who studied under De Cleyn, became pago to Charles I., and married a dwarf named Anna Shepherd, at which wedding the king gave away the bride. Bride and bridegroom measured each about 3 ft. 10 inches. They had 9 children, all of ordinary stature, and while the husband died in his 75th year, the wife lived to be 89, and died in 1709.

Gib'son, JOHN, R. A., a distinguished English sculptor, B. 1791. His early years were passed in a stone-mason's shop at Liverpool, until Mr. Roscoe (the historian of Leo X., &c.), discovering *G.*'s remarkable aptitude for art, sent him to Rome to study under Canova. In that city he passed nearly the whole of his after-life, becoming a pupil of Thorwaldsen after the death of his first great master. *G.* greatly excelled in portrait statuary, and by the study of the antique rose to ideal purity, and a thorough realization in the grace of form. His chief works are *Mars and Cupid*, now in the Duke of Devonshire's Chatsworth Collection; *Psyche borne by the Zephyrs*, executed for Sir Geo. Beaumont; *The Wounded Amazon* (in the Grosvenor Gallery); and the famous *Tinted Venus*, which appeared in the London Great Exhibition of 1862. Among his portrait-statues, those of Huskisson and Peel, George Stephenson (the engineer), and Queen Victoria, are his finest productions. *G.*'s grand innovation of tinting his figures — which he defended by a reference to Greek precedents—excited much controversy and cannot be said to have been generally successful in its adaptation to the public taste. Died in 1866.

Gib'son, in *Georgia*, a post-village, cap. of Glasscock co., about 48 m. W.S.W. of Augusta.

Gib'son, in *Indiana*, a S.W. county, bordering on Illinois; *area*, about 490 sq. m. *Rivers.* Wabash, White and Patoka rivers. *Surface*, undulating; *soil*, fertile. *Min.* Coal. *Cap.* Princeton. *Pop.* (1897) about 30,200.

—A township of Washington co.

Gib'son, in *New York*, a post-village of Steuben co., about 200 m. W. by S. of Albany.

Gib'son, in *Ohio*, a flourishing township of Mercer co.

—A village of Pike co.

Gib'son, in *Pennsylvania*, a flourishing township of Cameron co.

—A post-borough of Susquehanna co., about 16 m. E.S.E. of Montrose. *Pop.* (1897) about 1,240.

Gib'son, in *Tennessee*, a W. county; *area*, about 615 sq. m. *Rivers.* Rutherford's fork of Obion river, and the N. and middle forks of Forked Deer river. *Surface*, diversified; *soil*, fertile. *Cap.* Trenton. *Pop.* (1890) 35,859.

Gib'son, in *Wisconsin*, a township of Manitowoc co.

Gib'son, in *Indiana*, a post-office of Lake co.

Gib'son, in *Ohio*, a post-office of Guernsey co.

Gib'son City, in *Illinois*, a post-town of Ford co., 34 m. E. of Bloomington. *Pop.* (1890) 1,803.

Gib'son's Station, in *Virginia*, a post-office of Lee co.

Gib'sonville, in *California*, a post-village of Sierra co., abt. 28 m. N. of Downieville.

Gibsonville, in *N. Carolina*, a post-village of Guilford co., abt. 15 m. S.S.W. of Greensborough.

Gibsonville, in *New York*, a post-village of Livingston co., about 235 m. W. by N. of Albany.

Gib'-staff, *n.* A long staff to gauge water, or used to shove off a boat.

Gid'dily, *adv.* In a giddy manner: with the head seeming to turn or reel.—Inconstantly; unsteadily; heedlessly.

Gid'diness, *n.* State of being giddy; dizziness; vertigo; a swimming of the head.

"Begin with *giddiness*, and end in pain." — *Young.*

—Inconstancy; unsteadiness of mind or manner; volatility; changeableness; unstability; wantonness; levity; lightness of disposition.

"Thou dost repent these vanities and *giddinesses.*" — *Donne.*

Gid'dy, *a.* [A.S. *gidig;* Gael. *godach*, probably allied to Hind. *bekhood*, intoxicated. Etymol. unknown.] Vertiginous; reeling; dizzy; whirling; having in the head a sensation as of a circular motion or swimming.

"By *giddy* heads and stagg'ring legs betray'd." — *Tate.*

—That which induces giddiness; as, a *giddy* height.

"The *giddy* precipice, and the dang'rous flood." — *Prior.*

—Whirling; gyratory; running round with celerity; rotatory.

"The *giddy* motion of the whirling mill." — *Pope.*

—Inconstant; changeable; unstable; fickle; as, the "*giddy* vulgar." — *Dryden.*

"Our fancies are more *giddy* and infirm than women's are." *Shaks.*

—Heedless; careless; frolicsome; elated to thoughtlessness; rendered wild by excitement or joy; as, a *giddy* girl.

"Young heads are *giddy.*" — *Cowper.*

—*v. n.* To reel; to turn quickly.

"Our course constrain to *giddy* round." — *Chapman.*

—*v. a.* To render dizzy or vertiginous; to make unsteady.

Gid'dy-head, *n.* A heedless, thoughtless person.

Gid'dy-headed, Gid'dy-brained, *a.* Careless; heedless; thoughtless; unsteady; volatile; incautious.

"Our *giddy-headed* antic youth will wear." — *Donne.*

Gid'eon, a famous judge of Israel, B. C. 1249 to 1209.

Giën, (*zhē-an'.*) (anc. *Gianum,*) a town of France, dept. of Loiret, cap. arrond. on the Loire, 37 m. S.E. of Orleans. *Manuf.* Earthenware, serge, and leather. *G.* has a handsome stone bridge across the Loire. Here, in 1410, a treaty was signed by the young Duke d'Orleans, with the dukes of Berry, Bourbon, and Brittany, against John the Fearless, Duke of Burgundy, to avenge the assassination of his father, Louis I.

Giengen, (*gēēng'en.*) a town of Würtemberg, on the Brenz, 22 m. S.S.E. of Ellwangen. *Manuf.* Linens, woollen goods, and cutlery. *Pop.* 2,500. In the neighborhood of *G.* are the Baths of Wildbad.

Gier-eagle, (*jēr'ē-gl,*) *n.* [Ger. *geier*, a vulture; L. Lat. *gira*, Gr. *hicdax*, a hawk or falcon, an eagle.] The vulture-eagle; a bird of the eagle kind. — *Lev.* xi. 18.

Gie'seckite, *n.* (*Min.*) A hydrated silicate of alumina and potash from Greenland. It occurs in hexagonal prisms of a grayish-green or brownish color. *Sp. gr.* 2·78–2·85.

Giessen, (*gēēs'en.*) a town of Germany, cap. prov. Upper Hesse, on the Lahn, 47 m. N. by E. of Darmstadt, and 49 m. E.N.E. of Coblentz. *G.* has a castle, town-hall, observatory, and university; which latter has, under Baron Liebig, become famous as a school of organic chemistry, and is attended by many students from the U. States, as well as from all parts of Europe. *G.* was formerly fortified, but the wall surrounding it has been converted into a promenade. *Manuf.* Woollen goods, leather, tobacco, &c.

Gif, *conj.* [A.S. See IF.] If. (Old form of *if*, frequently found in the early English writers.)

Giff'-gaff, *n.* Reciprocal accommodation;—an old English phrase resuscitated by Sir Walter Scott.

Gifford, (*jif'ford.*) a village of Scotland, 4 m. from Haddington; *pop.* 600. The celebrated reformer, John Knox, *q. v.*, was B. here in 1505.

Gif'fy, *n.* Same as JIFFY, *q. v.*

Gift, *n.* [A. S., O. Ger., and Icel. The O. Ger. is from *geban*, Goth. *giban*, A.S. *gifan*, Icel. *gefa*, to give.

See GIVE.] Anything conferred, given, or bestowed; a present; a donation; a grant; an honorarium; a boon; an offering; a gratuity; a reward; a bribe; — sometimes in a bad sense, as any thing given to corrupt the judgment.

"True love's the *gift* which God has given
To man alone beneath the heaven."— *Scott.*

—Act of giving, conferring, or bestowing.

"All things thine by *gift*." — *Milton.*

—Some quality conferred by the Author of our nature; endowment; talent; faculty; qualification.

"Oh, Italia! thou who hast the fatal *gift* of beauty." — *Byron.*

—The right or power of conferring, giving, or bestowing. (*Law.*) A conveyance which passes either lands or goods; but when restricted to immovable property, it signifies in its proper sense the creation of an estate-tail. A gift of personal property differs from a grant in being wholly gratuitous and without consideration.

—*v. a.* To endow with any power, endowment, or faculty; as, he is *gifted* with eloquence.

Gift'edness, *n.* State or quality of being gifted, or of possessing gifts.

Gig, (*jig,*) *n.* [Fr. *gigue*, a jig; It. *giga*, a stringed musical instrument.] A fiddle. (O. or R.)

Gig, *v. a.* To fish with a gig or fish-gig.

Gig, *n.* [It. *giga*, a lively dance; Ger. *geige*, a violin; L. Lat. *giga*; L. Sax. *gigel*; Fr. *gigue*, a jig.] A top or whirligig; a teetotum.

"Playthings as tops, *gigs*, battledores." — *Locke.*

—A light carriage having one pair of wheels, drawn by one horse.

"Sir, his ambition is to drive his own *gig*." — *Theod. Hook.*

—A playful person; a wanton; a giglot.—(*Mach.*) A cylinder with rotary actiou for teazling woollen cloth. — A harpoon. — See FISH-GIG.

(*Naut.*) A long, light boat belonging to a ship; as, the captain's *gig*.

Giganteau, (*jī-gan-te'an,*) *a.* [Lat. *giganteus*. See GIANT.] Like a giant; gigantic; mighty; extraordinarily large.

Gigantesque, (*jī-gan-tĕsk',*) *a.* [Fr.] Of colossal size; befitting a giant; as, "mock-heroic *gigantesque*." *Tennyson.*

Gigan'tic, *a.* [Lat. *giganticus* — *gigas*. See GIANT.] Like a giant; of extraordinary size; very large; colossal; excessive; huge; prodigious.

"The son of Hercules he justly seems,
By his broad shoulders and *gigantic* limbs."—*Dryden.*

—Enormous; vast; immense; as, *gigantic* wickedness.

Gigan'tically, *adv.* In a gigantic or mighty manner.

Gigan'ticide, *n.* [Lat. *gigantis*, giant, and *cædere*, to kill.] The act of slaying a giant.

Gigan'tolite, *n.* (*Min.*) A mineral resembling Fahlunite in composition, *q. v.* It occurs at Tammelia, Finland, in large 6- and 12-sided crystals of waxy lustre, and greenish to dark steel-gray color. Sp. gr. 2·86–2·87.

Gigantol'ogy, *n.* [Gr. *gigantos*, and *logos*, treatise.] A description of giants; a treatise on giants.

Gigantom'achy, *n.* [Gr. *gigantomachia*.] A war of giants; especially the mythological war of the giants against heaven.

Gig'get, *n.* See GIGOT.

Giggle, (*gig'l,*) *n.* [A.S. *geagl*, a laugh. See the verb.] A kind of laugh, with short, spasmodic catches of the breath.

"Something between a *giggle* and a squeal." — *Davies.*

Gig'gle, *v. n.* [Dut. *gichgelen*, *ginneken*, to titter.] To laugh with short catches of the breath or voice; to laugh in a silly, puerile manner; as, a *giggling* girl.

Gig'gler, *n.* One who giggles or titters.

Gig'gleswick, a town and parish of the W. Riding of Yorkshire, England, 1 m. W.N.W. of Settle; *pop.* 4,500.

Gig'gling, *p. a.* Laughing sillily or with short catches; tittering.

—*n.* The act of laughing with short catches; a tittering.

Gig'let, Giglot, *a.* Giddy; light; inconstant; wanton.

"Oh, *giglet* fortune." — *Shaks.*

Giglio, (*jēēl'yo.*) [Lat. *Igilium.*] An island in the Mediterranean, on the Tuscan coast, 10 m. S.W. of Argentaro; 5 m. in length; *pop.* 2,200.

Gigot, (*zhi'go,*) *n.* [Fr., a leg of mutton, from O. Fr. *gigue*, the thigh; L. Lat. *ischium*, from Gr. *ischion*, the hip-joint; allied to *ischus*, strength.] The thigh of a sheep; a part of one of the hind-quarters separated from the flank at the hip-joint.

(*Cookery.*) A leg of mutton.

Gi'hon. [Heb., Valley of Grace.] One of the four rivers of Paradise, by most commentators believed to be the Araxes, (*Gen.* ii. 13.)

—A fountain on the W. of Jerusalem, beside which king Solomon was anointed, (1 *Kings* i. 33.) Hezekiah covered it, and brought the waters into the city by a subterraneous conduit, (2 *Chron.* xxxii. 2.) The pool still exists, 300 ft. long, 200 wide, 30 deep. Some years ago, in digging, the stone conduit of Hezekiah was unearthed, 30 feet under ground, partly cut out of the solid rock, and running E. and W.

Gijon, (*he-hone',*) a town of Spain, in the Asturias, 18 m. N.N.E. of Oviedo; Lat. 44° 55′ N., Lon. 5° 44′ W. *Manuf.* Linen fabrics, stone-ware, and hats. It has also considerable trade in fruit and nuts. *Pop.* 7,000.

Gila City, in *Arizona Territory*, a village of Yuma co., on the Gila River, abt. 24 m. E. of Arizona City.

Gilbert, JOHN, A.R.A., an English historical and *genre* painter, B. 1817. Among his finest works are *Don Quixote giving advice to Sancho Panza; The Education of Gil Blas; Othello before the Senate; Charge of Cavaliers at Naseby; Rubens and Teniers; The Studio of Rembrandt; Wolsey and Buckingham*, &c.

Gil'bert, in *Iowa*, a post-office of Scott co.

Gilbert Islands, a group on the S.W. coast of the archipelago of Tierra del Fuego, with a good harbor in Doris Cove. — Another cluster of the same name, comprising 15 coral islands, forms part of the Mulgrave Archipelago in the Pacific, between Lat. 1° S. and 2° 30′ N., and Lon. 172° and 174° 30′ E., and contains a population of 60,000. The two largest are known as *Drummond's Isle* and *Knox's Isle;* the former is 30 m. long, by rather more than ½ m. broad; the latter 20 m. long. The inhabitants resemble the Malays in appearance, and are divided into three classes — *chiefs*, *landholders*, and *slaves*. The chief, almost the only, cultivated products are the cocoa-nut and the pandanus.

Gil'bertite, *n.* (*Min.*) A white silky mineral from Stonagwyn, Cornwall. *Sp. gr.* 265. *Comp.* Silica 45·15, alumina 40·11, oxide of iron 2·43, magnesia 1·90, lime 4·17, water 4·25.

Gil'bertsborough, in *Ala.*, a P.O. of Limestone co.

Gil'bert's Mills, in *New York*, a P. O. of Oswego co.

Gil'bert's Station, in *Mo.*, a vill. of Lawrence co.

Gil'bertsville, in *New York*, a post-village of Otsego co., about 95 m. W. of Albany.

Gil'bertsville, in *Iowa*, a P. O. of Black Hawk co.

Gil'bertsville, in *Pennsylvania*, a post-office of Montgomery co.

Gil'bertsville, in *Mass.*, a P. O. of Worcester co.

Gil'boa. [Heb., bubbling fountain.] The name given in the Old Testament to a range of hills, between 500 and 600 ft. high, overhanging the city of Jezreel, on the eastern side of the plain of Esdraelon. It is memorable as the scene of the defeat and death of king Saul and his three sons.

Gil'boa, in *New York*, a post-town and township of Schoharie co., on Schoharie river, 50 m. S.W. of Albany. *Pop.* (1897) about 1,920.

Gil'boa, in *Ohio*, a post-village of Putnam co., on the Blanchard river, about 95 m. N.W. of Columbus.

Gil'boa, in *Virginia*, a village of Louisa co.

Gil'christ, in *Illinois*, a post-village of Mercer co., on the C., B. & Q. R.R.

Gild, *v. a.* [*imp.* and *pp.* GILDED or GILT.] [A.S. *gyldan*, from *gold*, to cover with gold.] To overspread with a thin covering of gold; to cover with gold in leaf or powder.

"To *gild* refined gold; to paint the lily."—*Shaks.*

—To cover with any yellow matter.

"The stale of horses and the *gilded* puddle."—*Shaks.*

—To adorn with lustre; to render bright; to illuminate.

"A superficial thing that only *gilds* the apprehension."—*South.*

—To give a fair and agreeable external appearance to.

"To *gild* a lie with happy terms."—*Shaks.*

Gil'das, (St.,) surnamed *the Wise*, B. A. D. 516, in Britain. He preached in England and Ireland, and passed over to France, where he established the monastery of Rnys, near Vannes. D. either at Rnys, or at Glastonbury, England, in 565.

Gild'ed, *p. a.* Overlaid with leaf or a thin coating of gold; illuminated.

Gild'er, *n.* One whose trade or profession is to overlay things with gold.

—Same as GUILDER, *q. v.*

Gild'ing, *n.* (*Arts and Manuf.*) The art of applying a thin coating of gold to the surface of bodies by either chemical or mechanical means. The beauty and durability of gold render it the most valuable of all the metals for ornament. Its great malleability enables us to cover a large surface of other material with a very small quantity of it by mechanical means; and by the aid of chemical agents it can be still more minutely divided and distributed over the surface of the body to be gilded. The process of *water-gilding* is not now much used. By this means, silver, after being perfectly cleaned, is gilded by rubbing it over with a solution of gold in mercury, or *amalgam of gold*. The article is then heated over a clear charcoal fire, by which the mercury is driven off and the gold left adhering to the surface. Copper and brass are gilded by this process, by cleaning and rubbing the surface with nitrate of mercury, by which it is amalgamated and enabled to retain the gold amalgam when applied. It is then heated as before and burnished. The fumes of mercury driven off in the heating renders this mode of gilding very unhealthy. It cannot, of course, be used for gilding metals that do not form an amalgam with mercury. Buttons and some kinds of jewelry are gilded by it; the quantity of gold required being so small that a gross of buttons 1 inch in diameter may be gilded on both sides with 5 grains. Metals may be gilded by immersing them in a solution containing gold, which, while it slowly attacks the metal, deposits the gold in its place. One of these solutions is made by dissolving ¼ oz. troy of gold in 2½ ozs. *aqua regia*, heating this until the reddish vapors cease to be evolved, diluting with 1½ pts. of distilled water, adding 1 lb. of bicarbonate of potash, and boiling for 2 hours. The article is dipped in the hot solution and agitated in it for about a minute. If gold be dissolved in a solution of sal-ammoniac and corrosive sublimate in nitric acid, a mixture of chloride of gold and nitrate of gold with some ammonia is formed, which being applied to silver blackens it, but on the application of heat becomes a rich gilding. If 5 drachms of gold be dissolved in 10 ozs. of *aqua regia*, with 1 drachm of copper, and clean linen rags moistened in the solution and then burned to ashes, the ashes will contain finely divided gold; which may be applied to copper, brass, and silver, by rubbing it over them with a cork moistened with a solution of salt in water. To gild articles of steel, agitate ether or naphtha with a solution of terchloride of gold, and decant the light liquid floating on the top. It is applied by means of a camel's-hair pencil. Porous substances, as silks, ivory, &c., may be gilded by wetting them with a solution of 1 part of terchloride of gold to 4 or 5 of water, and exposing them to the action of a current of hydrogen gas. For gilding metals the galvanic process is almost universally used. (For a description of it, see ELECTRO-PLATING AND GILDING.) For gilding wood, plaster of Paris, &c., only mechanical means are used. If intended for out-door work, the gold-leaf is laid on by the aid of *gold size*, i. e., drying-oil mixed with calcined red ochre; if for picture and looking-glass frames, &c., a size is used made by boiling parchment-clippings to a jelly and mixing with fine plaster of Paris or yellow ochre. The edges of books are gilded by brushing them over, while on the binder's press, with a composition of 4 parts of Armenian bole (see BOLE) and 1 of powdered sugar-candy mixed with white of egg; when this coating is nearly dry it is smoothed, and the gold-leaf applied and burnished. The letters and figures on the covers of books are put on by first dusting the surface with finely powdered mastic; the iron tool by which the figure is made is then heated and pressed upon a piece of gold-leaf, which adheres to it; it is then applied to the cover with pressure. The heated iron softens the mastic, and the gold is retained in the impression. In *encaustic G.*, which is applied to glass and porcelain, finely divided gold is first obtained from the chloride, by precipitating with protosulphate of iron or by heating. It is then ground up with $\frac{1}{12}$ of its weight of oxide of bismuth and some borax, mixed with gum-water, and applied with a camel's-hair brush. The article is then heated in an oven or furnace; the gum burns off, and the borax vitrifying, cements the gold to the surface. A double sulphide of gold and potassium is also used for the same purpose, and produces the color known as *Burgos lustre*.

Gil'ead, [Heb., the hill of testimony.] A district of Palestine E. of the Jordan, extending S. from Mount Hermon, between the Jordan and the Arabian desert. Numerous references are made in the Bible to the stately oaks and herds of cattle in this region, which the present appearance of the country fully corroborates. (*Gen.* xxxi. 45, xxxvii. 25; *Num.* xxxii. 1.) The name *G.* is sometimes used for the whole country E. of Jordan, but the region strictly called *G.* lay S. of Bashan. The district now called Belka, one of the most fertile in Palestine, was part of *G.* Mount Gilead, strictly so called, was, without doubt, the mountain Jebel, Jelad, or Jelûd, the foot of which is about 6 m. S. of Jabbok. The mountain extends E. and W. for abt. 10 m. On it is the ruined town of Jelad, probably the site of the ancient city Gilead, called also, in Scripture, Ramoth-Gilead.

Gil'ead, in *Connecticut*, a post-office of Tolland co.

Gil'ead, in *Illinois*, a post-village, formerly cap. of Calhoun co., abt. 90 m. S.W. of Springfield.

Gil'ead, in *Indiana*, a post-village of Miami co., abt. 82 m. N. of Indianapolis.

Gil'ead, in *Maine*, a post-town of Oxford co., 80 m. N.N.W. of Portland. *Pop.* (1897) about 380.

Gil'ead, in *Michigan*, a post-township of Branch co.

Gil'ead, in *Missouri*, a post-village of Lewis co.

Gil'ead, in *Nebraska*, a post-village of Thayer co.

Gil'ead, in *Ohio*, a township of Morrow co.

—A post-village of Wood co., now called GRAND RAPIDS, on the Maumee river, about 140 m. N.N.W. of Columbus. *Pop.* (1897) 572.

Giles (*jīles*), in *Tennessee*, a S. co., bordering on Alabama; *area*, about 656 sq. m. *Rivers.* Elk river and Richland creek. *Surface*, diversified; *soil*, fertile. *Cap.* Pulaski. *Pop.* (1890) 34,957.

Giles, in *Virginia*, a S.W. co., bordering on W. Virginia; *area*, about 446 sq. m. *Rivers.* Kanawha or New river, and Wolf, Walker's, and Sinking creeks. *Surface*, mountainous; *soil*, in some parts fertile. *Prod.* Corn, wheat, and grass. *Cap.* Pearisburg. *Pop.* (1890) 9,090.

Giles Court-House, in *Virginia*. See PEARISBURG.

Gil'ford, or GUILFORD, in *Michigan*, a township of Tuscola co.

Gil'ford, or GUILFORD, in *Minnesota*, a township of Wabasha co.

Gil'ford, in *New Hampshire*, a township (containing GILFORD VILLAGE, a post-village, cap. of Belknap co.) about 30 m. N. by E. of Concord. Its manufactures are important.

Gil'gal. [Heb., a wheel.] A city near the Jordan, where the Israelites passed the river into Canaan, where they were circumcised and held the first Passover after leaving the desert (*Joshua* iv. 19.). Here rested the tabernacle, until removed to Shiloh; here Samuel held court as judge of Israel, and here Saul was crowned. It is frequently mentioned in the Bible; a school of the prophets was established here (2 Kings iv. 38), yet it afterwards became a seat of heathen worship, (*Amos* iv. 4.) Josephus places it within 2 miles of Jericho, but no traces of it are at this day extant.

Gil'ia, *n.* (*Bot.*) A genus of plants, order *Polemoniaceæ*. The Tri-colored Gilia, *G. tricolor*, is an elegant little garden-plant, one foot high, cultivated for the beauty of its flowers, which are numerous; limb pale lilac-blue colored, with purple throat and yellow tube.

Gill, *n.* [A. S. *ciolon*, the throat, *ceole*, the jaws; Ger. *kehle;* Lat. *gula*, the throat, from *glutire*, to swallow.] (*Physiol.*) One of the BRANCHIÆ, *q. v.*

(*Bot.*) The *lamellæ* or plates that occupy the lower surface of the mushroom, and consist of a series of parallel plates, bearing naked sporules over their entire surface. Called also *hymenium*.

—The flap that hangs below the beak of a fowl or bird.— The flesh on the lower part of the cheeks, or under the chin.—A pair of wheels and a frame on which timber is carried.

Gill, (*jil,*) *n.* [A. S. *wægel;* L. Lat. *gillo*, allied to Gr.

gaulos, a milk-pail.] A measure of capacity containing the 4th part of a pint.

(*Bot.*) The Gill-over-the-ground, or Ground-ivy. See NEPETA.

—A malt liquor impregnated with Ground-ivy.

—[Contr. from *Gillian*, the ancient method of writing *Juliana*.] A vulgar appellation for a woman; a wanton; a jill-flirt.

"Each Jack with his *Gill*."—*Ben Jonson.*

Gill, a small lake of Ireland, co. Sligo, Connaught, abt. 2 m. S.E. of Sligo.

Gill, in *Indiana*, a township of Sullivan co., on the Illinois line.

Gill, in *Massachusetts*, a post-township of Franklin co.

Gil'lam, in *Indiana*, a flourishing township of Jasper county.

Gille'nia, *n.* (*Bot.*) A genus of plants, order *Rosaceæ*. *G. trifoliata*, the Indian physic, and *G. stipulacea*, the Bowman's root or American ipecacuanha, are pretty herbs, with lobed, discolored leaves and white flowers. They are natives of the U. States, and are used medicinally. In small doses they are tonic; in large doses, emetic.

Gillesia'ceæ, *n. pl.* (*Bot.*) An order of plants, alliance *Liliales*. DIAG. A calyx-like involucre, the inner bracts of which are colored and petal-like.—They consist of small herbaceous bulbous plants, with grass-like leaves and spathaceous flowers. There are but two genera,—*Gilliesia* and *Miersia*, containing five species, all natives of Chili. Their properties and uses are unknown.

Gilles'pie, in *Illinois*, a post-village of Maconpin co., about 20 miles N.E. of Alton. *Pop.* (1890) 948.

Gillespie, in *Texas*, a W. central co.; *area*, about 960 sq. m. *Rivers*. Pedernales river, Sandy creek, and numerous smaller streams. *Surface*, diversified; *soil*, fertile. *Cap.* Fredericksburg. *Pop.* (1890) 7,028.

Gilles'pieville, in *Ohio*, a post-office of Ross co.

Gilles, St., an old town of France, dept. Gard, 12 miles S.S.E. of Beaucaire. Its territory produces a strong red wine, which is exported. *Pop.* (1895) 6,243.

Gill'-flap, *n.* (*Ichth.*) A membrane atttached to the posterior edge of the gill-lid, immediately closing the gill-opening.

Gill'-flirt, *n.* A pert or wanton girl.—See GILL and JILL-FLIRT.

Gillhall, in *Pennsylvania*, a P. O. of Allegheny co.

Gillie, (*gil'ly,*) *n.* [A. S. *giolda*, a companion: Gael. *giolla*, a boy.] A page; an atteudant; a body-servant; as, a Highland *gillae*.

Gil'limer, the last king of the Vandals in Africa. Descended from Genserie, he usurped the throne, 530, driving out the feeble Hilderic who had allied himself with the Romans. Justinian took advantage of this pretext to send against him an army under Belisarius, who conquered *G.* at the battle of Fricameron (534), took him prisoner, and seized the city of Carthage. Justinian made the Vandalic kingdom a prov. of his empire, but granted *G.* a considerable domain in Galatia.

Gilling'ham, a town of England, co. Kent, 2 miles from Chatham. *Pop.* (1895) 19,634.

Gil'lingite, *n.* (*Min.*) A hydrous silicate of iron from Gillinge-Grube, Sweden. Color, black; sp. gr. 3·045

Gil'lisonville, iu *South Carolina*, a post-village of Hampton co.

Gillis, (St.,) (*zhil'lee.*) a town of Belgium, E. Flanders, 20 m. from Ghent; *pop.* 4,000.

Gill'-lid, *n.* The covering for the gills, or breathing apparatus in fish.

Gilly-flower, (*jil'le,*) *n.* [Fr. *giroflée*; Lat. *caryophyllum*; Gr. *karyophyllon*, the clove-tree.] (*Bot.*) A popular English name for some of the cruciferous plants, most prized for the beauty and fragrance of their flowers, as Wall-flower, Stock, &c. The Clove-pink also, the wild original of the carnation, is called *Clove-gillyflower*. The name *G.* has been regarded as a corruption of *July-flower*; but in Chaucer it appears in the form *gilofre*; and the French *giroflée* indicates the true derivation from *girofle*, a clove, the smell of the Clove-*G.* being somewhat like that of cloves.

Gil'man, in *Illinois*, a city of Iroquois co., 81 miles S. by W. of Chicago. *Pop.* (1890) 1,112.

Gil'man, in *New York*, a post-village of Sullivan co., on P. J., M. & N. Y. R. R., 5 miles from Monticello.

Gil'manton, in *New Hampshire*, a post-towu of Belknap co., about 20 miles N.N.E. of Concord. *Pop.* (1890) 1,211.

Gil'manton, in *Wisconsin*, a post-village and township of Buffalo co., on the Buffalo river, about 12 miles N.E. of Alma.

Gil'manton Iron Works, in *New Hampshire*, a post-village of Gilmanton township, about 20 miles N. N.E. of Concord.

Gil'mer, in *Georgia*, a N. co.; *area*, about 452 sq. miles. *Rivers*. Connasanga, Coosawatchee, and Ellijay rivers. *Surface*, diversified; *soil*, fertile. *Min.* Gold, iron and marble. *Cap.* Ellijay. *Pop.* (1890) 9,074.

Gilmer, in *Illinois*, a flourishing township of Adams co.

—A post-village of Lake co., abt. 35 m. N.W. of Chicago.

Gilmer, in *Texas*, a post-town, cap. of Upshur co., about 820 m. E.N.E. of Austiu. *Pop.* (1890) 591.

Gilmer, in *West Virginia*, a central co.; *area*, about 330 sq. m. *Rivers*. Little Kanawha river, and Lick and Leading creeks. *Surface*, uneven; *soil*, in some parts fertile. *Cap.* Glenville. *Pop.* (1890) 9,746.

Gilmer's Store, in *North Carolina*, a post-office of Guilford co.

Gil'more, in *Ohio*, a post-village of Tuscarawas co., about 40 miles N.E. of Zanesville.

Gilmore, iu *Pennsylvania*, a towuship of Greene co.

Gil'more City, in *Iowa*, a post-vill. of Pocahoutas co.

Gilmore's Mills, in *Virginia*, a post-office of Rockbridge co.

Gilo'lo, or ALMAHERA, the largest of the Moluccas or Spice Islands, is crossed by the equator in Lon. 128° E. It is divided towards the east from New Guinea by a wide channel of its own name. It contains about 6,500 sq. m., comprising several petty states, which are connected chiefly with the Dutch settlements in the East Indies. The imports are manufactured goods, opium, china-ware, and iron; and the exports are sago, cocoa-nuts, spices, fruits, pearls, gold-dust, horses, sheep, and horned cattle. The interior is mountainous, and in many parts densely wooded. *Pop.* Unascertained. Gilolo, the principal towu, lies iu Lat. 0° 45′ N., Lon. 128° 22′ E.

Gil'pin, in *Colorado*, a N. central co.; *area*, about 150 sq. miles. *Surface*, mountainous; *soil*, in some parts fertile. *Min.* Gold. *Cap.* Ceutral City. *Pop.* (1890) 5,867.

Gilpin, in *Pennsylvania*, a post-office of Indiana co.

Gil'roy, iu *California*, a post-village of Santa Clara co.

Gil'son, iu *Illinois*, a post-office of Knox co.

Gil'sum, in *New Hampshire*, a post-town of Cheshire co., about 35 miles W.S.W. of Concord. *Pop.* (1890) 643.

Gilt, *imp.* and *pp.* of GILD, *q. v.*

Gilt, *a.* Overlaid with a thin coating of gold; illuminated; adorned.

—*n.* Gold laid on the surface of any thing.

Gilt'-head, *n.* (*Zoöl.*) A name commonly applied to some fishes of different genera, but more especially to the genus *Chrysophrys*, family *Sparidæ*, the species of which are Enropean. The common Gilt-head, *C. aurata*, (Fig. 1157,) abounds in the Mediterranean, and is very much esteemed for the table. It is about 12 inches in length, and is found near the shore, where its presence is sometimes betrayed to fishermen by the noise which its teeth make in crushing shells. The back is silvery-gray, shaded with blue; the belly like polished steel; the sides have golden bands; and there is

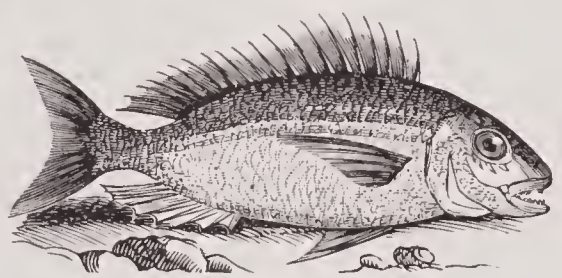


Fig. 1157. — COMMON GILT-HEAD.
(*Chrysophrys Aurata.*)

a halfmoon-shaped golden spot between the eyes, from which it derives the name *G.*, the Latin name *Aurata* (gilded), and the Greek name *Chrysophrys* (golden eyebrow). From the Latin *Aurata* comes the French name *Dorade*. This fish was very generally kept in the *vivaria* of the ancient Romans, being much valued and easily fattened.

Gim'bal, *n.* [Lat. *genullus*, twin.] (*Naut.*) A piece of mechanism consisting of two brass hoops or rings which move within one another, each perpendicularly to its plane, about two axes, placed at right angles to each other. A body suspended in this manner, having a free motion in two directions at right angles, will assume the vertical position; hence the apparatus is employed for suspending portable or mountain barometers, sea-compasses, &c.

Gimb'let, *n.* Same as GIMLET, *q. v.*

Gimcrack, (*jim'krak,*) *n.* [From *gim*, contr. of *gimp*, neat, spruce, and O. Eng. *crack*, a lad, a boasting youth.] A trivial piece of mechanism; a toy; a pretty thing.

"What's the meaning of all these trangrams and *gimcracks*?"
Arbuthnot.

Gim'let, Gimb'let, *n.* [O. Fr. *guimbelet*; Fr. *gibelet*, probably of the same origin with Eng. *wimble*, q. v.] A small instrument with a pointed screw at the end for boring holes in wood.

—*v. a.* To perforate with a gimlet.

(*Naut.*) To turn an anchor by the stock, as in coming to, or weighing anchor, that the flukes may not injure the bows, or that the anchor may seize by the opposite fluke, so that the ground-tackle may lie ship-shape or untwisted.

Gim'let-eye, *n.* A squint or swivel-eye.

Gim'mal, *n.* Joined work, the parts of which move or play one within the other. "A *gimmal*-bit."—*Shaks.*

—Any quaint device, or piece of machinery.

"By some odd *gimmals* or device."—*Shaks.*

Gimp, *n.* [Fr. *guipure*, from *guiper*, to cover or whip about with silk; O. Fr. *guimpe*, the pennon of a lance; Cf. Ger. *wimpel*.] A kind of silk-twist or edging, interlaced with brass or other wire.

—*a.* [W. *gwymp*, neat.] Trim; nice; sprnce.

"She was both *gimp* and small."—*Motherwell.*

Gin, (*jin,*) *n.* [Dnt. *genever*: Fr. *genièvre*, the juniper-berry; Lat. *juniperus*, the juniper.] An ardent spirit, originally flavored with juniper berries, from which it derives its name. Geneva is frequently confounded with gin: the former is, however, merely procured by the fermentation of the berries of the *Juniper communis*. *Hollands gin* is a variety of corn spirit, containing a proportion of juniper, while the *English gin* consists of plain corn spirit, flavored with oil of turpentine and a small quantity of other substances. Every gin-distiller has a recipe of his own, which is usually kept a secret; hence the variety of flavors to be found in this spirit; as, the *plain gin flavor*, the *Hollands flavor*, the *whisky flavor*, the *smoky flavor*, &c. A large variety of substances is employed in the flavoring of gin; among others may be mentioned sugar, bitter almonds, turpentine, creosote, lemon, cardamoms, caraways, cassia, garlic, Canada balsam, horse-radish, grains of paradise, cayenne pepper, and several other herbs, seeds, fruits, &c. Perhaps nothing used as a diet by man is liable to greater and more injurious adulteration than gin; and the difficulty of getting it pure from any poisonous drug should induce every one to abstain from it. Cordialized *G.* forms the favorite alcoholic drink of the lower classes in London, and is popularly known as *Old Tom*.

Gin, (*jin,*) *n.* [Contracted from *engine*.] (*Mach.*) A machine used for raising weights, driving piles, &c., consisting of 3 poles, each from 12 to 15 feet long, and 5 inches in diameter at the lower end, tapering to 3½ inches at the upper. The poles are united at the top, either by an iron ring which passes through them, or by a rope which is twisted several times round each; and to this "joint" a pulley is fixed. Two of the poles are kept at an invariable distance by means of an iron rod, in order that they may support the windlass which is attached to them, its pivots running in iron cheeks fixed to the poles. When the machine is to be used, it is set up over the weight to be raised; two blocks, arranged according to the second system of pulleys (*q. v.*), are fixed, one to the top of the poles, the other to the weight; and the rope, after passing round both blocks and over the pulley before mentioned, is attached to the windlass, by the revolution of which the weight can then be raised.



Fig. 1158.—GIN.

—An engine of torture moved by screws; a rack.—A pump worked by rotary sails.

—*v. a.* To clear of seeds by means of a machine, as cotton.

Gin'gal, *n.* Same as JINGAL, *q. v.*

Gin'gee, a strongly fortified town of Hindostan, in the Carnatic, 80 m. from Madras, on the Coromandel coast. It stands upon a stupendous rock, and was formerly regarded as impregnable. It was taken by the French in 1750, and abandoned to the British after the capture of Pondicherry, 1761.

Ginger, (*jin'dzher,*) *n.* [Fr. *gingembre*.] (*Bot.*) See ZINGIBER.

Gin'ger-beer, *n.* (*Drinks.*) This popular and agreeable beverage is prepared as follows:—Take of white sugar 20 pounds, lemon or lime juice 18 fluid ounces, honey 1 pound, bruised ginger 22 ounces, water 18 gallons. Boil the ginger for half an hour in three gallons of the water, then add the sugar, the juice, and the honey, with the remainder of the water, and strain the whole through a cloth; when cold, stir in the white of one egg and half an ounce of essence of lemon; after standing four days, bottle. The bottles are to be laid on their sides in a cellar; and the beer is ready for use in about 3 weeks. If a little yeast be used, the beer is ready in 2 or 3 days, but in that case does not keep well.

Ginger-beer powder. Take of white sugar two drachms, bicarbonate of soda 26 grains, powdered ginger 5 grains, essence of lemon 1 drop; mix and put up in white paper. In a blue paper put up half a drachm (30 grains) of finely powdered tartaric acid. When used, mix the powders and stir them into half a pint of water.

Gin'gerbread, *n.* A sweet-cake having ground ginger in it.

Gin'gerbread Ground, a dangerous reef S. of the Great Bahama island; Lat. 25° 56′ N., Lon. 78° 25′ W.

Gin'gerbread-tree, *n.* (*Bot.*) A name given to the *Doom-palm*, from the resemblance of its brown, mealy rind to gingerbread.—See HYPHÆNE.

Gin'gerbread-work, *n.* Work cut or formed into fanciful shapes for ornament, similar to those usually traced on gingerbread;—hence, any fanciful, tawdry, or fantastic work.

Gin'ger Hill, iu *Pennsylvania*, a village of Washington co.

Gin'ger Island. See VIRGIN ISLANDS.

Gin'gerly, *adv.* [A. S. *geongra*, comp. of *geong*, young.] Cautiously; timidly; delicately; tenderly; gently; as, a *gingerly* spoken man.

"What is 't that you
Took up so *gingerly*?"—*Shaks.*

Gin'ger-pop, *n.* Same as GINGER-BEER, *q. v.*

Gin'ger-wine, *n.* (*Drinks.*) A popular and cheap liquor, made by the fermentation of sugar and water, and flavored with various substances, but chiefly with ginger. It is partly an article of domestic manufacture, and is partly made on a larger scale for sale. It may be made by dissolving about 6 pounds of sugar in 14 gallons of water, adding 4 ounces of bruised ginger and the whites of 2 eggs well beaten, mixing thoroughly, boiling for a quarter of an hour, skimming carefully, and when the liquor has cooled adding the juice of 4 lemons, and also their rinds for flavoring, with a teacupful of ale-yeast to promote fermentation, letting it ferment in an open vessel for 24 hours, and then putting it into a cask of suitable size, closely bunged, in which it remains for a fortnight before it is bottled. It is, however, very common to increase the strength of *G. W.* by the addition of spirits, the flavor being also modified

by the kind of spirits employed. A little spirits added makes *G. W.* keep well, and it even improves in quality for many months. Its quality depends much on that of the sugar and of the ginger employed, and also on the care with which the preparation is conducted.

Ging'ham, *n.* [Fr. *guingan.*] (*Manuf.*) A cotton fabric, generally bearing a colored check pattern, which is not produced by dyeing or stamping the manufactured material, but by interweaving colored threads. The various kinds of *G.* now manufactured are known by different names in commerce; and umbrella *G.* is woven with threads all of the same color.

Ging'hamsburg, in *Ohio*, a post-office of Miami co.

Gin'ging, *n.* (*Mining.*) The lining of a shaft with stones or brick for its support.

Gin'gival, *a.* [Lat. *gengiva*, *gingiva*, a gum.] Belonging to the gums.

Gin'gle, *v. a.*, *v. n.*, and *n.* Same as JINGLE, *q. v.*

Gin'glymoid, Ginglymoid'al, *a.* [Fr. *ginglymoïde;* Gr. *gingglymoeides*, from *gingglymos*, and *eidos*, form.] Belonging to, or resembling a ginglymus.

Gin'glymus, *n.; pl.* GINGLYMI. [Gr. *gingglymos*, a hinge.] (*Anat.*) A name applied to those articulations which open and shut like the hinge of a door, such as the elbow-joint, the wrist, and ankle.

Gin'horse, *n.* A horse that puts the gin in motion, by which cotton is rid of its seed.

Gin'house, *n.* The building where a gin is situated. —A tavern where gin is vended.

Gin'kell, GODART DE REEDE DE, EARL OF ATHLONE, an able and brave Dutch officer, who accompanied the Prince of Orange in his expedition to England, was born at Utrecht in 1640. Some time after William's accession, he was sent to suppress the revolt of some Scotch regiments at Ipswich. He subsequently took a leading part in William III.'s campaigns in Ireland; was at the battle of the Boyne; and after taking Athlone, gaining the battle of Aughrim, and forcing Limerick to capitulate, was rewarded with the title of Earl of Athlone. He afterwards served under William, and under Marlborough, in the great campaigns on the continent. D. 1703.

Gin'net, *n.* Same as JENNET, *q. v.*

Gin'ny-carriage, *n.* A small, strong carriage for conveying materials on a railroad.

Gin'-ring, *n.* The track around which the horse moves in putting a gin in motion.

Gin'seng, *n.* [Probably from Chin. *gen seng*, chief of plants.] (*Bot.*) See PANAX.

Giober'ti, VINCENZO, a distinguished Italian writer and statesman, B. at Turin, 1801. After a brilliant educational career, he was ordained priest in 1825, and soon afterwards was appointed court-chaplain at Turin. Banished in 1833 without any formal process, on account of his liberal tendencies, the remaining 19 or 20 years of his life were spent chiefly in exile. After remaining a few years in France, he began to teach philosophy in a public school at Brussels. His first writings were philosophical, viz., *La Teorica del Sovsanaturale* (1837); the *Introduzione alto Studio della Filosofia* (1840), following out the subject of the former treatise, and combating the principles of Kant and Victor Cousin in favor of the doctrines of St. Thomas Aquinas and St. Buonaventura; three volumes more in 1842, entitled *Errori Filosofici di Antonio Rosmini;* and next the treatises *Del Bello* and *Del Buono*, on the principles, respectively, of taste and morals. In 1843 appeared the most celebrated of his works, *Primato Morale e Civile degli Italiani*, in which the moral and civil preëminence of Italy over all the nations of the earth is set forth, and the success of which was exemplified in the Italian frenzy for the early reforms of Pius IX., and the enthusiasm that led to the revolution of 1848. In that year *G.* was recalled to his native country amid popular acclamation. On the proclamation of the Sardinian constitution, he was elected deputy for Turin, took an active part in all the great political questions then agitating Europe, and finally became prime-minister of Sardinia. But his hopes for Italy were soon blighted. In 1849 he returned into voluntary exile, and spent his last years in Paris in writing his *Rinnovamento Civile d'Italia*, the final manifesto of the great statesman and philosopher. D. at Paris, 1852. His country gave him an honored sepulchre; and he rests among his own people in the city which had excluded him during 15 years of his laborious life.

Giober'tite, *n.* (*Min.*) Same as MAGNESITE, *q. v.*

Gio'ja, FLAVIO, an Italian pilot and mariner, B. at Pasitano, near Amalfi, about the latter part of the 13th cent. *G.* is said to be the inventor of the mariner's compass, of which he made use in 1302–3. He marked the N. with a *fleur de lys*, in honor of the sovereigns of Naples, a branch of the royal family of France. The tendency of the loadstone to turn toward the N. was known before his day, but the compass then in use consisted only of a magnetized reed floating upon cork in a vessel of water. *G.* invented the plan of suspending it on a pivot, thus leaving it free to move in any direction, whereby observations were rendered both easier and more exact.

Giojo'sa, a town of S. Italy, 7 m. N.E. of Gerace; *pop.* 8,911. — A town of Sicily, 7 m. from Patti; *pop.* 5,000.

Giordano, LUCA, (*jor dā'no,*) a Neapolitan painter, the pupil of Spagnoletto and Pietro di Cortona, B. 1632. He imitated the styles of the great masters he studied so well that his pictures are not easily distinguished from their own. He was employed for some years in the Escurial. His principal works are at Naples, Madrid, Florence, and Rome. This painter was surnamed FRA PRESTO; but whether it was on account of his rapidity in working, which was extraordinary, is uncertain. D. 1704.

Giorgione, GIORGIO BARBARELLI, (*jor-jō'nai,*) one of the earliest painters of the Venetian school, B. 1478. He executed, at Venice, a large number of frescoes, which time has destroyed. Several of his oil-paintings have been preserved, and are at once recognizable by the firmness of touch, vividness of coloring, and the striking tone of relief which they display. The Museum at Paris contains four of his works, viz: *Salome receiving the head of John the Baptist; Jesus sitting on his Mother's Knees; The Rural Concert;* and *Gaston de Foix.* His chef-d'œuvre is a picture of *Christ carrying His Cross*, preserved at Venice. D. of the plague, 1511.

Giot'to, or AMBROGIOTTO CORDONE, (*jot'to,*) a celebrated Italian painter, B. at Vespignano, 1276; he was the pupil of Cimabue, and appears to have owed the development of his extraordinary faculties almost wholly to that painter, who in one of his walks near Florence saw *G.*, then a shepherd-boy, sketching one of his flock on the ground, and perceived so much native talent in the attempt, that he persuaded the boy's parents to let him take him with him to Florence, and make a painter of him. Florence dates its preponderance in the history of Tuscan painting from the time of *G.*; his works mark the æra of the first great epoch of the art in modern times: the rigid traditional forms of the Byzantine school were finally laid aside for nature; the *beautiful* now supplanting the *hideous* as the fundamental element of the canons of art. — *G.* was painter, sculptor, architect, and mosaic worker; he enriched many cities in Italy with his works, (chiefly in fresco,) especially Florence, Rome, Naples, Padua, and Assisi; and by his introduction of individuality of treatment through the careful study of nature, established legitimate portrait-painting. He was the friend of Dante, and has transmitted the features of the poet, (see Fig. 769,) who in turn has dedicated to the painter some verses in the *Divina Commedia.* D. 1336.

Giovenazzo, (*jo'vai-nat'zo.*) [Lat. *Natiolum.*] A seaport town of S. Italy, prov. Bari, abt. 10 m. from Bari; *pop.* 10,000.

Gip, *v. a.* To eviscerate; to gut, as a herring. —*n.* Same as GYP, *q. v.*

Gip'sire, *n.* [Fr. *gibécière;* L. Lat. *gibaceria*, a game-pouch.] A large pocket anciently worn at the girdle.

Gip'sy, *n.* See GYPSY.

Gip'syism, GYP'SYISM. The state or condition, or the arts or practices, of the Gypsies.

Giraffe, (*jē'rāf,*) *n.* [Fr., from Sp. *girafá;* Ar. *zirafâh, zorâfeh*, a long neck.] (*Zoöl.*) The Camelopard, *Camelopardalis giraffa*, a most remarkable Ruminant, which in its general structure most nearly approaches the deer, has points of affinity, also, with the antelopes and camels, besides very striking peculiarities of its own. The enormous apparent length of the fore-legs and its long tapering neck must strike every one at the first glance: while its small and elevated head, its large and brilliant eyes, its mild aspect, and the whole contour of the animal, differing from all others, cannot fail to excite admiration; for, notwithstanding the unusual proportions of the limbs, its general form is not merely elegant, but highly picturesque. The horns of the *G.* differ both in texture and shape from those of all other horned quadrupeds; forming, as it were, a part of the skull, and consisting of two porous bony substances, about 3 inches long, with which the top of the head is armed, and which are placed just above the ears, and crowned with a thick tuft of stiff upright hairs; a considerable protuberance also rises on the middle of the forehead between the eyes, which appears to be an enlargement of the bony substance, similar to the two horns just mentioned. The neck is furnished with a very short stiff mane. The tail is of moderate length, gradually tapering towards the end, and terminating in a tuft of long hair. The fore part of the body is very thick and muscular; the hind part thin and meagre. The *G.* in its wild state, when full-grown, measures 17 feet from the top of the head to the fore-feet; the female, however, is not so high; and it must be understood that this measurement is taken at the maximum height, none of those brought to, or bred in, Europe having reached more than 14 ft. At first view the fore-legs seem twice the length of the hind: but this difference, on accurate examination, appears to result chiefly from the extraordinary height of the shoulders. The color of the *G.* is a light fawn, marked with numerous large spots of a darker hue, less regularly shaped on the sides than on the neck and shoulders. The vertebræ of the neck are slightly curved; but although nothing can exceed the gracefulness of form which this part sometimes presents, the fewness of the joints prevents the neck from being generally bent or arched with swan-like elegance. The peculiarities of conformation which this animal displays are all adapted to the mode of life which is natural to it; for it is destined to browse upon the foliage and young shoots of trees, at a height far greater than that which any other animal can reach, whilst standing on the ground. For this purpose it is furnished with an elongated, prehensile tongue, with which it lays hold of the tender branches, and draws them into its mouth, being assisted by its projecting upper lip, which is at once flexible and very muscular. In order to bring its mouth to the ground, which it seldom does except to drink, or to pick up some unusual delicacy, the *G.* is obliged to stretch its fore-legs widely apart, and to bend its neck into a semicircular form. The head of the *G.* resembles that of the camel in the absence of a naked muzzle, and in the shape and organization of the nostrils, which are oblique and narrow apertures, defended by the hair which grows from their margins, and surrounded by cutaneous muscular fibres by which the animal can close them at will. This is a beautiful provision for the defence of the air-passages, and the irritable membrane lining the olfactory cavities, against the fine particles of sand which the storms of the desert raise in almost suffocating clouds. The large, dark, and lustrous eyes of the *G.*, which beam with a peculiarly mild but fearless expression, are so placed as to take in a wider range of the horizon than is subject to the vision of any other quadruped. (See Fig. 982, and text.) To an open attack he sometimes makes a successful defence by striking out his powerful and well-armed feet; and the king of beasts is said to be frequently repelled and disabled by the wounds which the *G.* has thus inflicted with his hoofs. The horns of the *G.*, small as they are, and muffled with skin and hair, are by no means the insignificant weapons they have been supposed to be. The *G.* does not butt by depressing and suddenly elevating the head, like the deer, ox, or sheep; but strikes the callous obtuse extremity of the horns against the object of his attack with a sidelong sweep of the neck. The feet have cloven hoofs, but are destitute of the small lateral toes or spurious hoofs, which occur in the other cloven-footed ruminants. The head is long; the upper lip entire, projecting far beyond the nostrils, and endowed with considerable muscular power. The tongue is remarkably capable of elongation, and is an organ of touch and of prehension, like the trunk of an elephant; it can be thrust far out of the mouth, and employed to grasp and take up even very small objects; it is said that its tip can be so tapered as to enter the ring of a very small key. The usefulness of such an organ for drawing in leaves and branchlets to the mouth is obvious. The *G.* adroitly picks off the leaves of acacias and other thorny plants, without taking the thorns into its mouth. The dentition of the *G.* agrees with that of antelopes, sheep, goats, and oxen; the upper jaw of the male is destitute of the canine teeth, which are present in the male of most kinds of deer. The female has four inguinal udders: she brings forth one young at a birth, and the period of gestation is 15 months. The new-born *G.* measures six feet from the fore-hoofs to the top of the head, and in a few hours after birth it is able to follow the dam. It is an inoffensive animal, and generally seeks safety, if possible, in flight, although it is capable of making a stout resistance, and is said to beat off the lion. It fights by kicking with its hind-legs, discharging a storm of kicks with extraordinary rapidity. It is not easily overtaken even by a fleet horse, and has greatly the advantage of a horse on uneven and broken ground. Its pace is described as an amble, the legs of the same side moving at the same time. The *G.* was known to the ancients, and was exhibited in Roman spectacles. Representations of it appear among Egyptian antiquities. It has been supposed to be the *zemer* of the Jews, translated *chamois* in the English Bible, (*Deut.* xiv. 5.)



Fig. 1159. — GIRAFFES.

Giraldi, LILIO GREGORIO, (*je-ral'de,*) better known by his Latin name of GIRALDUS, a learned Italian writer and Latin poet, was B. at Ferrara, in 1479. At the sacking of Rome by the troops of Charles V. he lost all his property, and was reduced to indigence. He wrote numerous works, the principal of which is his *Historia de Diis Gentium*, in which he attempts to present a system of mythology. D. in 1552.

Giral'dus Cambrensis, or GERALD DE BARRY, an old English writer, B. at Manorbeer, near Pembroke, S. Wales, 1146. He was appointed to several rich benefices under Henry II. and Richard I., and administered the bishopric of St. David's, which he vainly endeavored to obtain for himself. When Richard Cœur-de-Lion was setting out on his crusade, *G.* was named governor of the kingdom in his absence. His principal works are: *Topographiæ Hiberniæ, Itinerarium Cambriæ, De Rebus a se gestis*, which is a journal of his life, and displays no inconsiderable amount of vanity; *Ecclesiæ Speculum*, in which he censures the manners of the monks. D. 1220.

Gir'andole, (*zhir'an-dōl,*) *n.* [Fr., from It. *girandola*, from *girare*, to turn; Lat. *gyrare*, to turn in a circle, from *gyrus*, a circle; Gr. *guros.*] A large kind of branched candlestick, or chandelier.

Girard, (*zher-ard',*) STEPHEN, an eminent American philanthropist, B. near Bordeaux, France, in 1750. He passed his youth in a sea-faring capacity, and rose to be master and co-owner of an American coaster. In 1769, retiring from sea-life, he commenced business as a small

trader in Philadelphia, and ultimately realized a large fortune; this was further extended by his embarking in the business of private banking in 1812. In the same year he advanced a loan of $5,000,000 to govt. *G.* was a liberal benefactor to the city of his adoption, subscribing liberally to its charities, and adorning it with many elegant buildings. D. 1831, bequeathing the bulk of his property, amounting to about $9,000,000, to charitable institutions and public works. The principal bequest, however, was a sum of $2,000,000, besides the proceeds of a certain proportion of his estate (out of which some legacies were to be deducted), together with a building-lot in Philadelphia, for the erection and



Fig. 1160. — GIRARD COLLEGE, (PHILADELPHIA).

establishment of a college for orphans, (see PHILADELPHIA.) This edifice in the Corinthian style (Fig. 1160), is the finest specimen of Grecian architecture in the U. States, if not of modern times. It was begun in 1833, and opened in 1848; having cost in its construction over $1,930,000. A marble statue in the lower vestibule covers the remains of the founder. Disciple of the French Encyclopedic school, *G.* was very liberal in religious matters. By a clause in the founder's will, no ecclesiastic, missionary, or minister of any sect whatever, is allowed to have any connection with Girard College, or even to be admitted as a visitor therein; but the officers of the institution are instructed to train up the pupils in the truest principles of morality, leaving them to choose their own religious opinions upon arriving at years of discretion.

Girard, (*je-rard'*,) in *Alabama*, a post-village of Russell co., on the Chattahoochee River, opposite Columbus, Georgia.

Girard', in *Georgia*, a post-office of Burke co.

Girard', in *Illinois*, a post-township of Macoupin county.

Girard', in *Michigan*, a post-village and township of Branch co.

Girard', in *Ohio*, a post-village of Trumbull co., about 170 m. N.E. of Columbus.

Girard', in *Pennsylvania*, a township of Clearfield county.

—A post-borough and township of Erie county, on Lake Erie.

Girardin, (*zher-ar'din*,) EMILE DE, a distinguished French journalist and politician, B. in Switzerland, 1802. He was the natural son of Count Alex. de Girardin, and became authorized to bear his father's patronymic in 1837. *G.* was educated at Paris, and, in 1823, appointed secretary-general of the royal museums. After the revolution of 1830, he started the *Journal des Connaissances utiles*, for which he obtained 120,000 subscribers; in 1832, the *Musée des Familles;* and, in 1834, the *Almanach de France.* Besides these, he published an *Atlas de France*, and an *Atlas Universal.* The whole of these works were announced as emanating from the "Société Nationale pour l'Emancipation Intellectuelle," and exercised a considerable influence on the progress of public instruction in France. In 1836, *G.* founded *La Presse*, as an independent political organ, and took for his motto "An jour le jour" (from day to day). True to this principle, and the pecuniary interests of his speculation, he supported and renounced, in turn, every minister and every opposition leader. Consequently, he became involved in serious controversies, one of the results of which was his duel with Armand Carrel, editor of the *National*, in 1836, in which the latter fell. From that time until the revolution of 1848, *G.* took an active part in politics both as a journalist and deputy; and from being a supporter of the moderate liberal party under the leadership of Guizot, became a pronounced republican. *G.* was the first to propose Louis Napoleon as a candidate for the Presidency, but four weeks had not elapsed after the installation of the latter, ere he was attacked by *G.* with violent acrimony. *G.* next became an ally of the Socialists, and in 1856 ceased his connection with the journal *La Presse;* but, subsequently founded a new journal called *La Liberté*, which soon reached a circulation of 100,000 copies. He sold it in 1870 to his nephew, L. Détroyat, for $160,000, and became in 1874 chief editor of *La France*, which position he held almost to the day of his death. He was one of the ablest of French journalists, and accumulated a large fortune. D. April 27th 1881.

GIRARDIN, MADAME DE, (DELPHINE GAY,) wife of the above, B. 1804, was celebrated during her life-time for her beauty, wit, and intellectual powers, — the charm she diffused over her *salons* attracting to them the most distinguished of French political, literary, and artistic notabilities. Her best work is her well-known *Lettres Parisiennes*, which appeared in her husband's journal "La Presse," under the *nom-de-plume* of *Le Vicomte de Launay.* D. 1855.

Girar'din, ST. MARC, an eminent French literateur and journalist, B. at Paris, 1801. After brilliantly graduating at the colleges Napoléon and Henry IV., he, in 1827, was inducted into a professorship in the Collége Louis le Grand. On his return to Paris, after a tour in Germany in 1815, *G.* was appointed Guizot's successor as professor of history in the Faculty of Letters, and was also made Master of Requests to the Council of State. In 1834 he was appointed professor of poetry in the College of the Sorbonne, and also elected a deputy. In 1844, *G.* was admitted a member of the French Academy. Among his chief works are, *Notices Politiques et Littéraires sur l'Allemagne* (1834); *Cours de Littérature Dramatique* (4 vols. 1843); *Essais de Littérature et de Morale* (2 vols. 1844); and *Tableau de la Littérature au 16me. Siècle, suivi d'Etudes sur la Littérature du Moyen Age et de la Renaissance* (1862). D. April, 1873.

Girard' Manor, in *Pennsylvania*, a post-office of Schuylkill co.

Girardon, (*zhe-rar'dong*,) FRANÇOIS, a French sculptor, B. at Troyes in 1628. He was greatly encouraged by Louis XIV., and, among other works, executed the equestrian statue of that monarch, which was thrown down and destroyed by the revolutionists in 1792. He D. in 1715.

Gir'asol, Gir'asole, *n.* [Fr. *girasol*; It. *girasole*, from *girare*, to turn, and *sole*, the sun; Lat. *sol.*] (*Bot.*) The Turnsole, or *heliotrope.*

(*Min.*) A milk-white or bluish opal, which presents bright hyacinth-red and yellow reflections, when turned towards the sun or any strong light.

Gird, (*gerd,*) *v. a.* (*imp.* and *pp.* GIRDED, GIRT.) [A. S. *gyrdan*, to surround, to encircle.] To bind by surrounding with any flexible substance, as with a twig, a cord, or a bandage of cloth; as, to *gird* on a sword, to *gird* on warlike harness.

—To surround; to encircle; to enclose; to encompass.

"His easy steps *girded* with snaky wiles." — *Milton.*

—To put on; to invest; to clothe; to habit.

"*Girt* with omnipotence." — *Milton.*

—[A. S. *gyrd*, a rod.] To jibe; to reproach severely; to lash; to vituperate.

"Being moved, he will not spare to *gird* the god." — *Shaks.*

—*v. n.* To gibe; to jeer; to make a scornful jest; to utter severe sarcasms.

"This error at which our critics *gird*." — *Drayton.*

—*n.* A twitch or pang.

"The checks and *girds* of conscience." — *Goodman.*

—A sneer; a sarcasm; a gibe.

"I thank thee for that *gird*." — *Shaks.*

Gird'er, *n.* [From A. S. *gyrdan*, to bind.] (*Arch. and Civ. Eng.*) A name given to long beams of wood and iron, that are thrown across openings of considerable span, to support floors and the roadway of bridges. *G.* are of two kinds, *simple* and *framed;* the former being merely wooden beams, or beams of cast or wrought-iron; while the latter are beams of the above materials made of several pieces, put together in such a manner that they may be capable of offering a greater resistance to excessive pressure than a simple *G.* could exert. The depth and width of all *G.* must be proportioned to the greatest weight that is likely to be thrown on them, that they may be able to offer the greatest possible resistance to its pressure, with the least possible quantity of material. The strength of a *G.* is augmented by adding to its depth rather than its width, as its capability of resistance increases directly as the width and as the square of its depth. If, for example, a beam that is 3 inches wide and 6 inches deep will bear a certain weight, a beam that is twice as wide will bear twice that weight; while one that is twice as deep will bear four times as much, and one that is twice as wide and twice as deep, eight times as much. The longer it is the greater will be its flexibility; or in other words, if two beams of the same width and depth, but of which one is twice as long as the other, be supported at the ends having equal weights suspended from their centres, the longer beam will exhibit a greater amount of deflection than the shorter one, — the capability of resistance in *G.* of all kinds being inversely as the length. The manner in which the weight is thrown on a beam has considerable influence on its power of resistance. Thus a beam will not bear half as much, if all the weight be collected at its centre, as it will if the weight be distributed equally along its length. Beams will also bear a greater weight when their extremities are secured or loaded with a weight of masonry, as in the case of *G.* stretching from wall to wall of a building, to support a floor. A dead uniform weight is less injurious to the power of resistance that a *G.* can exert, than a weight which is in motion; but it is found that the power of resistance of a beam loaded with a dead weight decreases considerably when it has sustained that weight for a long period of time. The amount of weight that should be thrown on a *G.* under any circumstances should never exceed one-third the weight that would have to be applied in order to break it. *G.* should also be shaped in accordance with the conditions under which they are to be loaded. Thus the upper surface of a *G.* supported at both ends, that has to sustain a great weight at one point only, should be in the form of a parabola; while that of a beam supporting a uniform weight at all points, should be elliptic, the under surface being perfectly straight in both cases. Wrought- and cast-iron *G.* are made with flanges, or projecting edges of metal at the top and bottom. In cast-iron *G.* the bottom flange must have a sectional area equal to six times the area of the top of the flange, as the power of cast-iron to resist compression is about six times as great as its power to resist a drawing strain; but in wrought-iron *G.*, on the contrary, the sectional area of the bottom flange need be only one half of that of the top flange, as the power of wrought-iron to resist compression is only half as much as its power to resist tension. In other points, the strength of iron *G.* varies in proportion to their depth.

Gird'er, *n.* One who girds; a satirist; a sarcastic person.

Gird'ing, *n.* A covering; a binding or surrounding.

Gir'dle, *n.* [A. S. *gyrdel*, from *gyrdan*, to surround; Ger. *gürtel.*] A band or belt; something tied around the loins. It was more or less in common use among several of the nations of antiquity. In Scripture, the girding up of the loins is frequently alluded to as being practised by the Jews before undertaking a journey. *G.* of sackcloth were also sometimes worn as tokens of humiliation. Among the Greeks and Romans the *G.* was a military ornament; and hence to deprive a soldier of his *G.* was a mark of the deepest ignominy. The tunic of the Romans was also fastened by a *G.* or belt about the waist, and it was regarded as very effeminate to appear abroad with the tunic slackly or carelessly girded. Hence *girt* came to denote diligence, activity, cleverness; and *ungirt*, idleness, effeminacy. The young women always wore a girdle, or zone, before marriage; and hence the phrase "*Zonam solvere virgineam*" was sometimes used to denote that ceremony. The *G.* worn by Venus was called "cestus." Among the Romans the *G.* served also as a purse; and in England it was formerly the practice for bankrupts, or insolvents, to give up their *G.* in open court.

—Enclosure; circumference.

"Within the *girdle* of these walls." — *Shaks.*

—Same as GRIDDLE, *q. v.*

(*Jewelry.*) The line encircling a precious stone, where the setting clamps and holds it.

—*v. a.* To bind with a belt or sash; to gird. — To enclose; to shut in; to environ; to surround. — To kill standing forest-trees by making with an axe an incision through both bark and alburnum, all the way round; — a usual mode of preparing for the clearing of heavily timbered land. (U. S.)

Gir'dle-belt, *n.* A belt for clasping or tying about the waist.

Gir'dleness, a promontory on the E. coast of Scotland, abt. 2 m. S. of Aberdeen. Its light-house is in Lat. 57° 8′ N., Lon. 2° 3′ W.

Gir'dler, *n.* One who girdles, as trees.

—One who makes girdles, or belts for the waist.

Gire, (*jire,*) *n.* Same as GYRE, *q. v.*

Gir'gashites, [Heb. *girgashith*, those who arrive from pilgrimage.] A tribe of the ancient CANAANITES, *q. v.*

Girgeh, (*jĕĕr'jy,*) a large town of Upper Egypt, cap. of a prov. of the same name, and after Siout, the largest town of Upper Egypt. *G.* lies abt. ¼ m. from the Nile, and 60 m. N.W. of Thebes. It has several mosques, a government cotton factory, and the oldest Latin convent in Egypt. Lat. 37° 22′ N., Lon. 31° 5′ 2″ E.

Girgenti, (*jĕĕr-jĕn'tee.*) [Anc. *Agrigentum*, q. v.] A city of Sicily, cap. of a district of the same name, 58 m. S.S.E. of Palermo, in the Val di Mazzara, abt. 2 m. from the coast. The town stands on a hill, and commands a beautiful prospect, but is dirty and ill-built. The city has a fine harbor, (inconveniently distant from the town, and built in 1752,) and is the principal port in Sicily for the shipment of sulphur. Lat. 37° 19′ 25″ N., Lon. 13° 27′ E. *Pop.* 20,000. — The DISTRICT, with an area of 1,200 sq. m., has a pop. of 250,000, and is very fertile in corn, wine, olives, &c. Among the minerals may be mentioned sulphur, salt, naphtha, and bitumen.

Gir'kin, *n.* Same as GHERKIN, *q. v.*

Girl, *n.* [A. S. *ceorl*, a man, the word girl being formerly common to both sexes. Cf. Gr. *korē.* and Sansk. *kanyâ*, a girl, a daughter; from *kan*, to love.] A female child; a young woman; sometimes familiarly applied to any unmarried woman.

(*Venery.*) A roebuck of two years old.

Girl'hood, *n.* The state or time of being a girl.

Girl'ish, *a.* Like a young woman or child; befitting a girl.

—Pertaining to the youth of a female.

Girl'ishly, *adv.* In the manner of a girl.

Girl'ishness, *n.* Quality of being girlish.

Giro'det, ANNE LOUIS, a distinguished French painter, B. at Montargis, 1767; was a pupil of David. Among his principal works are *Endymion sleeping; A Scene from the Deluge;* the *Burial of Atala*, &c. He also painted *Napoleon receiving the Keys of Vienna;* full-length portraits of the Vendean leaders, Bonchamp and Cathelineau; and *St. Louis in Egypt*, which was his last great work. He was a member of the Academy of Painting, and of the Institute. D. 1824.

Gironde, (*zhe-rond'*,) in France, the name given to the river Garonne after it has received the Dordogne, at the Bec d'Ambez. It is 45 m. long, and from 2 to 6 m. wide.

—A maritime dept. in the S.W. of France, bounded on the W. by the Bay of Biscay, on the N. by the dept. of Charente-Inferieure, on the E. by those of Dordogne and Lot-et-Garonne, and on the S. by that of Landes. *Area*, 4,132 sq. m. It is watered mainly by the Garonne and the Dordogne, and by the Gironde. The surface of the land is in general flat; but in the E. there are some hills. The climate is temperate, and, except in the Landes or sandy tracts, which, however, occupy nearly all the W. half of the department, is healthy. In the E. and N.E. the soil is chiefly calcareous. Wine, including the finest clarets [see BORDEAUX (WINE OF),] is the great product of the dept. Grain, vegetables, fruit, and hemp are also produced largely. On the W. coast, on the downs or sand-hills, there are extensive plantations of pino, from which turpentine, pitch, and charcoal are obtained. *Manuf.* Calico, muslin, chemical products, pottery, paper, vinegar, brandy, &c. *Chief towns.* Bordeaux (the cap.), Blaye, Lesparre, Libourne, Bazas, and La Réole.

Giron'dists, *n. pl.* [Fr. *girondins.*) (*French Hist.*) A political party dnring the great French Revolution (so named because its leading members were deputies for the department of the Gironde), was composed of the more moderate republicans, such as Vergniaud, Brissot, Dncos, Condorcet, Pétion, and many others, who played a conspicuous part in the history of the times. They were called *Brissotins*, from Brissot. The *G.* at first were the dominant party in the assembly; bnt, owing to their disgust at the massacres of Aug. and Sep., 1792, they rendered themselves obnoxious to the Montagnards, who procured the arrest of 21 of their chief members. June 2, 1793. These prisoners were confined in the Conciergerie, and executed Oct. 31.

Girons, (St.,) (*zhe-rong'*,) a town of France, dept. Ariège, 22 m. E. of Foix. *Manuf.* Linens, woollens, and paper.

Gironette, (*zhe'rōōet,*) *n.* [Fr., a weather-cock.] One who veers about in his political views according to the changing preponderance of parties; a time-server; a trimmer.

Girt, (*gert,*) *imp.* and *pp.* of GIRD, *q. v.*

Girt, *v. a.* To gird; to surrounnd.

"The radiant line that *girts* the globe." — *Thomson.*

Girt, Girth, *v. a.* [A. S. *gyrdan*, to surrounnd.] The band or straps by which any burden on a horse's back is made fast, by passing under his belly; — specially applied to the band by which the saddle is fastened. — A circular bandage; the compass measured by a girth or enclosing bandage; the circumference of a tree, an animal, &c. — A small horizontal beam, laid across other timbers to bind them together.

—*v. a.* To bind or fasten with a girth; to gird; to girt.

Gir'van, a town of Scotland, in Ayreshire, at the confluence of the Girvan River with the Irish Sea, 17 m. S. of Ayr. Though having a commodious harbor, it is a very poor place.

Gis-arm', *n.* (*Mil.*) A weapon shaped something like a scythe, from the back of which a short pike projected anteriorly, anciently borne by foot-soldiers, and carried at the end of a pole or staff.

Gise, *v. a.* Same as AGIST, *q. v.*

Gis'mondite, Gis'mondine, *n.* (*Min.*) A native hydrated silicate of alumina, lime, and potash. Color white, grayish, reddish. Lustre splendent; sp. gr. 2·265. *Comp.* Silica 35·38, alumina 27·23, lime 13·12, potash 2·85, water 21·10. Occurs near Rome, Italy, and in the Val di Noto, Sicily.

Gisors, (*zhe-zore,*) a town of France, dept. Eure, on the Epte, 33 m. N.E. of Evreux. *Manuf.* Woollens, calico, lace, and cotton yarn. *Pop.* 4,000.

Gist, (*jist,*) *n.* [O. Fr. *giste*, abode, from *gist*, pp. of *gésir*, to lie: Lat. *jacēre.*] The main point of an action at law; the point on which an action hinges.

—The pith of a matter of any sort; as the *gist* of an argument.

Git, *n.* Same as GEAT, *q. v.*

Gith, *n.* [W. *gith*, corncockle.] (*Bot.*) See NIGELLA.

Git'tern, *n.* [Lat. *cithara*; Gr. *kithara.*] A sort of guitar or harp; a cithern.

—*v. n.* To play on the gittern.

Git'tith, *n.* [Heb.] An instrument of music among the ancient Hebrews, of which no mention occurs, save in the service of the temple. Buxtory calls it a *stringed* instrument, and derives the name from *Gath*, a city of the Philistines, whence King David, on his return, brought it to Jerusalem. Psalms viii., lxxxi., and lxxxiv. contain the name in their titles, and are supposed to have been specially composed for performance on this instrument.

Giugliano, (*ju-le-a'no,*) a town of S. Italy, 6 m. N. from Naples; *pop.* 10,000.

Giugliano, San, a town of S. Italy, in the Val di Mazzara, 5 m. N.E. of Trapani. On an adjacent hill (anc. *Mons Eryx*) are the ruins of the temple of Venus, celebrated by Virgil, Polybius, &c. *Pop.* 11,500.

Giu'lio Roma'no, or GIULIO PIPPI, a celebrated Italian painter and architect, the most distinguished of the scholars of Raphael, was B. at Rome, in 1492 or 1498. At an early age he became the pupil of Raphael, assisted him in several important works, and was chosen, with his fellow-scholar Penni, to complete several of his master's unfinished frescoes in the hall of Constantine in the Vatican. In 1524, he entered the service of the duke of Mantua, rebuilt his palace, and decorated the interior with frescoes of the *Fall of the Giants*, and the story of *Cupid and Psyche*, considered his master-pieces. The execution of these pictures was in great part left to his scholars. He founded a school of art at Mantua, and had among his pupils Primaticcio, Rinaldo Mantuano, and Pagni. D. at Mantua, 1546.

Giurgevo, (*ge-oor'ge-vo,*) a fortified town and port of Wallachia, on the left bank of the Danube, 40 m. S. of Bucharest, and opposite to Routschouk. *G.* is the most important town on the Wallachian side of the Danube, and was taken from the Turks by the Russians in 1773, 1811, and 1829, when its defences were levelled to the ground. In its vicinity the Russians were, in 1854, defeated by the Turks.

Giust, *n.* Same as JOUST, *q. v.*

Giusto, (*joos'to,*) *adv.* [It., from Lat. *justus.*] (*Mus.*) In just, even, equal, or steady time.

Give, *v. a.* (*imp.* GAVE; *pp.* GIVEN.) [A. S. *gifan*, *gifian*; Ger. *geben.*] To bestow; to confer; to grant or transfer without requiring a recompense. — To transmit from one's self to another by hand, speech, or writing; to deliver; to impart; to communicate. — To pay; to pass; to yield; to lend; to expose; to yield to the power of; as, to *give* one's self for lost. — To grant; to allow; to permit; to afford; to supply; to furnish; as, to *give* way, to give place. — To empower; to license; to commission. — To pay or render, as thanks. — To produce; to show; to send forth or exhibit; to emit, as heat or light. — To addict; to apply; to devote one's self. — To resign; to yield; to pledge; to present. — To allow; to admit.

"I *give* not heaven for lost." — *Milton.*

To give away, to alienate or transfer. *To give back*, to restore or return. *To give forth*, to publish or tell. *To give over*, to yield, quit, or cease; also, to attach to; to conclude lost. *To give out*, to proclaim or publish. *To give up*, to resign, to abandon, to deliver. *To give way*, to yield, to make room for. *To give way*, (*Naut.*,) to begin rowing, or to row with greater vigor than before.

Give, *v. n.* To yield to pressure; to grow soft; to begin to melt; to thaw.

"Only a sweet and virtuous soul,
Like seasoned timber never *gives*." — *Herbert.*

—To move; to recede; as, to give back.

To give into, to go back, to give way. *To give in to*, to adopt; to embrace. *To give over*, to cease to act, or strive no more. *To give out*, to cease, to yield. *To give on, or upon*, to open on, to overlook, to look towards; as a room upon a public square, a porch, &c. *To give up*, to cease from effort, to desist.

Giv'en, *p. a.* Bestowed; granted; conferred; imparted. — Admitted or supposed.

Giv'er, *n.* A donor; a bestower; a granter; one who imparts or distributes.

Gives, (*jivz,*) *n. pl.* Same as GYVES, *q. v.*

Givet, (*zhe-va,*) a fortified town of France, dept. Ardennes, on the Meuse, 26 m. N.E. of Rocroy, on the Belgian frontier. *Manuf.* Glue, sealing-wax, and leather. *G.* was fortified by Vauban.

Giv'in, in *Iowa*, a post-office of Mahaska co.

Giv'ing, *n.* Act of conferring, bestowing, or imparting. — Allegation; declared intention. — A gift; a benefaction.

Givors, (*zhe-vor,*) a town of France, dept. Rhone, 14 m. S.W. of Lyons. *Manuf.* Glass bottles, window-glass, and fine silks. *G.* is the centre of an extensive coal trade.

Gi'zeh, See GHIZEH.

Giz'zard, *n.* [Fr. *gésier*, allied to *gosier*, the throat; L. Lat. *gigeria*, *gigerium.*] (*Zoöl.*) The proper stomach of birds; its texture differs remarkably in granivorons and carnivorous birds, being thick in the one and thin in the other.

—Apprehension, or conception of mind.

"Their spiritual *gizzards* are too warm." — *Hudibras.*

To fret the gizzard, to harass the imagination. — *L'Estrange.*

Gla'brate, *a.* [Lat. *glaber*, smooth.] (*Bot.*) Smooth, or becoming nearly glabrous from age.

Glab'rons, *a.* [See above.] Smooth; free from hairiness, downiness; without any uneveuness.

Gla'cial, *a.* [Fr. from Lat. *glacialis*, from *glacies*, ice.] Consisting of ice; frozen; exceedingly cold; as, a *glacial* atmosphere. — Relating to glaciers; as, *glacial* phenomena.

(*Chem.*) Presenting the appearance of glass, as crystals.

Gla'cial Drift, *n.* (*Geol.*) Spread over much of the N. portions of Europe and America, are found remarkable accumulations of clays, sands, and gravels, sometimes stratified, sometimes piled rudely together, and containing large and small blocks of stones, which also occur loosely scattered over the bare rock surface. The solid rocks underneath these deposits are often found scratched or polished, as if the overlaying material had been dragged or drifted along over it. Sometimes the deposits are in definite lines; and sometimes the heaps have definite forms. These deposits and effects are evidently the result of the action of glaciers and icebergs, and the formations are known by various names, as "Boulder Clay," "Erratic Block Group," "Diluvium," "Drift," &c. (See ICEBERG, GLACIER.) The action of glaciers in producing drift is easily understood. The stones, sand, and other material arising from the disintegration of rocks on mountain sides fall into the valleys, and are distributed through the mass of the forming glacier. Those at the sides and at the bottom of the glacier, pressed by the weight of the whole moving mass, grind upon the ground and rocks below, thus adding to the quantity of material moved, and leaving the rocks striated and polished. Where the glacier melts, these accumulations are deposited or carried by the stream. Should the entire glacier melt away, the debris would remain as drift. When the glacier reaches the sea-coast, and advancing into the water breaks off as an iceberg, the broken portion may bear with it an immense mass of broken rock and mud. As the glacier is drifted away by currents to warmer latitudes, the mass of rocks, mud, &c., will be gradually deposited on the sea bottom as the glacier melts, or left on the shoals and higher rocks where the glacier might stand. Thus may have been produced the various phenomena of *G. D.* They are often complicated in nature by subsequent elevations and denudations. In America the drift extends from the polar regions to the vicinity of the 40th degree of N. Lat. In the valleys of the Ohio and the Mississippi it extends further southward. In Europe it is not found in the countries bordering on the Mediterranean. In vertical range, the drift in America covers all the mountain peaks E. of the Rocky Mountains, except several hundred feet of the summit of Mt. Washington.

Gla'cialist, *n.* One who attributes all the phenomena of the drift in geology to the action of ice during the glacial period; an adherent to the glacial system.

Glacia'tion, *n.* The act of turning into ice. — That which is formed by freezing; ice. — The process of forming glaciers.

Glacier, (*glās'e-er,*) *n.* [Fr., from Lat. *glacies*, ice.] The name given to an immense accumulation of snow and ice on the slope, or in a valley or ravine of a mountain, (Fig. 1161.) Glaciers are found in all parts of the globe where mountains extend above the line of perpetual snow, and all have the same general characteristics; but



Fig. 1161. — GREAT GLACIER OF BUTE INLET.

those of Switzerland have been more carefully examined, and more fully described, than those of any other country. When snow accumulates in great masses it is found to consist of successive layers, more or less crystalline, which diminish in thickness as the depth increases. At a certain depth the snow, from the pressure, and from successive thawings and freezings, passes into clear ice. The mass so formed, under the influence of gravity, gradually descends the slope of the mountain into a valley; and in this manner some valleys, twenty miles long and three or four broad, are completely filled with ice to the depth of hundreds of feet. This immense mass, like a river of ice, continues to descend with a rate of motion varied by circumstances, until, as in the Alpine glaciers, it reaches a point sometimes as low as 4,000 feet below the line of perpetual snow, and the strange spectacle is presented of vast masses of ice protruded into the midst of fertile valleys, in the immediate vicinity of cultivated lands, or surrounded by verdant forests. From the large accessions of snow which glaciers receive in winter, it might reasonably be conjectured that they must in time so increase in size as to break beyond their usual limits and overwhelm the cultivated country; but the warm atmosphere of the lower valleys into which they descend, tends to constantly diminish their bulk, thus furnishing a constant check to their encroachment upon them. — *Motion of G.* This is very gradual, but more rapid in the summer than in the winter. The *G.* of Aar in Switzerland appears to have been moving at the rate of about 375 ft. annually; some others have been observed to move, during the summer, 3 or 4 feet per day. The average motion may perhaps be given as from 8 to 16 inches per day. Various theories have been advanced to account for this motion. By some it is attributed to the force arising from the expansion of freezing water in the pores and crevices of the mass; others attribute to it a semi-fluidity that enables it to flow down the valley as a viscous substance, like partially melted pitch would flow. The researches of Tyndall and Faraday show that ice may be plastic without being viscous, and that the motion of the *G.* may be the result of the minute fracture and regelation of the ice particles, which move as if they were sand, continually thawing and re-freezing. Glaciers from valleys running into each other may unite; the tributary glaciers welding themselves together to form a trunk *G.* The main valley and its tributaries are often sinuous, and the tributaries must change their course to unite with the trunk. The width of the valley often varies, and the *G.* is forced through the narrow gorges, widening after it passes them. The centre of the *G.* moves more quickly than the sides, and the surface more quickly than the bottom; the point of swiftest motion, following the same law as that observed in the flow of rivers, shifting from one side of the centre to the other, as the flexure of the valley changes. The masses of rock-fragments, mud, and sand that glaciers push before them, or carry on their surface (see GLACIAL DRIFT), are called *moraines. Lateral moraines* are formed from the débris which loads the *G.* along its edges; *medial moraines* are formed on a trunk glacier by the union of the lateral moraines of its tributaries; and *terminal moraines* are formed from the débris carried by the *G.* to its terminus and there deposited. When subjected to a strain, a *G.* does not yield by stretching, but by breaking, and thus originates the crevasses that are found on its surface. Marginal crevasses are caused by the oblique strain consequent upon the more rapid motion of the center, transverse by the passage of the *G.* over the summit of an incline; and longitudinal by pressure from behind and resistance in front, causing the mass to split at right angles to the pressure. *Moulins* are formed by deep cracks intersecting glacier rivulets. The water descending such cracks scoops out a shaft, sometimes many feet wide and hundreds of feet deep, into which the cataract plunges with a sound like thunder. Glacier-tables are large, isolated masses of rock, that, resting on the *G.*, protect the ice below until the melting away of the surface about them

leaves them poised on the top of a column of ice. For *effects* of glaciers, see GLACIAL DRIFT. The smoothed, rounded, and striated rock surfaces, gravel deposits, long trains of gravel and sand, isolated rocks or boulders, &c., are glacial phenomena that indicate a time not distant, geologically speaking, when a large part of the temperate region of the northern hemisphere was subject to glacial action. Glaciers exist among the Himalaya Mountains on a grand scale, and in high Arctic latitudes, where the snow-line comes down to the sea-level, they form apparently deep, unbroken seas of ice, extending over vast tracts of country, sloping towards the coast. At the shore, large masses are constantly being detached and floated away as icebergs. (See ICEBERGS.) The great Humboldt *G.* described by Dr. Kane, on the coast of Greenland, is about 45 m. wide where it reaches the sea. The structure and motion of glaciers have been elaborately investigated by Reudu, Agassiz, Forbes, and Tyndall.

Glacières, (*glas'yāres,*) *n. pl.* [Fr.] (*Geol.*) Caves full of ice. They are found chiefly in the Alpine mountains, and are unconnected with any glacial system. They are found when the mean temperature of the surface of the earth is above the freezing point, and are from 50 to 200 feet below the surface. They thus furnish exceptions to the rule that the temperature increases from the surface toward the centre of the earth.

Gla'cis, *n.* [Fr., from L. Lat. *glatia*, possibly from Ger. *glatt*, smooth, or from Lat. *glacies*, ice, from its smoothness.] A place rendered slippery by wet falling on it, and being frozen over. — An easy, insensible slope.

(*Fort.*) The inclined plane or slope that extends from the exterior of the covered way towards the open country (see Fig. 749). The crest of the glacis is about seven or eight feet above the terreplein of the covered way, which coincides with the natural level of the soil surrounding the fortifications. The slope itself extends about 150 feet from the covered way, having an inclination of one foot in twenty, or thereabouts, from the crest of the work to the natural surface of the ground. The glacis covers the masonry or rivetments of that part of the rampart which forms the scarp of the ditch, and serves to hide it from the batteries of the enemy. It also conceals soldiers who are in the covered way from the view of the investing force, and protects them from their fire. A banquette is usually constructed in the covered way at the foot of the interior of the glacis, which enables the besieged to pour a fire of musketry from thence on any party engaged in the construction of field-works and approaches, or advancing to the assault of the fortress.

Glad, *a.* [A. S. *glæd*, glad; Ger. *glatt*, bright, joyful, smooth.] Affected with pleasure, or moderate joy; moderately happy; pleased; exhilarated; rendered cheerful or joyous; — said of persons, and followed by *of*, *at*, or *with*, before the cause of joy. — Wearing the appearance of joy; wearing a gay appearance; showy; bright; affording or imparting pleasure; cheering; exhilarating; pleasing; expressing gladness or joy; exciting joy.

—*v. a.* To affect with pleasure; to cheer; to gladden; to exhilarate.

"The juice that *glads* the heart of man." — *Pope.*

Glad'bach, a town of Rhenish Prussia, on the river Niers, 6 m. N.E. of Mühlheim. *Manuf.* Linen, cotton, and woollen goods. *Pop.* 4,755.

Glad'den, *v. a.* To cheer; to please; to exhilarate; to comfort; to enliven; to gratify.

—*v. n.* To rejoice; to be glad.

Glad'dening, *p. a.* Cheering; exhilarating.

Glad'der, *n.* One who cheers or exhilarates.

Glade, *n.* [Probably from Icel. *glæedda*, *gloetha*, to brighten, pp. *gloedt*, lighted up.] An opening in a wood, through which light may shine; any green clear space or opening in a wood. — An opening or passage made through a wood, by lopping off the branches of the trees.

—[Contr. of EVERGLADE, *q. v.*] A place left unfrozen in a lake, pond, or river; also a patch of smooth ice, as contradistinguished from the rough or uneven ice around it. (U. S.)

Glade, in *Pennsylvania*, a growing township of Warren county.

Glade Mills, in *Pennsylvania*, a post-village of Butler co., on Glade Creek, about 22 m. N. of Pittsburg.

Gla'der, Gla'den, *n.* [Lat. *gladius*, a sword, or from Eng. *glade*, as being the character of vegetation in the Everglades.] (*Bot.*) A general name for all gladiate, or sword-shaped plants, springing up with a broad, blade-like leaf; sword-grass.

Glade Run, in *Pennsylvania*, a post-office of Warren co.

Glades, in *Tennessee*, a post-office of Morgan co.

Glades'borough, in *North Carolina*, a post-office of Randolph co.

Glades'borough, in *Virginia*, a P. O. of Carroll co.

Glade Spring, in *Virginia*, a post-village of Washington co., about 12 m. E.N.E. of Abington. *Pop.* (1897) about 500.

Glades'ville, in *Georgia*, a post-office of Jasper co.

Gla'diate, *a.* [Fr. *gladié*, from Lat. *gladius*, a sword.] (*Bot.*) Sword-shaped; resembling the blade of a sword in form, as the leaf of the sedge.

Glad'iator, *n.* [Lat. a swordsman, from *gladius*, a sword.] (*Roman Hist.*) A name applied to those persons who, without quarrel, fought with each other in the public arena, for the amusement of the public. The custom originated in Etruria, where such fights took the place of the human sacrifices, which had previously been customary at the funeral ceremonies of distinguished persons, but it spread rapidly throughout Italy, and in Capua especially became an established amusement of the populace. The first appearance of the gladiatorial games (*munus gladiatorius*) in Rome, was B. C. 265. They soon became so popular, that in the imperial times they had become one of the favorite amusements of the people, and were lavishly bestowed upon them by such ædiles, prætors, consuls, and emperors, as wished to gain, or to retain the favor of the populace. B. C. 183, at the funeral of Quinctius Varro, 120 gladiators fought to the death, and Augustus decreed that this number should never be exceeded; but before his time even still greater numbers had appeared upon the arena, and the number of combatants was greatly increased under the emperors Caligula, Claudius, Nero, Trajan, Adrian, and Commodus, the last of whom appeared himself in the character of *G.* in the arena. Under Trajan, gladiatorial fights and combats of wild animals, (the latter often conjoined with the former,) were kept up for 123 days, during which time 11,000 beasts were slain, and over 10,000 *G.* fought. In ancient times, the Forum was the usual place for such spectacles; but on occasions of burial, they were fought immediately in front of the funeral pyre by gladiators, thence called *Bustuarii*. In later days, amphitheatres were erected. The *G.*'s were originally slaves, for the most part captives in war. They were maintained and drilled in bands (*familiæ*) at Rome and other cities, particularly at Capua and Ravenna, in special establishments (*ludi gladiatorii*), under the charge of overseers (*lanistæ*), some of whom made it a profitable business by the hire or sale of *G.*'s, and others stood at the same time in the pay of wealthy politicians, to whom the possession of large numbers of *G.*'s was something more than a matter of mere amusement. Thus Clodius and Milo carried on their contest through *G.*'s. Cæsar at Capua had over 5,000 of them in his pay, against whom Pompey was first obliged to defend himself, at the outbreak of the civil war. Though the *G.*'s were at first only armed with swords, yet in later days, many different kinds of them were distinguished according to their mode of fighting, armor, &c. The *mirmillo* was armed with a buckler and a short sword, and bore on his casque the figure of the fish mirmillo, whence his name; — the *retiarius*, who fought against him, had a trident in the right hand, and in the other a net, with which he strove to entangle the head of his opponent; — the *essedarius*, who fought from a chariot (*essedum*); — the *audabates*, or *equestres*, who fought on horseback; — the *bestiarii*, who fought with wild beasts, &c. The games were announced in advance by means of placards (*libelli*), and usually began with blunted weapons, but with the excitement of the multitude, these were thrown aside, and the *G.* fought for life. When a *G.* was severely wounded, he threw down his arms and remained at the mercy of the conqueror, who killed him unless the spectators opposed it; if they raised their hands, turning the thumb downwards, it was a sign that they wished his life spared; but if they raised the thumb, he was slain. The arrival of the emperor was also a signal of mercy to the vanquished. After 3 years of service, the gladiators were allowed to retire from the arena, in token of which discharge, they were presented with a wooden foil (*rudis*) and a palm of silver. These cruel sports, after a continuance of over 600 years, were interdicted by Constantine the Great, A. D. 326; but they were not finally abolished until the time of Honorius, A. D. 402. The ancients have left us sundry beautiful statues of gladiators, the two most celebrated of which are the *Borghese Gladiator*, and the *Dying Gladiator*, both at Rome.

Gladiato'rial, Gladiato'rian, *a.* [Lat. *gladiatorius.*] Pertaining to gladiators, or to the ancient combats of men in the Roman arena.

Glad'iatorship, *n.* Conduct or quality of a gladiator.

Glad'iatory, *a.* [Lat. *gladiatorius.*] Gladiatorial; having reference to the combats of gladiators.

Gladio'lus, *n.* [Lat., dim. of *gladius*, a sword.] (*Bot.*) The Gladiole, a genus of plants, order *Iridaceæ*. They are bulbous plants, with large and showy flowers, some of which are commonly called corn-flag. The numerous varieties cultivated in modern gardens are the results of intercrossing of some African species, especially of *G. natalensis*, *floribundus*, and *cardinalis*.

Glad'ly, *adv.* With pleasure; joyfully; willingly; cheerfully; as, "everybody will *gladly* see you." *Blount.*

Glad'ness, *n.* (See GLAD.) State of being glad; joy, or a moderate degree of exhilaration; cheerfulness; satisfaction; cheer of mind.

Glado'va. [Turk. *Fet-Islám.*] A town of Servia on the Danube, situate immediately below the "Iron Gate," and the principal station of the Danube Steam Navigation Co. It is a mere collection of wretched huts.

Gladsome, (*glad'sum,*) *a.* [*Glad* and *some.*] Pleased; joyful; cheerful; exhilarated; cheerful.

"The *gladsome* ghosts in circling troops attend."—*Dryden.*

—Cause of joy or gladness; pleasing; as, "*gladsome day.*" *Prior.*

Glad'somely, *adv.* In a gladsome manner; with joy; pleasurably.

Glad'someness, *n.* Joy, or moderate exhilaration; pleasure of mind.

Glad'stone, WILLIAM EWART, an English statesman, orator, and author, B. at Liverpool, 1809, the son of Sir John Gladstone, Bart., an eminent merchant of that place. He was educated at Eton and Christ Church Coll., Oxford, where he graduated in 1831. Mr. *G.* entered parliament in the following year, where he quickly distinguished himself by his splendid oratorical and forensic powers. In 1835 he was appointed, by Sir R. Peel, Under-Sec. of State for the Colonies, and in 1841 Vice-President of the Board of Trade and a privy-councillor. In 1846, he ably supported his chief's great measure for the repeal of the Corn laws. In 1847, Mr. *G.* was returned to parliament by the University of Oxford, which he continued to represent until 1865. In 1852, under Lord Aberdeen's "Coalition" ministry, he accepted office as Chancellor of the Exchequer and held the same post subsequently in Lord Palmerston's cabinet. In this capacity he proved himself to be the ablest financial minister England had known, and warmly supported Mr. Cobden's commercial treaty with France. After the death of Lord Palmerston, Mr. *G.* became leader of the House of Commons, retaining the Chancellorship of the Exchequer in Earl Russell's second administration. On the retirement of the Derby cabinet in 1869, Mr. G. succeeded to the helm of State as First Minister of the Crown. In 1869 he introduced a measure for the dissolution of the establishment of the Irish Church, which passed into law after a prolonged and obstinate resistance on the side of the Conservative party. In Feb., 1870, the Gladstone cabinet also introduced a measure before Parliament for the modification and adjustment of the Irish land question. This became a law on Aug. 1, 1870. A succession of reform measures followed, including an act for the protection of voters, the abolition of the purchase of army commissions, and the creation of a system of public education. Reform, however, had been pushed too energetically; a reaction set in, the government was defeated, and Disraeli asked to form a new cabinet. He declined and *G.* was forced to remain premier. He now dissolved Parliament and called for a new election, in which his party was defeated and the Conservatives returned to power, with Disraeli at their head. *G.* now withdrew from party affairs and for the succeeding six years occupied himself in literary studies. In 1880 a new reaction set in, the Liberals came again into power with a large majority, and *G.* became a second time Prime Minister. His new administration was one of trouble and distraction. There were wars in various quarters and disturbances in Ireland, the latter forcing him to adopt measures of coercion which gave rise to bitter opposition from the Irish people and members of Parliament. Yet in the midst of these distractions *G.* succeeded in carrying through Parliament a great scheme of reform in the suffrage, which re-arranged the constituencies and yielded a system of nearly universal suffrage. Defeated in 1885, *G.* gave up the premiership for a time to Lord Salisbury, but in the election of the same year the Liberals won a great victory and *G.* returned triumphantly into office. He now adopted a policy of home rule for Ireland that created a storm of opposition in the country, introducing a bill for an Irish Parliament, which led to his quick defeat and brought back the Conservatives to power. He continued to advocate Irish autonomy; in 1892 was returned to power for the fourth time, and in 1893 brought in a new bill for Irish government, which was passed in the House of Commons but thrown out by a decisive vote in the House of Lords. In 1894 *G.* retired voluntarily from the premiership on account of failing eyesight, but he kept a close outlook on the course of affairs and spoke, with no uncertain voice, his opinion of the Armenian massacres and the conduct of the Powers on the Cretan question. In addition to his fame as an orator and statesman, Mr. *G.* has made himself something of a name in literature, particularly from his studies of Homer and his times. He has also written much on religious subjects, and has made himself notable by outbursts of indignation concerning the Bulgarian massacres, &c.

Glad'win, in *Michigan*, a N.E. central county; *area*, about 540 sq. m. *Rivers.* Gladwin. *Surface*, generally level. *Pop.* (1894) 4,900.

Glair, *n.* [O. Fr. *g'aire* and *clair*, the white of an egg, a clear thing, from Lat. *clarus*, clear. See CLEAR.] The white of an egg, or any viscous transparent substance resembling it.

—A kind of halberd.

—*v. a.* To smear with the white of an egg; to varnish.

Glair'eous, *a.* Having resemblance to the white of an egg.

Glair'ine, *n.* A glairy, filmy substance seen on the surface of some thermal waters.

Glair'y, *a.* Like glair, or partaking of its qualities.

Glaive, *n.* Same as GLAVE, *q. v.*

Gla'ma, *n.* [Gr.; Lat. *glamia.*] (*Med.*) Same as LIPPITUDO, *q. v.*

(*Zoöl.*) A species of camel.

Glam'mis, a village of Scotland, 5 m. S.W. of Forfar. Near it is Glammis Castle, in which is still shown the chamber in which Malcolm II. was assassinated, 1034. It was one of the castles of Macbeth, and gave him his hereditary title of Thane of Glammis.

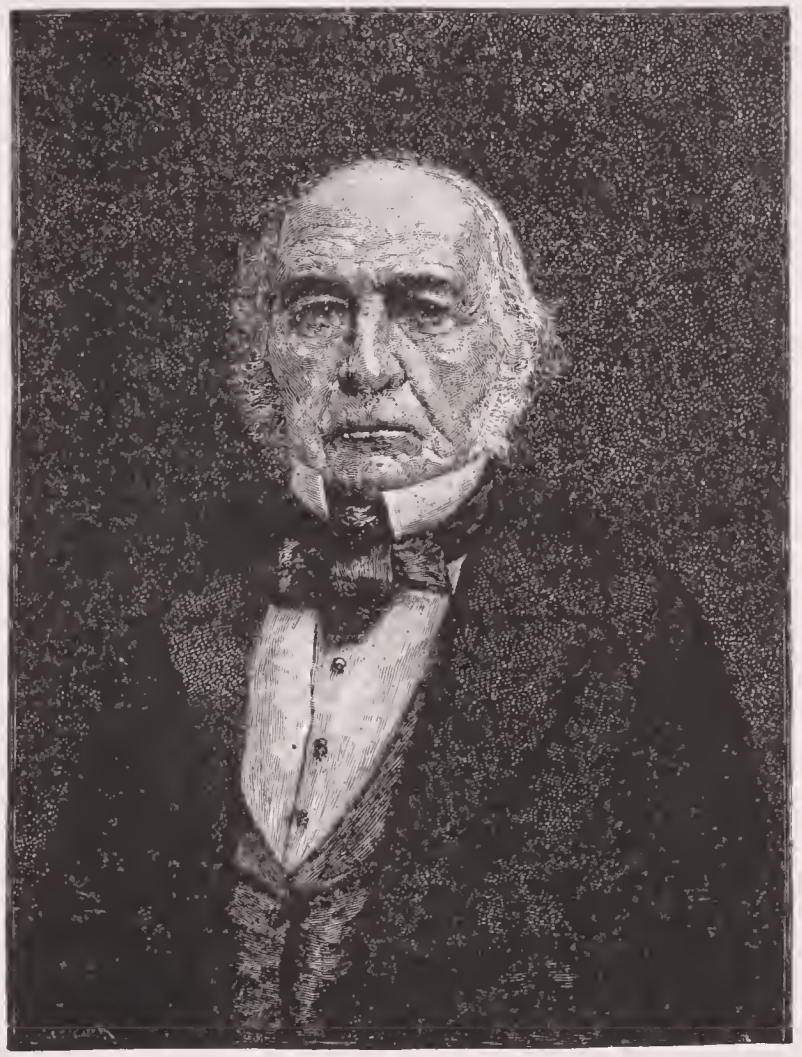
"*Glammis*, I am, and Cawdor, the greatest — is behind."—*Shaks.*

Glamor'gan, a co. of S. Wales, England, bounded S. by the Bristol Channel, and surrounded on the other sides by the counties of Brecon, Monmouth, and Carmarthen. In the S. the land forms the beautiful vale of Glamorgan, but rises rapidly to the N., becoming mountainous and picturesque. The co. has an area of 792 sq. m., and is watered by the Taff, Towey, Rhymney, Avon, Neath, and some other rivers of less importance. The mineral produce is considerable, consisting of coal, limestone, lead, and copper; some of the largest iron-works and smelting-houses in Wales are to be found at Aberdare, Dowlais, Neath, Swansea and Methyr Tydvil. *Cap.* Cardiff. *Pop.* (1895) 692,415.

Glamour, (*gla'mōōr,*) *n.* [Scot., from Icel. *glámeggdr.*] A species of witchery cast over the eyesight, making things appear different from their real aspect; a spell; as, she cast a *glamour* over him.

Glance, *n.* [Ger. *glanz*, gloss, brilliancy; Icel. *gloa*, to shine; Dan. *glands*, splendor, lustre. Allied to GLISTEN, *q. v.*] A sudden shoot of light or splendor.

"How fleet is the *glance* of the mind!" — *Cowper.*



William Ewart Gladstone

1809–

—A glimpse or sudden look; a rapid or momentary view or cast; a snatch of sight; as, to *glance* over a paper.

"She never seem'd to cast a *glance* on me." — *Harte.*

(*Min.*) A term often applied in popular language, and also by mineralogists, to a numerous order or family of minerals, of which *Galena* (q. v.) or lead-*G.* may be regarded as a type. All of them are metallic, and many of them are known by names indicating the metal which is their principal constituent, as silver-*G.*, *G.* copper, &c.

—*v. n.* [Ger. *glänzen;* Gr. *glanssō.*] To shoot or dart a ray of light or splendor.

"Let random influences *glance*,
Like light on many a shivered lance." — *Tennyson.*

—To dart aside; to fly off in an oblique direction; as, a *glancing* arrow.

"The jest did *glance* away from me." — *Shaks.*

—To look with a sudden, rapid cast of the eye; to take a hasty glimpse; to snatch a momentary view.

"They sit again, and sigh and *glance;* then dance again, and kiss." *Sir J. Suckling.*

—To hint; to cast a word or passing reflection; to censure by oblique hints; — sometimes preceding *at.*

"How canst thou . . . *glance at* my credit with Hyppolita?" *Shaks.*

—To twinkle; to be only momentarily visible; to move quickly and transiently.

"The trip of those small *glancing* feet." — *Macaulay.*

—*v. a.* To shoot or dart suddenly or obliquely; to cast the eye nimbly for a moment.

"*Glancing* an eye of pity on his losses." — *Shaks.*

Glance'-coal, *n.* ANTHRACITE, *q. v.*

Glance'-cobalt, *n.* (*Min.*) Same as COBALTINE, *q. v.*

Glance'-copper, *n.* (*Min.*) Chalcocite, or sulphuret of copper. It is of metallic lustre, blackish lead-gray color, often tarnished with blue or green. *Sp. gr.* 5·5 to 5·8. *Comp.* Sulphur 20·2, copper 79·8. Occurs in fine crystals in Cornwall, Eng., Bristol, Conn., and in many other localities.

Glan'cingly, *adv.* By glancing; in a glancing manner; transiently.

Gland, *n.* [Lat. *glans, glandis,* the nut-like fruit of foreign trees; allied to Gr. *balanos,* an acorn; Ar. *ballūt;* Hind. *bulloot.*] (*Anat.*) A small, round, oval, or oblong body; a small organ secreting a fluid of some special nature. — Though we style all glands as small, such is not in fact the case, as some are of considerable size, to which the term of organ is generally applied. Of this nature is the liver, which, as far as it is a secreting substance, is a gland; so also is the pancreas, the spleen, and the kidneys. It is customary, however, to describe such parts as organs, and confine the word gland to those small bodies, many of them too minute for common observation, but which yet perform most important functions in the animal economy. Of these are the system of salivary glands, situated beneath the tongue, the jaw, and in the cheeks, and without the secretion of which we should be unable to taste or enjoy our food; the perspiratory glands, an immense congeries of minute glands lying below the skin, each one furnished with a spiral tube or duct, that opens out on the surface of the cuticle at what are called the pores, and discharge through these mouths the perspiration which they are constantly collecting to pour out, and not only keeps the skin healthy by that means, but at the same time carries off the refuse moisture from the body by that ingenious plan. When from any cause these glands do not pour out their fluid, the skin loses all its healthy properties, both as a breathing apparatus and as an organ of feeling. (See PERSPIRATION, INSENSIBLE.) The lachrymal and lymphatic glands have already been described under *Eye* and *Digestion*, q. v. There are still many other single glands and systems of glands, such as the thyroid in the neck, the seat of goitre, the mesenteric glands of the abdomen, &c. Dr. Carpenter very well exhibits the commencement of the progressive complication which is observed in most of the glandular structures occurring in man and the higher animals in the accompanying diagram (Fig. 1163), where A represents a portion of the

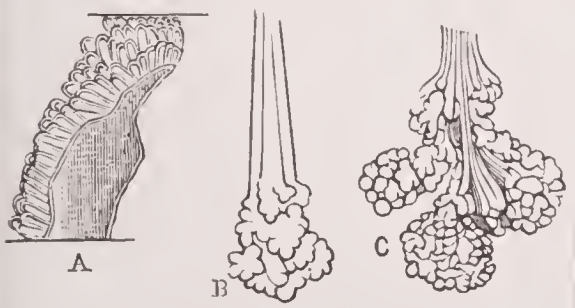


Fig. 1163 — GLANDS.

proventriculus of a falcon, in which follicles formed by simple inversion occur, while B represents a gastric gland from the middle of the human stomach, and C a still more complicated form, produced by the follicles doubling upon themselves, taken from near the pylorus. Whatever be the complexity in the general arrangement of the elements of a gland in the higher animals, these elements are always found to resolve themselves into *follicles* or *tubuli,* which enclose the true secreting cells. The *Lymphatic glands* belong to a different class of structures, and will be described under LYMPHATIC SYSTEM.

(*Med. and Surg.*) The lymphatic glands are subject to enlargement from acute inflammation and abscess, usually in consequence of irritation of the part from which their lymphatics spring, as in the case of scarlet fever, in which the glands of the throat are affected; in gonorrhœa, the glands of the groin, &c. The treatment of such abscesses belongs to the ordinary principles of surgery. (See ABSCESS.) A much more troublesome affection of the glands is the slow, comparatively painless, at first dense solid swelling which they undergo in *Scrofula,* which tends very slowly, if at all, to suppuration, and sometimes remains for years. In *Syphilis* and *Cancer* there are also enlargements of the lymphatic glands. Scrofulous or tubercular disease of the mesenteric glands in children constitutes *Tabes mesenterica.*

(*Bot.*) A wart-like swelling of various forms found on the surface of plants, or at the base or apex of their hairs. Lenticular glands are brown oval spots found upon the bark of many plants, especially willows, indicating the points from which roots will appear if the branch be placed in circumstances favorable to their production. They are, in fact, nothing but protuberances formed by the pressure upon the epidermis of subjacent roots attempting to pierce through it.

(*Mach.*) The cupped collar, lined with brass, which encircles the piston, or air-pump rod, of a steam-engine where it passes through the cylinder cover; it is introduced for the purpose of holding oil or tallow for the lubrication of the working parts, and for compressing the packing of the stuffing-box upon which it is screwed down. The term is generally applied in the sense of a joint holding lubricating fluid, with tight packing.

Glan'dered, *a.* Suffering from glanders, as a horse.

Glan'ders, *n.* [From *gland.*] (*Farriery.*) A disease of the mucous membrane in horses, in which the glands beneath and within the lower jaw are enlarged.

Glandiferous, *a.* [Lat. *glandifer* — *glandis,* and *fero,* to bear or produce.] Bearing acorns or fruit; producing nuts or mast; as, *glandiferous* trees.

Glan'diform, *n.* [Lat. *glans,* an acorn, and *forma,* form.] In the shape of a gland or acorn; resembling a gland.

Glan'don, a harbor of Ireland, co. of Cork, abt. 3 m. W. of Rose Bay. It is abt. 1 m. wide by 3 m. in length.

—A village of Ireland, co. of Cork, abt. 2 m. above the mouth of the harbor.

Glan'dore, a harbor of Ireland, co. of Cork, abt 34 m. S.S.W. of Cork. Lat. 51° 35′ N., Lon. 9° 5′ W.

—A town of Ireland, co. of Cork, on a harbor of the same name.

Gland'ular, *a.* Containing glands; consisting of glands; pertaining to glands; covered with hairs bearing glands on their tips, as certain plants.

Glandula'tion, *n.* [Fr.] (*Bot.*) The situation and structure of the glands in plants.

Glandule, (*gland'ūl,*) *n.* [Fr.; Lat. *glandula.*] A small gland or secretory vessel.

Glandulif'erous, *a.* [Lat. *glandula,* and *ferra,* to bear.] Bearing glands.

Glan'dulose, Glan'dulous, *a.* [Fr. *glanduleux,* from L. Lat. *glandulosus.*] Containing glands; consisting of glands; pertaining to glands; glandular; as, "*glandulous* tumors." — *Arbuthnot.*

Glans, *n.* [Lat., an acorn.] (*Bot.*) An inferior, dry, hard, indehiscent, one-celled, one or two-seeded fruit, produced from an ovary of two or more cells, with one or more ovules in each cell; all of which, except one or two, becomes abortive in the progress of growth. The three layers constituting the pericarp are firmly coherent and indistinguishable, and the whole is more or less inclosed by that description of involucre which is called a *cupule.* The acorn and the filbert are examples of this kind of fruit.

(*Med.*) Bronchocele; — a pessary; — a suppository.

(*Anat.*) The extremity of the penis and of the clitoris.

Glaphy'ra, GLAPH'YRE, wife of Archelaus, high-priest of Bellona, at Comana, in Cappadocia, seduced Marc Antony by her beauty, and obtained from him the kingdom of Cappadocia for her sons, Sisenna and Archelaus. — Another *G.*, grand-daughter of the above, married successively Alexander, son of Herod, Juba, king of Mauritania, and Archelaus, king of Judea, his brother-in-law.

Glare, *n.* [Dan. *glar;* Icel. *gler,* glass; allied to Lat. *clarus,* and *glonā.* See CLEAR and GLORY.] A bright, dazzling, overpowering light; clear brilliant lustre or splendor, that dazzles the eyes.

'Maidens, like moths, are ever caught by *glare.*" — *Byron.*

—A fierce, piercing, penetrating look.

'A lion now he stalks with fiery *glare.*' — *Milton.*

—A transparent viscous substance. — See GLAIR.

—*v. n.* To shine with a clear, bright, dazzling light.

"Behold this man in a fierce *glaring* light." — *Addison.*

—To look with fierce piercing eyes.

"Look, how pale he *glares*t" — *Shaks.*

—To shine with ostentatious lustre; to present excessive brightness of appearance; as, a *glaring* picture, a *glaring* dress.

Glare, *v. a.* To shoot out, or cast forth, as a dazzling, overpowering light; as, her eyes *glared* at the suggestion.

"Screen'd in shades from day's detested *glare.*" — *Pope.*

—*a.* Polished to a degree that reflects light; hence, slippery, smooth; as, *glare* ice.

Glar'eous, *a.* [Fr. *glaireux.* See GLAIR.] Viscous, and transparent or white, like the white of an egg.

Glar'iness, Glar'inguess, *n.* A brilliant, overpowering lustre.

Glar'ing, *p. a.* Clear; open and bold; barefaced; notorious; palpable; as, a *glaring* falsehood.

Glar'ingly, *adv.* Openly; clearly; barefacedly; notoriously; in a glaring manner.

Glarus, Glaris, (*gla'roos,*) a small canton of Switzerland, lying between Lat. 46° 47′ and 47° 10′ N., and Lon. 8° 51′ and 9° 15′ E., having N. and E. the cant. of St. Gall, S.E. and S. the Grisons, and W. Uri and Schwytz. Length N. to S. 27 m. *Area,* 279 sq. m. *G.* is cold and mountainous, yet affords cattle, cheese, butter, orchards, an immense variety of rare plants, metals, crystals, medicinal springs, petrifactions, and large slates. It consists of the valley of the river Linth and its affluents, and except on the N., is enclosed by high mountain ranges; the Dodi, at its S. extremity, attaining an altitude of 11,900 ft., being the highest summit in E. Switzerland. *G.* formerly belonged to the Convent of Seckingen, which enfeoffed it in 1299 to the House of Hapsburg. In 1352 it entered into the Swiss Confederation, and its last constitution, thoroughly democratic, dates from 1836. *Pop.* (1895) about 37,500.

GLARUS, its capital, is situated near the Linth, 33 m. S. E. of Zurich, and 6 m. S. of Lake Wallenstadt. *Manuf.* Printed cotton goods, muslins, woollens, and Schabzieger cheese. *Pop.* (1895) 5,760.

Glas'co, in *New York,* a post-village of Ulster co., about 48 m. S. of Albany. *Pop.* (1890) 907.

Glas'cock, or **Glass'cock,** in *Georgia,* an E. co.; *area,* about 90 sq. m. *Rivers.* Ogeechee river and Rocky Comfort creek. *Surface,* generally level; *soil,* fertile. *Cap.* Gibson. *Pop.* (1890) 3,720.

Glas'cow, a village of Ontario, co. of Waterloo, on Grand river, opposite Bridgeport. *Pop.* about 100.

Gla'serite, *n.* (*Min.*) Same as APHTHITALITE, *q. v.*

Glasgow, (*glas'go,*) the most important and populous manufacturing and commercial city of Scotland, in the co. of Lanark, on both sides of the Clyde, 42 m. E. by S. of Edinburgh. The old part of the city is badly built, dirty, and dark; but in the modern quarter the streets are large and filled with fine structures. The city contains many public buildings, among which the most celebrated is the cathedral of St. Mungo, a splendid specimen of Gothic architecture, begun in 1123, the Court-house, Royal Exchange, Trader's Hall, Town-Hall, and the Royal Infirmary. *G.* contains a celebrated university, founded in 1450, which has a library of 60,000 vols., and possesses a museum of natural history, paintings, medals, anatomical preparations, &c. There are besides the Andersonian University, the College of Physicians, Mechanics' Institute, &c. *Manuf.* Cottons, bandana handkerchiefs, muslins, soap, cordage, flint-glass, cudbear, &c. *G.* is also noted for its ship-building and engineering establishments, chemical works, type-foundries, and almost every kind of production in the mechanical arts. The Clyde is navigable for vessels drawing 7 or 8 ft. of water; and the wharves and docks afford extensive accommodation for vessels of every description. The origin of *G.* is generally attributed to St. Mungo, who is said to have here founded, in 560, a bishopric, afterwards erected into an archiepiscopal see. It was here that Watt first commenced to improve the steam-engine; and on the Clyde, the *Comet,* the first boat in Europe successfully propelled by steam, was launched in 1812, five years after the *Clermont* had made her way up the Hudson. *Pop.* (1890) 792,728; (1897) estimated 862,500.

Glas'gow, a seaport town of Nova Scotia, co. of Picton, on the East river; now NEW GLASGOW.

Glas'gow, in *Alabama,* a post-office of Butler co.

Glas'gow, in *Delaware,* a post-village of Newcastle co., about 16 m. S. W. of Wilmington.

Glas'gow, in *Illinois,* a post-village of Scott co., about 40 m. S. W. of Springfield.

Glas'gow, in *Iowa,* a post-village of Jefferson co., about 12 m. E. S. E. of Fairfield.

Glas'gow, in *Kentucky,* a post-village, cap. of Barren co., about 126 m. S. W. of Frankfort. *Pop.* (1890) 2,051.

Glas'gow, in *Minnesota,* a township of Wabasha co.

Glas'gow, in *Missouri,* a city of Howard co., on the Missouri river, and the C. & A. and Wabash R. Rs., about 72 miles N. W. of Jefferson City. Tobacco is largely shipped. *Pop.* (1897) about 2,100.

Glas'gow, in *Ohio,* a post-village of Columbiana co., about 6 m. N. W. of Wellsville.

Glas'gow, in *Pennsylvania,* a post-village of Cambria co., on the P. & N. W. R. R.

Glas'gow Junction, in *Kentucky,* a post-office of Barren co.

Glasgow, Port, See PORT GLASGOW.

Glasney'in, a village and parish of Ireland, in Leinster, about 3 m. N. N. W. of the city of Dublin. *Pop.* of parish (1895) 1,580.

Glasney'in, in *Iowa,* a village of Dubuque co., about 25 m. W.N.W. of Dubuque.

Glass, JOHN, founder of the religious sect of Glassites in Scotland, B. in Fifeshire, 1695; D. 1773. See GLASSITES.

Glass, *n.* [A.S. *glaes;* L. Ger., D., G., Swed., and Icel., *glas;* O. Ger. *glas.* The A.S. is from *glisian,* and the O. Ger. from *glizan,* to glisten. The old Germans called amber *glas* or *gles,* and the word seems akin to Lat. *glacies,* ice. See GLACIER.] A hard, brittle, transparent substance, a compound of silica and an alkali. (See below, ℌ *Chem., Manuf., Hist.*)

—Anything made of glass; as, a small drinking vessel; a drinking-glass; a tumbler; as, a wine-*glass.*

"Like a *glass* did break i' th' rinsing." — *Shaks.*

—A mirror; a looking-glass; a reflector.

"The *glass* of fashion, and the mould of form." — *Shaks.*

—A vessel to be filled with sand, for measuring time; an hour-glass; hence, by analogy, the destined time of man's life.

"She would not live the running of one *glass.*" — *Shaks.*

—A telescope; a spy-glass; a lens.

"The moon . . . through optic *glass* the Tuscan artist views." *Milton.*

—A barometer; a weather-glass; as, the *glass* is rising.

—*pl.* Spectacles; aids to the eyesight; as, the old lady wore *glasses*.

—The quantity of liquor that a glass vessel contains; as, a *glass* of water.

(*Chem.*) The substance known as glass is, when chemically considered, a very variable compound. The different qualities, however, agree in one particular; they belong to the class called insoluble salts, and have all one acid in common, namely silicic acid. This last substance, usually simply called silex, is found in nature in the form of quartz, either crystallized or amorphous, as flint and as fine sand. In the last form it is naturally derived from the disintegration of granite and other rocks containing quartz, in which, by atmospheric influences and the prolonged solvent and mechanical action of water, the other ingredients have been washed away, and the more indestructible quartz particles are left behind. This quartz possesses all the chemical properties of an acid. It combines, like all other acids, with bases such as potash, soda, lime, magnesia, baryta, oxide of lead, and of all other metals, and forms a series of substances which, according to the adopted nomenclature, are called silicates, in the same manner as the compounds of sulphuric and nitric acids with the same bases are called sulphates and nitrates. As all compounds of this class are called salts, the silicates are, when chemically considered, as well salts as the sulphates. The distinction is of a physical and not of a chemical nature; the silicic acid, being liquefiable not by water but by heat, communicates this quality to all its salts with a few exceptions; and its compounds are therefore, as a rule, as insoluble as the nitrates are soluble. There are two other acids, boracic and phosphoric, which also form a large number of insoluble salts called borates and phosphates; and the chemist therefore recognizes also a borax or a phosphate glass; but in common language, the name of glass is exclusively applied to the silicates. *G.* made with quartz and soda alone is of a brilliant lustre, and easily fusible; but it has a bluish-green tint, and does not completely resist the action of sun and rain, which, in the course of time, tarnishes its brilliant, smooth surface. *G.* made with quartz and lime alone is much harder, not so easily fusible, and perfectly colorless; it resists the action of sun and rain better. The combination of the two has been found by experience to possess great advantages over either of them alone, except for special purposes. Potash is usually added to promote the fusibility and colorless transparency of the compound, as the silicate of potash is still more fusible than that of soda, and is perfectly colorless. However, as it does not possess the brilliancy or lustre of the soda-glass, the quantity added must not be too large, as in that case the beauty of the product is impaired. Common *window-G.* is composed of silica 69 parts, soda 13 parts, lime 13 parts, with a little alumina. *Plate-G.* contains 74 parts silica, 12 parts soda, 5·5 parts lime, and 5·5 parts potash. *Crown-G.*, for optical purposes, has no soda, as that imparts to it a greenish tinge, but contains 62 parts silica, 12·5 of lime, and 22 of potash. *Flint-G.* is a double silicate of potash and oxide of lead, containing silica 52 parts, potash 13·67 parts, oxide of lead 33·28 parts. The oxide of lead increases its fusibility, renders it softer, and greatly increases its beauty and lustre. Baryta increases its fusibility, and oxide of zinc also increases its brilliancy and refracting power. Boracic acid is also sometimes substituted for a portion of the silicic acid. *Flint-G.* is used for ornamental and table purposes, and in optical instruments. The celebrated *Bohemian G.*, so much valued in the laboratory for its hardness and infusibility, contains the silicate of potash and lime in predominant proportions. The more fusible *Bohemian G.*, which is used for ornamental purposes, contains, in addition, a notable quantity of silicate of alumina. *Bottle-G.* is a cheaper and commoner kind, being mostly composed of silicate of lime, and containing oxide of iron, which gives it its dark color. Some varieties of *G.*, embedded in sand and heated nearly to the point of fusion, and then allowed to cool slowly, become converted into what is called *Reaumur's porcelain*. It is hard, white, opaque, and somewhat less fusible. The change is due to the crystallization of its silicates, and is known as devitrification. Fusion restores it to its original transparency. *G.* for the manufacture of imitation gems contains a large quantity of oxide of lead, and often the borate of lead. It is called *strass* or *paste*, and is very soft, easily fused, and highly refractive. — *Manuf.* The materials are melted in pots of clay, which must be free from iron or lime. They are of two kinds, open like ordinary crucibles, used for common *G.*, and closed at the top with an aperture in the side for flint-*G.* The pots are placed in a furnace, several on the same platform, and each one opposite a small arched opening in the side of the furnace, through which the workman fills and empties it. They are now filled with the prepared materials, called *frit*, mixed with a proportion of broken glass called *cullet*, of the same quality as that to be made. When the material is melted, thoroughly mixed, and the impurities removed, if for plate-glass it is cast in large sheets on an iron table provided with a rim aronnd the edge. These sheets are annealed by cooling them slowly in an oven or furnace, and then ground and polished. All ordinary kinds of *G.* are manufactured by the process of blowing. For this, the principal instrument used is an iron tube from 4 to 5 ft. in length, with a bore of from ½ an inch to 1 inch in diameter. This tube being heated, is introduced into the pot of fused *G.*, and a portion of the *metal* gathered up. If a larger quantity is wanted, the first gathering is cooled, and another is made, and so on, until enough is accumulated for the article wanted. By blowing through the tube the plastic mass is expanded, and by successive heatings and blowings it is fashioned as desired. Window *G.* is made in two ways: One is to blow a large globe of glass, which by re-heating and

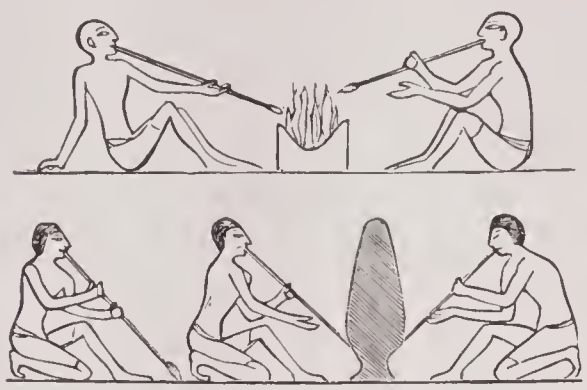


Fig. 1164. — EGYPTIAN GLASS-BLOWERS.

twirling is flattened into a disc of uniform thickness. This is called *Crown-G.* The other is to blow a long cylinder of uniform diameter, which is then trimmed at the ends, cut open lengthwise with a diamond, heated and opened on a table into a flat sheet. Bottles, &c., having irregular shapes and ornamental figures, letters, &c., are introduced while soft into moulds, and expanded by blowing. All *G.* requires to be carefully annealed, otherwise it is liable to fly to pieces upon the slightest touch of any substance hard enough to scratch its surface. When melted bottle-*G.* is dropped into water so as to form pear-shaped drops, the instant a portion of the small end is broken off they crumble into a fine powder. This probably arises from the unequal tension of the layers caused by the sudden cooling of the outside, while the inside of the mass is still hot. They form the well-known philosophical toy called *Prince Rupert's drops*. Many attempts have been made, and time spent in efforts to discover a *malleable G.* M. de la Bastie claimed to have discovered a method of rendering glass durable, which he termed *verre trempé*, or tempered *G.* It was done by means of a bath of melted wax, resin, and oils. This glass is very hard on the surface, and will stand much rough usage, but it is not uniform, and has come little into use. It cannot be cut with the diamond for window glass purposes.

G. Etching on. The art of producing designs upon glass, by the corrosive power of hydro-fluoric acid. In order to effect this operation, the glass is covered with a thin ground of bees-wax; the design is then drawn upon it with the needle, as in etching upon copper. Sulphuric acid is afterwards poured on, and fluor spar or fluoric acid sprinkled on it. The hydro-fluoric acid, which is disengaged, acts powerfully upon the exposed portion of the glass, while fumes of fluo-silicic acid are liberated. After four or five hours the acid is removed, and the bees-wax removed from the glass with oil of turpentine. The glass is then found to be etched with the design required. The operation may be reversed by drawing the design upon the glass with a mixture of bees-wax and turpentine, and then subjecting it to the action of hydro-fluoric acid.

(*Hist.*) Nothing is known, with certainty, concerning the invention of glass, which dates from the earliest antiquity. The oldest specimens are Egyptian, and we possess specimens of opaque glass bearing the name of the queen Hatasu of the 18th dynasty, 1445 B. C. Transparent glass does not appear earlier in Egypt than the 26th dynasty, about 750 B. C., when bottles were made of it. Under the Pharaohs, Egyptian glass seems to have been extensively exported to Greece and Italy, and its reputation still continued under the Ptolemies, when the furnaces of Alexandria produced glass vases of innumberless shapes and considerable size. Egypt still retained the preëminence in the manufacture of *G.* under the Romans, the sand of Alexandria being indisputable for the finest qualities; and it may be said that the art has never been extinct in that country, the Fatimite Caliphs having issued glass coins in the 10th and 11th centuries, and beautiful lamps of glass, enamelled on the surface with various colors, having been made in the 14th cent. After the Egyptians, the people of antiquity most renowned for glass were the Phœnicians, who were the legendary inventors. Certain of their merchants, it is said, returning in a ship laden with natron or soda, and having been compelled by stormy weather to land on a sandy tract under Mount Carmel, placed their cooking-pots on lumps of natron on the sand, which, fused by the heat of the fire, formed the first glass. Sidon, indeed, was long celebrated for her glass-wares made of the sand brought down from Mount Carmel to the mouth of the river Belus. Although Josephus claims the invention of the art for the Jews, no remains of Jewish *G.* are known, and it is probable that the Jews were principally indebted for their supplies to the neighboring cities of Tyre and Sidon. Even in Greece itself, *G.* was by no means ancient. In the days of Homer it was unknown. Herodotus, indeed, mentions its employment for ear-rings, but these may have been of Phœnician fabric. It was called *hyalos*, crystal or ice, and *lithos chyte*, or fusible stone. Aristophanes, 450 B. C., mentions glass or crystal vessels, and various inscriptions confirm its use, but its value was next to gold, which could hardly have been the case if it had been of native manufacture. The glass-making art in Italy does not date earlier than the commencement of the Roman empire; and window-glass does not appear till about the 3d cent., A. D., the houses at Herculaneum, destroyed in the reign of Titus, being glazed with talc, and some doubt remaining as to the use of glass for this purpose at Pompeii. Lactantius, in the 3d cent. A. D., and St. Jerome, 422 A. D., mention glass windows. Under the Romans, colored as well as white glass was extensively used. Most of the precious stones were successfully imitated in glass pastes, but the most remarkable works in glass are the cameo vases, of which one of the most celebrated is the *Portland vase* (Fig. 1165) in the Brit. Museum, a two-handled vessel about 10 inches high, of transparent dark-blue glass, coated with a layer of opaque white glass, which has been treated as a cameo, the white coating having been cut down, so as to give on each side groups of figures delicately executed in relief. The subject is the marriage of Peleus and Thetes, and the urn held the ashes of a member of the imperial family of Severus Alexander, who died 221–235 A. D. The Romans knew the use of soda and lead as fluxes for glass, and made both crown- and flint-glass. They made most of the fancy varieties now in use, and were acquainted with the art of coloring it blue by cobalt, green by copper, rose or ruby by gold. But the great site of the *G.* manufacturing of the Dark and Middle Ages was Venice, whither it was transplanted on the foundation of that city in the 7th century A.D. The Venetian art, however, dates its improvements from the beginning of the 13th century only, and in 1291 the establishments were removed to the island of Murano, the manufacturers forming a guild with a libro d'oro, or register of nobility, and the secret kept with the greatest jealousy. In 1436, their color-glass came into note, and continued so till the close of the century; and in the 16th century, lace-patterns and mirrors were introduced. In the 15th and 16th centuries, plain glass with nice ornaments gilt and enamelled; in the 16th, crackled lace and reticulated glass, *vitrodi trino;* and in the 17th cent., variegated or marbled glasses were produced. The Venetian glass engaged for a long time the monopoly of commerce, their mirrors, goblets, and cups being exported all over the world, but it has been superseded by manufactures of England and Germany. The forms of the Venetian *G.* reflected its Oriental origin, and the earlier *G.* of other countries of Europe in their turn show the derivation of their art from Venice. In Germany, the oldest glass (which was flint) dates from the 16th cent., and consists of goblets and tankards of wine color, enamelled with colored coats-of-arms and other devices, millefiori, and schmeltz glass. Engraved glass was first introduced by Caspar Lehmann at Prague, in 1608, under imperial protection, and continued by his pupil G. Schwanhard; and ruby glass by Kunckel in 1679. Glass is said to have been made in 1294 at Quinquengrone, in France, before the 16th cent., in the reign of Philip VI.; and John and the dukes of Lorraine established manufactories in their domains, and a common kind was made in Dauphiné and Provence. Cast plate is also said to have been established at Cherbourg by artists from Venice, and in 1688 the art was declared noble. Towards the same time another manufacture, for making large plates by casting the *G.* instead of blowing, was established at *St. Gobain* (in the dep. of Aisne), the business of which proved very successful in the 16th century, and has continued so to the present time, the products of the establishment ranking among the first in the world. It is uncertain whether glass was made in England before the 16th century, as that mentioned may have been imported from Flanders or Venice. Window-glass is mentioned by Bede in 674, but was not in general use for windows till the 15th century. At an early period the application of glass for magnifying lenses appears to have been known. Ptolemy II. had a telescope mounted at the Pharos, and globes filled with water were in use for the purpose of magnifying under the Romans. Lenses are mentioned in the 12th century, A. D. by Alhazan, and by Roger Bacon in the 13th century, toward the close of which Salvino d'Armato invented eye-glasses, which were subsequently improved by Alessandro Spina. Within recent years glass reflectors for telescopes, of great size and accuracy, have been made in France, while refracting lenses, of sizes far surpassing any before attempted, have been produced in the U. S.—*Glass Industry in U. S.* The first glass made in America was produced at Jamestown, Va., in 1608, a small plant being established there by the early colonists, which was destroyed in the Indian massacre of 1622. In 1683 William Penn speaks in a letter of a glass works then existing in Pennsylvania. As regards *G.*-making in America prior to the Revolution, no trustworthy records exist. In July, 1787, the privilege of making *G.* in Massachusetts was awarded to a company, which was given prescriptive rights. The company was relieved from the payment of taxes, and its employees from militia service, while a bounty was to be paid by the State on all *G.* made. Yet this encouragement failed to produce any rapid results, the first *G.* being made in 1792. A plant begun in 1760, at Allowaystown, N. J., was abandoned in 1775, the work-



Fig. 1165. — PORTLAND VASE.

men going to Glassboro in the same State. From the small factory founded then at that place has grown one of the greatest *G.* industries in this country. A small plant was established at Fredericton, Md, in 1794, which Congress refused to subsidize, but which has grown and forms the basis of the Maryland *G.* product of to-day. Albert Gallatin began making *G.* at New Geneva, on the Monongahela river, in 1797, and others started the industry at Pittsburg in the same year. During the 19th century the industry grew apace, there being in 1890 294 establishments, with a capital of $40,966,850, and a product for that year of $40,051,004. The first plate *G.* factory was established at Cheshire, Mass., about 1853, and was afterward removed to Lenox, in the same county. This industry, like other branches of *G.* manufacturing, has now assumed important dimensions in the U. S. In *G.* production the States in 1890 ranked as follows: Pennsylvania, $17,179,137; Ohio, $5,640,182; New Jersey, $5,218,152; Indiana, $2,995,409; New York, $2,723,109, and other States in diminishing proportion. The total *G.* product of the U. S. in 1893 was valued at $47,650,000, of which $7,600,000 was plate *G.* In 1825 our exports of *G.* were $44,500; in 1895, $946,381.

G. Painting. The art of painting designs upon glass, either stained or colorless, with substances consisting usually of metallic oxides combined with a vitreous vehicle. When subjected to a great heat, the colors thus applied become permanently united with the surface of the glass. Painted-glass differs materially from stained glass, although the terms are considered synonymous. In stained-glass, however, the substance of the glass itself has been colored in the process of manufacture. The art of making colored glass has been long known. It was introduced into Greece and Rome from Assyria and Egypt. Byzantine Greeks appear to have been the first persons who practised painting upon glass, and from Byzantium the art passed into the West of Europe, by way of Venice and Marseilles. In France, the art of glass painting was practised with great success during the 12th century. After that time painted-glass windows were regarded as essential in religious edifices of any pretension. Painted windows of the 13th century abound in France, Germany, and England, and belong to the First Pointed, or Early English, style of architecture. The painted-glass of the 14th century was more vivid in color, with greater breadth in style, and more careful painting than that of the preceding century. It was, however, less pure in conception, and not so strictly subordinate to the architectural effects. In the glass-painting of the 15th century a great change took place. The windows became more individualized, and still less dependent upon the architecture. The designs were larger, and began to be treated as pictures. After the 15th century, when Gothic architecture was declining, the mediæval spirit departed from the art of painting on glass, and palaces and domestic buildings began to be ornamented with the painted-glass windows, as well as churches. Glass began to be treated as if it were canvas or panel, and the works of Rafaelle and other celebrated artists were either copied or imitated. The results were not good. From that period, glass-painting declined more and more, and until within late years, has never shown any symptoms of revival. The method by which glass-painting is now practised differs in different places; but the general plan is as follows, for a small work on a single plate of glass: — A careful cartoon, the size of the painting, having been procured, the glass is laid on it, a tracing made from it, and the outline is carefully traced on the glass, with black or brown, composed of a very fusible vitreous flux, colored with a metallic oxide, and ground extremely fine in an essential oil. Those parts which are intended to be yellow, orange, or red, are then coated according to the tint required, with a mixture composed of an alloy of silver and antimony, ground up with the red oxide which is obtained by subjecting sulphate of iron to a red heat. The glass is then exposed in a furnace to a red heat, in which the tracing color is fused, and adheres permanently to the glass. The mixture of silver and antimony colors the glass, but does not melt; so that the oxide of iron may be brushed off in the state of dry powder, leaving the glass colored, but transparent. The other tints, composed of very fusible glass, colored with metallic oxides, are then added, and the whole once more exposed to heat. In most cases, the glass is heated, or "fired," as it is called, between the application of each color. In making a painted window, many pieces of glass are fixed together in a leaden framework, great care being taken to arrange the several compartments from the cartoon. The great seats of this art are now in Munich, Nuremberg, Paris, Birmingham, and Edinburgh.

G. Soluble. When 8 parts of dry carbonate of soda, or 10 parts of carbonate of potash are fused with 15 parts of pure quartz, a glass is obtained which is soluble in 6 parts of boiling water. It has been used to diminish the combustibility of wood and woven fabrics, especially of theatrical scenery; as a varnish to preserve some building stones; in fresco-painting, and in the place of rosin in the manufacture of soap.

G. coloring. *G.* is colored by various metallic oxides which it dissolves in small quantities. When it is colored throughout the mass, it is called *pot-metal;* and when the colored material is put on as a superficial coating, it is called *flashed G.* Gold with oxide of tin gives a ruby-red color: oxides of silver and antimony give yellow; protoxide of iron gives green, but the sesquioxide gives no color when in small quantities. By adding the black oxide of manganese to *G.* colored by the protoxide of iron, a sesquioxide of iron is formed, and the color removed; peroxide of manganese gives various tints of violet or black if used in excess; protoxide of copper gives a rich green, and the dioxide a ruby-red. The glittering appearance of *aventurine,* q. v., is due to the dissemination of minute crystals of copper through the glass. Cobalt gives beautiful blue colors; oxide of chromium, emerald, green, or red, depending on the state of oxidation; oxide of uranium an opalescent green; and oxide of tin gives varieties of opalescent *G.*, and when about 10 per cent. of it are present it forms a white enamel. Arsenious acid renders *G.* translucent and of a pale bluish-white color, with a reddish hue when viewed with certain lights.

G. cutting. The kind of glass mostly used for ornamental cutting is flint-glass. It is cut by means of wheels, of different sizes and materials, turned by a treadle, as in a common lathe; some are made of fine sandstone, some of iron, others of tin or copper; the edges of some are square, some round, and some are sharp. They are used with sand and water, or emery and water, but stone wheels are used with water only. The glass-cutter also uses rods of copper, with knobs at their ends, for making round indentations; these turn on their axis, so that the end cuts a round hollow in the glass. The work is at first cut roughly, afterwards smoothed off with the sandstone or tin wheel — the latter has to be smeared with emery and water — and finally polished by a wooden wheel, with finely powdered pumice-stone applied to its edge, and moistened with water. The glass for spectacles and optical instruments are cut by concave or convex moulds of brass, moistened with emery and water, and polished by means of a mould of pitch, wetted with crocus and water. Great art and accuracy are required to grind the glasses for optical instruments, especially very large or very small ones, as for microscopes, the various "powers" of which constitute their chief expense — one the sixteenth of an inch in diameter costing about $60.

G. Iridescent is made by burning chloride of tin in the furnace; fumes are thus produced, for which warm *G.* has great affinity, and which immediately produce an iridescent surface upon it. To heighten the effect, a small quantity of baryta and strontia may be used.

Glass, *a.* Vitreous; made of glass; as, a *glass* bottle.

Glass, *v. a.* To see, as in a glass. "I *glass* my own debility." (*Sidney.*) — To represent, as in a glass or mirror.

"The Almighty's form *glasses* itself in tempests." — *Byron.*

— To ease in glass. — To glaze; to cover with glass.

Glass'-blower, *n.* One who blows glass-vessels.

Glass'boro, in *New Jersey,* a post-village of Gloucester co., on two railroads, 19 m. S. of Camden. Has very extensive glass works. *Pop.* of twp. (1897) about 2,750.

Glass'-cutter, *n.* One whose trade it is to cut out sheets of glass to the sizes wanted for window-panes, &c.

Glass'-cutting, *n.* See Glass.

Glass'-faced, *a.* Having a face like a mirror, *i. e.,* trying to reflect, as in a mirror, on one's countenance, the sentiments of joy, sorrow, &c., entertained by another. "A *glass-faced* flatterer." — *Shaks.*

Glass'ful, *n.; pl.* Glassfuls. As much as is contained in a glass; the contents of a glass.

Glass'-furnace, *n.* A furnace in which the materials of which glass is composed are melted.

Glass Gall, *n.* The scum which floats upon the surface of the fused materials used in the manufacture of glass. It consists chiefly of sulphate of soda and chloride of sodium. It is also called *Sandiver.*

Glass'-grinder, *n.* One whose trade it is to polish and grind glass.

Glass'-house, *n.* A house where glass is made; a manufactory of glass.

— A house made of glass.

Glas'sily, *adv.* In a glassy manner.

Glas'siness, *n.* Quality of being glassy or smooth; a vitreous appearance.

Glass'ites, *n. pl.* (*Eccl. Hist.*) A religious sect, which sprang up in Scotland about the year 1729, and was so called after its founder, the Rev. John Glass, who was originally a minister of the Church of Scotland, but was deposed by the General Assembly for holding opinions contrary to the standards of the Church. He fully explained his opinions in a tract, entitled "The Testimony of the King of Martyrs concerning his Kingdom." He was opposed to all national establishments for the support of religion, and advocated a system of independent church government. In fact, his views on this subject approached very nearly those maintained by the Congregationalists. One of his principal disciples was Robert Sandeman, who formed a congregation in London in 1762, and after him this sect in England bears the name of *Sandemanians.* The leading tenets of the Glassites, or Sandemanians, relate to the efficacy of the atonement and the nature of faith. They hold that "the bare death of Christ, without a deed or thought on the part of man, is sufficient to present the chief of sinners spotless before God;" and that "faith is no more than a simple assent to the divine testimony, passively received by the understanding." They maintain the necessity of a plurality of bishops, or teaching elders, in each church, but do not consider the want of learning, or employment in worldly business, any disqualification for this office. They also observe certain peculiar practices, supposed by them to have been prevalent among the primitive Christians; such as weekly sacraments, love-feasts, washing each other's feet, the kiss of charity, the use of lots; and in general, they attempted to carry out literally, as far as possible, the rules of Scripture. They contribute largely of their goods to the church and to the poor. Their number is actually very small.

Glass'man, *n.* One who deals in glass.

Glass'-nautilus, *n.* (*Zoöl.*) See Carinaria.

Glass of Antimony, *n.* A red-colored, transparent glass, formed when tersulphide of antimony is fused in the open air. Its composition is 8 parts of the teroxide and 1 part of the tersulphide of antimony.

Glass'-painting, *n.* (*Arts.*) See Glass.

Glass'-paper, *n.* It is made by powdering glass more or less finely, and sprinkling it over paper or calico, still wet with a coat of thin glue: the powdered glass adheres as it dries. Glass paper is very extensively employed as a means for polishing metal and wood-work.

Glass'-pot, *n.* A sort of crucible used for melting glass.

Glass'-snake, *n.* (*Zoöl.*) The name of a snake-shaped lizard, the only representation in N. America of the genus *Ophisaurus,* family *Chalcidæ.* It is 20 to 40 inches long, the body and tail above yellowish green, spotted with black, and the under surface yellow. It is common in the S. and W. States, inhabits dry places, and spends much of the time in the ground. The vertebræ of the tail are so easily separated, that it is broken by a very slight blow; and to this fragility it owes its popular name.

Glass'-soap, *n.* Any substance used by glassblowers for ridding glass of its natural greenish color; — usually the black oxide of manganese.

Glass'-tears, *n. pl.* Same as Rupert's Drops, *q. v.*

Glasstoole, or Glassthule, (*glass-tool',*) a village of Ireland, in Leinster, on Dublin Bay, abt. 5 m. S.E. of Dublin.

Glass'-work, *n.* The manufacture of glass.

— The building or buildings in which glass is manufactured. (Usually in the *plural.*)

Glass'-wort, *n.* (*Bot.*) See Salicornia.

Glas'sy, *a.* Vitreous; resembling glass in its properties; as in smoothness, brittleness, or transparency.

"The *glassy* stream." — *Shaks.*

Glas'tonbury, in *Connecticut,* a post-town of Hartford co., on the Connecticut river about 7 m. S. by E. of Hartford, which is the nearest railroad station. *Pop.* of township (1897) about 3,590.

Glas'tonbury, in *Vermont,* a township of Bennington co.

Glastonbury, (*glas-ton-ber're,*) a small town of England, in Somersetshire, 25 m. S.W. of the city of Bath. It was the seat of the most magnificent and wealthy abbey in England, the last abbot of which was hanged for refusing to surrender it to Henry VIII. Its ruins are still extensive. *Pop.* of town, 3,500.

Glatz, a town of Prussia, prov. Silesia, and a fortress of the second rank, is situated between two fortified hills, on the left bank of the Neisse, 52 m. S.S.W. of Breslau. It has four Catholic churches. *Manuf.* Linen, damask, and woollen fabrics, leather, and rose-garlands. During the Thirty Years' and the Seven Years' Wars, *G.* was frequently besieged and taken, and therefore has some historical interest. *Pop.* (1895) 13,880.

Glauber, Johann Rodolph, (*glō'ber,*) a German chemist and physician of the 16th cent., who settled finally, after much travel, in Holland. Being strongly addicted to alchemy, he occupied himself with the search for the universal panacea and the philosopher's stone, and during his experiments, made some important discoveries, among others, that of Glauber's salts, *q. v.* D. 1688.

Glau'berite, *n.* [From Glauber, *q. v.*] (*Min.*) A sulphate of soda and lime. It occurs in oblique crystals, nearly transparent, and yellowish-gray in color, sometimes brick-red. Lustre, vitreous. Taste, slightly saline. *Comp.* Sulph. soda 51·1, sulph. lime 48·9. It is found in crystals in rock salt at Villa Rubia, Spain, at the salt mines of Vic in France, and at Borax Lake, Cal.

Glau'ber's Salt, *n.* (*Chem.*) Sulphate of soda. This salt was discovered by Glauber, *q. v.*, who called it *sal mirabile.* It crystallizes in long, 4-sided translucent prisms, which, on exposure to the air, lose water, and are resolved into a white powder. It is prepared in great quantities by the action of sulphuric acid on common salt, or, if wanted pure, by adding dilute sulphuric acid to a solution of carbonate of soda. It has a cooling, slightly bitter taste, and is a good purgative. *Formula.* $Na_2SO_4 + 10H_2O$. It exists in some mineral springs, as at Cheltenham and Carlsbad. As a native product, see Mirabilite, Thenardite, and Glauberite.

Glauce, (*glaw'se.*) (*Myth.*) A daughter of Cychræus, and wife of Actæus. — Another *G.* was the daughter of Creon, and married Jason.

Glaucescent, Glau'cine, *a.* [Lat. *glaucescens,* pp. of *glaucescere,* incept. from *glaucere,* from *glaucus,* bluish-gray; Gr. *glaukos.*] Having something of a bluish-gray, or hoary appearance.

Glauchau, (*glow'how,*) a thriving and important manufacturing town of Prussia, in Saxony, on the right bank of the Mulde, 8 m. N.N.E. of Zwickau. *Manuf.* Woollen and linen cloths, and leather; there are also extensive print-fields and dye-works. *Pop.* 21,460.

Glau'cine, *n.* (*Chem.*) A crystalline alkaloid found in the leaves of the *Glaucium luteum.*

Glau'cium, *n.* (*Bot.*) The Horn-poppy, a genus of plants, order *Papaveraceæ.* The species chiefly native of Europe abound with copper-colored acrid juice, said to be poisonous, and to cause madness.

Glau'codot, *n.* (*Min.*) A mineral of a metallic lustre, grayish tin-white color, found with cobaltite in Chili. Sp. gr. 5·975–6. *Comp.* Sulphur 19·4, arsenic 45·5, cobalt 23·8, iron 11·3.

Glau'colite, *n.* [Gr. *glaukos,* greenish-gray or sea-green.] A silicate of alumina, lime and potash from near Lake Baikal, Siberia. *Comp.* Silica 48·4, alumina 28·5, lime 18·1, soda 5·0. It is a variety of Wernerite, *q. v.*

Glauco'ma, *n.* [Fr. *glaucome;* Lat. and Gr. *glaucoma,* from Gr. *glaukoun,* to make grayish, from *glaukos,* bluish-gray.] (*Med.*) An opacity of the vitreous humor of the eye, characterized by a bluish tint seen from without, and the absence of the peculiar characters of

cataract (*q. v.*), which, in some respects, it resembles as regards the gradual obscuration of vision. It is an almost incurable disease.

Glaucom'atous, *a.* Having the nature of, or pertaining to glaucoma.

Glau'conite, *n.* [So called from its green color.] (*Min.*) A constituent of the green sand formation; also found in the cavities in eruptive rocks. It is amorphous, resembling earthy chlorite. Lustre dull, or glistening. Color different shades of green; opaque. Sp. gr. 2·2–2·4. *Comp.* Silica 49·3, alumina 3·6, sesquioxide of iron 22·7, protoxide of iron 6·3, potash 8·3, water 9·6. The glaucerite grains are often casts of the shells of Rhizopods. The earthy variety is used as a pigment.

Glaucopic'rine, *n.* [Gr. *glaukos*, azure, *pikros*, bitter.] (*Chem.*) An alkaloid found with glaucine in the *Glaucium luteum*.

Glauco'pis, *n.* [Gr. *glaukos*, sea-green, and *ōps*, the countenance or eye.] (*Zoöl.*) See WATTLE-BIRD.

Glauco'sis, *n.* Same as GLAUCOMA, *q. v.*

Glau'cous, *a.* [See above.] Bluish-green; of a sea-green color; of a dull-green passing into grayish-blue.

(*Bot.*) Covered with a whitish bloom, which rubs off, as the surface of a cabbage-leaf or of a plum, or so whitened as to appear to have a bloom.

Glau'cus, (*Myth.*) A fisherman of Anthedon in Bœotia, a son of Neptune, or according to others, of Polybius, the son of Mercury, and the nymph Nais, said to have built the ship Argo, and to have accompanied the Argonautic expedition as pilot, but during one of the fights, in which the Argonauts were engaged, he fell into the sea, and thereupon became a sea-god. According to others, *G.* while fishing, noticed that the fish which he laid on the grass received fresh vigor as they touched the ground, and immediately leaped into the sea. Having himself touched the grass, he felt a desire to inhabit the sea, and leaping into it, was made a sea-deity by Oceanus and Tethys, who bestowed on him the gift of prophecy, in which he excelled so much that even Apollo became his pupil. Much is related in mythology of his amours, among the objects of which, are mentioned Ariadne, Scylla, and Hydne, daughter of Scyllus the diver. He is represented with a long beard, dishevelled hair, shaggy eyebrows, and the tail of a fish. Another *G.* was son of Hippolochus and grandson of Bellerophon. He assisted Priam in the Trojan war, and was foolish enough to exchange his golden armor for the iron suit of Diomed, whence the proverb, "*Glauci et Diomedis permutatio*," said of any foolish purchase. He displayed much courage, but was killed by Ajax. A third *G.* was son of Sisyphus, king of Corinth, by Merope, daughter of Atlas, and B. at Potnia, Bœotia. Desiring to make his mares swifter than others, for the purpose of vexing Venus, the latter inspired the animals with such fury that they tore *G.* to pieces as he returned from the games which had been celebrated by Adrastus in honor of his father. — A fourth *G.* was son of Minos II., and Pasiphæ, was smothered in a cask of honey, and miraculously brought to life, by an herb sent by Polyidus, the soothsayer.

Glau'cus, *n.* (*Zoöl.*) A genus of mollusks classed with the *Gasteropoda*, but having no distinct respiratory organs. The species remarkable for their beautiful azure tint, are found in the warmer latitudes floating in the open sea.

Glaux, *n.* [Gr. *glaukos*, sea-green.] (*Bot.*) A genus of plants, order *Primulaceæ*, having a 5-lobed calyx, no corolla, and a 5-valved capsule, with about five seeds. *G. maritima*, sometimes called *Sea Milk-wort* and *Black Salt-wort*, is one of the most common plants of our sea-coasts, growing in almost every muddy situation. It is a small plant, with branching stems, often procumbent, and small fleshy leaves. It makes a good pickle.

Glay'more, *n.* Same as CLAYMORE, *q. v.*

Glaze, *v. a.* [Corrupted from *glass*, *v. a.*] To furnish with glass, or windows of glass: to crust with a vitreous substance, as earthenware. — To cover with anything smooth or shining; to render the exterior of a thing bright, smooth, and showy; to polish; to make smooth and glossy.

"We paint that which we intend to *glaze*." — *Dryden.*

—*n.* A vitreous coating, as of earthenware; glazing.

Glazed, *p. a.* Furnished with glass-windows. — Incrusted with a substance resembling glass. — Rendered smooth, shining, or polished.

Gla'zer, *n.* A workman who applies the glaze to earthenware, &c. — An instrument for smoothing cloth, paper, &c.; a calender. — A wheel, the outer circumference or tiring of which is coated with emery, or any other substance fitted for the purpose, and used to polish cutlery by rapid friction.

Gla'zier, *n.* [From GLASE, *v. a.*] One whose business is to set window-glass.

Glaz'ing, *n.* Act or art of setting glass; the art of crusting with a vitreous substance; the act of polishing or of giving a smooth, shining, glossy surface to. — The vitreous matter with which potter's ware is encrusted; also applied to porcelain, paper, &c. — Any factitious, shining exterior. — Act of furnishing or covering with glass, as houses, &c.

(*Painting.*) A term applied to the finishing of a drawing with some thin, transparent, and glossy tint, through which the first colors appear, and are heightened in their effect.

(*Arts.*) In glazing earthenware, the ingredients that are used consist of red lead, white lead, felspar, ground flints, ground flint-glass, Cornish stone, and clay, soda, nitre, and borax. Various compositions are made for glazing, by mingling some of these substances together in different proportions, according to the nature of the material which is to be coated, and the purpose for which the article is intended. Thus, in the glaze for common earthenware, white lead and ground flints predominate; in that for porcelain, felspar, borax, nitre, soda, Cornish clay, and sand, are used; and for stoneware, red lead, white lead, and ground flints are mingled with the ingredients used for porcelain. For lining chemical retorts, sand, potash, lime, and nitre are used, without any admixture of lead. The substances of which these glazes are composed are mixed with water, until they assume the consistency of cream. When the mixture is perfectly ready for use, the ware is dipped into it, and afterwards subjected to the action of heat in an oven, which converts the liquid coating into a solid vitreous glaze. *Metal-glazing* is the production of a brilliant polish on cutlery and steel goods, as well as articles made of brass, tortoise-shell, horn, ivory, and white metals, by means of wooden wheels from ¼ inch to four inches in width, and from four inches to two feet in diameter, the edges of which are covered with leather coated with emery-powder moistened with water. Other wheels are also used in polishing, coated with thick buff-leather, which is covered with a mixture of fine sand and water, or rotten-stone and oil, according to the nature of the material which requires to be polished. The final polish is given with a wheel, the leather covering of which is sprinkled with crocus or metallic powder, in a dry state. Stones are polished by lapidaries in a similar manner, with wooden wheels, which have emery spread on their edges. In window-glazing, the glass is cut to the required size with a glazier's diamond, and fastened to the sash-bars with a mixture of whiting and linseed oil, called putty, which hardens after having been exposed to the air for a few days, and retains the glass in its proper position.

Glead, *n.* Same as GLEDE, *q. v.*

Gleam, *n.* [A.S. *glæm*, a glittering, from *leoma*, a ray of light, allied to Lat. *lumen*, for *lucmen*, from *luc*, root of *lux*, light.] A beam; a ray; a small shoot or stream of light.

"A *gleam* of dawning light." — *Milton.*

—Brightness; splendor.

"Dreadful *gleams*, fires that glow."—*Pope.*

—*v. n.* To shoot or dart, as rays of light.

—To shine; to cast light; to flash; to spread a flood of light.

(*Falconry.*) To discharge filth; to void excrements, as a hawk.

Gleam'ing, *n.* A shoot, or shooting of light; a coruscation.

Gleamy, *a.* Darting beams of light; casting light in rays; cornscating. "A *gleamy* ray."—*Pope.*

Glean, *v. a.* [Fr. *glaner*, from *glane*, a handful of ears of corn; L. Lat. *glanare*, *glenare*, from *granum*, a grain.] To gather the stalks and ears of corn which reapers leave behind them; to collect things thinly scattered, as the grain left by a reaper; as, to *glean* the field. — To gather laboriously and by slow degrees; as to *glean* facts.

"Content to *glean* what we can from experiment."—*Locke.*

—*v. n.* To gather stalks, or ears of grain left by reapers.

—*n.* A collection made by gleaning, or by gathering here and there a little.

"The *gleans* of yellow thyme distend his thighs."—*Dryden.*

Glean'er, *n.* One who gathers after reapers.

—One who gathers anything slowly and laboriously; as, a *gleaner* of facts.

Glean'ing, *n.* Act of gathering after reapers, or gatherers, as the *gleanings* of grapes. — That which is collected by gleaning; as, *gleanings* of knowledge.

(*Hist. and Law.*) *G.* was an established practice among the Jews, and was sanctioned by the law of Moses, who enjoins them, when they reap the harvest, not wholly to reap the corners of the field, nor gather the gleanings, which were to be left for the poor and the stranger, as were also the gleanings of the vineyard; for they were not to gather every grape. (*Levit.* xix. 9, 10.) In modern times there exists a very general feeling in favor of *G.*; and in France and England it is popularly regarded as a right which an owner or occupier cannot oppose, and that the poor who enter a field for this purpose are not guilty of trespass. The act, however, has been decided to be illegal, though the practice still prevails of allowing the poor to glean the fields after they are reaped. In the United States there is not, it is believed, any legislation on the matter.

Glebe, *n.* [Fr. *glèbe*; Lat. *gleba*, from Gr. *bōlos*, a clod or lump of earth, by inserting *g*.] Turf; soil; ground.

"The rank and mellow *glebe*."—*Drayton.*

(*Eccl.*) Land possessed as part of the revenue of an ecclesiastical benefice.

(*Min.*) A lump, or clod of earth containing some mineral ore.

Glebe'less, *a.* Having no glebe; — said either of the parson or of his manse, or benefice.

Glebos'ity, *n.* The quality of being turfy or cloddy.

Gle'bous, Gle'by, *a.* [Lat. *glebosus*. See SUPRA.] Turfy; cloddy. — Belonging to a glebe. — Fruitful; fat; fertile. "O'er virtue's *gleby* land." — *Prior.*

Glecho'ma, *n.* (*Bot.*) The Linnæan name of the genus NEPETA, *q. v.*

Glede, *n.* [A.S. *glidaglide*, by redup. of *glidan*, to glide.] (*Zoöl.*) A Scottish name for the bird KITE, *q. v.*

Gleditsch'ia, *n.* [After the German botanist Gleditsh, who lived in the 18th cent.] (*Bot.*) A genus of plants, order *Fabaceæ*. They are trees, with supra-axillary, branched spines; leaves abruptly pinnate and bi-pinnate, often in the same specimen. *G. triacanthus*, the Honey Locust, is a fine ornamental tree, native from Penn. to Mo., and now common in cultivation. Its branches are armed with stout, triple spines; leaflets alternate, oblong-lanceolate, obtuse; legume linear-oblong, compressed, intervals filled with sweet pulp. In favorable circumstances it attains the height of 70 feet, undivided half its length, with a diameter of 3–4 feet. The thorns, with which its branches are armed in a most formidable manner, are 2–3′ long, ligneous, often having 2 secondary ones branching from the sides. Foliage light and elegant. Flowers small, white, succeeded by flat, crooked, hanging pods 12–18′ long, of a dull red. Seeds flat, hard, brown, imbedded in a fleshy substance, at first sweet, but becomes sour.



Fig. 1166. — HONEY LOCUST.
(*Gleditschia triacanthus.*)

Glee, *n.* [A.S. *glie*, *glio*, *gliv*, *glig*, music, joke, sport; *gliwian*, *gliowian*, to jest, to sing.] Joy; merriment; mirth; gayety; particularly the mirth enjoyed at a feast.

"Farewell, my *glee!*
No happiness is now reserved for me."—*Gay.*

(*Mus.*) A vocal composition in three or four parts, generally consisting of more than one movement, the subject of which, notwithstanding the received sense of the word *glee*, may be either gay, tender, or grave. The term was not applied to vocal concerted music until long after the *madrigal*. The early glees were nothing but vocal music in parts, in which the singers began and ended together, singing the same words. Gradually, however, they became improved, and the play of words and phrases introduced. Certain words were elongated in musical expression, and points were taken up after the manner of the catch. The style of music of the glee is peculiar to England, and quite different from the part-songs of Germany.

Glee'man, *n.* Itinerant minstrels were so called by the Anglo-Saxons; by the Latin writers of the middle ages they are termed *joculatores*. The name appears to have been supplanted by the Norman *minstrels*, shortly after the Conquest.

Glee'ful, *a.* Merry; gay; joyful.

Gleet, *n.* [A.S. *glidan*, to glide.] (*Med.*) See GONORRHŒA.

—*v. n.* To flow thinly; to ooze, as the mucous discharge from the orifice of the urethra.

—To flow slowly, as water.

"Vapors are condensed, and so *gleet* down the caverns."—*Cheyne.*

Gleet'y, *a.* Ichorous; thinly sanious.

"If the matter change to be *gleety*."—*Wiseman.*

Gleg, or **Cleg,** *n.* [Perhaps from Gael. *cleithleag*, the gad-fly.] (*Zoöl.*) The horse-fly. See GAD-FLY.

Gleim, WILHELM LUDWIG, a poet, sometimes called the German Anacreon, B. 1719, at Ermsleben; filled the office of secretary to the chapter of Halberstadt; and D. 1803. He owes his chief fame to his war-songs, composed for the Prussian army.

Gleiwitz, (*glī'vits*,) a manufacturing town of Prussia, in Silesia, on the Klodnitz, 43 m. S.E. from Oppeln. *Manuf.* Yarn, linen, glue, and leather. There is an important royal iron-foundry here. *Pop.* 12,600.

Glen, *n.* [Erse, *glean*; Gael. *glean*; W. *glyn*, a valley.] A deep vale, through which a river or stream flows. — A narrow valley; a dale; a depression between two hills.

Glen, the name of two rivers in England; the first in Northumberland, rising in the Cheviot Hills, and joining the Till at Fenton. — The second *G.* rises among the fens of Lincolnshire, and flows into Fosdyke wash.

Glen, in *New York*, a post-town of Montgomery co. *Pop.* (1890) 2,648.

Genal'ta, in *Georgia*, a post-village of Marion co., about 23 miles S.E. of Columbus.

Glen Arbor, in *Michigan*, a post-village and township of Leelenaw co., on Lake Michigan, about 150 miles N. of Grand Rapids.

Glen Au'brey, in *New York*, a P. O. of Broome co.

Glenbeu'lah, in *Wisconsin*, a post-village of Sheboygan co., about 20 miles E. of Fond du Lac.

Glen'burn, in *Maine*, a post-town of Penobscot co. *Pop.* (1897) about 620.

Glen Camp'bell, in *Pennsylvania*, a post-village of Indiana co.

Glen Castle, in *New York*, a post-office of Broome co.

Glen'coe, in *Kentucky*, a post-office of Gallatin co.

Glencoe, (*glen'ko*,) a valley in Argyleshire, Scotland, noted for the military execution of its unsuspecting inhabitants, the Macdonalds, by a party of English soldiers, in 1692, in consequence of an order, signed by William III. in council, for that purpose, and contrary to the faith of a royal proclamation. Many of the inhabitants had been in arms for the abdicated James II. Its bed is swept by Ossian's "Dark torrent of Cona." There is but one solitary farmhouse within a distance of 10 miles; and no portion of the Highlands presents a scene of such gloomy, silent grandeur.

Glen'coe, in *Illinois*, a post-village of Cook co., on Lake Michigan, abt. 19 m. N. by W. of Chicago.

Glen'eoe, in *Minnesota*, a post-village and township, cap. of McLeod county, about 60 miles W.S.W. of St. Paul. *Manf.* Flour. *Pop.* of village (1895) 2,022.
Gleneoe, in *Mississippi*, a village of Bolivar co.
Gleneoe, in *Missouri*, a post-village of St. Louis co., about 27 miles W.S.W. of St. Louis.
Gleneoe, in *Ohio*, a post-village of Belmont co., about 10 miles W. of Bellaire.
Gleneoe, in *Wisconsin*, a post-township of Buffalo co.
Glen'eo Mills, in *New York*, a P. O. of Columbia co.
Glen Cove, in *New York*, a post-village of Queens co., on Hempstead Harbor, on Long Island.
Glen'dalagh, a beautiful valley of Ireland, in Wicklow, Leinster, 5 miles from Rathdrum. It is nearly surrounded by inaccessible mountains, and contains two lakes, and extensive ruins of the city of *G.*, which was formerly a bishopric, with an episcopal jurisdiction, extending to the walls of Dublin.—There are several other places in Ireland prefixed with the word *Glen*, but of which there is nothing remarkable to record.
Glen'dale, in *Illinois*, a post-office of Pope co.
Glendale, in *Indiana*, a post-office of Daviess co.
Glendale, in *Iowa*, a post-office of Jefferson co.
Glendale, in *Kansas*, a post-office of Bourbon co.
Glendale, in *Kentucky*, a post-village of Hardin co., about 50 miles S. of Louisville.
Glendale, in *Massachusetts*, a post-village of Berkshire co., about 110 miles W. by N. of Boston.
Glendale, in *Minnesota*, a township of Scott co.
Glendale, in *Missouri*, a post-office of Putnam co.
Glendale, in *Montana*, a post-village of Beaver Head co.
Glendale, in *Nevada*, a village of Washoe co.
Glendale, in *New York*, a post-office of Lewis co.
Glendale, in *Ohio*, a post-village of Hamilton co., 15 miles N. of Cincinnati. *Pop.* (1897) about 2,000.
Glendale, in *South Carolina*, a post-town of Spartanburg co.
Glendale, in *Wisconsin*, a post-township of Monroe co., about 42 miles E. of LaCrosse.
Glendale, or Frazier's Farm, in *Virginia*, a locality near Malvern Hills. This place was the scene of a sharp action fought June 30, 1862, between a National force under Generals McCall, Meade, and Seymour, and one of Confederates, commanded by Generals Longstreet and Hill, in which the result was decisive to neither side. The Nationals lost heavily in officers, General Meade being severely wounded, McCall captured, and several brigadiers placed *hors de combat*.
Glendalough (*glen-dol'uh*), a lake of Ireland in Leister, co. of Wicklow, about 24 miles S. of Dublin. The vicinity is celebrated for its scenery and ruins.
Gleu'don, in *Pennsylvania*, a borough of Northampton co., about 2 miles from Easton. *Pop.* (1897) 1,025.
Glendower (*glen-dour'*), or Glendyr, Owen, a celebrated Welsh chieftain, born 1350, lineally descended from Llewellyn, last prince of Wales. During 14 years he fought against Henry IV., declaring him usurper of the English throne. Died 1415.
Glene, *n.* [Fr. *gleue;* Gr. *glēnē*, a depression.] (*Anat.*) The pupil; the anterior part of the eye; the eyeball; the eye; according to some, the crystalline lens. Also, a glenoid cavity.
Glenelg', a considerable river rising in the S. W. of Victoria, and flowing through S. Australia. It enters the Southern Ocean near Lat. 30° S., Lon. 141° E., between Capes Northumberland and Bridgewater.
Glenelg, in *Maryland*, a post-office of Howard co.
Glen'field, in *Penna.*, a post-borough of Allegheny co., on P., Ft. W. & C. Ry. *Pop.* (1897) about 1,000.
Glenfinnan, a valley of Scotland, in the S.W. portion of Invernesshire, called so from the river Finnan, which flows through it into Lough Shiel, and only remarkable as being the place where the Prince Charles Edward first unfurled his banner in 1745.
Glen'gad, a headland of Ireland, on the coast of Ulster, about 8 miles E.S.E. of Malin Head.
Glengar'iff Harbor, an arm of Bantry Bay, in Ireland, co. of Cork, about 5 miles N.W. of Bantry.
Glengarry, See Highlander.
Glen'ham, in *New York*, a post-village of Dutchess co., about 88 miles S. of Albany.
Gleu'haven, in *New York*, a P. O. of Cayuga co.
Glenhaven, in *Wisconsin*, a post-village and township of Grant co.
Glen'hope, in *Pennsylvania*, a post-borough of Clearfield co., about 120 miles W.N.W. of Harrisburg.
Glen'livet, a valley of Scotland in Banffshire, 20 miles from Huntley. It is noted for its finely flavored whisky.
Glenmalure', a mountainous region in Ireland, in Leinster, co. of Wicklow, on the Avonbeg river. It was the scene of many outrages during the rebellion of 1798.
Glen Mills, in *Pennsylvania*, a P. O. of Delaware co.
Glen'more, in *New York*, a post-vill. of Oneida co.
Glenmore, in *Virginia*, a P. O. of Buckingham co.
Glenmore, in *Wisconsin*, a post-township of Brown co., about 8 miles S. of Green Bay.
Glenmor'ris, a village of Ontario, co. of Brant, about 6 miles N.W. of Galt.
Glenn, in *Michigan*, a post-office of Allegan co.
Glenn, in *Ohio*, a post-office of Gallia co.
Glenn, in *Pennsylvania*, a post-office of McKean co.
Glenn, in *South Dakota*, a township of Walworth co.
Glenn Springs, in *South Carolina*, a post-village of Spartansburg co., about 85 miles N.W. of Columbia.
Glenn'ville, in *California*, a post-office of Kern co.
Glenn'ville, in *Georgia*, a post office of Tatnall co.
Gleu'oid, *n.* [Fr. *glenöide;* Gr. *gleunoeides*, from *glēnē*, a cavity and depression, and *eidos*, a shape.] (*Anat.*) A term applied in anatomy to certain articular surfaces of bones; thus the surface of the scapula which articulates with the head of the humerus is called the *glenoid cavity* of the scapula or blade-bone. The same term is also applied to the surface which receives the articular head of the lower jaw.
Glen Rid'dle, in *Pennsylvania*, a P. O. of Delaware co.
Glen Rock, in *Nebraska*, a post-office of Nemaha co.
Glen Rock, in *Pennsylvania*, a post-village of York co., about 15 m. S. of York.
Glen Roy (now Lime Spring) in *Iowa*, a post-village of Howard co. *Pop.* (1895) 551.
Gleuroy', in *Pennsylvania*, a post-office of Chester co.
Glens Falls, in *New York*, an important manufacturing town of Warren co., on Hudson river, 59 miles N. of Albany. Has also extensive mines of marble and limestone. *Pop.* (1897) about 10,000.
Glen's Fork, in *Kentucky*, a post-office of Adair co.
Glen'shee, Spittal of. A noted pass into the Grampian mountains of Scotland, 20 miles N.N.W. of Cupar-Angus, and S. of the point where the counties of Perth, Forfar, and Aberdeen meet.
Glen Union, in *Pennsylvania*, a P. O. of Clinton co.
Glen'ville, in *Connecticut*, a post-village of Fairfield co., about 60 miles S.W. of Hartford.
Glenville, in *New York*, a post-township of Schenectady co., on the Mohawk river, about 20 miles N.W. of Albany.
Glenville, in *West Virginia*, a post-village, cap. of Gilmer co., on the Little Kanawha river, about 82 miles S. of Wheeling.
Glen Wild, in *New York*, a post-office of Sullivan co.
Glen'wood, in *Iowa*, a city, capital of Mills co., on the C., B. & Q. R. R., 20 miles S.E. of Council Bluffs. *Pop.* (1895) 2,143.
—A township of Winneshiek co.
Glenwood, in *Maine*, a post-office of Aroostook co.
Glenwood, in *Minnesota*, a post-village, cap. of Pope co.
Glenwood, in *New York*, a post-village of Erie co., about 22 miles S.E. of Buffalo.
Glenwood, in *Pennsylvania*, a post-village of Susquehanna co., about 25 miles N. of Scranton.
Glenwood, in *Virginia*, a post-office of Rockbridge co.
Gli'adin, *n.* [Gr. *glia*, glue.] (*Chem.*) A gluey substance extracted from gluten by boiling alcohol.
Glib, *a.* [Du. *glibberig*, slippery, from *glibberen*, to slide; Lat. *glaber*, smooth, allied to Gr. *glubein*, to bark or peel.] Smooth; slippery; admitting a body to slide easily on the surface.

"The parts being *glib*, and continually in motion."—*Burnet.*

—Easily moving; voluble; flippant, as a tongue.
—*n.* [Erse, *glib*, a lock of hair.] A thick, curled bush of hair hanging down over the eyes so far as nearly to disguise the countenance.
—*v. a.* To render smooth.—To castrate; to emasculate.
Glib'ly, *adv.* Smoothly; volubly; as, to slide *glibly*, to speak *glibly*.
Glib'ness, *n.* Smoothness; slipperiness; volubility of tongue.
Glid'den, in *Iowa*, a post-village and township of Carroll co.
Glid'don, George Robbins, an eminent Egyptologist and archæologist, b. in Devonshire, Eng., in 1809. In early youth he was sent out to Egypt, where his father was established as a merchant, and also U. States Consul at Alexandria. *G.* ultimately succeeded his father as American Consul, and resided for many years in Egypt and the Levant, actively prosecuting researches in the antiquities and ethnology of those countries. About 1840, he returned to Europe, whence he came to the U. States, in which country he lectured in all the principal cities on Oriental archæology. *G.* was subsequently appointed agent for the Honduras Inter-oceanic Railroad Company, and d. at Panama in 1857. His principal works are: *Appeal to the Antiquaries of Europe on the Destruction of the Monuments of Egypt* (1841); *Discourses on Egyptian Archæology* (8vo., London, 1841); *Otia Ægyptica* (1849); *Ancient Egypt* (1 vol. 4to., London and Philadelphia, 1850; new ed., 8vo., London, 1853); *Types of Mankind, or Ethnological Researches based upon the Ancient Monuments, Paintings, Sculptures,* and *Crania of Races, &c.*, written in conjunction with Dr. Nott, of Mobile, Dr. Morton, Prof. Agassiz, and others (Philadelphia, 1854); and *Indigenous Races of the Earth, or new Chapters of Ethnological Inquiry* (Philadelphia, 1857). D. 1857.
Glide, *v. n.* [A.S. *glidan;* Ger. *gleiten*, allied to *glatt*, smooth.] To move without noise or violence, as a river or stream.—To move silently and smoothly; to pass along without apparent effort; as, "Ye *gliding* ghosts." (*Dryden.*)—To move or pass rapidly and with apparent ease.

"Shoals of fish *glide* under the green wave."—*Milton.*

—To move, or slip along, with ease, as on ice or other smooth surface.
—*n.* Act or manner of moving smoothly, swiftly, and without labor or obstruction.

"And with indented *glides*, did slip away."—*Shaks.*

(*Pronunc.*) The series of sounds produced by the organs of enunciation in passing from the sound of one vowel or consonant to that of another. These sounds necessarily occur in the utterance of articulate language, but each one consists of a number of changes of intonation, a single one of which is separately indistinguishable from the preceding or subsequent one; and we only prove their separate distinctness by the entire difference which their aggregation produces. It may be exemplified practically by the pronunciation of the compound noun *gold-watch*, in the distinction of sounds produced, and of position of organs at the close of the prior part and the beginning of the latter part of the word.
Glid'er, *n.* One who, or that which glides.
Glid'ingly, *adv.* In a smooth or gliding manner.
Glim, *n.* [Du. *glim*, a gleam, from *glimmen, glimpen*, to shine.] A candle; a lamp; a light.

To douse a glim. To put out a light;—a phrase used only among seafaring men.

Glim'mer, *v. n.* [Ger. *glimmern*, freq. of *glimmen*, to gleam.] To shine with frequent intermissions; to give a feeble light; to shoot or emit feeble and scattered rays of light.
—*n.* A faint light; feeble, scattered rays of light.
(*Min.*) Muscovy glass; Mica, *q. v.*
Glim'mering, *n.* A faint beaming of light; a faint view.
Glimpse, *n.* [Dan. *glimt*, allied to *glimmer* and *gleam*.] A transient glance; a short, transitory view; as, a *glimpse* of glory.—A weak, faint light; a transient lustre.—Short, fleeting enjoyment; as, "a *glimpse* of delight.
—*v. n.* To appear by short, hurried views.
—*v. a.* To have a short, hurried view of; to see by glimpses.
Glin'kite, *n.* (*Min.*) A pale-green chrysolite from talcose schist. Occurs near Media, Pa., and at Wod's mine, Lancaster co., Pa.—See Chrysolite.
Glint, *n.* [Scottish.] A glimpse; peep; hurried view; glance.
—*v. n.* To glance; to peep forth.
Glires, *n. pl.* [Lat., pl. of *glis*, a dormouse.] (*Zoöl.*) The Linnæan name of the order of Mammalia, almost corresponding to the Rodentia of Cuvier.—See Rodentia.
Glist, *n.* [From Eng. *glisten.*] Same as Mica, *q. v.*
Glisten, (*glis'sen,*) *v. n.* [A. S. *glisnian;* Ger. *gleissen*, to shine; radically the same as *glitter* and *glister*.] To shine; to glitter; to sparkle with light.

"The ladies' eyes *glistened* with pleasure."—*Richardson.*

Glis'tening, *p. a.* Sparkling; emitting rays of light; as, the *glistening* stars, a *glistening* diamond.
Glis'ter, *v. n.* [A. S. *glisnian;* Dut. *glinsteren*.] To shine; to be bright; to sparkle; to be brilliant.

"All that *glistens* is not gold "—*Shaks.*

—*n.* Lustre; glitter.
Glis'tering, *p. a.* Sparkling with light.
Glit'ter, *v. n.* [A. S. *glitenan;* Sw. *glitra*, to shine.] To gleam; to shine; to sparkle with light.—To be splendid, showy, specious, or striking, and hence attractive.
—*n.* Brightness; brilliancy; splendor; lustre, as of arms.
Glit'tering, *p. a.* Splendid; brilliant; as, the *glittering* scenes of court.
Glit'teringly, *adv.* With sparkling lustre.
Gloam, *v. n.* Same as Gloom, *q. v.*
Gloam'ing, *n.* [Scottish; A. S. *glomung, glommung*, from the root of Gloom, *q. v.*] The fall of the evening; twilight; dusk.
Gloat, *v. n.* [Ger. *glotzen;* Sw., Goth. *glotza*, to pry, to peer, to peep, from root *glo*, to look intently.] To gaze earnestly, or with eagerness; to stare with admiration, eagerness, or desire; to gaze with any warm or burning passion or sensation; as, to *gloat* upon misery, to *gloat* with desire, as a libertine.
Gloat'ing, *p. a.* Gazing with earnestness; looking steadfastly.
Glo'bard, *n.* [Eng. *glow*, and Fr. *ver*, a worm.] Same as Glow-worm, *q. v.*
Glo'bate, Globa'ted, *a.* [Lat. *globatus*, pp. of *globare*, to form into a ball, from *globus*, a ball.] Having the form of a ball or globe; spherical; spheroidal.
Globe, *n.* [Fr., from Lat. *globus*, akin to *glomus*, a ball of yarn; Heb. *gholem*, anything rolled together.] A sphere; a ball; a round body; a body, every portion of the surface of which is at the same distance from its centre. Such body may be either solid or hollow.
—The earth; the planet that we inhabit. In this sense it has the definite article.

"The youth whose fortune the vast *globe* obeyed."—*Stepney.*

—Anything, or collection of persons or things, in the form of a globe or circle.

"Him round
A *globe* of fiery seraphim enclosed."—*Milton.*

—Anything nearly spherical in shape; as, the *globe* of a lamp, the *globe* of the eye.
(*Geog. and Astron.*) A movable artificial ball, used in geography and astronomy, on which the most important countries, mountains, towns, rivers, &c., are represented, then called a *terrestrial* globe,—or the most important stars and constellations, as well as the imaginary circles of the heavens, then called a *celestial* globe. In either case it is used for the purpose of presenting more vividly to the mind the various actual or apparent movements of the earth and of the heavenly bodies, and assists materially in obtaining a knowledge of the stars. Ptolemy had a terrestrial globe, as appears from the *Almagestus*. The ancients were also acquainted with the use of the celestial globe, and it is certain that Archimedes possessed a planetarium. The two oldest globes that have come down to us are of Arabic origin. One of 1225 is preserved in the museum of Cardinal Borgia at Velletri, and the other in the mathematical saloon at Dresden. In the 16th century, Regiomontanus, Apianus, Mercator, and others paid great attention to the manufacture of such instruments. The most valued of the ancient globes are those made by Blaew at Amsterdam, and by Coronelli, a Franciscan monk, at Venice. The latter prepared, in 1683, for Louis XIV., a pair of globes, celestial and terrestrial, of 12 feet in diameter. The most famous article of the kind is the Gottorp globe, which Duke Frederick of Holstein had made and set up at Gottorp, 1656–64, by Olearius and Busch, of Limburg. It has been at St. Petersburg since 1713. It is of sheet-copper, and the stars are represented by little perforations. Now-a-days these large and costly globes are less esteemed than the smaller and more convenient ones, by means of which the same end may be attained.

Abont 1725, Andreä and Homan commenced at Nuremberg the manufacture of small celestial and terrestrial globes, the use of which soon became extensive in Germany. The most celebrated globes of later days are those of Lalande and Messier, 1775–80, manufactured at Paris, and the celestial globes of Rhode, of Berlin, the latter being especially commendable for their accuracy and finish. Very useful globes of different sizes, also relief-globes, are made at Leipzig, Weimar, Berlin, and Vienna. A peculiar and colossal sort of terrestrial globe is the georama, a hollow globe, furnished with galleries, whence one sees the various countries, mountains, rivers, &c., reversed, as it were. Wylde has manufactured such a globe on the scale of 1 in. to 10 Eng. m.

Geog., Pop.—According to the Royal Geographical Society, the population of the globe, in 1891, was estimated at 1,487,900,000, of which 380,200,000 are set down to Europe, 850,000,000 to Asia, 127,000,000 to Africa, 4,730,000 to Australia, 125,670,000 to America, and 300,600 to the Polar regions. The average is 29 inhabitants per square mile.

Globe'-am'aranth, *n.* (*Bot.*) See GOMPHRENA.

Globe'-animal, *n.* (*Bot.*) See VOLVOX.

Globe'-fish, *n.* Same as balloon-fish.—See DIODON.

Globe'-flower, *n.* (*Bot.*) See FROLLIUS.

Globose', *a.* [Fr. *globeux;* Lat. *globosus*, from *globus.*] Round; spherical; globular.

(*Bot.*) Spherical, or nearly so; as, *globose* capsules.

Glob'osite, *n.* (*Min.*) A var. of Dufrenite, *q. v.*

Globos'ity, *n.* [Fr. *globosité;* Lat. *globositas.* See SUPRA.] Sphericity; the quality of being spherical.

Glo'bous, *a.* Same as GLOBOSE, *q. v.*

Glob'ular, *a.* [Fr. *globulaire;* L. Lat. *globularis.* See SUPRA.] Spherical; round.

Globula'ria, *n.* (*Bot.*) A gen. of European shrubs and herbs, order *Selaginaceæ.* The leaves of *G. Alypum* form the *wild senna* of Germany, which have been sometimes employed to adulterate senna-leaves. In small doses they act as a tonic, and in full doses as a safe, mild, and efficient purgative.

Globular'ity, *n.* [Fr. *globularité.* See above.] Sphericity.

Glob'ularly, *adv.* In a globular manner; so as to resemble the figure of the globe; spherically.

Glob'ularness, *n.* Sphericity; globosity.

Glob'ule, *n.* [Fr., from Lat. *globulus*, dim. of *globus.*] A small particle of matter of a spherical form. The term is more particularly applied to the microscopic particles which float about in the transparent serum of blood.

Glob'ulet, *n.* A small globular particle.

Glob'uline, *n.* [Fr., from Lat. *globulus.* See above.] (*Chem.*) A substance resembling albumen, associated with hæmatine in the blood-globules, and with albumen in the crystalline lens of the eye, when it is called by some *crystalline.* 1,000 parts of blood-globules contain 282·22 parts of *G.* It differs from albumen in being precipitated from neutralized acid and alkaline solutions. Carbonic acid also precipitates it.

(*Bot.*) By some this term is applied to the green globules in the cells of cellular tissue, and by others to all minute vesicular granules of a vegetable nature.

Glob'ulous, *a.* Orbicular; spherical; round; globular.

Glob'ulousness, *n.* Same as GLOBULARITY, *q. v.*

Gloch'idate, Glochid'erous, Glochid'iate, *a.* [Gr. *glōchis, glōchin*, a point.] (*Bot.*) Barbed; hooked back at the point, like the barb of a fish-hook, or with two or more such barbs at the point.

Glo'chis, *n.* [Gr., a projecting point.] (*Bot.*) A form of hair occurring in plants, forked at the apex; a barb.

Glock'erite, *n.* (*Min.*) A native sulphate of iron. Massive, sparry, or earthy, and also stalactitic. Lustre resinous or earthy. Color brown to dull green and black. *Comp.* Sulph. acid 15·9, sesquioxide of iron 62·4, water 21·7.

Glock'ner, (Gross,) a mountain of Austria, on the boundary between the Tyrol, Salzburg, and Carinthia, 12,431 ft. above the level of the sea.

Glogau, (Gross,) the chief city of a circle of the same name in Prussian Silesia, on the left bank of the Oder, 35 m. N.N.W. of Liegnitz. *Manuf.* Woollens, printed calicoes, hosiery, tobacco, paper, sugar; and some trade and commerce is also carried on. It is surrounded by walls, and otherwise fortified, and connected by a wooden bridge with a strongly fortified island in the Oder. *Pop.* 21,000, exclusive of the garrison.

Glome, *n.* [Lat. *glomus*, a ball of yarn, allied to *globus*, a ball.] (*Bot.*) A capitate cyme; a cyme condensed into a head; a roundish head of flowers.

Glom'erate, *v. a.* [Lat. *glomeratus*, pp. of *glomerare*, to gather into a ball, from *glomus*, a ball of yarn.] To collect into a spherical ball or mass.

—*a.* (*Bot.*) Growing in cymes, condensed into a head; growing in dense clusters.

Glomera'tion, *n.* [Lat. *glomeratio.* See above.] The act of forming into a ball or spherical body.

—A body formed into a ball; a conglomeration.

"The rainbow consisteth of a *glomeration* of small drops." *Bacon.*

Glom'erule, *n.* [Lat. *glomerulum*, dim. of *glomus.* See SUPRA.] (*Bot.*) A capitate cyme; *i. e.*, a cyme condensed into a head.

Glom'men, the principal river of Norway, rising in the Doorefield table-land, and after a winding but generally S. course of 400 m., falling into the Skager-rack at Friedrichsstadt.

Gloom, *n.* [A. S. *glomung*, for *aefon-glomung*, the light of evening, and hence, waning light; Lat. *lumen*, from root *luc*, found in *lucere.*] Obscurity; partial or total darkness; thick shade.—Cloudiness, or heaviness of mind; sullenness; moroseness; melancholy; sadness.

"His *gloom* grew upon him." — *Swift.*

—Aspect of sorrow; darkness of prospect, or aspect; as, a *gloom* overcasts his brow.

—*v. n.* To be cloudy, dark, or obscure.—To be sullen, sad, or melancholy.

—*v. a.* To obscure; to darken.—To render sad, melancholy, or dismal.

Gloom'ily, *adv.* Obscurely; dimly; darkly; dismally; as, the day broke *gloomily.*—With melancholy aspect; sullenly.

"*Gloomily* retired the spider lives." — *Thomson.*

Gloom'iness, *n.* State or quality of being gloomy; want of light; obscurity; darkness; dismalness.—Cloudiness of look; sullenness; mental depression; melancholy; sadness; heaviness; moroseness.

Gloom'ing, *n.* The gloaming; twilight; dusk.

"The balmy *glooming*, crescent-lit." — *Tennyson.*

Gloom'y, *a.* Obscure; dark; dim; dusky; imperfectly illuminated, or destitute of light; cloudy; dismal; as, a *gloomy* day. a *gloomy* house.—Sullen; morose; melancholy; downcast; sad; depressed; heavy of heart; wearing the aspect of sorrow; as, a *gloomy* disposition, a *gloomy* countenance.

Glop'pen, *v. a.* [Icel. *glápa*, to stare.] To confound with surprise. (Used as provincial English.)

Gloria in Excelsis, (*glo're-a in eks-sel'sis.*) [Lat., glory to God in the highest.] (*Eccl.*) The name of a hymn of the Roman Catholic Church, retained in the communion service of the Presbyterian Church, and so called from the words with which it begins. It is founded on the hymn of the Angels, given in *Luke* ii. 14, and is very ancient, appearing nearly as now used in the Apostolic Constitutions. In the Roman missal it stands at the beginning of the office for the communion.

Glorifica'tion, *n.* [Fr., from L. Lat. *glorificatio.*] Act of giving glory, or of ascribing honors to; as, the *glorification* of God.

—Exaltation to honor and dignity; elevation to glory.

Glo'rify, *v. a.* [Fr. *glorifior;* Lat. *gloria*, and *facio*, to make.] To make glorious; to exalt; to glory; to ascribe honor or glory to.

"Justice . . . that *glorifies* the throne." — *S. Daniel.*

—To praise; to magnify and honor in worship; to laud; to honor; to extol.

"No chymist but *glorifies* his pregnaut pot." — *Donne.*

Glo'rious, *a.* [Fr. *glorieux;* Lat. *gloriosus*, from *gloria.*] Full of glory; illustrious; of exalted excellence and splendor; resplendent in majesty and glory; eminent; noble; excellent; renowned; celebrated; magnificent; grand; brilliant; splendid; as, a *glorious* victory.

"I'll make thee *glorious* by my pen,
And famous by my sword." — *Marquis of Montrose.*

—Boastful; proud; ostentatious; vain-glorious.

Glo'riously, *adv.* In a glorious manner; magnificently; splendidly; with great renown or dignity.

"Great wits sometimes may *gloriously* offend."—*Pope.*

—Boastfully; pretentiously; in a vainglorious manner.

"Signor, I speak it not *gloriously*, nor out of affectation." *Ben Jonson.*

Glo'riousness, *n.* State or quality of being glorious.

Glo'ry, *n.* [Fr. *glorie;* Sp., It., and Lat. *gloria;* akin to armor, *gloar;* Ir. *gloire, gloir;* Gael. *gloar*, Root *glu* or *gli*, conveying the idea of brightness and of joy.] Splendor; magnificence; as of a king; praise ascribed in adoration; honor; praise; renown; celebrity; high reputation.

"On, ye brave, who rush to *glory*, or the grave." —*Campbell.*

—Distinguished honor or ornament; that which honors or makes renowned; that which confers distinction.—The divine presence; the felicity of heaven; celestial bliss; the divine perfections or excellence.—Pride; boastfulness; arrogance.

"On deathbeds some in conscious *glory* lie." — *Young.*

(*Painting.*) A circle of rays which surrounds the pictured head of saints, &c., and especially of the Saviour; an aureola; a nimbus; a halo; as, a "circle of *glory.*" *South.*

—*v. n.* [Lat. *glorior.*] To exult; joyfully to rejoice.

"*Glory* ye in his holy name." — *Psalms* cv. 3.

—To be jubilant or proud with regard to something.

"This title of Freeholder is what I most *glory* in." — *Addison.*

Glose, *v. n.* Same as GLOZE, *q. v.*

Glo'ser, *n.* Same as GLOSSER, *q. v.*

Gloss, *n.* [Fr. *glose;* L. Lat. *glossa;* Gr. *glossa*, a language; allied to Icel. *glosa*, to explain; A. S. *glisnian;* Ger. *gleissen*, to shine; from the root of *glass.*] Brightness or lustre of a body proceeding from smoothness of surface; as, the *gloss* of cloth, silk, or velvet.—A specious appearance or representation; external show that may mislead opinion.

"The color of devotion giving a *gloss* to humility." — *South.*

—An interpretation artfully specious; a specious representation.

"The common *gloss* of theologians." — *Milton.*

—Scholium; comment; interpretation; explanation; remark intended to illustrate.

(*Lit.*) The explanation or interpretation of uncommon or foreign words; hence the term *glossary*, q. v.

(*Law.*) The name is given to the interpretations or explanations of the Justinian code, which were generally written between the lines of the text and on the margin, and were hence called *glossæ interlineares* and *glossæ marginales.* These glosses were sometimes held to be of equal authority with the text itself. Accursius, who died about 1260, collected and arranged the glosses of his predecessors. The practice of introducing glosses was also adopted with the books of the canon law.

Gloss, *v. a.* To give a superficial lustre to; to make smooth or shining; as, to *gloss* marble, mahogany, cloth, &c.—To explain; to render clear and evident by comment; to illustrate.—To give a specious appearance to; to render specious and plausible; to varnish; to cover; to palliate by specious representation.

"You have the art to *gloss* the foulest cause."—*Philips.*

—*v. n.* To comment; to make explanatory remarks; to add scholia.—To make sly remarks.

Glossa'rial, *a.* Containing explanations.

Glos'sarist, *n.* [See *infra.*] A writer of glosses or comments.

Glos'sary, *n.* [Fr. *glossaire*, from Gr. *glōssa*, a tongue or language.] A dictionary, or vocabulary, explaining words that are obscure, antiquated, local, &c.—A dictionary of difficult words or phrases in any language or writer.

Glosse'collite, *n.* (*Min.*) A var. of Halloysite, (*q. v.*) It occurs in a seam one inch thick in a silurian rock in Rising Fawn, Dade co., Ga.

Gloss'er, *n.* A polisher; one who gives a lustre.—A scholiast; a commentator.

Gloss'ily, *adv.* In a glossy manner.

Gloss'iness, *n.* The lustre or brightness of a smooth surface.

Glossi'tis, *n.* [Gr. *glōssa.*] (*Med.*) Inflammation of the tongue. It may result from various causes, as mechanical injury, exposure to cold, the use of mercury, &c. The tongue becomes greatly swollen, and is painful to the touch; respiration and deglutition are much interfered with, and one of the chief dangers of the attack is suffocation. In mild cases, the application of leeches to the part, with the use of purgatives, will afford relief; but in the more severe forms the knife is to be freely used, and pretty deep incision to be made into the inflamed part, which will afford almost instantaneous relief.

Glosso'comon, *n.* (*Mach.*) A machine composed of several dented wheels with pinions, and used for raising great weights.

Glossog'rapher, *n.* [Gr. *glōssa*, the tongue, and *graphein*, to write.] One who writes a glossary; a commentator; a scholiast.

Glossograph'ical, *a.* Pertaining to glossography.

Glossog'raphy, *n.* The writing of commentaries, glossaries, and scholia.

(*Anat.*) A description of the tongue.

Glossolog'ical, *a.* Of, or belonging to, glossology.

Glossol'ogist, *n.* One skilled in glossology; one who defines and explains terms.

Glossol'ogy, *n.* [Fr. *glossologie;* Lat. *glossologia*, from Gr. *glōssa*, language, and *logos*, a discourse.] The definition and explanation of terms used in a science.—That doctrine or science, which investigates the agreement and differences of the various *languages* spoken or written by different nations; comparative philology; linguistics.

Glossot'omy, *n.* [Fr. *glossotomie*, from Gr. *glōssa*, the tongue, and *tomē*, a cutting, from *temnein*, to cut.] (*Surg.*) Dissection of the tongue.

Glos'sy, *a.* Smooth and shining; reflecting lustre from a smooth surface; highly polished; as, *glossy* plumage.—Specious; deceptive; plausible, but untrue.

Glot'tal, *a.* [Gr. *glōttis.*] Of, or belonging to, the *glottis.*

Glot'talite, *n.* [Lat. *Glota*, the river Clyde, and Gr. *lithos*, a stone.] (*Min.*) A variety of Edingtonite (*q. v.*) from Port Gascon, on the Clyde. It is a hydrous silicate of alumina and lime.

Glot'tis, *n.* [Fr. *glotte;* Gr. *glōltis, glōssis*, the mouth of the windpipe,—akin to *glōssa, glōtta*, the tongue.] (*Anat.*) The slit or aperture at the entrance of the organ of voice, situated between the cartilage known as the arytenoid, and the access by which the air descends the windpipe and reaches the lungs, and which opening is protected by the small cartilage called the epiglottis, which in swallowing falls like a lid or valve over the opening.

Glottolog'ical, *a.* Same as GLOSSOLOGICAL.

Glottol'ogy, *n.* Same as GLOSSOLOGY.

Gloucester, (*glos'ter,*) a W. co. of England, bounded N.W. and N.E. by the counties of Hereford, Worcester, and Warwick; E. by Oxfordshire; S. by Berks, Somerset, and Wilts, and W. by the æstuary of the Severn. *Area*, 1,258 sq. m. There are three distinct districts in *G.*, the natural features of each being different from either of the others. These are the *Hill* district, formed by the Cotswold hills; the *Vale*, comprising the vales of Gloucester and Berkeley, formed by the rich low meadow-lands along the banks of the Severn, and the *Forest*, lying W. of the Severn, consisting chiefly of the forest of Dean. *Rivers.* The Severn, Wye, Upper and Lower Avon, and the Thames. *Prod.* The vale of Berkeley is chiefly devoted to the produce of the dairy, and the rearing of cattle, and yields all the very superior cheese known by the name of *Double Gloucester*, or *Double Berkeley.* In the vale of Gloucester is produced excellent grain, immense quantities of butter, and all that cheese known as *Single Gloucester.* Large quantities of cider and perry are made in both vales,—*G.* being one of the largest of the cider-producing counties in England. The sheep of the Cotswold hills are large, and yield a fine, long combing-wool. *Min.* Coal, iron, and lime. The coal supplies the immense consumption of the manufactories of Bristol, and even to a certain extent of those of Bath. Blue claystone of excellent quality is found; also freestone in abundance, and stone-tiles in the Cotswold hills. *Manuf.* Tin-plates, edge-tools, and hardware; but the most important are those of superfine broad-cloths, Spanish wool, worsted stuffs, and carpets at Cirencester, with stockings, rugs, and blankets and cottons at other places. A navigable canal connects, by means of a tunnel, at Sapperton, the Severn with the Thames.

Gloucester, the chief city of the preceding county, on the left bank of the Severn, 36 m. N.N.E. of Bristol, and 107 m. W.N.W. of London. It has spacious docks and a fine old cathedral. *Manuf.* Iron and steel goods, soap, malt, pottery, railroad fittings, agricultural implements, bells, drugs, &c. *G.* has a large foreign trade, and communicates with the open part of the Severn by means of a ship-canal, 17 m. in length. *Pop.* (1895) 40,040.

Glou'cester, a N.E. county of New Brunswick, having the Gulf of St. Lawrence on the E. and Chaleur Bay on the N.; *area*, about 1,684 sq. m. *Rivers.* Nipisiguit and N. Tracadie rivers, besides many smaller streams. *Surface*, much diversified; *soil*, moderately fertile. There are several considerable islands upon the coasts, the principal of which are Shippegan and Miscone. *Cap.* Bathurst. *Pop.* (1895) 19,200.

Gloucester, in *Massachusetts*, a city and port of entry of Essex co., about 28 m. N.N.E. of Boston. The town is conveniently situated upon one of the best harbors of the State and commands a very extensive commerce. *Pop.* (1895) 28,211.

Gloucester, in *New Jersey*, a S.W. county, bordering on Pennsylvania; *area*, about 326 sq. m. *Rivers.* Delaware river and Big Timber, Oldmans, Raccoon and Mantua creeks. *Surface*, generally flat; *soil*, mostly fertile. *Min.* Iron. *Cap.* Woodbury. *Pop.* (1895) 31,191.

—A township of Camden co.

Gloucester, in *Rhode Island*, a township of Providence co., 15 m. W. by N. of Providence. *Pop.* (1890) 2,095.

Gloucester, in *Virginia*, a S.E. county, bordering on Chesapeake Bay; *area*, about 245 sq. m. *Rivers.* York and Piankatank rivers. *Surface*, broken; *soil*, in some parts fertile. *Cap.* Gloucester. *Pop.* (1890) 11,653.

Gloucester, in *Virginia*, a post-village, cap. of Gloucester co., about 82 m. E.S.E. of Richmond.

Gloucester City, in *New Jersey*, a city of Camden co., on the Delaware river, about 4 m. below Camden, on W. J. R. R. *Pop.* (1895) 6,225.

Glous'ter, in *Ohio*, a post-village of Athens co., on the C., S. & H. and K. & M. R. Rs. *Pop.* (1890) 1,213.

Glove, (*gluv*,) [Sax. *glof*,] is a covering for the hand, which is divided into compartments for each separate finger. Xenophon asserts that the Persians used gloves in cold weather, and makes a charge against them on that account, for their luxurious habits. They were in early use in England, as is learned by their Saxon name; and in the Middle Ages they were decorated with gold and precious stones, and formed a costly article in the dress of kings, nobles, and prelates. In the days of chivalry, it was the custom for the knights to wear the glove of a lady in their helmet, and this gift from the fair sex was esteemed a great favor, the knight's success in arms being considered as owing to the virtue of the lady. Throwing down the glove, or gauntlet, was likewise esteemed a challenge to single combat amongst our ancestors, and he who took up the glove thus cast down was deemed to have accepted the wager of battle. —*Manuf.* The principal substances of which gloves are made at the present day are dog-skin, doe-, buck-, lamb-skin, kid, and various other kinds of leather; besides silk, cotton, wool, and admixtures of the same. Particular kinds of gloves are known more from the place in which they are manufactured, however, than from the substances of which they are composed; as Berlin, Woodstock, Limerick, and Kendal. Kid gloves are the most used, and obtain the highest price in market; the best of these are the French make, and hardly any of English or German manufacture can come up to them in point of elasticity and general excellence. Sheepskin gloves are usually of a white color, and are greatly used in the army. Doeskin gloves are of a soft leather; and Woodstock gloves are a coarser variety of these. The process of glove-making is very simple; and, since the introduction of machinery into the trade, admits of no complicity of manufacture. The dressed skins are first cut out by cutting-machines, and the fingers and thumb pieces are likewise separately cut. These disjointed particles of the glove are given into the hands of the sewers, who work it up into the desired form. The sewers use a clasp or clam, which is held between the feet and knees, and clasps the leather while being sewn. French gloves are imported into England at a rate of above 4,000,000 pairs per annum. Embroidered gloves are made in Saxony to a great extent. An important branch of the manufacture carried on in the U. S. is that of buckskin gloves, a kind of glove more peculiarly American than any other; and the chief seat of this business is at Gloversville, N. Y. Kid gloves are now made to some extent there and in other places in the U. S., but more are imported. During the year ended Dec. 31, 1896, more than $10,000,000 worth of gloves and mittens were manufactured in the U. S.

—*v. a.* To cover with, as with a glove.

Glov'er, *n.* One who makes and sells gloves.

Glover (*gluv'er*), in *Vermont*, a post-town of Orleans co., about 35 m. N.N.E of Montpelier. *Pop.* (1890) 970.

Glov'er, in *South Dakota*, a township of Edmunds co.

Glov'ersville, in *New York*, a city of Fulton co., 53 m. N.W. of Albany. It has extensive manufactures of gloves and mittens. *Pop.* (1897) about 14,500.

Glow, (*glō*,) *v. n.* [A. S. *glowan*, to shine like a coal of fire; Ger. *glühen*, to be red-hot, to glow.] To shine with intense heat, or with a white heat; to exhibit incandescence; to burn with vehement heat.

"The scorching fire, that in their entrails *glows*."—*Addison.*

—To feel great heat of body; to be hot.

"The cord slides swiftly through his *glowing* hands."—*Gay.*

—To exhibit a strong, bright color; to be bright, or red with heat, animation, or blushes.

"A smile that *glowed*."—*Milton.*

—To be ardent; to be animated; as, to *glow* with love of country, zeal for religion, or the like.

—*n.* Shining or white heat; incandescence; great heat without flame.—Brightness of color; redness; hence, vehemence of passion.

"The red *glow* of scorn and proud disdain."—*Shaks.*

Glow'er, *v. n.* [Scottish.] To stare; to look fixedly.

"The rising moon began to *glower*."—*Burns.*

—To stare angrily.

Glow'ing, *p. a.* Burning with vehement heat; exhibiting a bright color; red; ardent.—Animated; vehement; inflamed.

Glow'ingly, *adv.* With great brightness; with ardent heat or passion.

Glow'-worm, *n.* (*Zoöl.*) See Lampgridæ.

Gloxin'ia, *n.* (*Bot.*) A genus of plants, order *Gesneraceæ*. Some of the species are among the more popular flowers, and are well known to gardeners by their foxglove-shaped flowers of varied colors each standing on a separate stalk,—in some forms with the opening of the tube directed downward; in others (which have originated in a freak of nature) standing erect. The *G.* generate buds from fragments of their leaves, under the hands of the cultivator.

Gloze, *v. n.* [A. S. *glesan*, to flatter. See Gloss.] To use specious and plausible words; to wheedle; to flatter; to fawn; to talk smoothly.

—*v. a.* To palliate by specious exposition:—in this sense, it is followed by the prep. *over*; as, to *gloze over* a fault.

—*n.* Flattery; adulation.

"Now to plain dealing:—lay these *glozes* by."—*Shaks.*

Gloz'er, *n.* A flatterer.

Gloz'ing, *n.* Specious representation.

Gluchov, (*glōō'hov*,) a town in the S.W. of Russia, prov. of Tchernigov, on the Verbooka, 112 m. E.N.E. of the town of Tchernigov. Lat. 51° 40′ 30″ N., Lon. 34° 20′ 15″ E. It has some trade in grain. In the vicinity, porcelain-clay of a very fine quality is obtained and sent N. to the imperial manufactory at St. Petersburg. *G.* was formerly the residence of the Cossack hetmans, and of the governors of Little Russia.

Glu'cic Acid, *n.* (*Chem.*) A soluble deliquescent acid obtained by the decomposition of a combination of grape-sugar with lime or baryta. It is also called *Kalisaccharic acid.*

Gluci'na, Glu'cine, *n.* (*Chem.*) A sesquioxide of the metal Glucinum, *q. v.* It is found associated with silica and alumina in the emerald, beryl, chrysoberyl, and euclase. It was at first mistaken for alumina, which it resembles in appearance, and in forming a gelatinous precipitate on adding ammonia, but it differs from it in being soluble in cold carbonate of ammonia, which is consequently used to separate the two. It was discovered in 1798.

Gluci'num, *n.* [Gr. *glukus*, sweet, from the sweet taste of its salts.] (*Chem.*) A rare metal, the base of the earth glucina. It resembles aluminum, and is prepared in the same manner. It is not acted on by water, fuses with difficulty, and when heated in the air, burns, producing glucina. It was discovered by Wöhler in 1828. *Symb.* G. *Equiv.* 6·9.

Gluck, Christoph Willibald, a German musical composer, b. at Weissenwangen, 1714, studied music at Milan, under San Martini, and presented soon afterward several operas at sundry theatres in Italy, which failed to attract public attention. Judging that his want of success was partially due to the weakness of the *libretti*, he conjoined with himself in his labors the poet *Ranieri di Calzabigi*, and his next subsequent opera, *Helena and Paris*, was received with tumults of applause. In 1774 he went to Paris, and presented there successively several masterpieces, as *Iphigenia in Aulis*, *Orpheus*, *Armidas*, *Iphigenia in Taurus*, *Alcestes*. The composer Piccini having also presented an opera called *Alcestes*, there arose between the two composers and their respective partisans a very animated quarrel as to the pre-eminence of the two rivals, and of the style cultivated by each. It would seem that each had his own share of the right in the dispute, for while Piccini had sweetness of melody, Gluck had musical truth, and the power and grandeur of harmony on his side. The contest of the Gluckists and Piccinists, which for a time divided the whole musical world, resulted in the complete victory of Gluck. Having composed two more operas, Gluck returned to Vienna in 1779, and never after quitted that city. D. 1787.

Glückstadt, (*glōōk'stat*,) a seaport and town of Prussia, in the duchy of Holstein, on the Elbe, 28 m. from Hamburg; *pop.* 7,234.

Glu'cose, Grape or Starch Sugar, *n.* [Gr. *glukus*, sweet.] (*Chem.*) A sugar found in many of the sweet fruits; it is often seen crystallized on dried figs, raisins, &c. It is also formed from starch, and cellulose or woody fibre, by the action of sulphuric acid. Water containing the $\frac{1}{100}$ part of sulphuric acid is heated to the boiling-point, and a mixture of starch and water, likewise heated, is allowed to flow gradually in, so as not to lower the temperature. After boiling ½ hour, chalk is added, to neutralize the acid, and the clear liquid drawn off and evaporated. If linen or cotton cloth, paper, or sawdust be moistened with concentrated sulphuric acid, a gummy mass is formed. After a few days this should be dissolved in a large quantity of water, and boiled for 8 or 10 hours. After neutralizing and evaporating, the sugar is obtained as before. *G.* crystallizes in warty masses, not often presenting regular faces. It is much less sweet than cane-sugar, and far less soluble in water, requiring 1⅓ parts of water to dissolve it, while cane-sugar requires only ⅓ part. It is used in the manufacture of beer and alcohol, and also for adulterating cane-sugar. It may be detected in solutions of sugar thus adulterated, by adding a little solution of sulphate of copper and solution of potash, enough to form a deep blue. On gently heating, if *G.* be present, a red precipitate of suboxide of copper will be formed, while with pure cane-sugar it will not form, unless the liquid be boiled. It may also be detected by the specific gravity, and by the action of the solution on polarized light. *G.* forms with common salt a compound that readily crystallizes. *G.* is found in small quantites in animal bodies. In the disease called *diabetes*, it is found in large quantities in the urine.

Glue, *n.* [O. Fr. *glu*; Lat. *gluten*, from obsol. *gluere*, to draw together: Gr. *glia*, *gloia*; W. *glyd.*] That which draws together and causes to adhere.

(*Applied Chem.*) *G.* is an impure *gelatine*, q. v. It is prepared from the clippings of hides, hoofs, &c. These are steeped for several days in lime-water, to remove the hair and blood, and then drained and dried in a current of air for some days, that the lime may absorb carbonic acid, and thus prevent the injurious effects of the alkali upon the gelatine. They are then boiled in water until the solution is found to gelatinize firmly on cooling. The impurities are allowed to settle, after which it is allowed to gelatinize in shallow wooden boxes, cut into slices and dried upon nets. Good glue is semi-transparent, and free from spots and clouds. When wanted for use, it is broken in pieces and steeped in cold water until it softens and swells. It is then melted over a gentle fire, or, what is better, in a water-bath, and applied in a liquid state with a brush. As the stiffening of glue depends on the evaporation of its superfluous moisture, it will not harden in a freezing temperature. —*G. Marine* is a composition used for cementing materials that are exposed to moisture. It is made by dissolving 1 part of India rubber in 12 parts of mineral naphtha, and adding 20 parts of powdered shell-lac. It not only resists wet, but cements glass and metals as well as wood.

Glu'er, *n.* One who joins or cements with glue.

Glu'ey, *v. a.* [Fr. *gluer*, to lime, to glue.] To join with glue, or any viscous substance; to unite; to hold together.

—*a.* Viscous; glutinous.

Glu'eyness, *n.* Quality of being gluey.

Glu'ish, *a.* Having the nature of glue.

Glum, *a.* [From *gloom.*] Sullen; stubbornly grave; silent; as, to sit or look *glum.*

Glumac'eous, *a.* [Fr. *glumacée.*] (*Bot.*) Having or bearing glumes: consisting of glumes.

Glu'mal, *a.* (*Bot.*) Having glumes, *i. e.* husks or chaff, as the grasses.

Glumif'lores, *n. pl.* (*Bot.*) The Grasses, an important alliance of plants, class *Endogens*. The great mass of herbage known by the name of Grasses and Sedges, constitutes perhaps a twelfth part of the described species of flowering plants, and at least nine-tenths of the number of individuals composing the vegetation of the world; for it is the chief source of that verdure which covers the earth of northern countries with a gay carpet during the months of winter. Such forms of vegetation are provided by nature with true flowers, that is to say, with stamens and pistils, the action of the former of which upon the latter is indispensable for the creation of a seed; but there is little trace of the calyx and corolla, which are commonly characteristic of the more perfect races of plants; not that floral envelopes are wanting, but they do not assume the whorled or ringed position of the parts which form a calyx and corolla; they merely consist of minute green or brown bracts placed one over another, and sometimes appearing to be united by their edges. There is also great simplicity in their pistil, but one ovule being formed in each cavity, whatever number of carpels (indicated by the stigmas) may be employed in the construction of it. Their foliage is as simple as it can be to have any considerable degree of development, consisting of fine thread-shaped veins running side by side from one end of the leaf to the other. The allianee is divided into 5 orders, viz., Graminaceæ, Cyperaceæ, Restiaceæ, including Desvauxiaceæ, and Eriocaulaceæ, *q. v.*

Glume, *n.* [Fr. *gloume*, *glume*; Lat. *gluma*, from *glubere*, to strip, or peal off; Gr. *gluphein*, to hollow out.] (*Bot.*) The exterior one of the two-ranked imbricated bracts, surrounding the spikeleted flowers of the *Graminaceæ*, or Grass family.

Glu'melle, *n.* [Fr. dim. of *glume.* See above.] (*Bot.*) Either one of the inner glumes or *palea* that immediately surround the flowers of the *Graminaceæ.*

Glu'mous, *a.* [Fr. *glumé.* See Glume.] (*Bot.*) Having a filiform receptacle with a common glume beneath.

Glut, *v. a.* [Lat. *glutire*, onomatopoetic, from *glut-glut*, an imitation of the sound made by water in passing through a narrow aperture, or in being discharged from it. The same sound is represented by *gluk* and *gulp.*] To swallow greedily, or in large quantities; to gorge.—To cloy; to fill or furnish beyond sufficiency; to sate; to satiate; to fill to satiety; to disgust.

"Feed, but not *glut* our appetites."—*Denham.*

—To overfill; to load; as, to *glut* the market.

—*n.* Plenty, even to loathing; more than enough.—"A *glut* of study."—*Pope.*

—Anything that fills and obstructs the passage; as, a *glut* of vehicles at a crossing.—The supply of any article in market beyond the demand.—A large wooden wedge used in splitting timber, to facilitate the removal and reinsertion of the smaller iron wedges.

Glutæ'us, *n.* [Gr. *gloutos*, the rump; pl. *gloutoi*, the buttocks.] (*Anat.*) The hip, or buttock.

Glu'teal, *a.* [See above.] (*Anat.*) Belonging to the glutæus; as, the *gluteal* artery.

Glu'ten, *n.* [Lat. *glue.* See GLUE.] (*Chem.*) If wheat-flour be put in a bag of coarse cloth, the starch and soluble matters will be carried off, and there will remain a gray sticky mucous mass, which is *G.* It is a characteristic ingredient of the cereals, and by its toughness and tenacity fits the flour of the wheat especially for the manufacture of bread, pastes, &c. By means of hot alcohol, *G.* may be divided into three distinct substances. One portion does not dissolve, and is called *vegetable fibrin.* From the soluble part separates, on cooling, a white, flocculent substance resembling the *caseine* of milk. On adding water to the solution, a third substance, resembling albumen, separates, which is called *gliadin. G.* contains traces of sulphur and phosphorus. It yields ammonia when subjected to destructive distillation, and vegetables containing it give out a disagreeable odor when putrefying.

Glu'tinate, *v. a.* [Lat. *glutinare*, from *gluten*, glue.] To unite with glue; to cement.

Glutina'tion, *n.* [Fr., from Lat. *glutinatio.* See above.] Act of uniting with glue.

Glu'tinative, *a.* [Fr. *glutinatif;* L. Lat. *glutinativus.* See GLUE.] Having the quality of cementing; tenacious.

Glu'tine, *n.* [See GLUE.] (*Chem.*) A substance resembling gluten, but not soluble in alcohol.

Glutinos'ity, *n.* [Fr. *glutinosité.* See GLUE.] Quality of being glutinous; viscousness.

Glu'tinous, *a.* [Fr. *glutineux;* L. Lat. *glutinosus*, from *gluten*, glue.] Viscous; viscid; tenacious; resembling glue.

(*Bot.*) Covered or smeared with a slippery moisture; as, a *glutinous* leaf.

Glu'tinousness, *n.* Same as GLUTINOSITY, *q. v.*

Glut'ton, *n.* [Fr. *glouton;* L. Lat. *gluto, glutto*, from *glutire*, to glut. See GLUT.] One who indulges to excess in eating. — One eager of anything to excess.

(*Zoöl.*) See GULO.

Glut'ton, *a.* Of or belonging to a glutton; gluttonous.

Glut'tonish, *a.* Greedy; eager.

Glut'tonize, *v. n.* To eat to excess; to eat voraciously; to indulge the appetite to excess.

Glut'tonous, *a.* Given to excessive eating; consisting in excessive eating.

"Due nourishment, no *gluttonous* delight."—*Milton.*

Glut'touously, *adv.* With the voracity of a glutton; with excessive eating.

Glut'tony, *n.* [O. Fr. *gloutonnie;* Fr. *gloulonnerie.* See GLUTTON.] Excess in eating; extravagant indulgence of the appetite for food; luxury of the table.

Glyce'ria, *n.* [From Gr. *glukus*, sweet; on account of the sweet taste of the seeds.] (*Bot.*) A genus of plants, order *Graminaceæ*, represented in our flora by *G. fluitans*, and *G. acutiflora. G. fluitans* is called Manna grass, and its seeds are collected in some countries, and prepared for sale under the name of Manna croup.

Glyce'ric Acid, *n.* [Gr. *glukus*, sweet.] (*Chem.*) A non-crystalline acid formed by the oxidation of glycerine by nitric acid. *Form.* $C_6H_6O_8$.

Glyce'rides, *n. pl.* (*Chem.*) Compounds of glycerine with acids. They are formed with acetic, benzoic, and the fatty acids.

Glyce'rine, *n.* [Gr. *glukeros*, sweetish.] (*Chem.*) The sweet principle of oils and fats. It is obtained by boiling olive-oil with litharge and water until the acids of the oil are converted into lead-salts, which are insoluble, while the *G.* remains in solution. It contains a little oxide of lead, which is precipitated by hydrosulphuric acid. It is a sweet, viscid, colorless liquid, soluble in water and alcohol in all proportions. Ether dissolves it but sparingly. It may be distilled in a current of superheated steam, but distilled alone it decomposes and evolves irritating vapors of acrolein. By the action of nitric acid it is converted into oxalic acid. It has many uses in the arts and manufactures. Its consumption in the manufacture of beer amounts to more than 20,000 cwt. per annum. In medicine it is chiefly used as a dressing for sores, as it is easily washed off. *Form.* $(C_3H_5(OH)_3)$. Frequently spelled GLYCERIN.

Glyce'ryle, *n.* (*Chem.*) The radical of glycerine.

Gly'co-benzo'ic Acid, *n.* (*Chem.*) A crystalline substance formed by the action of nitrous acid upon hippuric acid.

Glycocholi'ic, or **Glyco-cholal'ic, Acid.** *n.* (*Chem.*) An acid found in the bile (*q. v.*). When dried, ox-bile is treated with cold alcohol, filtered and mixed with ether; it yields crystals of glycocholate of soda and potash. Decomposing the glycocholate of soda by sulphuric acid, we obtain the *G.* acid in fine white needles. It is soluble in water and alcohol, and has a bitterish-sweet taste. *Form.* $C_{26}H_{43}NO_3$.

Glyco-cholal'ic Acid, *n.* (*Chem.*) See GLYCOCHOLIC ACID.

Gly'cocine, Gly'cocoll, or **Sugar of Gelatine,** *n.* (*Chem.*) A sweet, colorless, crystalline substance obtained by the action of acids or alkalies on gelatine. It is very soluble in water, but insoluble in ether and alcohol. *Form.* $C_2H_5NO_2$, being isometric with nitrous ether.

Gly'cogen, *n.* (*Chem.*) A kind of animal starch found in the liver. After death it is converted into sugar by assimilating the elements of water. *Form.* $C_6H_{10}O_5$.

Gly'co-hyocholal'ic Acid, *n.* (*Chem.*) An acid obtained from pig's bile.

Gly'col, *n.* (*Chem.*) A sweetish, colorless, viscid liquid, soluble in water and in alcohol. It is obtained by first forming the biniodide of ethyline by the union of olefiant gas with iodine. The action of this upon acetate of silver forms binacetate of *G.* This, digested with hydrate of potash at 360° Fahr. and distilled, gives *G.* It mixes with water in all proportions, may be distilled without decomposition, gives off an inflammable vapor, and has never been frozen. It is the type of an extensive series of derivatives, as numerous as those derived from alcohol. By some it is stated to be the connecting link between the organic and inorganic products of chemistry. It differs from alcohol in containing two atoms more of oxygen; its *form.* being $C_2H_6O_2$.

Glycol'ic Acid, *n.* (*Chem.*) A syrupy liquid, obtained by exposing glycol to the action of nitric acid or of oxygen in the presence of platinum black. It resembles lactic acid, but differs from it in being precipitated by acetate of lead. *Form.* $C_2H_4O_3$.

Glycon'ic, *n.* [Fr. *glyconien, glyconique;* Gr. *glukoneios*, from the name of the inventor, *Glycon.*] (*Pros.*) A kind of verse, in the Latin and Greek poetry, consisting of three feet, viz., a spondee (– –), a choriambus (– ⏑ ⏑ –), and a pyrrhichius (⏑ ⏑), without other variation than the usual allowance for the final syllable, and without chorus or change of metre; as:

"Sic te, diva potens Cypri."—*Horace.*

Glycon'ic, Glyco'nian, *a.* (*Pros.*) Of or pertaining to the glyconic verse; as, a *glyconic* stanza, a *glyconic* ode.

Glycyrrhi'za, *n.* [Gr. *glukus*, sweet, and *rhiza*, a root.] (*Bot.*) The liquorice, a genus of plants belonging to the sub-order *Papilionaceæ* in the order *Fabaceæ.* The roots, or underground stems of *G. glabra*, the common or smooth liquorice, *G. echinata*, the echinate-podded liquorice, and other species, native of S. Europe, possess a remarkably sweet taste, which is due to the presence of an uncrystallizable sugar, to which the names of *glycyrrhizin, glycion*, and *liquorice-sugar* have been given. The dark-colored extractive matter which the rhizomes furnish on decoction, contains a large proportion of this peculiar substance. The extract inspissated is largely imported into this country under the names of *liquorice-juice, Spanish juice*, and *Italian juice.* That imported from Spain is prepared from *G. glabra;* that from Italy it is the product of *G. echinata.* Immense quantities of this substance are annually imported into the U. S., running in some years as high as seven or eight millions of pounds, or even more, and yielding a considerable revenue to the customs. It is used for confectionery purposes, in medicine for flavoring, and as a demulcent pectoral, and by the brewers for coloring certain beers. Various preparations of liquorice are commonly kept in the shops, and sold under the names of *pipe-liquorice, pontefract lozenges, extract of liquorice*, and *solazzi juice.* In France, there is an extensive use of liquorice-water by poor people in the promenades and public places, under the name of *coco.* It is also sold extensively, under the name of *erquoos*, in the towns of Turkey and Egypt, like sherbet.

Glycyr'rhizine, *n.* (*Chem.*) The sweet principle of the *Glycyrrhiza glabra*, or common liquorice. It somewhat resembles mannite, but does not crystallize, and will not ferment.

Glyde, a river of Ireland, rises in the co. of Monaghan, in Ulster, and flows E. into Dundalk Bay.

Gly'mont, in *Maryland*, a post-office of Charles co.

Glyn, (*glin.*) *n.* [W.] Same as GLEN, *q. v.*

Glyn'don, in *Pennsylvania*, a P. O. of Crawford co.

Glynn, (*glin,*) in *Georgia*, a S.E. co., bordering on the Atlantic Ocean; *area*, about 427 sq. m. *Rivers.* Altamaha river and some smaller streams. The coast is much indented with bays and inlets. *Surface*, diversified; *soil*, sandy—in some parts fertile. *Cap.* Brunswick. *Pop.* (1890) 13,420.

Gly'oxal, *n.* (*Chem.*) Aldehyde of glycol.

Glyph, (*glif,*) *n.* [Fr. *glyphe;* Gr. *glūphē*, from *gluphein*, to carve or hollow out.] (*Arch.*) A perpendicular fluting or channel, used in the Doric frieze.

Glyph'ic, *n.* A rare form of HIEROGLYPHIC, *q. v.*

Glyphograph, (*glif'o-graf,*) *n.* [See below.] A plate made by the operation of glyphography or ELECTRO-TINT, *q. v.*

Glyphograph'ic, *a.* Of, or belonging to, glyphography, or electro-tint.

Glyphog'raphy, *n.* [Gr. *gluphein*, to hollow out, and *graphē*, a writing, from *graphein*, to write or describe.] Same as ELECTRO-TINT, *q. v.*

Glyp'tic, *a.* [Fr. *glyptique*, from Gr. *gluptos*, fit for carving, from *gluphein*, to engrave.] Pertaining to the art of engraving on precious stones.

Glyp'tic, Glyp'tics, *n. sing.* The art of engraving on precious stones.

Glyp'todon, *n.* [Gr. *gluptos*, carved, and *odous, odontos*, a tooth.] (*Pal.*) A fossil Armadillo, of gigantic proportions, found in S. America. In size it was equal to the rhinoceros.

Glyptograph'ic, *a.* Relating to or describing the art of engraving on precious stones.

Glyptog'raphy, *n.* [Gr. *gluptos*, carved, and *graphē*, a description, from *graphein*, to describe.] A description of the art of engraving on precious stones.

Glyptothe'ca, *n.* [Gr. *gluptos*, carved, and *thēkē*, a case, from *tithenai*, to place.] A building or a room for the preservation of works of sculpture.

Glys'ter, *n.* Same as CLYSTER, *q. v.*

G. M., Grand Master.

Gnei'linite, *n.* (*Min.*) A mineral occurring at Cape Blomidon, Nova Scotia, on the island of Cyprus, and elsewhere. *Color.* Yellowish-white to flesh-red. *Sp. gr.* 2·04–2·17. *Comp.* Silica 46·56, alumina 20·18, lime 3·89, soda 7·09, potassa 1·87, water 29·41.

Gmünd, a town of Würtemberg, on the Rems, 29 m. E.N.E. from Stuttgart. *Manuf.* Jewelry, hardware, spinning, and stocking-weaving.

Gmünden, a town of Upper Austria, on the lake and in the circle of Traun, 7 m. S.W. of Linz; *pop.* 4,100.

Gnadenhutten, in *Ohio*, a post-village of Tuscarawas co.

Gnaphal'ium, *n.* [Gr. *gnaphalon*, cotton or wool, from the cottony surface of the herbage.] (*Bot.*) The Life-everlasting, a genus of plants, order *Asteraceæ. G. polycephalum*, the Cotton-weed, common in fields in the U. States, is distinguishable by its strong, agreeable odor, and its brownish color. Stem 1–2 ft. high, whitish, with a cottony down, much branched; leaves sessile, cottony beneath; flowers in crowded clusters at the ends of the branches; involucre with whitish scales and yellow flowers.

Gnarl, (*narl,*) *v. n.* [A. S. *gnyrran;* Ger. *knarren, knurren*, to snarl.] To growl; to murmur; to snarl.

"And wolves are *gnarling* who shall gnaw thee first."—*Shaks.*

—*n.* A knot in wood.

Guar'led, Gnar'ly, *a.* Knotty; full of knots; as, the *gnarled* oak.

Gnash, (*nash,*) *v. a.* [Dan. *knaskcr*, to crush between the teeth; Ger. *knirschen.* The word is formed from the sound made by striking or dashing the teeth together.] To bring together with force, as the teeth or jaws; to strike together, as the teeth.

—*v. n.* To strike or dash the teeth together, as in rage, pain, or anguish.

Gnash'ing, *n.* A grinding or striking of the teeth together, as in rage or anguish.

"There shall be weeping and *gnashing* of teeth."—*Matt.* viii. 10.

Gnash'ingly, *adv.* With gnashing.

Gnat, (*nat,*) *n.* [A. S. *gnæt*, from *gnidan*, to rub; Ger. *grätze*, the itch: allied to Gr. *knizein*, to cause to itch.] (*Zoöl.*) The *Culicidæ*, or Gnat family, are dipterous insects, whose mouths are furnished with bristly stings, included in flexile sheaths. Some of the species are extremely troublesome, as they pierce the skin to feed upon the blood, and at the same time inject an irritating poisonous fluid. Their flight is accompanied by a humming noise, occasioned by the vibration of their wings: they seldom appear in the day-time, except in thick woods, and they abound in moist situations, which is easily accounted for by their larvæ being inhabitants of the water. In this state they are very active, swimming with great agility, and often descending; but coming to the surface to breathe, which they do head downwards, the respiratory orifice being at the end of a very prolonged spiracle arising from the end of the abdomen. — That well-known insect, the common gnat (*Culex pipiens*), is produced from a singular-looking aquatic larva; it has a large head, furnished on each side with a pair of antennæ-like jointed processes; the thorax large and angular; the body suddenly lessening from this part, and continuing of nearly the same size to the tail, which is abruptly truncated, and tipped with four foliaceous pro-



Fig. 1167. — GNAT. MAGNIFIED.
1. Insect depositing eggs; 2, insect escaping from pupa case; 3, larva of gnat; 4, floating raft of eggs.

cesses. In about fifteen days' time the larvæ are full-grown, and arrive at the pupa state; the animal then appears to have a rounded form, is very active, and still inhabits the water; the position of its breathing apparatus, however, is now altered, being situated at the anterior part of the body, and consists of two little tubes, which are applied to the surface of the water for the reception of air. When ready to assume the perfect state, it rises to the surface, and the *G.* quickly emerges from its confinement. — A warm, rainy season is most favorable to the evolution of *G.*; and, in such summers, particular districts in most countries are occasionally pestered by them in countless swarms. In Lapland, especially, during the heats of the short summer, the *G.* fill the air with such swarming myriads, that the poor inhabitants can hardly venture to walk out of their cabins, without having first smeared their hands and faces with a composition of tar and cream: which is found by experience to prevent their attacks. A very small black *G.* (*Culex reptans*), with transparent wings, and the legs marked by a white bar, is particularly troublesome in marshy districts during the evening, by its creeping motion on the skin of the face, &c. To the above we may add, that the mosquito (*Culex mosquito*), so much dreaded by all who visit our Southern States and the West Indies, where its bite seems to operate with peculiar malignity, is a species of *G.* which derives additional vigor from the warmer and moister atmosphere. — See MOSQUITO.

Gnat'-flower, *n.* (*Bot.*) See OPHRYS.

Gnathi'dia, *n.* (*Zoöl.*) The lateral parts or rami of the mandible or lower jaw of birds, which are joined to the cranium behind, and meet in front at a greater or less angle.

Gnathi'tis, *n.* [Gr. *gnathos*, the jaw.] (*Med.*) Inflammation of the cheek or upper jaw.

Gnathotheca, *n.* [Gr. *gnathos*, and *thake*, a sheath.] (*Zoöl.*) In birds, the horny or cutaneous integument of the beak.

Gnat'-snapper, *n.* A bird that lives by catching gnats.

Gnat'-strainer, *n.* One who strains out gnats; one who places too much importance on little things; — so called in allusion to Matt. xxiii. 24.

Gnat'-worm, *n.* The larva of the gnat.

Gnaw, (*nâw,*) *v. a.* [A. S. *gnagan;* Ger. *nagen*, to eat away, to corrode; Gr. *knaein*, to scrape.] To bite off by little; to bite or scrape off with the fore-teeth; to wear away by biting; to eat by biting off small portions of food with the fore-teeth. — To bite in agony or rage.

"He comely fell, and dying *gnawed* the ground." — *Dryden.*

—To waste; to fret; to corrode.

—*v. n.* To use the teeth in biting.

"A thousand men that fishes *gnawed* upon." — *Shaks.*

Gnaw'er, *n.* One who, or that which, gnaws or corrodes.

Gnaw'ers, *n. pl.* (*Zoöl.*) See Rodentia.

Gnaw'ing, *p. a.* Biting off by little and little; corroding; eating by slow degrees.

Gneiss, (*nīce,*) *n.* [Ger. *gneiss.*] (*Geol.*) A rock having the same constitution as *granite*, but with the mica more or less in layers. It is often described as stratified granite. Syenitic gneiss contains hornblende in place of mica, and the other general variations in the composition of granite apply also to it. As the mica is easily cleavable, a gneiss rock breaks most readily in the direction of the mica layers, and thus affords slabs. It is much used both as a building material and for flagstones. Extensive quarries are opened near Haddam and at Lebanon, Conn., and at Munson and many other places in Massachusetts. *G.* graduates into *mica schist*, q. v.

Gneis'sic, *a.* Same as Gneissoid.

Gneis'soid, *a.* [Ger. *gneiss*, and Gr. *eidos*, a form, an appearance.] Resembling gneiss; having some of the properties or characteristics of gneiss.

Gneis'sose, *a.* Having the general structure of gneiss.

Gne'sen, a town of Prussia, duchy, and 30 m. E.N.E. of Posen. *G.* contains a theological seminary, and is the see of the archbishop-primate of Prussian Poland. *Pop.* 8,250.

Gnetaceæ, (*ne-tai'se-e.*) (*Bot.*) The Jointed Firfam, an order of plants, class *Gymnogens.* — Diag. Repeatedly branched jointed stems, simple net-veined leaves, 1-celled anthers opening by pores, and the membrane next the nucleus protruded. — They consist of small trees or shrubs, with opposite leaves, sometimes small and scale-like. They occur in both tropical and temperate climates. Their properties and uses are unimportant. There are but 15 species in 2 genera.

Gnome, (*nōme,*) *n.* [Fr., from Gr. *gnōmōn*, one who knows, hence a guardian, from *gignōs kein, gnōnai*, to know.] (*Mediæval Myth.*) The name given by cabalistic writers to one of the classes of imaginary beings which are supposed to be the presiding spirits in the mysterious operations of nature in the mineral and vegetable world. They have their dwelling within the earth, where they preside specially over its treasures, and are of both sexes, male and female. The former are often represented in the form of misshapen dwarfs, of whom the well-known "Rübezahl," or "Number-nip," of German legend is a familiar example. Pope, in the *Rape of the Lock*, and Darwin, in the *Loves of the Plants*, have drawn upon the more pleasing associations of this curious branch of mythology.

—A small and ill-favored person; a dwarf; a person of outlandish appearance; a misshapen being.

Gnome. [Gr., a sentence or opinion.] (*Lit.*) A short sententious saying, conveying some maxim or moral precept. In the Bible, the Proverbs of Solomon and many of the sayings of Christ afford examples of the *G.* The gnomic poets are those Greek poets whose remains consist chiefly of *G.*, short sententious precepts and reflections. The principal writers of this class are Theognis, Solon, Tyrtæus, and Simonides.

Gnomolog'ic, Gnomolog'ical, *a.* [Fr. *gnomologique;* Gr. *gnōmologikos.*] Of or belonging to a collection of maxims, reflections, &c.

Gnomon, (*nō'mon,*) *n.* [See Gnome.] (*Dialling.*) The style or pin of the sun-dial, which by its shadow indicates the hour of the day.

(*Astron.*) A rod or pillar from whose shadow the altitude or position of the sun may be determined. *G.* were probably the first astronomical instruments; and they appear to have been much in use among the Egyptians, the Chinese, and even the Peruvians. It is evident that observations of this kind cannot give the sun's altitude with much exactness. The shadow is never so well defined that its limits can be ascertained with astronomical precision; besides, the observation requires to be corrected for parallax refraction, and the sun's semi-diameter — elements which can only be determined by means of instruments of a very superior description to the *G.*, and which, consequently, render the latter useless.

(*Geom.*) That portion of the larger of two parallelograms which remains uncovered, when a smaller, similar parallelogram has been superposed upon it, in such manner that they shall have one angle in common.

G. of a globe, the index of the hair circle.

Gnomon'ic, Gnomon'ical, *a.* [Fr. *gnomonique;* Gr. *gnōmonikos.*] Of, or belonging to, the art of dialling.

Gnomon'ic Projec'tion, *n.* (*Math.*) That projection of the circles of any sphere in which the centre of the sphere is the point of sight, the principal plane being tangent to the surface.

Gnomon'ics, *n. sing.* [Fr. *gnomonique;* Gr. *gnomonike;* sc. *techne.*] The art of constructing dials; dialling.

Gno'monist, *n.* One versed in the construction of dials.

Gnomonol'ogy, *n.* A treatise on the art of constructing dials.

Gnostic, (*nos'tic,*) *n.* One of the sect of Gnostics. See Gnostics.

—*a.* Pertaining to the Gnostics, or their teachings.

Gnos'ticism, *n.* The system of philosophy or doctrine taught by the Gnostics.

Gnostics, (*nŏs'tiks,*) *n. pl.* [Fr. *gnostiques;* L. *gnosticus;* Gr. *gnōstikos*, versed in knowledge, from *gnōskein*, to know.] (*Eccl. Hist.*) *Gnostics* is a common name applied to various sects, which, in the early history of the Church, sought to incorporate the teachings of heathen philosophers with the system of Christianity. Their doctrines were very various, so that it is difficult to give any general account of their principles. According to some, they derive their doctrines from the Alexandrian philosophers; according to others, from the Jews, or from the Orientals. There can be little doubt that each of these sources contributed to build up the fabric of Gnosticism, some sects taking from one, and others from another, and some, perhaps, from all the three. The apostle Paul, even during his ministry, complains of attempts being made to ingraft Jewish and heathen customs and opinions upon the Christian faith; and hence Gnosticism is frequently traced back to this early period. There can be no doubt that the sect became very powerful in the Church soon after that time; and their opinions exercised a great influence upon Christian theology. One of their leading principles seems to have arisen from their inability to account for the existence of evil in the world. They could not see how God, as all-wise, powerful, and good, could allow evil to exist at all; and they were led to conclude that matter must contain within itself the principle of evil. Hence they came to the conclusion that God had nothing to do with the creation or sustenance of the world, but that he created two beings, called Æons, or emanations, from which sprang other æons, and others from these, an innumerable host, the lower in descent being always less perfect than those above them. One of these æons was Demiurgus, who created this world, and was the God of the Old Testament. To counteract the evil that existed, God sent Christ, one of the highest æons, into the world, to restore man to the knowledge of himself. They had very inferior notions of the character of Christ, and denied that he suffered death, or that he really underwent the sufferings recorded of him. They did not believe in the resurrection of the body, deeming it too gross for a higher destiny. Their beliefs influenced their lives in two very different ways, leading some to mortify the flesh, in order to bring themselves into closer communion with God, and leading others to give way to every sinful lust and passion, in order to show their total disregard of the body. In process of time they split into various divisions, differing widely from each other both in faith and practice. Among the principal Gnostic sects may be mentioned the Nicolaitanes, Saturnines, Cerinthians, Basilidians, Valentinians, Ophites, Carpocratians, Antilactes, Docetæ, Marcionites, Tationists, and Bardesanists. The system of Gnosticism disappeared about the 5th century.

Gnu, (*gnoo,*) *n.* [Ger.; Hottentot *nju.*] (*Zoöl.*) The *Antelope Gnu* of Linnæus, a large bovine antelope, which is found in herds in the arid deserts of S. Africa. This singular ruminant quadruped, of which three species are known, appears at first to be a monstrous being, compounded of parts of different animals. Its general color



Fig. 1168. — THE ANTELOPE GNU.

is a deep umber-brown, approaching to black. It is 4 ft. in height, having the body and crupper of a small horse, and is covered with brown hair; the tail is furnished with long white hairs (like that of a horse), and on the neck is a beautiful flowing mane, white at the base, and black at the tips. Its horns, approximated and enlarged at the base, descend outwardly, and turn up at the point; the muzzle is large, flat, and surrounded by a circle of projecting hairs; under the throat and dewlap is another black mane; and the legs are as light and slender as those of a stag.

Go, *v. n.* (*imp.* went, *pp.* gone.) [A. S. *gan, gangan;* O. Fris. *gân;* O. Dan. *gange;* Ger. *gehen;* Icel. *ganga;* Goth. *gaggan;* Lett. *gaju;* Zend. and Sansk. *gâ*, to go.] To pass; to move, or to be in motion; to proceed from one place, state, or station to another; to advance; to make progress; — used in reference to the most various applications of both animate and inanimate beings, also of mental movements; and applied further, in a figurative sense, to all things sentient or living. — To walk; to move step by step; — in contradistinction to *running* or *riding.*

"I will only *go* through on my feet." — *Num.* xx. 19.

— To proceed in a train, or in consequences; to be carried on; to succeed; to fare; to be in a good or ill state; to operate; to turn out; to eventuate; as, everything *goes* well.

"I think as the world *goes*, he was a good sort of man enough." *Arbuthnot.*

— To proceed; to pass in any manner or to any end; to have effect; to avail; to be of force and value; to have a use or currency; to contribute; to conduce; to tend; to concur; — often preceding *to* or *into.*

"Whether the cause *goes* for me or against me, you must pay me the reward." — *Watts.*

— To apply one's self; to have recourse to; to be about to do; to undertake; as, to *go* to law, to *go* into business.

— To proceed by a mental operation; to pass in the mind, or operate by mental action or imaginative effort; — often before *over* or *through;* as, to *go over* accounts, to *go through* a book.

"I *go over* some parts of this argument again." — *Locke.*

— To be pregnant, or in a state of pregnancy; to be with young, or in the family-way; as, she is six months *gone.*

— To leave; to depart; to pass or move away; — in contradistinction to *stay* and *come.*

"*Go*, poor devil; get thee *gone;* why should I hurt thee?" *Sterne.*

— To be expended, or wasted; to be loosed, or released; to decline; to tend towards decay, death, or ruin; to be lost; to decease.

"By Saint George, he's *gone!*
That spear-wound hath our master sped." — *Scott.*

— To extend; to reach; as, that road *goes* to Baltimore; a married man's hand is always *going* into his pocket; frugality *goes* a great way towards wealth.

"No man's knowledge here can *go* beyond his experience." *Locke.*

(The senses of the word *go* are very various and somewhat indistinct; its general characteristic is motion or progression, and in its most exact definition expresses passage from a place, in opposition to *come.* This is frequently observable even in figurative phrases; thus, we say, things that *go* before and that *come* after; to-day *goes*, and to-morrow *comes.*)

Go to, come; begin; start; move: — an exhortative expression, used chiefly in a scornful sense.

"*Go to*, go to, thou art a foolish fellow." — *Shaks.*

To go about, to set one's self to or about anything; to attempt; to endeavor; to essay.

"He *went about* his father's business." — *Milton.*

(*Naut.*) To tack; to move a ship's head round; as, to *go about* in stays. — *To go aside*, to err; to deviate from the right course.

"If any man's wife *go aside*, and commit a trespass against him." — *Num.* v. 12.

To go between, to interpose; to act as mediator; to attempt to reconcile or adjust; as, to *go between* husband and wife is a thankless action. — *To go by*, to pass away unnoticed; to omit.

"What's that to us? The time *goes* by." — *Shaks.*

To observe, as a rule; to follow, as an example.

"The violence of the symptoms are a better rule to *go by.*" *Sharp.*

To go down, to be swallowed, or accepted.

"If he be hungry, bread will *go down.*" — *Locke.*

To be received, without choice or power of objection; as, that tale will not *go down.* — *To go for nothing*, to be valueless in effect; to have no meaning or efficacious result; as, his denial *goes for nothing.* — *To go hard with*, to cause trouble, difficulty, or danger to; to occasion trial or misfortune to; as, his death *went hard with* his wife. — *To go in and out*, to do the business of life. — *To go into* or *unto.* (*Scrip.*) To have sexual commerce with. — *To go on*, to proceed; to move forward; to advance.

"I wish you health to *go on* with that noble work." — *Berkeley.*

To be fitted or put on; as, this hat will not *go on* my head. — *To go out*, to enter upon any undertaking or expedition; as, to *go out* on an affair of honor, or duel.

"There are other men fitter to *go out* than I." — *Shaks.*

To expire; to become extinct; as, the fire has *gone out.*

"Art after art *goes out*, and all is night." — *Pope.*

To become public; to be circulated abroad; as, the scandal *goes out* to the world. — *To go over*, to revolt; as, numbers have *gone over* to the enemy. — To peruse; to study; to read; as, I *went over* the book and found it rubbish. — To examine; to review; to criticise; as, to *go over* the items of an account. — To think over; to dwell upon mentally; to cogitate upon; as, I will *go over* the matter, and let you know my decision. — To change sides; to pass from one party to another; as, he has *gone over* to the Democrats. — To cross from one side to the other; as, to *go over* a lake. — *To go through*, to perform thoroughly; to perform; to accomplish; to effect; to execute.

"The Earl of Antrim had not steadiness of mind enough
To *go through* with such an undertaking." — *Clarendon.*

To suffer; to endure; to bear; to undergo; as, to *go through* a protracted sickness. — *To go under*, to be known under a specific appellation; as, to *go under* the name of Socialists. — To be sunk or submerged; as, he *went under* the ice and was drowned. — *To go off*, to die; to decease; to depart from life.

"I would the friends we miss were safe arrived,
Some must *go off.*" — *Shaks.*

To quit duty; to temporarily leave a post or position.

"The leaders having charge from you to stand,
Will not *go off* until they hear you speak." — *Shaks.*

To go upon, to take and follow as a leading rule or principle.

"This supposition I have *gone upon* through those papers." *Addison.*

To let go, to permit to depart; to release hold of; to allow to leave; as, to *let go* a prisoner.

Go, *v. a.* To accept or take, as participating in an enterprise; to become responsible for; to fill or eujoy a part in.

"I 'll *go* his halves." —*Rabelais.* (Translated.)

To go it, to act in a wild or convivial manner; to carry ou; to be uproarious or reckless; to become pugnacious.

"*Go it*, Maria; I 'll hold your bonnet." — *Pierce Egan.*

To proceed; to advance; to make progress. (Used colloquially.) — *To go one's way*, to depart; to move on; to set forth; as, he *went on his way* rejoicing.

Go, *n.* An incident, event, circumstance, or occurreuce. (Used as slang.)

"This is a pretty *go*." — *Dickens.*

—The prevailing mode, fashion, or custom; as, snobbery is quite the *go* at Washington.

—Uproarious mirth; jollification; as, we had a great *go*. (Used as a colloquialism.)

—A glass of spirits taken neat, or without wafer; as, a *go* of gin. (Used extensively in London, Eng.)

Go'a, a Portuguese district of India, prov. of Bejapoor, on the W. coast; *area*, 1,100 sq. m. *Prod.* Pepper, rice, betel-nuts, cocoa-nuts, and salt. *Pop.* 346,500.

Go'A, a maritime city of India, chief city of the above district, and formerly capital of all the Portuguese settlements in India, on an island of the same name, at the mouth of the Mandona, 250 m. S.S.E. of Bombay: Lat. 15° 30′ N., Lon. 74° 2′ E. *G.* consists of two cities—Old Goa and New Goa. The old city, now almost deserted, contains some splendid churches and other specimens of architecture. New Goa, or Panjim, at the mouth of the river within the forts, is the residence of the viceroy and of the principal inhabitants. It carries on an inconsiderable trade with Portugal, China, and the coast of Africa, and the place is rapidly going to decay. *Pop.* unascertained, but small.

Goad, (gōd,) *n.* [A. S. *gad*; Swed. *gadd*, a sting; Icel. *gaddr*, a pin, peg: Scot. *gad*, the point of a spear; O. Ger. *gart*, a prick, from *gartijan*, to impel, to drive.] A pointed instrument used to stimulate a beast to move faster.

"Off in his harden'd hand a *goad* he bears."—*Pope.*

—*v. a.* To drive with a goad; — hence, to nrge forward; to iucite; to excite; to stimulate; to instigate.

"Temptatiou that doth *goad* us on to sin in loving virtue." *Shaks.*

Goaf, *n.* (*Mining.*) See Gob.

Goal, (gōl,) *n.* [Fr. *gaule*, a pole, from Lat. *vallus*, a pole or stake; W. *gwygal*, a goal, a mark.] The point set to bound a race, and to which racers run; any starting-post; the mark.

"Hast thou beheld, when from the *goal* they start."—*Dryden.*

—The end aimed at; the end or final purpose; the object attained.

"Good . . . the final *goal* of ill."—*Tennyson.*

Goal'para, a district of British India, in the presidency of Bengal; Lat. 25° 40′ to 26° 31′ N., Lon. 89° 42′ to 91° 8′ E. *Area*, 3,500 sq. m. *Prod.* Cotton, tobacco, sugar, and mustard. *Pop.* 440,000.

Goar, St., a fortified town of Prussia, 15 miles from Coblentz. It is seated on the W. bank of the Rhine, uuder the stupendous rock and castle of Rheinfels, with which it surrendered to the French in 1794. On the opposite side of the river is the small town of St. Goarshausen, and on a mountain near it is the strong castle called Katz. St. Goar has a considerable trade in wines and hides. *Pop.* 2,000.

Goar, *n.* Same as Gore, *q. v.*

Goat, (gōt,) *n.* [A. S. *gat*, *geat*: L. Ger., D., and Fris. *geit*; Ger. *geiss*: Goth. *gaitei*, a young goat; Heb. *gĕdi*, a kid, from *gâdâ*, to cut, to crop. See Kid.] (*Zoöl.*) The distinguishing characters in the genus *capra* (a Linnæan group of Ruminantia, which includes all the species of goats) are, — that the horns are hollow, turned upwards, aud annulated on their surfaces; that there are eight cutting teeth in the lower jaw, and none in the upper: and that the male is generally bearded. In its domestic state the goat is found in almost every part of the globe, bearing the extremes of heat and cold, and differing in size aud form according to various circumstances; the horns generally having a curvature outwards towards the tips. Buffon's account of this animal is strikingly descriptive. "The goat," says he, "is superior to the sheep both in sentiment and dexterity. He approaches man spontaneously, and is easily familiarized. He is sensible of caresses, and capable of a considerable degree of attachment. He is stronger, lighter, more agile, and less timid than the sheep. He is a sprightly, capricious, wandering, wanton animal. It is with much difficulty that he can be confined, and he loves to retire into solitude, and to climb, staud, and even sleep, on rugged and lofty eminences. He is robust and easily nourished, for he eats almost every herb, and is injured by very few. His bodily temperament, which in all animals has a great influence on the natural disposition, is not essentially different from that of the sheep. These two animals, whose internal organization is almost entirely similar, are nourished, grow, and multiply in the same manner; and their diseases are the same, excepting a few to which the goat is not subject. The goat fears not, like the sheep, too great a degree of heat. He cheerfully exposes himself to the sun, and sleeps under his most ardent rays without being affected with the vertigo or any other inconvenience. He is uot afraid of rain or storms; but he appears to feel the effect of severe cold. The inconstancy of his disposition is marked by the irregularity of his actions. He walks, stops short, runs, leaps, approaches or retires, shows or conceals himself, or flies off, as if actuated by mere caprice, and without any other cause than what arises from an eccentric vivacity of temper. The suppleness of his organs, and the strength and nervousness of his frame, are hardly sufficient to support the petulance and rapidity of his natural movements." It is difficult in this genus to determine what are species and what are varieties. The common or domestic goat (*Capra hircus*) has existed as a domestic animal from the earliest ages; it is frequently mentioned in the books of Moses, and formed a large portion of the flocks of the patriarchs. The goat thrives under the care of man in the hottest parts of India and Africa, and in the northern districts of Scandinavia. Amid such diversity of circumstances, considerable diversity of breeds might be expected, and accordingly, besides the common variety, there are the *Syrian goat*, the *Angora goat*, the *Cashmere goat*, — all remarkable for the greater length and fineness of their hair; a beautiful dwarf variety from West Africa, called the *Guinea Goat*, and many others. Some of these, as the Syrian goat, (Fig. 1170,) have large pendent ears. In nothing does variation seem more readily to result from the influence of climate and other circumstances, than in the quantity and quality of the hair, and in the relative abundance of the two kinds of it, both of which are well exhibited in the common goat, the long, soft hair, and the softer woolly hair beneath it. But in many other respects, also, the domestic goat is subject to variation, more than perhaps any other domestic quadruped except the dog. The uses of the goat are numerous. The flesh is good; that of the kid, or young goat, is in most countries esteemed a delicacy. The milk is very rich and nutritious, more easy of digestion than that of the cow, and is often useful to consumptive patients. Some goats yield as much as four quarts of milk daily, although the average quantity is more nearly two. Both cheese and butter are made of goat's milk; they have a peculiar but uot disagreeable flavor. Goat's milk is still very much used in Syria and other parts of the East, as it was in the days of the patriarchs. The skin of the goat was early used for clothing, and is now dressed as leather for many uses, particularly for making gloves and the finer kinds of shoes. The hair, which may be advantageously clipped annually, is used for making ropes which are indestructible in water, and for making wigs for judges, barristers, and ecclesiastical dignitaries. For the latter purpose, the hair of white goats is used. The use of the hair or wool of certain varieties of goat for making valuable fabrics is noticed iu the article Angora Goat. The horns are used for making knife-handles, &c., and the fat is said to be superior to that of the ox for candles. The *Rocky Mountain Goat* (q. v.) ranks on a par with the Cashmere goat for the excellence of its fleece; — but as it is now considered an antelope, it results that the genus Capra is not represented in America. The origin of the domestic goat is with greatest probability traced to the Ægagre (*C. ægagrus*), the Persian Paseng. See Ægagre.

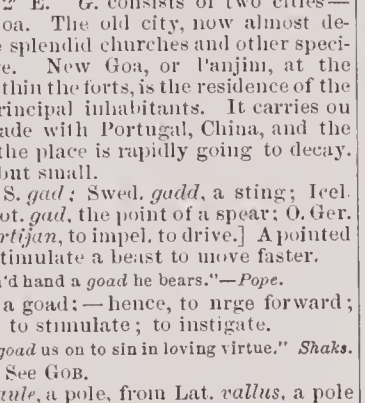


Fig. 1169.
THE COMMON GOAT, (*Capra hircus.*)



Fig. 1170.
HEAD OF SYRIAN GOAT.

Goatee', *n.* That part of a man's beard which depends from the lower lips or chin, resembling the beard of a goat.

Goat'herd, *n.* One whose duty is to attend goats.

Goat'ish, *a.* Resembling a goat in auy quality; of a rank smell.

Goat'ishly, *adv.* In the manner of a goat.

Goat'ishness, *n.* Quality of being goatish; lustfulness.

Goat Island, in *Rhode Island*, a small island and light-house in Newport harbor in front of the town. It exhibits a fixed light.

Goat Island. See Niagara Falls.

Goat'-milker, *n.* (*Zoöl.*) Same as Goat-sucker, *q. v.*

Goat'-moth, *n.* (*Zoöl.*) See Cossus.

Goat's'-beard, Goat'-marjoram, *n.* (*Bot.*) See Tragopogon.

Goat's'-rue, *n.* (*Bot.*) See Tephrosia.

Goat's'-thorn, *n.* (*Bot.*) See Astragalus.

Goat'-sucker, *n.* (*Zoöl.*) A family of birds, *Caprimulgidæ*, tribe *Fissirostres*, comprising birds with a short triangular bill, and soft, lax, owl-like plumage. They feed upon insects which they capture while upon the wing. The whippoorwill (*Caprimulgus vociferus*), (see Fig. 1023), a native of the U. States, is ten inches long without the wing, and has the bristles of the bill without lateral filaments. Its general color is pale rufous, with the top of the head ashy-gray, longitudinally streaked with black. Its notes are three, and have a fancied resemblance to the syllables *whip-poor-will*, and hence its name. It begins its song soon after sunset, and continues till late at night; then remains silent till near the dawn, when it resumes and continues till sunrise. During the day the whippoorwill sleeps upon the ground, or on fallen trunks of trees, or on low branches, and may often be approached to within a few feet before it flies. It is said that it always sits with its body parallel to the branch on which it alights, and never across it. Its eggs are always two, short elliptical, much rounded, and nearly equal at both ends; the color greenish-white, spotted, and blotched with bluish-gray and light-brown. These are laid in May, on the bare ground or on dry leaves, and in the most secluded parts of the thickets. The Chuck-will's-widow (*Caprimulgus Carolinensis*), of the Atlantic and Gulf States, much resembles the preceding, but the bristles of its bill are furnished with lateral filaments, and the top of the head is reddish-brown, streaked with black, and the termiual two-thirds of the tail, except the four central feathers, rufous-white. The Chuck-will's-widow, whose notes seem exactly to articulate these words, commences its singular call generally in the evening, soon after sunset, and continues it, with short occasional interruptions, for several hours. This note, or call, instantly attracts the attention of a stranger, aud is strikingly different from that of the whippoorwill. In sound and articulation it seems plainly to express the words which have been applied to it (*Chuck-will's-widow*), pronouncing each syllable leisurely and distinctly, putting the principal emphasis on the last word. In a still evening it may be heard at the distance of nearly a mile, the tones of its voice being stronger and more full than those of the whippoorwill, who utters his with much greater rapidity. The flight of this bird is low, skimming about at a few feet above the surface of the ground, frequently settling on old logs, or on the fences, and from thence sweeping around, in pursuit of various winged insects that fly in the night. Like the whippoorwill, it prefers the declivities of gleus and other deeply shaded places, making the surrounding mountains ring with echoes the whole evening. The Chuck-will's-widow lays its eggs, two in number, on the ground, in the woods: they are of a dull olive color, sprinkled with darker specks, and about as large as a pigeon's. Another interesting American species, the *Night-Hawk*, will be seen under its proper name.

Goave, (*go-av'*,) Le Grand, aud Le Petit, two towns of Hayti; the latter is situated on the Bay of Gonaïves, abt. 48 m. W.S.W. of Port-au-Prince, and the former 7 miles further E.

Gob, *n.* [Gael.] A small piece; a lump; a mouthful; a minor quantity; as, a *gob* of money. (Vulgar.) — The mouth; also, the saliva issuing therefrom.

(*Mining.*) The waste part of the workings of a mine; (called also *goaf*.)

To work the gob or *goaf*. (*Mining.*) To remove the mineral pillars that support the roof of a mine, and replace them with props.

Gobain, St., a town of France, dep. Aisne, 10 m. of Laon. It is noted for its manufacture of looking-glasses. (See Glass.) *Pop.* 1,615.

Gob'bet, *n.* [O. Fr. *gobeau*.] A mouthful; a small piece; a lump; as much as can be swallowed at once.

"Full of great lumps of flesh and *gobbets* raw." — *Spenser.*

—*v. a.* To swallow at a mouthful; to gulp. (Vulgar.)

Gob'bing, *n.* (*Mining.*) The refuse thrown back into the excavations remaining after the removal of the coal.

Gob'ble, *v. a.* [Fr. *gober*, to gulp down, from Celt. *gob*, the mouth.] To swallow with open month or greedily; to swallow hastily, or in large pieces.

"Supper *gobbled* up in haste." — *Swift.*

—*v. n.* To make a noise in the throat, as a turkey.

"Fat turkies *gobbling* at the door." — *Prior.*

Gob'bler, *n.* One who swallows food with rapidity; a greedy eater; a gormandizer. — A turkey-cock.

Gobelin Tapestry. See Tapestry.

Go'-between, *n.* One who interposes between two parties; a mediator; a broker. (Generally in a bad seuse.)

Go'bi, or Cobi, a range of country in Central Asia, comprising a large part of Chinese Turkestan and Mongolia. *Extent*, 1,300 m. in length, with a breadth varying from 400 to 800 m. Mostly a sandy desert, interspersed with a few oases. Lat. 40° to 50° N., Lon. 90° to 120° E. In 1874–6 remains of ancient cities were discovered, but as yet little attention has been given them.

Gobidæ, *n. pl.* (*Zoöl.*) A family of Acanthopterygious fishes, including the Blennies, Gobies, &c. They may be recognized by the slenderness and flexibility of their dorsal rays. They have an uniformly wide intestinal canal, and no pyloric cæca.

Gob'let, *n.* [Fr. *gobelet*, from *gob*.] A kind of cup or drinking-vessel, usually of glass, containing as much as may be taken at one large draught or swallow.

"Crown high the *goblets* with a cheerful draught." — *Dryden.*

Gob'lin, *n.* [Fr. *gobelin*, probably from Gr. *kobalŏs*, an arrant knave.] A demon; an evil spirit; a frightful phantom; a walking spirit; a gnome; an elf.

"Be thou a spirit of health, or *goblin* damned." — *Shaks.*

Go'by, *n.* [Lat. *gobius*, and *gobio*.] (*Zoöl.*) A genus of fishes, family *Gobidæ*, has the thoracic ventrals united, either along their whole length, or at least at the base forming a hollow disc. The species are small, some of them only two or three inches long, aud live among the rocks near the shore. Some of them are viviparous. Over 100 species are known.

Go'-by, *n.* Illusiou; evasion; escape by artifice. — A

flinging off; a thrusting away or aside; a passing without notice; as, he gives his old friends the *go-by*.

Go'-cart, *n.* A mechanical contrivance designed to support young children in their first attempts to walk.

God, *n.* [A. S., O. S., Fris., D., and L. Ger.; Dan., Swed., and Icel. *gub*; Ger. *gott*; Goth. *guth*; Pers. *khodâ*; Afghan. *chudâi*, among the Samoïedes of Russia, *kudai*; Hind. *khooda*; probably from Sansk. *guth*, to conceal, whence *gûdha*, a secret, a mystery. The A. S. word signifies at once God and good; and the association pervades the Teutonic tongues.] The Good; the Author of all goodness; the Supreme Being; the Eternal and Infinite Spirit; the Creator, and the Sovereign of the Universe; the Almighty. The belief in the existence of some being or beings superior to man, on whom he is dependent, and who demands his worship, is so universal that it may almost be said to be an instinct of our nature. Those who worship many gods are termed polytheists; those who worship one only, monotheists. The department of knowledge which treats of the being, perfections, and government of God, is called theology. Many attempts have been made, by arguments, to prove the existence of one Supreme Being, all-powerful, wise, and good, through whom everything exists. Some of these arguments are *à priori*, others are *à posteriori*. "When we argue from the ideas we have of immensity, eternity, necessary existence, and the like, that such perfections can reside but in one Being, and thence conclude that there can be but one Supreme God, who is the cause and author of all things,"—this is an argument *à priori*. When, on the other hand, we argue from the order and regularity that we observe in the objects of nature around us, that there is evidence of design and of a designer, this is an argument *à posteriori*. Each of these modes of argument, however, is incomplete of itself, and it is only by a combination of the two that we can expect to be able, if indeed the imperfection of our present faculties will ever admit of our being able, to prove by arguments the existence and attributes of God.

—A false god; a heathen deity; an idol; a fetish.

"Land of lost *gods* and godlike men." — *Byron.*

—A prince; a sovereign; a ruler; a magistrate or judge; an angel. (Chiefly of scriptural application.)

"Thou shalt not revile the *gods*, nor curse the ruler of thy people."—*Exod.* xxii. 2.

—Any person or thing held in over-exalted estimation, or deified and honored as the chief good; as, he makes a *god* of his belly.

"Leaves a gentleman, and makes a *god* of such a cullion." *Shaks.*

—*pl.* A term colloquially used to denote the *habitués* or frequenters of the gallery in a theatre, especially in Ireland; as, the *gods* hissed him off the stage. (Cant.)

Godal'ming, a town of Surrey in England, on the Wey, which is here crossed by a bridge, 5 m. S.S.W. of Guildford. *Manuf.* Hosiery, blankets, worsteds, cotton cloths, stockings, and gloves, with a considerable trade in hops, coal, timber, and bark. *Pop.* 6,350.

Goda'very, a river of India, rising on the E. side of the W. Ghauts, abt. 70 m. N.E. of Bombay. At Rajamundry in the N. Circars, it divides into two streams; the left flowing into the Bay of Bengal in Lat. 16° 48′ N., Lon. 82° 23′ E., and the right in Lat. 16° 18′ N., Lon. 81° 46′ E. The entire length of the *G.* is about 900 m.

God'child, *n.* A child in a godly or spiritual sense; one for whom a person becomes sponsor at baptism, and solemnly promises to see it educated as a Christian, (but very seldom does so.)

God'daughter, (*daw'ter,*) *n.* A female for whom one becomes sponsor at baptism.

God'dess, *n.* A female god or deity; a heathen deity of the female sex.

"A temple . . . built to the gracious *goddess* Clemency."—*Dryden.*

—In hyperbole, and the language of love, a woman of superior charms, or excellence.

"She moves a *goddess*, and she looks a queen."—*Pope.*

Goderich, (*god'ritch.*) a town, port of entry, and the seat of justice of Huron co., in the prov. of Ontario, on Lake Huron, abt. 62 m. N. N. W. of London; immense salt beds are found near here.

God'father, *n.* [A. S. *god* and *fæder.*] A man who becomes sponsor for a child at baptism.

—*v. a.* To act as a godfather.

God'frey, OF BOUILLON, duke of Lorraine and first Christian king of Jerusalem, was B. at Bézy, near Nivelle. He served while young with high distinction in the armies of the emperor Henry IV.; and when near the close of the 11th cent. all W. Europe was roused to the rescue of the Holy Land from the infidels, the fame of *G.* was high throughout Christendom for piety and moral excellence, as well as for knightly prowess. He entered fervently into the great movement of his age, and was confessedly the first in rank and worth among the chiefs of the first crusade. He not only signalized himself by valor among the valorons, and by enthusiasm among the enthusiastic, but he showed also disinterestedness, probity, skill, and prudence, which were of a higher and rarer order. He maintained the most complete discipline among his division of the Christian army, which he brought safely to the appointed muster-place beneath the walls of Constantinople, in the winter of 1096. By his sagacity and firmness he prevented hostilities breaking out between the host of the crusaders and the Greek emperor, Alexius Comnenus; and in the spring of 1097, Godfrey led the Frankish nations into Asia Minor, to the siege of the capital of the Turkish sultan of Nice. This city was captured after a siege in which the personal valor of Godfrey, as well as his generalship, was frequently displayed. He was tall, well-proportioned, and of such remarkable strength and dexterity in the use of his weapons, that he is said in more than one encounter to have cloven his foe by a single sword-stroke from skull to centre. After Nice was captured, the Crusaders marched forward, and defeated a Turkish army in the great battle of Dorylæum. They reached Antioch, in Syria, late in the winter of 1097. The city was captured after an obstinate resistance; and the weakened army of the victors was in turn besieged in its walls by an innumerable host of the Mohammedans. After enduring much suffering and loss, Godfrey led the Crusaders in a sudden sortie upon their enemies, which was completely victorious. The enthusiasm caused among the Christian army by the supposed discovery of the relic of the Holy Lance, was one great cause of this success. It was not till 1099 that the Crusaders reached Jerusalem; and their numbers were then reduced by the sword and by disease to only 1,500 horse and 20,000 foot fit for service. The Mohammedan garrison was far more numerous, and the city was formidably strong. But the zeal of the Crusaders was indomitable. After a siege of forty days, a successful assault was made, and "on a Friday, at three in the afternoon, the day and hour of the Passion, Godfrey of Bouillon stood victorious on the walls of Jerusalem." (*Gibbon*). — When the Crusaders were sated with carnage and pillage, they deliberated on the important subject of choosing a ruler of their conquest; and, with the universal consent of the assembly, *G.* was hailed king of the Christian kingdom of Jerusalem. He showed his humility and piety by refusing to wear a golden diadem in the city where his Saviour had been crowned with thorns, and he desired to be called only Defender and Baron of the Holy Sepulchre. During his short reign he gained several military advantages in the field against the Mohammedans, especially at Ascalon, where he completely routed a large army which the sultan of Egypt had sent to reconquer Jerusalem. *G.* deserved still higher honor for his exertions in establishing order and justice in his dominions, and in compiling a code of laws for his subjects. Unhappily for the infant kingdom, he D. within a year from his accession.



Fig. 1171. — ARMOR OF GODFREY OF BOUILLON.

God'frey, in *Illinois*, a post-village of Madison co.

Godha'vn, or GODHAVN. (*god'hawn,*) a town or settlement of Greenland, on Disco Island, in Davis Strait; *pop.* abt. 250.

God'head, *n.* [*God* and A. S. *had.*] Deity; divinity; divine nature or essence. — A personal deity; a god or goddess.

"The nymphs and native *godheads* yet unknown."—*Dryden.*

—God; the Deity; the Supreme Being; the Almighty.

God'hood, *n.* Divine nature or essence; deity; godship.

God'less, *a.* Having no reverence for God; impious; irreligious; ungodly; wicked; atheistical; having no belief in the existence of God.

"*Godless* men and rebellious times."—*Dryden.*

God'lessly, *adv.* In an impious manner; irreligiously; atheistically.

God'lessness, *n.* State of being godless, atheistical, or impious.

God'like, *a.* Resembling God; partaking of the divine essence.

—Of superior excellence; as, "*godlike* reason."—*Shaks.*

God'likeness, *n.* State of being godlike.

God'lily, *adv.* Piously; uprightly; religiously. (R.)

God'liness, *n.* Quality of being godly: piety; belief in God, and reverence for his character and laws: a religious life; the system of Christianity.

"Cleanliness is indeed next to *godliness*."—*Wesley.*

God'ling, *n.* A little deity; a diminutive god.

"The puny *godlings* of inferior race."—*Dryden.*

God'ly, *a.* [A. S. *godlic.*] Reverencing God and his character and laws; pious; devout; holy; religious; righteous; as, a *godly* man. — Characterized or springing from a regard for God; as, a *godly* life.

—*adv.* Righteously; religiously; piously.

God'mother, *n.* A woman who becomes sponsor for a child at baptism. See GODFATHER.

Godown', *n.* [From Malay *gâdang.*] In the E. Indies, a depot, or warehouse.

Go'doy, MANUEL DE, Prince of the Peace, duke of Alcudia, &c., the favorite and first minister of Charles IV. of Spain, B. at Badajoz, 1767. He went to Madrid at an early age, and in 1787 entered the company of bodyguards. His beauty, fascinating manners, and amiability, his skill in music, soon made him a favorite at court, and promotion was rapid. He was called to the council of state, and in 1792 succeeded Aranda as first minister, and immediately declared war on France. At the peace in 1795 he was made a grandee of Spain of the first class, and received the title of Prince of the Peace. His unpopularity increased with his favor at court and his rich reward; but, in opposition to the general desire of the nation, he signed the treaty of St. Ildefonso, offensive and defensive alliance with France, in 1796. He found all parties and classes in the state his enemies, and reduced their number to some extent by exile; but he was compelled to resign office in March, 1798. He was soon reinstated, and then married, from political motives, Donna Maria Thereza de Bourbon, although he was already secretly married to Donna Josefa Tudo, who retained his affection through life. In 1800 he commanded an expedition against Portugal, at the close of which he received further title and rewards. He published in 1806 a stirring appeal to the people, calling them to arms, without naming the foe; but after the battle of Jena he disavowed his proclamation. The insurrection of Aranjuez, in March, 1808, prevented his escape as purposed with the royal family, and on the abdication of Charles he was imprisoned. He was present at Bayonne on the signature of the new abdication, and he accompanied the royal family to Marseilles and Rome. He had lost everything, and lived only on the bounty of his friends. On his wife's death he avowed his marriage with Josefa Tudo; settled at Paris in 1835, and D. there 1851.

Godroon', *n.* [Fr. *godron.*] (*Arch.*) A kind of inverted fluting used for ornament.

God'send, *n.* An unexpected acquisition or stroke of good fortune, received as coming from God.

"Sir, the crown-piece he gave me was a *god-send*." — *Davies.*

God'ship, *n.* Deity; divinity; the rank of a god.

"O'er hills and dales their *godships* came." — *Prior.*

God'-smith, *n.* A maker of images of false gods, or idols.

God'son, *n.* [A. S. *godsunn.*] A male for whom another has been sponsor at the font.

"What, did my father's *godson* seek your life?" — *Shaks.*

God'speed, *n.* Good speed, that is success, good luck, prosperous expedition; as, we bade him *God-speed* on his journey.

God's-penny, *n.* An earnest penny.

God's-truce, *n.* [Ger. *Gottesfriede*; Lat. *Freuga Deo.*] (*Hist.*) An institution of the Middle Ages; a means introduced by the Church to check in some measure the hostile spirit of the times, by establishing certain days or periods during which all private feuds were to cease. It seems to have taken its rise about the latter part of the 10th or beginning of the 11th century. At first the Church forbade all feuds on those days of the week which were specially consecrated by the death and resurrection of Christ; namely, from Thursday evening to Monday morning, and threatened with excommunication any who transgressed that order. Afterwards the period was extended so as to include the whole of Thursday, the whole of the period from the beginning of Advent to the Epiphany, and certain other times and saints' days. The precincts of churches, convents, and graveyards were also interdicted from any hostile encounters. Though frequently disregarded, there can be little doubt that these enactments were of much use in these troublous times. By degrees the power of the State came to be exerted to promote peace, and these laws of the Church gradually fell into disuse.

God'ward, *adv.* Toward God.

God'win, EARL OF KENT, a powerful Anglo-Saxon chief. During the reign of Edward the Confessor he was head of the English party in opposition to the Norman party, and for long the real ruler of the greater part of England. In 1019 he accompanied Canute in an expedition against Sweden, where he behaved with such valor as to receive a relative of that monarch in marriage, together with large grants of land. On the death of Canute, the Earl sided with Hardicanute against Harold, but afterwards he espoused the cause of the latter. He was charged with murdering Alfred, one of the sons of Ethelred II., from which he vindicated himself by oath. On the death of Hardicanute he joined Edward the Confessor, who married his daughter, but afterwards rebelling against Edward, and being unsuccessful, he fled to Flanders. Having gathered fresh forces, he sailed up the Thames, and appeared before London, throwing the country into such confusion that the king was obliged to negotiate peace with *G.*, whom he restored to his estates. He D. suddenly, while dining with the king at Winchester, in 1054.

God'winsville, in *Georgia*, a post-village of Dodge co., on the Southern R. R.

God'wit, *n.* (*Zoöl.*) See LIMOSA.

Go'er, *n.* A term applied to a horse, in reference to speed; as, the mare is a good *goer*.

Goes, (*gōōs,*) a town of Holland, on the island of S. Beveland, on the Scheldt, 10 m. E.N.E. from Flushing. It has large docks for ship-building, and an active trade in salt, hops, and grain. *Pop.* 6,500.

Goff, *n.* [Gr. *gophos*, stupid.] An English provincialism for a dolt, blockhead, or stupid foolish fellow.

(*Games.*) See GOLF.

Goffer, *v. a.* Same as GAUFFER, *q. v.*

Gog and Magog, are two names that occur several times in the sacred Scriptures. In Gen. x. 2, Magog is mentioned as one of the sons of Japheth; in Ezek. xxxviii., xxxix., the prophet is told to set his face "against Gog, the land of Magog, the chief prince of Meshech and Jubal, and prophesy against him;" and in Rev. xx. 8, Satan is represented as going forth "to deceive the nations, which are in the four quarters of the earth, Gog and Magog, to gather them together to battle." Among Christians, the terms have been used as nearly synonymous with Antichrist, and in a general sense to include all nations hostile to Christianity. These names are also employed to designate two huge warlike figures, that adorn the Guildhall of London. Many fables are given of the origin of these worthies; but nothing with certainty is known regarding them, further than that from time immemorial they have been

looked upon with pride by the people of London. The old giants, which were of wickerwork and pasteboard, were destroyed by the great fire of 1666, and the present ones, which are of stone, were constructed in 1708. They are fourteen feet high.

Gœrtz, Georg Henrik, Baron Von, an eminent Swedish statesman, b. of a noble family in Franconia. He joined Charles XII. of Sweden at Stralsund, on his return from Turkey, and by his activity and intelligence was soon placed at the head of political affairs. But scarcely had Charles fallen before Fredericksball (Dec. 11th, 1718), when *G.* (then foreign minister) fell a sacrifice to the hatred of the nobility, and of the successor to the throne. He was arrested, and charged with having induced the Swedish monarch to engage in ruinous enterprises, and of having mismanaged the finances intrusted to him; no time for repelling the accusations was allowed; and on Feb. 28, 1719, *G.* was condemned and beheaded, without a hearing.

Goeta-Elf, or **Gotha,** a Swedish river rising in Lake Werner, and after a S. course of 50 m. entering the Cattegat. Near its source are the falls of the *Trolhætta*, to avoid which the canal of same name was cut.

Gœthe, or **Göthe,** (*gö'teh,*) Johann Wolfgang von, the greatest modern poet of Germany, and the regenerator of German literature, was b. at Frankfort-on-the-Main, in 1749. His father was a counsellor of state, and young *G.* was reared amid all the elements conducive to a taste for, and cultivation of literature and the arts. In 1764 he proceeded to the University of Leipzig, and 4 years afterwards to that of Strasburg, in order to qualify himself for the legal profession. The study of law, however, gained less upon his attention than that of the natural sciences, as chemistry, physiology, &c. In 1771, after taking his doctor's degree, *G.* went to reside at Wetzlar. Here, in 1773, he produced his romantic drama of *Götz von Berlichingen*, which excited great enthusiasm in the German literary world. About this time *G.* conceived a passion for a lady who was already betrothed, and shortly after became the wife of another; which incident, together with the suicide of a student of his acquaintance — also a sufferer from misplaced affection — *G.* fused together to form the plot of a novel, which, in 1774, he brought out under the title of *Die Leiden des Jungen Werther* ("The Sufferings of Young Werther"). This book, in its sublimity of maudlin sentimentalism, became at once the rage. In 1775 *G.* was invited by the duke of Saxe-Weimar to take up his residence at his court. To Weimar he accordingly repaired, and there became the central figure and ruling deity (so to speak) of a galaxy of some of the most eminent notabilities of that day, counting among them Wieland, Schiller, Herder, and Senckendorff. *G.* was also, by the duke's favor, appointed a privy councillor of legation, and superintendent of the theatre, where he brought out with thorough effect the splendid *chefs-d'œuvre* of Schiller, in addition to his own dramatic works — *Götz von Berlichingen*, *Iphigenie auf Tauris*, *Faust*, *Tasso*, *Clavigo*, *Stetta*, and *Egmont*. In 1786 he visited Italy, where he remained for two years, and in 1792, accompanied the army of the king of Prussia and the duke of Brunswick in its French campaign, of which he became the historiographer. On his return, *G.* was appointed minister of state. In 1795 appeared the first part of his *Wilhelm Meister*, and in 1797 *Hermann und Dorothea*, a hexametrical pastoral poem, and perhaps the finest of his minor productions. In 1805 the first portion of his great masterpiece, *Faust*, was ushered to the world, and elevated him to the highest rank of literary fame. In



Fig. 1172. — GŒTHE.

1807, the czar Alexander of Russia conferred upon *G.* the order of St. Alexander Newski, — an example followed by Napoleon with the grand-cross of the Legion of Honor, while on a visit to him at Paris. In 1809 appeared his *Wahlverwandschaften* ("Elective Affinities"), a work in which he advanced certain views on the marital relation which disgusted the moral world. The year 1818 beheld the second part of his *Wilhelm Meister* — the *Wander-Jahre*, and in 1831, the second part of *Faust*, which, while containing many passages of striking thought, grotesque humor, and melodious imagery, exhibited a whole of such profound mysticism and enigmatical philosophy, as to be incomprehensible even to the most critical understanding. D. at Weimar, March 22, 1832. *G.* was an intellectual giant, and "represents in himself alone," says Madame de Staël, "the whole of German literature. His keen and profound insight into human life and character, his encyclopedic knowledge, his sublime imagination, his exquisite sensibility and play of fancy, and his consummate style, place him high in the constellation of literary genius that appeared in the latter half of the 17th and beginning of the 18th centuries. His mighty influence has reached all spheres of human thought, and grows stronger with time. Admiration of this great poet forms a sort of masonic password uniting the intellectual elements of all countries. The subject of *Faust* is the worldly career of man: the aspiration, the resistance, the temptation, the sins, the agony, the destruction — all mysterious and mournful — supplying food for comment and controversy — for admiration as for blame, to generations yet to come." *Wilhelm Meister*, *G.*'s greatest prose effort, has been well rendered into English by Carlyle's admirable translation. His minor pieces, ballads, songs, and elegies, all partake of the profundity of his philosophical mind. Books innumerable, in the shape of recollections, letters, conversations, &c., have been written about this master-mind of the "Fatherland." Especially noteworthy are the *Essays* on his life and works by Carlyle, and G. H. Lewes' *Life of Gœthe*. A literary curiosity was published in 1865, in the form of a Hebrew translation of *Faust*, under the title of *Ben Abuya*, by a German scholar, Dr. Max Letteris.

Gœtze, Johann August Ephraim, a German naturalist, b. at Aschersleben, in 1731. He made many microscopic discoveries, and wrote several books on natural history, among which are *Entomological Memoirs* (4 vols.), *A History of Intestinal Worms*, and an *European Fauna* (9 vols.) He was pastor of the church at Quedlinburg, and d. in 1793.

Goff'ile, in *New Jersey*, a village of Passaic co., abt. 3 m. N. of Patterson.

Goff's Falls, in *New Hampshire*, a post-office of Hillsborough co.

Goff's Mills, in *New York*, a post-vill. of Steuben co.

Goffs'town, in *New Hampshire*, a post-village and township of Hillsborough co., on the Merrimac River, abt. 12 m. S. of Concord.

Goffs'town Centre, in *New Hampshire*, a village of Hillsborough co., abt. 15 m. S. of Concord.

Gog'ginsville, in *Virginia*, a P. O. of Franklin co.

Goggle, (*gog'l,*) *v. n.* [Allied to *jog*, *joggle*, and to provincial *coggle*, to be shaky; Gael. *gogshuile-ach*, goggle-eyed.] To strain or roll the eyes.

"Which made him hang his head and scowl,
And wink and *goggle* like an owl."—*Hudibras.*

Gog'gle, *a.* Having full eyes: staring with rolling eyes. —*n.* A strained or affected rolling of the eye.

—*pl.* Instruments used to cure squinting or the distortion of the eyes which occasion it; cylindrical tubes, in which are fixed glasses for defending the eyes from cold, dust, &c.

Gog'gled, *a.* Prominent; staring, as the eye.

Gog'gle-eyed, *a.* Squint-eyed; having eyes which roll, or are prominent or distorted.

Gog'magog Hills, are situate about 3 m. N. of Cambridge, in England. On their extreme summit we find the remains of an ancient Roman camp with a triple intrenchment.

Go'gol, Nikolay, a Russian novelist and miscellaneous writer, b. probably about 1810. He is the author of a novel entitled *Dead Souls* (which was received with great enthusiasm by his countrymen, and was translated into English with the title of *Home-Life in Russia*), of a comedy entitled *The Revisor*, and two collections of short tales illustrative of rural life in Little Russia, his native country. The reputation of *G.* was seriously impaired by his subsequent writings. He spent some years abroad, returned to Russia in 1849, and d. at Moscow, 1851.

Goheen'ville, in *Pennsylvania*, a post-office of Armstrong co.

Gohilwar', a dist. of India, prov. of Guzerat, tributary to Great Britain; Lat. 20° 50′ to 22° N., Lon. 71° 12′ to 72° 11′ E. *Desc.* Fertile, and producing nearly all the grains and fruits of India. *Pop.* 271,000.

Goianinha, (*gō-yā-nēēn'yă,*) a town of Brazil, prov. of Rio-Grande-do-Norte, abt. 28 m. S. of Natal; *pop.* abt. 1,500.

Goil, (Loch,) a branch of Loch Long, in Argyleshire, Scotland, extending N. for 4 m. to Lochgoilhead.

Go'ing, *n.* Act of moving in any manner. — Departure.

"Thy *going* is not lonely."—*Milton.*

—Procedure; way; course of life; behavior; deportment; — often before *on*; as, there 's pretty *goings on.*

"He seeth all his *goings.*"—*Job* xxxiv. 21.

—Course of providential agency or government.

"They have seen thy *goings*, O God."—*Ps.* lxviii. 24.

—Pregnancy; gestation.

Goitre, (*goy'tr,*) *n.* [Fr. *goître*, probably a corruption of Lat. *guttur*, the throat.] (*Med.*) A preternatural enlargement of the thyroid gland, occasioning a swelling of the throat, which frequently attains a very large size. It is also termed *bronchocele* and *Derbyshire neck*, on account of its prevalence in this co. of England. It is, however, in the Alpine districts of Europe, especially in Switzerland, Savoy, and Tyrol, that it is chiefly to be met with. It is also common in certain regions of the Andes and Himalayas. It is frequently associated with cretinism. (*q. v.*) Little is yet known of the nature or cause of this disease. It is endemic, or common to certain regions; but from what peculiarity of these regions it is owing, it is very uncertain, though many are inclined to attribute it to a calcareous impregnation of the water. It also occurs hereditarily, independent of endemic influence. It is much more common among females than males, and usually occurs about the age of puberty. It is not of an inflammatory or malignant character, is free from pain, and generally of the natural color of the skin. At first the tumor is soft and elastic but as it increases in size it becomes hard and firm. Its size often becomes so great as not only to be a serious inconvenience, but even to impede respiration and obstruct the voice. The great remedy for this disease is iodine, either administered internally in small doses for a long time, or applied externally, either in the form of an ointment or of the tincture painted over it every night. Generally, if not of long standing, the swelling will in this way be removed.

Goi'tred, Goi'tered, *a.* Affected with goitre.

Goi'trous, *a.* [Fr. *goitreux.*] Pertaining to or affected with goitre.

Go'jam, a prov. of Abyssinia, lying S. of Lake Dembea; Lat. 10° to 11° N., Lon. 37° to 38° E. *Surface*, in many portions mountainous; it is yet in others diversified by hill and dale, affording good pastures, which are well watered by the various affluents of the Abai River. *Pop.* 71,000.

Go'la, *n.* [It., throat, flute, moulding.] (*Arch.*) Same as Cyma, *q. v.*

Go'landsville, or **Go'lansville,** in *Virginia*, a village of Caroline co.

Golcon'da, a fortress of the Nizam's dominions, Hindostan, situated 7 m. N.W. of his capital, Hyderabad; Lat. 17° 22′ N., Lon. 78° 25′ E. In its immediate neighborhood are the ruins of an ancient city, once the metropolis of the kingdom of Golconda, and the yet solid mausolea of its former sovereigns, which form a vast group of dome-crowned structures of gray granite, each having its own mosque, and occupying the centre of its own elevated terrace, (Fig. 243.) *G.* is proverbially famous for its diamonds; but in truth they are merely cut and polished here, being generally found at Porteall, near the southern frontier of the Nizam's dominions.

Golcon'da, in *Illinois*, a post-village, cap. of Pope co., on the Ohio river, 77 miles above Cairo, Ill. *Pop.* (1897) about 1,350.

Gold, *n.* [A. S., Ger., Fris. *gold*; Dut. *goud*; Danish *guld*, from A. S. *gelew*, yellow. Root Ar. *gla*, to be clear, bright, to shine.] (*Min.*) This metal has been known from the remotest times. It is the *Sol*, or sun, of the alchemists, who represented it by the circle ⊙, the emblem of perfection. It occurs in nature in a metallic state, alloyed with silver in all proportions up to 38 per cent., and containing also traces of copper, iron, palladium, and rhodium. It is sometimes found crystallized, the primary form being the cube without cleavage; also in grains, thin scales or laminæ, and masses popularly called nuggets. The color of native *G.* is yellow of various shades, sometimes inclined to silver-white, according to the amount of silver present. It is very ductile and malleable; its sp. gr. varies with the alloy from 12–19·5. Pliny states that when the proportion of silver in the *G.* is $\frac{1}{5}$ it is called *electrum*. This is the Greek word for amber, and the alloy may have been so called from its pale-yellow color. *Palladium G.*, called also porpezite, from Porpez in Brazil, contains from 6 to 10 per cent. of palladium, and some silver. *Rhodium G.* contains from 34–43 per cent. of rhodium. Iridium is also found in connection with *G.* The *G.* of California yields on an average 880-thousandths of the pure metal; that of Australia 925-thousandths. Iron and copper pyrites are, by inexperienced persons, often mistaken for *G.* Pyrites, when pounded, are reduced to a powder, and when heated strongly, give off sulphur, while *G.* may be cut in slices and flattened under the hammer, and will melt without any odor of sulphur. The pyrites may, however, contain some *G.*; in which case they should be roasted, powdered, and dissolved in *aqua regia* with the aid of heat. The solution should be carefully neutralized with carbonate of soda, filtered, and a solution of protosulphate of iron added as long as there is a precipitate. The precipitate is filtered and washed in nitric acid, and the remaining insoluble matter is the gold. Scales of mica colored with oxide of iron are also sometimes mistaken for gold. *G.* is found with comparatively small exceptions in the veins of quartz that intersect metamorphic rocks. It is always very irregularly distributed, never in continuous pure bands of metal like many metallic ores. It occurs in the quartz in strings, scales, plates, and in masses which are sometimes an agglomeration of crystals. The scales are often invisible to the naked eye, and quartz that appears to contain no gold often yields a considerable percentage to the assayer. While the native place of gold seems to be in the quartz rock, the *G.* of the world is mostly gathered, not directly from it, but from the gravel or sands of rivers or valleys, or the slopes of hills or mountains whose rocks contain auriferous veins. Such deposits are often called *alluvial washings*, and in California, *placer diggings*, and have been derived from the disintegration or wearing down of the rocks containing *G.* The *G.* of these alluvial deposits is usually in flattened scales, or grains of different degrees of fineness, the size depending partly on the original condition in the rock, and partly on the distance it has been transported. The coarser particles and nuggets, requiring rapid currents to transport them, are dropped first, and are generally found in cavities in the rocky slopes or bottoms of valleys, or a place where the waters may have eddied. These receptacles are called *pockets*. The finer particles are carried farther — sometimes scores of miles away. In 1865 a nugget was found in California weighing 201 ozs. In the museum of mining engineers at St. Petersburg is a mass weighing 96 lbs. Troy, from the valley of Taschku Targanka. The Blanch Barkley nugget from Australia weighed 146 lbs., and one from Ballarat, Australia, weighed 184 lbs. 8 ozs., and yielded $41,882.62 worth of gold. *G.* is widely distributed over the globe, but there are no means of stat-



Johann W. von Goethe

1749–1832

ing with absolnte exactness the product of the world for any given year. In 1896 it was abont $206,850,100. In the U. S., California has yielded two-thirds of the gold of the country, the remainder coming chiefly from Colorado, Montana, Idaho, Nevada, and South Dakota. In the East, N. and S. Carolina and Georgia have yielded some gold. In Alaska, whose gold yield hitherto has beeu comparatively small, placer gold has been fonnd along the Yukon river, where mining is now being actively pursued. The great gold fields are in Siberia, Australia and South Africa. The African mines are principally situated in the South African Republic, the gold being fonnd in an outcropping bed of conglomerate which underlies a wide area of country, and is rich in the precious metal. In 1894 the African mines gave a yield estimated at $40,271,000; the Australian, $41,760,800; the U.S., $39,500,000; the Russian, $24,133,400; and other countries in much smaller proportion. The U. S. yield in 1895 was $46,830,200. See SECTION II.

(*Metal. and Chem.*) Pure *G.* may be obtained by solution in nitro-hydrochloric acid (*aqua regia*). The solution is diluted and filtered, and evaporated almost to dryness, to expel the excess of acid. The remaining salt is then boiled with a solution of sulphate of iron, which precipitates the *G.* as a dark bluish-purple powder, which is subsequently washed with water and hydrochloric acid. It has a reddish-yellow color, but when much extended transmits a green light. When pure it is nearly as soft as lead, and is the most malleable and ductile of all the metals, but inferior to many in its tenacity. (See GOLD-BEATING and GOLD-LACE.) Its symbol is Au, from its Latin name *Aurum*, equivalent 197, and sp. gr. 19·5. Its fusing-point is about 2016°. It is not affected by air or water at any temperature. It does not combine directly with any of the non-metallic elements, except chlorine, bromine, fluorine, and phosphorus. The ordinary acids do not attack it, but it is readily dissolved by a mixture of nitric and hydrochloric acids, the active agent being the liberated chlorine. Seleuic acid acts upon it by oxidation, the acid itself being converted into selenious acid. Gold forms two oxides. The *protoxide* (*form.* AuO.) forms a dark precipitate when protochloride of gold is decomposed by potash. It forms a compound with hydrosulphite of soda, much used in photography under the name of *sel d'or*. It forms also a stannate of gold and tin used to impart a purple-red color to glass and porcelain under the name of *purple of Cassius*. The *Teroxide of Gold* (*form.* AuO_3) is prepared from the solution of gold in *aqua regia* by boiling with an excess of potash, decomposing the aurate of potash with sulphuric acid, purifying by dissolving in nitric acid and precipitating by water. It forms a yellow precipitate, which is decomposed by exposure to the light or a temperature of 500°. *Fulminating G.* is obtained as a buff precipitate when ammonia is added to a solution of terchloride of *G.* It explodes violently when gently heated. With chlorine *G.* forms two salts, — the *protochloride*, AuCl, formed as a pale-yellow substance, sparingly soluble in water, when the terchloride is heated to 350°; and the *terchloride*, $AuCl_3$, made by dissolving gold in *aqua regia*. The terchloride is very soluble in water and alcohol, forming a yellow or orange solution, according to its strength. It has an acid reaction, and stains the skin yellow. Ether dissolves it readily, even abstracting it from its aqueous solution. The ethereal solution is the *aurum portabile* of the alchemists. The solution of terchloride of *G.* should be kept in a dark place, as it is easily reduced by the feeblest deoxidizing agents. The facility with which it deposits metallic *G.*, and the resistance of the deposited metal to atmospheric action, render it of great use in photography. It is used occasionally in medicine. It forms distinct double salts with a number of metallic chlorides, which are mostly yellow when in crystals, and red when deprived of water. The auro-chlorides of potassium and sodium are much used in photography. By adding a solution of cyanide of potassium to a weak solution or terchloride of *G.*, we obtain the *protocyanide of G.* It is a lemon-yellow powder, soluble in an excess of cyanide of potassium, forming the double cyanide of gold and potassium, which is largely used for gilding by the electrotype process. The other compounds of *G.* are of slight importance. When the metal is disseminated through quartz, pyrites, or lead-ore, the ore is pulverized and washed with a stream of water, which carries away the lighter portions of sand, leaving the gold behind. The fine particles are amalgamated with mercury, and by that means retained and separated from the powdered rock, and the mercury is then distilled off. It is further refined by being finely granulated and boiled with concentrated sulphuric acid until every other constituent is dissolved out. Perfectly pure gold is denominated gold of 24 carats, or fine gold. Gold containing 2 parts of alloy in 24 is said to be 22 carats fine. Perfectly pure gold is too soft for use as coins, vessels, ornaments, &c., and is therefore alloyed with copper and silver. By being alloyed it loses much of its ductility and malleability, but gains in hardness and fusibility. For coins, the standard *G.* of the United States consists of 900 parts of gold to 100 of an alloy of silver and copper. The English standard gold contains $\frac{1}{12}$ of alloy, now of copper. Jewelry is generally made of 18 carat gold. For methods of applying *G.* to glass, porcelain, &c., see GILDING. *G.* alloys are assayed in 2 ways, — by rubbing the article on a touchstone so as to make a metallic streak, which is touched with nitric acid, and the effect is compared with that of a similar streak made by an alloy of known composition. An experienced operator will in this way estimate the amount of alloy in any mixture correctly within 1 per ct. When great exactness is required, the process of cupellation is resorted to. A mixture of one part of the alloy to be assayed is made of 3 or 4 parts of silver and the same of lead. It is then fused upon a bone-ash cupel. The lead carries down all the impurities but the silver into the cupel, leaving the *G.* alloyed with 3 or 4 times its weight of silver. It is then beaten out and immersed in nitric acid, which dissolves out the silver, leaving the *G.* pure. The amount of silver used must be at least 3 times that of *G.*, otherwise the silver diffused through the *G.* would be protected from the action of the acid. The first of these operations, where the *G.* is alloyed with the silver, is called *quartation;* and the separation of the metals by nitric acid is termed *parting*. *Sponge* gold, for dentists' use, is prepared by dissolving *G.*, from free copper, in *aqua regia*, and precipitating by a strong solution of oxalic acid. When the *G.* is all precipitated, the liquid must be decanted off carefully without disturbing the *G.* in the bottom. It is then washed with boiling water by filling the vessel several times and decanting until it is free from oxalic acid. The *G.* is now removed on to blotting-paper and gently pressed into the form of the desired cake, but thicker. On heating this for a short time, somewhat below a red heat, it shrinks and becomes coherent. — See GILDING, GOLD-BEATING, PREC. METALS.

Gold Amal'gam, *n.* (*Min.*) A native amalgam of gold from the platinum of Columbia and from Mariposa, Cal. It is in small white grains, easily crumbling, also in whitish 4-sided prisms. *Comp.* of a Columbian specimen, mercury 57·40, gold 38·39, silver 5·0.

Gold Beach, in *Oregon*, a post-village, capital of Curry co., on the Pacific ocean at the mouth of Rogue river. *Pop.* (1897) about 300.

Gold'-beater, *n.* One who beats gold into thin leaves for gilding, &c.

Gold'-beater's-skin, *n.* (*Manuf.*) The *intestinum rectum* of an ox, which gold-beaters lay between the leaves of their metal while they beat it, whereby the membrane is reduced thin. — See GOLD-BEATING.

Gold-beat'ing, *n.* (*Arts.*) The process by which gold is extended to thin leaves used for gilding. Attempts have been made to apply machinery to *G. B.*, but though very ingenious, their application is very limited; most of the gold-leaf is still beaten by hand, as follows: The gold is first cast into oblong ingots about ¾ths of an inch wide, and weighing two ounces. The ingot is flattened out into a ribbon of about $\frac{1}{800}$th of an inch in thickness by passing it between polished steel rollers. This is annealed or softened by heat, and then cut into pieces of one inch square; 150 of these are placed between leaves of vellum, each piece of gold in the centre of a square vellum leaf, another placed above, and so on till the pile of 150 is formed. This pile is enclosed in a double parchment case, and beaten with a 16-pound hammer. The elasticity of the packet considerably lightens the labor of beating, by causing the hammer to rebound with each blow. The beating is continued until the inch-pieces are spread out to four-inch squares; they are then taken out, and cut into four pieces, and squares thus produced are now placed between *gold-beater's skin* instead of vellum, made into piles, and enclosed in a parchment case, and beaten as before, but with a lighter hammer. Another quartering and beating produces 2,400 leaves, having an area of about 190 times that of the ribbon, or a thickness of about $\frac{1}{200000}$th of an inch. An ounce of gold is thus extended to a surface of about 100 square feet. A still greater degree of thinness may be obtained, but not profitably. After the last beating, the leaves are taken up with wood pincers, placed on a cushion, blown out flat, and their ragged edges cut away, by which they are reduced to squares of 3¼ inches. 25 of these are placed between the leaves of a paper book, previously rubbed with red chalk, to prevent adhesion of the gold, and are sold in this form.

Gold'berg, a city of Prussian Silesia, 12 m. S.W. of Liegnitz. *Manuf.* Cloths, flannels, woollen socks, and gloves. *Pop.* 7,500. — Another *G.* in Mecklenburg-Schweriu, on a lake of same name, is only remarkable for its baths, which are of high repute.

Gold'-bound, *a.* Encompassed with gold.

Gold'-cloth, *n.* Cloth interwoven with threads of gold-wire.

Gold'-coast. See GUINEA.

Gold'-cup, Golden-cup, *n.* (*Bot.*) See RANUNCULUS.

Gold'-dust, *n.* Gold in very fine or minute particles.

Gold'en, *a.* [A. S. *galden, gylden.*] Made or consisting of gold. — Bright; shining; splendid; of a gold color; as, the *golden* sun, a *golden* harvest. — Excellent; valuable; happy; pure; innocent; as, the *golden* age. — Preëminently favorable or auspicious; as, to win *golden* opinions.

Gold'en, a town of Ireland, co. of Tipperary, abt. 4 m. W. of Cashel.

Gold'en Age. (*Myth.*) That time when, according to the traditions of most peoples and religions, the earth was the common property of man, and produced spontaneously all things necessary for an enjoyable existence. The Greeks and Romans placed this golden age under the rule of Saturn; and many of their poets — as, for example, Hesiod, in his *Works and Days*, Aratus, Ovid, and above all Virgil, in the first book of the *Georgics* — have turned this poetic *materiel* to admirable account, and defined the gradual decadence of the world, as the silver, the brass, and the iron ages, holding out at the same time the consolatory hope that the pristine state of things will one day return.

Gold'en Bridge, in *New York*, a post-village of Westchester co., abt. 120 m. S. by E. of Albany.

Gold'en Bridge, a village of Ireland, abt. 2 m. W.S.W. of Dublin; *pop.* abt. 1,000.

Gold'en-Bug, *n.* (*Zoöl.*) The seven-spotted lady-bird, *Coccinella septempunctata*, a small and pretty insect of the genus COCCINELLA, *q. v.*

Gold'en Calf. (*Script.*) It was cast by Aaron from the ear-rings of the people, while the Israelites were encamped at the foot of Sinai, and Moses was absent on the Mount. Ages after, Jeroboam, king of Israel, set up two idols in the form of a calf, the one in Dan and

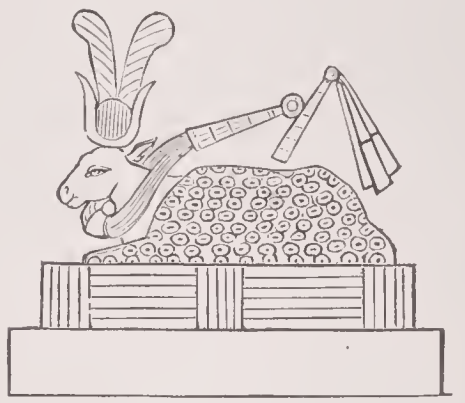


Fig. 1173. — EGYPTIAN CALF-IDOL.

the other in Bethel. This almost incomprehensible degradation of human reason was, more particularly in the first instance, no doubt the result of the debasing influences which operated on the minds of the Israelites during their sojourn in Egypt where, amid the daily practice of the most degrading and revolting religious ceremonies, they were accustomed to see the image of a sacred calf, surrounded by other symbols, carried in solemn pomp at the head of marching armies; such as may be still seen depicted (Fig. 1173) in the processions of Rameses the Great or Sesostris.

Gold'en City (now GOLDEN), in *Colorado*, a city, cap. of Jefferson co., at the E. base of the Rocky Mountains, on Clear creek, about 16 m. W. of Denver. Its rapid growth was mainly owing to the rich gold mines in the vicinity. A United States Land Office was here located. *Pop.* (1890) 2,383.

Gold'en Corners, in *Ohio*, a post-office of Wayne co.

Gold'en Eagle, *n.* (*Zoöl.*) A N. American bird, called also Ring-tailed Eagle, *Aquila canadensis*, sub-family *Aquilinæ*. It is 32 to 40 inches long, and the wing 35. The head and neck behind are light-brownish fulvous, the tail at base white, terminal portion glossy black, and all other parts purplish-brown. It has great power of flight, but not the speed of many of the falcons and hawks, and does not so readily pursue and capture birds upon the wing; but its keen sight enables it to spy an object of prey at a great distance, and with meteor-like swiftness and unerring aim it falls upon its victim. At times it soars to great heights, moving slowly and majestically in broad circles. The nest of the *G. E.* is placed



Fig. 1174. — NEST OF THE GOLDEN EAGLE.

upon a shelf of a rugged and generally inaccessible precipice. It is flat and very large, and consists of dry sticks. The eggs are two in number, three and a half inches long, and two and a half inches through, and dull white with undefined patches of brown. The *G. E.* preys upon fawns, hares, wild turkeys, and other large birds. It does not attain its full beauty of plumage till the fourth year. The so-called *Ring-tailed Eagle* is the golden eagle before it has reached maturity. The European *G. Eagle* is so nearly like the American one, that there is a question whether it is not the same species.

Gold'en Fleece, *n.* (*Myth.*) See JASON.
(*Her.*) See FLEECE (ORDER OF THE GOLDEN.)

Gold'en Fly, *n.* (*Zoöl.*) See MUSCIDÆ.

Gold'en Gate. See CALIFORNIA.

Golden Gate, in *California*, a post-town of Alameda co. *Pop.* (1890) 788.

Golden Grove, in *South Carolina*, a village of Greenville co.

Gold'en Hill, in *Maryland*, a post-office of Dorchester co.

Golden Hill, in *Pennsylvania*, a post-office of Wyoming co.

Gold'en Lake, in *Wisconsin*, a post-office of Waukesha co.

Gold'en Le'gend, (The,) [Lat. *Aurea Legenda.*] (*Lit.*) A work written about the middle of the 13th cent., by James de Voragine, a Dominican monk, who was afterwards promoted to the archbishopric of Genoa. The book itself consists of 177 sections, each of which is devoted to some particular saint, or festival, following the order of the Roman calendar.—The *G. L.* is also the title of one of the best effusions of our great poet Longfellow.

Gold'en Lung'wort, *n.* (*Bot.*) See HIERACIUM.

Gold'en-maid'en-hair, *n.* (*Bot.*) See POLYTRICHUM.

Gold'en Num'ber, *n.* (*Chron.*) The number of any given year in the Metonic cycle, *q. v.*, and consequently ranging from 1 to 19. The name is derived from the fact that the number of each year was by law engraved in golden letters on a marble pillar. It is reckoned from the year 1, B. C., as in that year the new moon fell on Jan. 1, and as, according to the chronology of Meton, the new moon falls every 19th year on the same day, we deduce the golden number by the following rule:—*Add* 1 *to the number of years, and divide by* 19, *the quotient gives the number of cycles, and the remainder is the golden number for that year. In the case of the last year of the cycles, there is no remainder, and* 19 *is the golden number.* The *G. N.* is used for determining the *Epact*, and the time for holding *Easter*.

Gold'en Pond, in *Kentucky*, a post-office of Trigg co.

Gold'enridge, in *Maine*, a post-office of Aroostook co.

Gold'en Robin, *n.* (*Ornith.*) The BALTIMORE ORIOLE (*q. v.*).

Gold'en-rod, *n.* (*Bot.*) See SOLIDAGOS.

Gold'en Rule, *n.* The rule of practice of doing to the rest of mankind as we would have them act toward ourselves. See *Luke* vi. 31.

(*Arch.*) The rule of proportion, or rule of three;—so called for the universality of its application.

Gold'en Sam'phire, *n.* (*Bot.*) See INULA.

Gold'en Spring, in *Va.*, a post-vill. of Buchanan co.

Gold'en This'tle, *n.* (*Bot.*) See SCOLYMUS.

Gold'-field, *n.* District or region where gold is found.

Gold'field, in *Iowa*, a post-village of Wright co., about 20 m. N.E. of Fort Dodge.

Gold'finch, *n.* (*Zoöl.*) The *Carnelis elegans*, a species of bird of the family *Fringillidæ*, and the gayest in appearance of all birds of temperate Europe. Its length from the tail to the tip of the bill is about five and a half inches, and the greatest expansion of the wings is nine inches. The bill is white, tipped with black; the forehead and throat scarlet, the head black, the back brown, and rump a pale brown, the belly white, and a beautiful yellow stripe runs across the wings, which are principally black, with white edges.



Fig. 1175.—GOLDFINCH. (*Fringilla cardinalis.*)

Altogether it is the handsomest N. European bird, and as its song is very sweet, the goldfinch is a universal favorite. It feeds on the seeds of various plants, particularly that of the thistle. It is found throughout Europe. Buffon says of it, "that beauty of plumage, melody of song, and sagacity of disposition, are all united in the goldfinch," and if it were not a native bird, it would be much higher prized than it is. Being of very lively habits, the goldfinch can be easily trained both to imitate other birds, and thus be of use as decoy, and to perform all manner of funny tricks for the diversion of its master. The black-headed goldfinch, *C. magellanica*, of S. America, and accidental in the U. States, has the head black all round.

Gold'-fish, *n.* (*Zoöl.*) See CYPRINIDÆ.

Gold Flat, in *California*, a village of Nevada co.

Gold'-foil, *n.* Gold beaten out into thin sheets. See GOLD-BEATING.

Gold Hill, in *California*, a mining village of El Dorado co., about 100 m. N.E. of San Francisco.

—A mining village of Placer co., about 7 m. W. of Auburn.

Gold Hill, in *North Carolina*, a post-village of Rowan co. Gold is found in the vicinity.

Gold Hill, in *Nevada*, a former post-town of Storey co.; in 1880 annexed to Virginia City, of which it forms two wards, having a population (1890) of 2,078.

Gold Lace, *n.* (*Arts.*) A beautiful ornamental fabric, produced by applying a thin coating of gold to threads of silk. In the original method, a stiff thread was produced, long used for making cloth of gold, &c.; but manufacturers have been enabled to apply gold to flexible thread by means of recent inventions. The first process is sometimes called fibre-plating, and has been long known to Eastern and European nations. The mode of making gold lace in its commencement is similar to that adopted by the Hindoos. A bar of silver is roughened and coated with a film of gold; the rod is then drawn out into a wire, and finally twisted round orange-colored silk thread. For the finer kinds of wire thus made, perforated rubies are used as dies, and an ounce of metal can be brought to the astonishing length of a mile and a quarter. A piece of this wire 12 inches long, and finer than a human hair, will sustain a weight of 12 ounces. The process of coating flexible threads with gold film is called *fibre-gilding*. Chemists and manufacturers have long tried to overcome the many difficulties which stand in the way of fibre-gilding, and all the chemical and metallurgical processes have been successively tried; but although it was found easy to attach the gold to the thread, yet the whole was too long in drying, and had too soft a foundation, to admit of burnishing. The brilliancy of gold lace produced by fibre-plating has never been surpassed or even imitated by any of the processes invented. Among the principal methods in use are the chemical processes of Mr. Albert Hock and Mr. Green, and that of Dr. Kroning of Stolberg. Electro-metallurgy has not been rendered directly applicable; but by M. Barot's method, the material to be gilt is dipped in a solution of nitrate of silver and ammonia. After remaining two hours, and dried, it is exposed to a current of pure hydrogen gas. A silvered surface is thus produced, which can easily be gilt by the electro-metallurgic process.

Gold'-laced, *a.* Wrought with lace of gold.

Gold'-latten, *n.* A thin plate of gold, or of other metal covered with gold.

Gold'-leaf, *n.* Gold beaten into a thin leaf or foil.

Gold Mosa'ic, *n.* (*Chem.*) A term generally applied to the bisulphide of tin, which has a metallic lustre and color resembling the precious metal. It is also popularly used to denote an alloy of copper and zinc or tin, imitative of gold.

Gold'ney, *n.* Same as GILTHEAD, *q. v.*

Goldo'ni, CHARLES, a celebrated Italian dramatist, B. at Venice, 1707. The Italian stage was reformed by him; and his comedies, which are numerous, are exceedingly humorous and natural. About 1761 he went to Paris, and became composer to the Italian theatre, besides which he had an appointment at court. D. 1795. —His works were printed at Leghorn, in 31 vols. 8vo.

Gold'-pleasure, *n.* (*Bot.*) See CAMELINA.

Goldpoint', in *Tennessee*, a post-office of Hamilton co.

Goldpoint, in *North Carolina*, a post-office of Martin co.

Gold'-proof, *a.* That cannot be tempted or bribed by any offer of money.

Goldrock', in *North Carolina*, a post-village of Nash co.

Gold Run, in *California*, a post-town of Placer co.

Golds'berry, in *Missouri*, a township of Howell co.

Golds'boro, in *Maryland*, a post-office of Caroline co.

Golds'borough, in *North Carolina*, a city, capital of Wayne co., on the Neuse river, about 50 miles S.E. of Raleigh; laid out in 1841, and has improved rapidly. *Pop.* (1897) about 5,500. On Dec. 13, 1862, this place was captured by a Federal force under Gen. Foster. Gen. Sherman, after a succession of difficulties opposed to him by the Confederate Gen. Johnston, effected a junction with Gen. Schofield here, March 22, 1865.

—A township of Wayne co.

Golds'borough, in *Pennsylvania*, a borough of York co., on the Susquehanna river, about 18 m. N. by W. of York. The post-office is ETTER'S.

Gold'schmidt, JENNY LIND. See LIND (JENNY).

Gold'-size, *n.* The substance or composition used by gilders to hold the gold-foil in the operation of gilding.

Gold'smith, *n.* [A. S. *goldsmith.*] One who manufactures vessels and ornaments of gold and silver.

Gold'smith, OLIVER, a brilliant man of letters of the last century, was B. at Pallas, co. Longford, Ireland, in 1728. His father, a minister of the Established Church, placed him early at school at Elphin, co. Roscommon, near which city his uncle's family-mansion and his second home, Ballyoughter, was situated. In 1745 he entered Trinity College, Dublin, where he gave no indications of genius or scholastic talents, and becoming involved in some youthful irregularities, quitted the university,

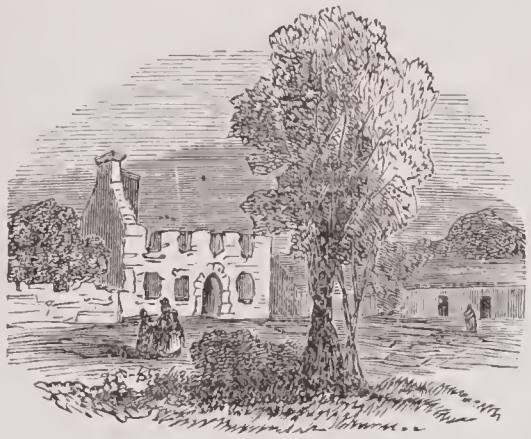


Fig. 1176.—GOLDSMITH'S HOUSE AT LISSOY.

and led for some time a sort of vagrant life. Returning to college, he graduated B. A. in 1749, after which he proceeded to Edinburgh and Leyden universities to study medicine. His views in this respect were, however, counteracted by an insatiable passion for gambling, which in the end utterly impoverished him, whereupon he set out on foot for a tour of the European continent, supplied with no other means than those afforded by his good spirits, his kindly nature, and a favorite flute, on which he was an adept player. After taking his degree in medicine at Padua, *G.* returned to England in 1756, where he commenced practice as a physician, in which he was unsuccessful. He then entered the field of letters; and after passing a Bohemian period of obscurity and privation as a "bookseller's hack," to use his own bitter laconism, his first work to attract attention was an *Inquiry into the Present State of Polite Learning in Europe*, published in 1759. To this succeeded *The Citizen of the World*, a *Life of Beau Nash*, and a *History of England*. Becoming acquainted with Dr. Johnson, in 1761, the latter introduced *G.* to the Literary Club. In 1764 appeared *The Traveller*, which at once placed *G.* in the front rank of English authors. Two years afterwards appeared the *Vicar of Wakefield*, a work that has been the delight of four generations, and that will probably perish only with the language. Following in rapid succession, came his comedy of *The Good-natured Man* (1767), the *History of Rome* (1768), and his exquisite poem, *The Deserted Village*, in 1769. In 1773, his immortal comedy of *She Stoops to Conquer* took the public by storm. His other works are the *Grecian History* (1774), *Retaliation*, a serio-comic poem, (1774), and the *History of Animated Nature*, which he did not live to finish. During these latter years, *G.*, while in the receipt of large remuneration for his works, was constantly involved in pecuniary embarrassments. The man had a large heart, a generous hand, and an indolent disposition, loved good living and fine clothes, had a *penchant* for the gaming-table, and spent all that these extravagances left him in profuse but unostentatious charity. *G.* died in April, 1774, $10,000 in debt, and more truly lamented than any literary man of his generation. The poor whom he had so oft befriended sobbed their grief on his staircase, and the brilliant coterie of wits, artists, authors, and philosophers mourned him with one entire and unaffected sorrow. Sir Joshua Reynolds, when apprised of his death, left his studio and painted no more that day. *G.* was buried in the Temple Church; and a monument, epitaphized by Dr. Johnson, was erected to his memory in Westminster Abbey. *G.* may be considered to have written the finest poem, the most exquisite novel, and, with the exception of Sheridan's *School for Scandal*, the most perfect polite comedy of the period he belonged to. An admirable life of *G.*, by John Forster, entitled *The Life and Letters of Oliver Goldsmith*, was published in London in 1854, and has been reproduced in this country. As an instance of the standard popularity of his *She Stoops to Conquer*, we may conclude by remarking that this charming comedy sustained a brilliant run of 100 nights at one of the London theatres in 1869-70.

Gold Springs, or GREEN SPRINGS, in *California*, a mining-village of Tuolumne co., about 1 m. N.W. of Columbia.

Gold'stick, *n.* (*Mil.*) A colonel of a regiment of English Life-Guards, who attends the sovereign on State occasions.—

Gold'thread, *n.* Thread formed of flatted gold laid over a thread of silk.

(*Bot.*) See COPTIS.

Gold'-wire, *n.* Properly, wire made of gold; usually silver wire superficially covered with gold.

Golf, or GOFF, *n.* [Ger. *kolbe*; D. *kolf*, a club.] (*Games.*) A game played with a club and ball, which is peculiar to Scotland. A series of small round holes, several inches in depth, are cut in a tract of smooth turf, at distances of from 100 to 400 or 500 yards apart from each other, in a circular order. The rival players are either two in number, or four (two on each side). The balls, weighing about 2 oz., are painted white and made of gutta-percha. An ordinary golf-club consists of two parts spliced together—viz., the *shaft* and *head*; the former is made either of hickory or lance-wood, with the handle covered with leather,

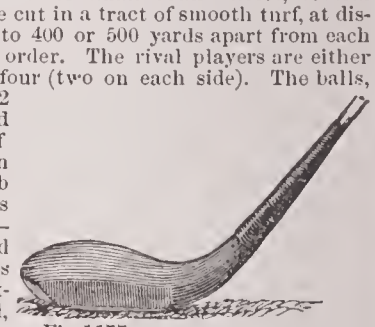


Fig. 1177.—HEAD OF GOLF-CLUB.

while the head (sometimes weighted with lead behind, and faced with horn) is composed of well-seasoned apple-tree or thorn. Every player has an attendant, called a *caddy*, who carries his clubs, and "tees" his balls. The method of playing the game is to start from the first hole and drive the ball into the next hole with as few strokes as possible; and so on all around the course or circle. The players (or pair of players) whose ball is holed in the fewest strokes has gained that hole: and the "match" is generally determined by the major number of holes gained in one or more rounds. This game is now coming into some vogue in America.

Golf'ing, *n.* The act of playing at the game of golf.

Gol'gotha, [Heb., "a skull," or "the place of a skull."] The Calvary, the scene of the crucifixion of Christ, was situated without the gates of Jerusalem, on the E. side of the city, although the common opinion handed down from the Middle Ages fixes it in the N.W. It is probably the ordinary spot of execution, though this is to be inferred rather from the fact that, in the eyes of the Roman officers of justice, Christ was simply a common criminal, than from any supposed connection between the word "skull" and a place of execution; *G.* receiving its name in all likelihood from its round skull-like form. A church was built over the spot in the 4th cent. by Constantine. What is *now* called the "Church of the Holy Sepulchre" to the N.W. of Jerusalem, but within the walls of the city, has manifestly no claim whatever to be considered the building erected by Constantine; but while recent biblical scholars and travellers generally have assumed that the scene of our Saviour's crucifixion and sepulture is not ascertainable, a writer in Smith's *Dictionary of the Bible* offers strong reasons for believing that the present mosque of Omar, called by the Mohammedans "The Dome of the Rock," occupies the site of the sacred Golgotha.

Gol'gotha, in *Georgia*, a former post-village of Cobb co., about 123 m. N. W. of Milledgeville.

Go'liad, in *Texas*, a S. co.; area, about 820 sq. m. *Rivers.* San Antonio river and Coleto creek. *Surface*, diversified; *soil*, fertile. *Cap.* Goliad. *Pop.* (1897) about 7,000.

—A post-village, cap. of the above co., on the San Antonio river, 120 m. S. by E. of Austin. *Pop.* (1897) about 1,250.



Oliver Goldsmith

1728–1774

Goliar'dery, *n.* [*Goliardus*, a monk who wrote sundry satirical pieces in the 9th century, inveighing against the luxury of the clergy.] A satirical species of writing very current among churchmen and others in the Middle Ages, in which, for the most part, the vices or peculiarities of ecclesiastics are mentioned and reprobated. The most complete specimen extaut is to be found in the writings of Walter Mapes, (*Mapesius*,) Abbot of Glastonbury in the early part of the 13th cent.

Goli'ath. (*Script.*) A celebrated giant of Gath, who challenged the armies of Israel, and was encountered and slain by David. The history is contained in 1 *Sam.* xvii.

Goliath-beetle, *n.* [Lat. *goliathus.*] (*Zoöl.*) A genus of tropical coleopterous insects, family *Scarabæidæ*. The species more generally known as the *G. B.* is the *G. cacicus*, which is a native of Africa and South America. This insect is remarkable for its large size; and, on account of its beauty and the difficulty of obtaiuing specimens, it is much prized among collectors. The Goliaths are said to be roasted aud eaten by the natives of the countries they inhabit, who deem them a great dainty.

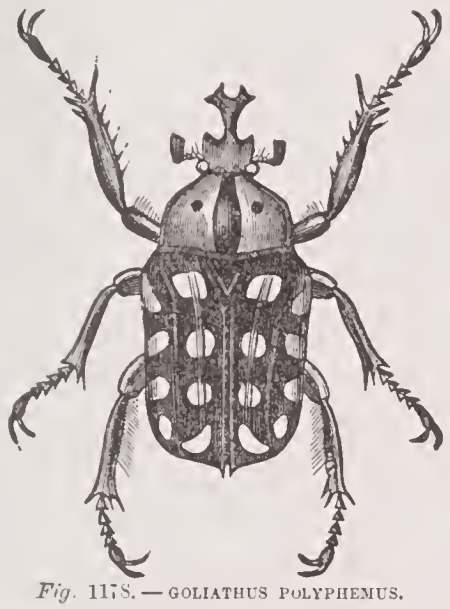


Fig. 1178. — GOLIATHUS POLYPHEMUS.

It is said, also, that sometimes $50 to $250 have been known to be given by entomologists for specimens of this insect, and that even now they fetch generally iu Europe $25 to $30. The *G. polyphemus* is another variety of this species, as is also the *G. micans*, the latter of which changes its color as it is held in differeut positions to light. From the reason already given, of its rarity, not much is known as to the habits of either species of this insect.

Goll'now, a small manufacturing town of Prussia, prov. Pomerania, on the Ihna, 15 m. N.E. of Stettin. *Manuf.* Woollens, cloth, ribbons, pepper, &c. *Pop.* 7,028.

Gol'nitz, or GOLLNITZ, a town of Upper Hungary, in the county of Zips, 20 m. from Eperies. It is the seat of a mining council, and has large iron-foundries, and factories of wire cutlery. *Pop.* 5,500.

Goloches, *n. pl.* Same as GALOCHE, *q. v.*

Goloe'-shoe, *n.* Corrupted form of GALOCHE, *q. v.*

Golo'vin, IVAN, (PRINCE HOVNA,) a Russian man of letters, B. abt. 1813. Becoming implicated in the Polish troubles in 1848, *G.* took refuge in England, where he became a naturalized citizen in 1853. His chief works are *Esprit de l'Économie Politique* (1842); *Pierre, le Grand* (1844); *La Russie sous Nicholas I.* (1845); *The Caucasus, from an Historical, Political, and Physical Point of View* (1853); *Progress in Russia* (1859); &c.

Golt'-sehnt, *n.* [Lat.] A small ingot of gold.

—An itzebu; a silver coin in Japan, worth 44 cts. Fed. mon.

Goma'to, or GOMUTI PALM, *n.* (*Bot.*) The *Saguerus saccharifer*, or *Areng*, a species of trees, order *Palmaceæ*, found in the Moluccas aud Philippines, which supplies abundance of sugar. Palm-sugar is generally obtaiued from the juice which flows out from different palms upon wounding their spathes aud adjacent parts. It is commonly kuown in India by the name of *jaggery*. The juice of the gomuti palm, when fermented, produces an intoxicating liquid or toddy. In Sumatra it is termed *neva*, and a kind of arrack is distilled from it in Batavia. From the trunk of this palm, when exhausted of its saccharine juice, a good deal of our commercial sago is obtained. A single tree will yield from 150 to 200 lbs. of sago. The juice of the fruit is very acrid. Tho stiff strong fibre known under the name of Gommuti, or Ejow fibre, is obtained from the leaf-stalks, and is extensively used in the manufacture of cables and various kinds of ropes.

Gom'bo, *n.* Same as GUMBO, *q. v.*

Gombroon', or BUNDEBABBAS, a seaport-town of Persia, on a bay of the Gulf of Ormus. It is tho port of Schiras, and of all the south of Persia, but is uow greatly decayed, Lat. 27° 18′ N., Lon. 56° 12′ E.

Go'mer, *n.* Same as HOMER, *q. v.*

Go'mer. [Heb., to finish, or "a consumer."] The eldest son of Japhet, whose descendants peopled Asia Miuor and Europo.

Go'mer, in *Ohio*, a post-village of Allen co., abt. 10 m. N.N.W. of Lima.

Gomer'a, one of the CANARY ISLANDS, *q. v.*

Go'mez, an island of the Republic of Colombia, in the Caribbean sea, at the mouth of the Magdalena river; Lat. 11° 6′ N., Lon. 74° 50′ W.

Gomor'rah. See SODOM.

Gomphi'asis, *n.* [Gr., from *gomphios*, sc. *odous*, a grinder-tooth, from *gomphos*, a bolt, a nail.] (*Med.*) A disease of the teeth, when they loosen and fall out of the sockets.

Gom'pholite, *n.* [Gr. *gomphos*, nail, *lithos*, stone.] (*Geol.*) A term applied to the couglomerate rocks of the tertiary period; the *Nagelfloh* of the Swiss.

Gompho'sis, *n.* [Gr. *gomphos*, a nail.] (*Anat.*) An articulation similar to a nail in a board. The articulation of the teeth in the two jaws.

Gomphre'na, *n.* (*Bot.*) The Globe Amaranth, a genus of plants, order *Nyctaginaceæ*. They are herbs or shrubs native of S. America and India. *G. globosa*, an Indian species, is a tender annual, valued for its heads of flowers, which, if gathered before too far advanced, will retain their beauty several years.

Gomuti. See GOMATO.

Gonaive, (La,) (*la go-niv'*,) an island of Hayti, in the Bay of Leogane; *area*, abt. 288 sq. m.

Gonaives, (Les,) a town of Hayti, abt. 55 m. N.W. of Port-au-Prince.

Gon'dar, a city of Abyssinia, formerly the residence of the emperor, situate on a hill of considerable height, 30 miles from Lake Dembea. The houses are only of one story, built of clay, with the roofs thatched in the form of cones. *Pop.* Unascertained. Lat. 12° 30′ N., Lon. 37° 40′ E.

Gon'dola, *n.* [It.] A peculiar kind of boat used at Venice for the same purposes as cabs and carriages in other cities. They are usually about 30 feet long, five in breadth, and light and elegant in form, having high prows, some of which are of elaborate workmanship and exquisitely carved. About the centre a cabiu is erected for the passengers, which is carpeted, hung with curtains, and fitted with stuffed cushions. By the aucient republic a law was passed ordaining that all these boats were to be painted black and hung with black cloth, except those for the use of foreign ambassadors

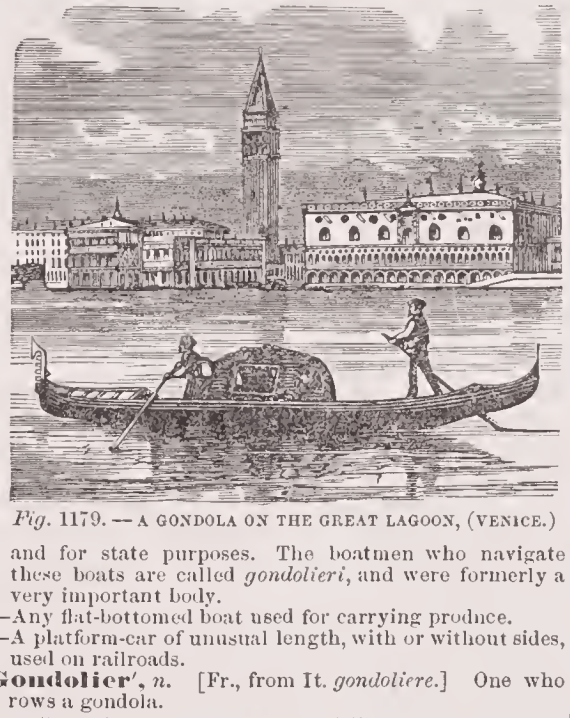


Fig. 1179. — A GONDOLA ON THE GREAT LAGOON, (VENICE.)

and for state purposes. The boatmen who navigate these boats are called *gondolieri*, and were formerly a very important body.

—Any flat-bottomed boat used for carrying produce.

—A platform-car of unusual length, with or without sides, used on railroads.

Gondolier', *n.* [Fr., from It. *gondoliere.*] One who rows a gondola.

"And silent rows the songless *gondolier.*" — *Byron.*

Gone, *pp.* of GO, *q. v.*

Gon'falon, Gon'fanon, *n.* [It. *gonfalone.*] A banner; that of the Roman Catholic Church carried in the pope's army. The gonfalonier or standard-bearer was a high officer in the Italian republics of the Middle Ages.

Gonfalonier', *n.* [It. *gonfaloniere.*] A chief standard-bearer.

Gong, *n.* [Malay and Jav. *gong.*] A kind of metallic drum, made of an alloy of copper and tin, shaped into a basin-like form, flat and large, with a rim of but a few inches in depth. The sound of the *G.* is produced by striking it, while hung by the rim, with a wooden mallet, which puts the metal into an extraordinary state of vibration, and produces a very loud and piercing souud. It is also called *Tam-tam*.

Gonias'ter, *n.* (*Zoöl.*) See ASTERIADÆ.

Go'niatite, *n.* [Gr. *gōnia*, an angle or corner.] (*Pal.*) A genus of extinct Cephalopods with chambered spiral shells; nearly allied to the *ammonites*.

Go'nic, in *New Hampshire*, a post-office of Strafford county.

Goniom'eter, *n.* [Gr. *gonia*, angle, *metron*, measure.] An instrument for measuring angles, especially those of crystals. The simplest form consists of two steel blades, crossing each other, and used on the principle that when two lines cross each other the opposite angles are equal. A more accurate instrument, and the one chiefly used by mineralogists, is the reflecting *G.* of Wollaston, improved by Nauman. This is a more complicated instrument, yet easy of application, and it will measure very small crystals with certainty to within a single minute (1′). The angle is measured by the reflection of the rays of light from the surface of the different faces of the crystal.

Goniomet'ric, Goniomet'rical, *a.* Of or belonging to the goniometer.

Goniom'etry, *n.* The art of measuring angles.

Gonoph, (*gon'of,*) *n.* [Corruption of *gone off.*] A thief, a filcher; a pickpocket. (Thieves' jargon.)

Gonorrhœ'a, *n.* [Gr. *gonorrhoia*, from *gone*, semen, the begetting principle, from *genein*, to produce, and *rhoia*, a flow, from *rheein*, to flow.] (*Med.*) *G.*, also called *Blennorrhœa*, is an inflammatory discharge of mucus from the membrane of the urethra in both sexes; and from that of the prepuce in man, and the vagina in woman. It is usually caused by the direct communication of sound persons with those already affected. It is a very acute and painful form of disease, and is one of the numerous penalties attending an indiscriminate and impure intercourse of the sexes.

Gonsal'vo, or GONZALO OF CORDOVA, HERNANDEZ D'AQUILAR, surnamed the GREAT CAPTAIN, was B. near Cordova, in Spain, in 1453. He was of a noble family, and at an early age entered the army. He first distinguished himself in the great war of Ferdinand aud Isabella with the Moors, which ended with the conquest of Granada in 1492. His next achievement was the recovery of the kingdom of Naples from the French, who conquered it under Charles VIII. in 1495. When Louis XII. renewed the invasion of Italy, *G.* was again sent there, and, after a temporary division of the country between France and Spain, he again expelled the French, established the Spanish rule, and was named viceroy of Naples. Through the jealousy of Ferdinand, and the calumnies of the courtiers, the Great Captain was deprived of his office, in 1507, when he retired to Granada, aud D. there in 1515.

Gonza'ga, a town of N. Italy, 14 m. from Mantua. *Manuf.* Silk goods. *Pop.* 16,337.

Gonza'ga, one of the great historical families of Italy, sovereigns of Mantua from the year 1328, when Luigi Gonzaga was made captain-general and invested with the supreme power, till 1708, when Ferdinand, the last descendant of the eldest branch, died. Mantua was raised into a marquisate by the Emperor Sigismond in 1433, and into a duchy by the Emperor Charles V. in 1530. A collateral branch of the Gonzaga family became dukes of Guastalla from the middle of the 16th century, and became extinct in 1746.

Gonza'les, in *Texas*, a S. central co. *Area*, about 980 sq. m. *Rivers.* Guadalupe and San Marcos rivers. *Surface*, level; *soil*, fertile. *Cap.* Gonzales. *Pop.* (1890) 18,016.

—A cap. of the above co., on the Guadalupe river, 66 m. S. E. of Austin, on the Southern Pacific and the San Antonia & Aransas Pass R. Rs. Cotton, grain and live stock are largely shipped. *Pop.* (1897) about 2,050.

Gooch'land, in *Virginia*, an E. central co. *Area*, about 280 sq. m. *Rivers.* James river and some smaller streams. *Surface*, undulating; *soil*, fertile. *Cap.* Goochland Court-House. *Pop.* (1890) 9,958.

Gooch'land, in *Kentucky*, a P. O. of Rock Castle co.

Gooch'land Court-House, in *Virginia*, a post-village, cap. of Goochland co., about 28 m. W. N. W. of Richmond.

Gooch Mills, in *Missouri*, a post-village of Cooper co., on Little Saline creek, abt. 35 m. N.W. of Jefferson city.

Good, in *North Carolina*, a post-office of Chatham co.

Goodale's Corner, in *Maine*, a P. O. of Penobscot co.

Good'all, in *Virginia*, a post-office of Hanover co.

Good'ar, in *Michigan*, a township of Ogemaw co.

Good'by, in *South Carolina*, a township of Orangeburg county.

Good, *a.* [A. S. *god, gud;* Ger. *gut*, allied to Gr. *agathos;* Pers. *khub;* Ar. *khoob.*] Benevolent; beneficent; kind; merciful; gracious; loving; affectionate; favorable; as, a *good* husband, a *good* wife. — Humane; worthy; virtuous; pious; religious; conformable to the moral law; as, a pattern of *good* works. — Beneficial; proper; suitable; fit; convenient; expedient; seasonable; well adapted to the end. — "If you think *good.*" (*Bacon.*) — Conducive to happiuess.

"It is not *good* that the man should be alone" — *Gen.* ii. 18.

—Valid; sound; firm; complete, or sufficiently perfect in its kind; perfect; uncorrupted; unimpaired.

"Make *good* your accusation." — *Smith.*

—Suitable to the taste or to health; wholesome; salubrious; palatable; suited to produce a salutary effect; medicinal; salutary; suited to strengthen or assist the healthful functions.

"A man first builds a country seat,
Then finds the walls not *good* to eat." — *Prior.*

—Full; complete; useful; valuable; as, *good* advice. — Equal; adequate; competent; sufficient; favorable or convenient for any purpose; suitable; safe; well-qualified; able; skilful; ready; dexterous; as, *good* for nothing, *good* for an emergency. — Promotive of happiness; pleasant; agreeable; cheering; gratifying; prosperous; as, to know what is *good* for us. — Honorable; fair; unblemished; unimpeached.

"Silence the knave's repute, the whore's *good* name." — *Pope.*

—Cheerful; favorable to happiness. — Great or considerable; as, a *good* deal of traffic. — Elegant; polite; as, to frequent *good* company. — Real; serious; not feigned.

"Love not in *good* earnest." — *Shaks.*

—Seasonable; commendable; festive; companionable; social; merry.

"All *good* fellows, whose beards are gray." — *Thackeray.*

—Comely; handsome; well-formed. — Mild; pleasant; calm; not irritable; friendly.

In good time, not too fast. — *In good sooth*, really, seriously. — *To make good*, to keep; to maiutain; as, *to make good* a retreat; — to confirm; to establish; as, *to make good* an argument; — to perform; as, *to make good* a promise; — to supply; as, *to make good* in one point that which lacks in another.

Good, *n.* That which contributes to relieve or remove pain, or to increase happiness or prosperity. — Benefit;

advantage; welfare; prosperity; advancement of interest or happiness.

"I love my country's *good*." — *Shaks.*

—Spiritual advancement or improvement: as, the *good* of souls. — Earnest; not jest; as, to assert for *good*. — Moral works; moral qualities; virtue; righteousness.

Good, *adv.* Well; — mostly in the phrase, *as good*, with *as* following.

"As *good* almost kill a man, as kill a *good* book." — *Milton.*

—*interj.* Well; right.

Good-behavior, (Security for.) (*Law.*) It consists in a person being bound, with one or more sureties, in an obligation to the State to behave well, or be of good behavior, either generally or specially, for a certain time. If the condition of the said obligation be broken by misbehavior, the party and his sureties become debtors to the State for the several sums in which they were respectively bound. A justice of the peace may demand security for good behavior, according to his discretion, when he sees cause.

Good'-breeding, *n.* Polite manners formed by a good education; a polite education.

Good'-bye', GOOD-BY, *n.* and *interj.* [Corrupted from *God be with you*; or, according to some, from *bye*, O. Eng. for *way*, as though, "*I wish you a good journey.*"] A good way or journey to you; farewell.

Good -day', *n.* and *interj.* A term of salutation on meeting or parting, equivalent to, "I wish you a favorable or prosperous day;" farewell.

Good'-den', *n.* and *interj.* [Corrupt. of *good evening.*] A form of salutation equivalent to saying, "I wish you a good evening." (o.)

Goodenia'ceæ, [in honor of Dr. Goodenough, bishop of Carlisle.] (*Bot.*) The *Goodenia* family, an order of plants, alliance *Campanales*, consisting of unimportant herbs, or rarely shrubs. They are principally natives of Australia and the islands of the Southern Ocean. The species *Scævola Taccada* has a soft and spongy pith, which is employed by the Malays to make artificial flowers and ornaments.

Good'farm, in *Illinois*, a township of Grundy co.; *pop.* (1897) about 1,000.

Good-fel'lowship, *n.* Merry; jovial or lively society; pleasant, agreeable company; companionableness.

Good-Friday, *n.* [A. S. *gode fridag*; Dut. *goede vrijdag*; Ger. *guter freitag*, or *charfreitag*, the solemn friday.] The Friday before Easter, sacred as the annual commemoration of the crucifixion of our Lord. This day has been observed, from the earliest ages of the Christian Church, as a day of rigid fast and solemn religious ceremonial, — as we learn from the apostolic constitutions, and from Eusebius, who also states that when under Constantine Christianity was established in the Roman Empire, the holding of courts, markets, &c. was on this day forbidden. In the Roman Catholic Church, the mass of this day differs from all other masses during the year in this, that no consecration of the host takes place, the wafer blessed on the previous day having been retained. This is called *Missa presanctificatorum*, a mass of the presanctified. At this mass, the altar is stripped of all ornaments, the priests and attendants are robed in black; — the kiss of peace is omitted, and the so-called *adoration of the cross* takes place. The office of the *tenebræ* is also recited, and at the close of the recitation of each lesson from the Lamentations of Jeremy, one of the candles is extinguished until there remains but the paschal candle, which, as a symbol of our Lord's death and burial, is concealed behind, or under the altar. In the Church of England Good-Friday is also observed with much solemnity.

Good'gious Fac'tory, in *South Carolina*, a village of Laurens co.

Good Ground, in *New York*, a post-village of Suffolk co., on the Long Island R.R. *Pop.* (1897) about 1,000.

Good Har'bor, in *Michigan*, a P. O. of Leelanaw co.

Good Hope, in Africa. See CAPE OF GOOD HOPE.

Good Hope, a fort of British North America, on the Mackenzie river; Lat. 67° 40′ N., Lon. 130° 40′ W. — OLD FORT GOOD HOPE is about 100 m. further down the same river.

Good Hope, in *Georgia*, a post-village of Walton co.

Good Hope, in *Illinois*, a post-town of McDonough co., *Pop.* (1897) about 450.

Good Hope, in *Mississippi*, a post-office of Leake co.

Good Hope, in *Ohio*, a post-village of Fayette co., about 7 m. S.E. of Washington.

—A township of Hocking co.

Good Hope, in *Pennsylvania*, a post-village of Cumberland co.

Good Hope, in *West Virginia*, a P. O. of Harrison co.

Good Hope, Bay of, in *Alaska*, at the head of Kotzebue Sound; Lat. 66° 30′ N., Lon. 161° W. It contains Chamisso Island.

Good'hue, in *Minnesota*, a S.E. co., bordering on Wisconsin; *area*, about 755 sq. m. *Rivers.* Mississippi (which here expands into Lake Pepin), Cannon, and Zumbro rivers. *Surface*, generally level; *soil*, fertile. *Cap.* Red Wing. *Pop.* (1895) 32,268.

—A township of Goodhue co., 9 m. S.W. of Red Wing.

—A post-office of Goodhue co.

Good'-hu'mor, *n.* A cheerful temper or frame of mind.

Good'-hu'mored, *a.* Having a cheerful temper and demeanor.

Good'-hu'moredly, *adv.* With a cheerful temper; in a cheerful way.

Good'ing's Grove, in *Illinois*, a post-village of Will co., about 25 m. S.W. of Chicago.

Good Intent', in *Pennsylvania*, a post-office of Washington co.

Good'ish, *a.* Not very good, nor very bad; tolerable; passable: as, a *goodish* illustration.

Good'land, in *Indiana*, a post-village of Newton co., about 48 m. W. of Logansport.

Good'land, in *Michigan*, a post-township of Lapeer co., about 55 m. N. of Detroit. *Pop.* (1894) 1,126.

Good'land, in *Missouri*, a post-office of Iron co.

Good'lettsville, in *Tennessee*, a post-village of Davidson co., about 13 m. N. by W. of Nashville. *Pop.* 529.

Good'liness, *n.* Beauty of form; grace; elegance.

"The *goodliness* of trees delighteth the eye." — *Hooker.*

Goodluck', in *New Jersey*, a village of Dover township, Ocean co., about 7 m. from Tom's River.

Good'ly, *a.* Of a handsome form; beautiful; graceful.

"A *goodly* city is this Antium." — *Shaks.*

—Pleasant; agreeable; desirable; bulky; swelling; large.

"*Goodly* and great, he falls behind his link." — *Dryden.*

Good'man, *n.* A familiar appellation of civility. — A rustic term of compliment. — A familiar, yet respectful, appellation of a husband, or of the master of a family. (o.)

Good'man, in *Georgia*, a district of Harris co.

Good'man, in *Mississippi*, a post-office of Holmes co.

Good'-man'ners, *n. pl.* Politeness; decorum.

Good'-morn'ing, *n.* and *interj.* A form of morning salutation equivalent to "I wish the *morning* may be *favorable* or happy to you."

Good'-na'ture, *n.* Natural mildness and kindliness of disposition.

Good'-na'tured, *a.* Not easily provoked.

Good'-na'turedly, *adv.* With mildness of temper.

Good'ness, *n.* The moral qualities which constitute Christian excellence; moral virtue; religion; kindness; benevolence; benignity of heart; acts of kindness or benevolence: charity; humanity exercised. — Benevolence of nature; mercy; favor shown; acts of compassion or mercy. — The physical qualities which constitute value; excellence or perfection.

Good'-night', *n.* and *interj.* A form of salutation in parting for the night, equivalent to "I wish you a *pleasant* or *agreeable night*."

"My native land, *good-night!*" — *Byron.*

Good'rich, S. GRISWOLD. See PARLEY, PETER.

Good'rich, in *Michigan*, a post-village of Genesee co., about 13 m. E. of Flint.

Goods, *n. pl.* Household furniture; personal or movable estate; movables; chattels; effects; wares; merchandise; commodities.

Good'-sense', *n.* Sound judgment.

Good'-speed', *n.* Success; prosperity.

Good Spring, in *Tennessee*, a post-village of Giles co., 6 m. S.W. of Pulaski.

Good Success Bay, an arm of Le Marie Strait in Terra del Fuego; Lat. 54° 49′ S., Lon. 65° 15′ W.

Good'-tem'pered, *a.* Having a good disposition.

Good Templars. See TEMPLARS, (GOOD.)

Good'ville, in *Pennsylvania*, a P. O. of Lancaster co.

Good'-wife, *n.* A familiar and rustic appellation for the mistress of a family.

Good'-will, *n.* (*Law.*) The custom of any business or trade, — that interest in it which is sold along with the goods and premises. By disposing of the good-will, the seller binds himself to do everything in his power to advance the interests of his successor in the business, and to recommend him to his customers. It is also usual to specify that the seller shall not enter upon the same business within a certain distance of that which he has sold. Such a contract is good at law, and the party infringing it is liable in damages.

Goodwin Sands. Dangerous sand-banks in the Strait of Dover, off the S.E. coast of Kent, England. The roadstead termed the Downs lies between them and the mainland. Length, abt. 10 miles.

Good'-woman, *n.* Same as good-wife, but generally applied only to females in the lower walks of life.

Good'y, *n.* [Probably a corruption of *good-wife.*] A term of partial civility, mostly applied to aged females.

—Confections; bonbons; as, to give *goodies* to the little ones.

Good'year, CHARLES, an American inventor, b. at New Haven, Conn., in 1800. He was joined with his father in the hardware trade at Philadelphia, when, in 1830, he turned his attention to the improvement of the India-rubber manufacture. In 1836, he discovered a method of treating the surface of native India-rubber with a preparation of nitric acid, which produced favorable results. Improving upon this, *G.* in 1839 discovered the process of vulcanizing the rubber, for which he took out a patent in this country. Attempts to secure sole patents in France and England were nullified by legal informalities. Mr. *G.* by his admirable invention amassed considerable wealth, besides receiving the grand medal at the Paris Exposition, and also the ribbon of the Legion of Honor. Died July 1, 1860.

Good'year's Bar, in *California*, a post mining village of Sierra co.

Goodyera, *n.* (*Bot.*) A genus of herbs, order *Orchidaceæ*. The Rattlesnake Plantan, *G. pubescens*, found in woods in Canada and U. S., is remarkable for its leaves, which are all radical and of a dark green, reticulated above with white veins. Its flowers, which blossom in July, are white, in a terminal, oblong, cylindrical spike; lip roundish, saccate, inflated.

Gooles'boro, in *Texas*, a post-office of Titus co.

Goomty (*goom-te'*), or GOOMTEE, a river of Hindostan, rising in a morass, in Lat. 28° 30′ N., Lon. 80° 10′ E., and entering the Ganges 16 m. below Benares, after a course of 480 m. There are so many of the dead thrown into it, that its waters may be accounted unfit for use, otherwise than for the purpose of navigation and irrigation.

Goo'nass Pass, a pass in Bussahir, across the S. range of the Himalaya, 16,000 feet above the sea.

Gooroo', *n.* [Hind. *gurû*, a spiritual teacher; Sansk. *guru*, teacher.] A religious or spiritual teacher among the Hindoos.

Goos'ander, *n.* [Corrupted from *goose* and *gander.*] (*Zoöl.*) See MERGUS.

Goose, *n.*; *pl.* GEESE. [A. S. *gos*; Icel. *gas*; Dan. *gaas*; Ger. *gans*; Lat. *anser.*] (*Zoöl.*) See ANSERINÆ.

—A silly person; a simpleton.

—A tailor's smoothing-iron, the handle of which resembles somewhat the neck of a goose.

"Come in, tailor; here you may roast your *goose*." — *Shaks.*

(*Games.*) A game with cards and dice formerly played to a considerable extent in England, but now fallen into desuetude.

"The royal game of *goose* was there to view." — *Goldsmith.*

Goose'berry, *n.* [Most probably corrupted from *crossberry*, *grossberry*, or *gorseberry*, from *gorse*, furze or whin, and so named either from the prickly nature of the shrub, or from the bristly hairs on the surface of the fruit, especially in its native state.] (*Bot.*) A well-known garden-fruit, the produce of *Ribes grossukreæ*. See RIBES.

Goose'berry-fool, *n.* (*Cookery.*) A dish made of gooseberries which have first been scalded, and afterwards beaten up or mashed with cream.

Goose'berry Islands, a small group of islands on the E. coast of Bonavista Bay, Newfoundland.

Goose'-cap, *n.* A simpleton; a weak-minded person.

Goose Creek, in *Michigan.* See RAISIN RIVER.

Goose Creek, in *Virginia*, enters the Potomac River abt. 4 m. E. of Leesburg.

Goose Creek, in *W. Virginia*, a P. O. of Ritchie co.

Goose-fish, *n.* (*Zoöl.*) The Angler. See LOPHIIDÆ

Goose'-flesh, *n.* A peculiar condition of the skin caused by fear, by cold, &c. — Known also as *goose-skin*, q. v.

Goose'-foot, *n.* (*Bot.*) See CHENOPODIUM.

Goose Island, of Lower Canada, in the St. Lawrence River, abt. 13 m. N.E. of the island of Orleans.

Goose Island, off the S. coast of Terra del Fuego in Christmas Sound.

Goose Island, in *Illinois*, a P. O. of Alexander co.

Goose'-neck, *n.* A piece of iron bent like the neck of a goose, and used for various purposes; as, the *goose-neck* of a hoe.

(*Naut.*) The piece of iron by means of which and a clamp or eyebolt the inboard end of a yard or boom is made fast to the mast.

(*Mach.*) A pipe in the form of the letter S.

Goose Neck, in *West Virginia*, a P. O. of Ritchie co.

Goose Nest, in *North Carolina*, a township of Martin co.

Goose'quill, *n.* The large feather or quill of a goose, or a pen made with it.

Goos'ery, *n.* A place for keeping geese.

—Silliness; imbecility of mind; folly.

Goose'-skin, *n.* That condition of the human skin in which, from cold or fear, it presents an appearance similar to that of a goose dressed for cooking.

Goose'-wing, *n.* (*Naut.*) The clew or lower corner of a ship's mainsail or fore-sail, when the middle part is furled.

Gooty, (*goo'te,*) a strong fort and town of British India, in the presidency of Madras, 50 m. from Bellary. They stand on the mountain upwards of 2,000 feet above the level of the sea. *Pop.* Of civilians, 5,000.

Go'-out, GOWT, *n.* A sluice in dams or embankments against the sea, intended to let out the land-waters at the ebb, and to prevent the ingress of the sea-water when the tide floods.

Goph'er, *n.* [Fr. *gaufre.*] (*Zoöl.*) A species of squirrel. See SACCOMYIDÆ, and SPERMOPHILUS.

(*Script.*) [Heb.] A species of wood from which the ark of Noah was built. The probable identity of the gopher-wood of Scripture with the cypress (q. v.) is maintained partly on account of the qualities of the wood, and partly from the agreement of the radical consonants of the two names.

Gopher Creek, in *Iowa*, enters the Missouri River from Pottawattomie co.

Gop'pingen, a town of Würtemberg, 28 m. from Ulm. *Manuf.* Woollen stuffs, paper, &c. *Pop.* (1895) 9,536.

Go'ram, in *Pennsylvania*, a post-village of York co., 18 m. S.E. of York.

Gor'-bellied, *a.* [A.S. *gor*, dirt, mud, dung, and *belly.*] Gross-bellied; big-bellied; having a prominent belly; as, a "*gorbellied* knave."—*Shaks.*

Gor'-cock, *n.* [Either from *gorse*, furze, from *gore*, blood, *i. e.* red, or the syllable *gor* may be from the sound made by the bird.] (*Zoöl.*) The red ptarmigan, *Lagopus Scoticus*, a British species of grouse.

Gor'-crow, *n.* [A.S. *gor*, mud, dung, dirt.] (*Zoöl.*) A name applied to the carrion-crow, *Corvus corone.*

Gordian, (*gor'de-ăn.*) *a.* Pertaining or relating to Gordius Phrygia, or to the GORDIAN KNOT, *q. v.*

—Intricate; complicated; difficult.

Gor'dian Knot. (*Anc. Hist.*) A knot made in the harness of a chariot by Gordius, king of Phrygia, which knot was so intricate as to baffle every attempt to untie it, or even to find out where it began or ended. The oracle of the day having declared that he who succeeded in solving the complication should be the conqueror of the world, Alexander the Great determined to effect it, if possible. Deliberating that if he failed his followers would be dispirited, he determined to separate it with his sword, and with one blow he cut the momentous *G. K.*, which was fraught with such interest to the whole world. According to Quintus Curtius, he thus fulfilled the oracle or evaded it; — but Aristobulus, however, gives a different version of the affair. The expression *cutting*

the Gordian knot has consequently been used by the moderns to signify eluding any difficulty or task by bold or unusual means.

Gordia'nus, or **Gor'dian,** the name of three Roman emperors. The *first*, or elder, MARCUS ANTONIUS AFRICANUS, descended from Trajan, proclaimed while proconsul in Africa, along with his son, who, being of the same name, is known as Gordian the Younger. The latter was killed in a battle, six weeks after their ascension, upon hearing of which Gordianus the Elder strangled himself, A. D. 236. The *third* of the name, MARCUS ANTONIUS PIUS GORDIANUS, was a grandson of the preceding, and was proclaimed emp. after their death, and murdered after a reign of six years, in the 20th year of his age, 244.

Gor'dius, or GORDIACE'IDÆ, *n. pl.* (*Zoöl.*) A genus or family of worms, order *Nematoids*, containing those which in their larva state inhabit other animals, but not in the adult. They are long, thread-like or hair-like in appearance, and live in fresh water and mud. They are often called hair-worms, and persons ignorant of their history suppose them to be horse-hairs transformed into worms.

Gor'don, LORD GEORGE, B. in London, 1750, distinguished as a political character towards the close of the last century, and noted for his arrest on a charge of high treason, in consequence of the tumults (known as the *Gordon Riots*) provoked by his assemblies of the people to oppose the Catholic Relief bill, D. in prison, 1793.

Gor'don, (LUCY AUSTIN,) LADY DUFF, an English authoress, and the wife of Sir Alex. Duff Gordon, Bart. This lady, who was esteemed one of the most talented women in Europe, D. 1868. Her chief original works are the *Amber Witch*; *The French in Algiers*; *Stella and Vanessa*; *Letters from the Cape of Good Hope*; and *Letters from Egypt* (1865); the latter being an exquisitely faithful transcript of Egyptian life, customs, and scenery.

Gor'don, in *Florida*, a post-office of Walton co.

Gor'don, in *Georgia*, a N. W. co.; *area*, about 351 sq. m. *Rivers*. Oostenaula river, and some smaller streams. *Surface*, diversified; *soil*, very fertile. *County-town*, Calhoun. *Pop.* (1890) 12,758.

—A post-village of Wilkinson co., about 21 m. E. of Macon.

Gor'don, in *Louisiana*, a post-office of Claiborne co.

Gor'don, in *Ohio*, a post-office of Darke co., about 21 m. N. W. of Dayton.

Gor'don, in *Pennsylvania*, a post-vill. of Schuylkill co.

Gor'don, in *Texas*, a post-town of Palo Pinto co.

Gor'don, in *West Virginia*, a P. O. of Boone co.

Gor'don, in *Wisconsin*, a post-village of Douglas co., on C., St. P., M. & O. R. R.

Gordo'nia, *n.* (*Bot.*) A genus of plants, order *Ternstrœmiaceæ*. The Franklinia, *G. pubescens* (Fig. 1180), is an American tree, 30–50 feet high in Ga., and Florida, or an ornamental shrub in cultivation at the North, admired for its large, white flowers, with yellow stamens and rich fragrance.

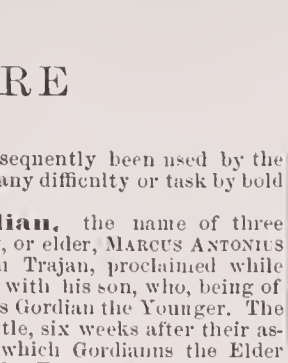


Fig. 1180.
GARDONIA PUBESCENS.

Gor'don's Ferry, in *Iowa*, a post-office of Jackson county.

Gor'don's Springs, in *Georgia*, a post-office of Whitfield co., about 10 m. W. of Dalton.

Gor'donsville, in *Pennsylvania*, a post-village of Lancaster county.

Gor'donsville, in *Tennessee*, a post-village of Smith co.

Gor'donsville, in *Virginia*, a post-village of Orange co., about 70 m. N. W. of Richmond. *Pop.* (1890) 962.

Gordon Valley, in *California*, a village of Yolo co., about 45 m. N. W. of Sacramento.

Gore, *n.* [A.S. *gor*, clotted blood; W. *gôr;* Gr. *ichôr*.] Blood; more especially clotted or congealed blood.

—[A.S. *gar*, a javelin, a dart, from its pointed or triangular shape: Icel. *geiri*, a three-cornered piece of cloth.] A wedge-shaped or triangular piece of cloth sewed into a garment to widen it in any part. — A piece of land triangular in shape.

(*Her.*) A charge consisting of one-third of the shield cut off by two arched lines, one drawn from the dexter or sinister chief, and the other from the bottom of the escutcheon, meeting in the fess point. A Gore sinister is enumerated by heralds as one of the abatements or marks of dishonor borne for unknightly conduct. See GUSSET.



Fig. 1181.—GORE.

Gore, *v. a.* To cut in a triangular form. — To stab or pierce with a pointed instrument, as a spear, or with the point of a horn.

"And poles with pointed steel their foes in battle *gore*."—*Dryden.*

—To pierce with the point of a horn.

Gore, CHRISTOPHER, governor of the State of Massachusetts, B. at Boston, 1758. In 1789, Washington appointed him the first United States attorney for the district of Massachusetts; and in 1796 he was selected by the president as the colleague of the celebrated William Pinckney, to settle the American claims upon England for spoliations. In this situation he evinced his wonted energy and talent, and was very successful in his mission. In 1803 he was left in London as *chargé d'affaires*, when Rufus King, the American minister, returned to America. In 1809 he was chosen governor of Massachusetts, but retained his dignity only for one year. In 1814 he was called to the Senate of the Union, and served in this capacity for three years, when he retired from public affairs. D. 1827.

Gore, CATHARINE GRACE, an English novelist, B. in London abt. 1800. She was a rapid and prolific writer, and her works fill about 200 vols. Most of her novels are clever pictures of fashionable life, and they sparkle with wit. She wrote also some poems and plays. Among her best tales are reckoned *Cecil*, *Mrs. Armytage*, and *The Hamiltons*. She was no less celebrated for her wit and brilliant social qualities than for her literary works. During her last years she was blind, and she died in retirement at Linwood, 1861.

Gore, a dist. of Upper Canada, on Lake Ontario, comprising the cos. of Halton and Wentworth; *pop.* abt. 45,000.

Gore, in *Ohio*, a post-office of Hocking co.

Goree', a town and small island, or rather rock, off the coast of Africa, little more than a mile from Cape Verd. It produces nothing; and its importance is solely derived from its inaccessible situation, on a naked rock of black basalt, rising to the height of 300 feet, Lat. 14° 36′ N., Lon. 17° 22′ W. — This island was first occupied by the Dutch, and afterwards was taken by the French, to whom it was finally ceded by the treaty of Nimeguen. It is now the bulwark of the possessions of the French in Africa. It is the entrepôt for all the French trade with the opposite coast of Africa. *Pop.* 6,114, comprising about 100 Europeans.

Gore Island, or **St. Matthew,** an island in Behring Sea; Lat. 60° 18′ N., Lon. 172° 4′ W. It is about midway between America and Asia.

Gore'ville, in *Illinois*, a post-office of Johnson co.

Gor'gansville, in *N. Carolina*, a village of Rutherford co.

Gorge, (*gôrj*,) *n.* [Fr.; It. *gorgia;* Lat. *gurges*, a whirlpool, *gurgulio*, the gullet; Gr. *gargareôn*, formed from the gurgling sound of water rushing through a narrow passage; Heb. *gargeroth*, the throat.] The throat; the gullet; the canal of the neck by which food passes to the stomach. — A narrow passage between hills or mountains.

(*Fort.*) The entrance of any work, or that part which is open to the rear between the inner extremities of its flanks or face. (See Fig. 745.) Thus the gorge of a ravelin is the space facing the main works behind it, between the extremities of its faces, which meet in a salient angle towards the front; and the gorge of a bastion is that side of the irregular pentagon which forms the outline of the work, and lies between the interior extremities of its flanks, where they join the curtains on either side. The lines formed by the prolongation of the curtains on either side of a bastion to a point in its capital within the interior of the work, are called its demi-gorges. It is also the name of a concave moulding used in architecture, and the entrance to a narrow pass or defile between mountains.

(*Arch.*) Same as CAVETTE, *q. v.*

Gorge, *v. a.* To swallow with greediness.

"The fish has *gorged* the hook."—*Johnson.*

—To fill up to the throat; to glut; to satiate.

"Being with his presence glutted, *gorged*, and full."—*Shaks.*

—*v. n.* To feed greedily or ravenously.

Gorged, *a.* Having a gorge or throat; as, the shrill-*gorged* lark.

(*Her.*) A lion or other animal is said to be gorged when it has a crown by way of collar round its neck.

Görgei, or GORGEY, ARTHUR, an Hungarian general, B. 1818. After completing his studies at the military school at Tuln, he was appointed to a commission in the Hungarian body-guard at Vienna, which service he abandoned to study chemistry at Prague. The news of the insurrection in Hungary (1848) called him back to military duties, and hastening to Buda-Pesth, he placed his sword at the disposal of the Hungarian ministry. The firmness of his conduct attracted the attention of Kossuth, and until he became his rival, *G.* appears to have been his favorite. After the battle of Schwechat, he assumed the chief command of the Hungarian army, and in that position showed great military talents. Differences, however, arose between himself and the civil authorities; twice he was superseded in his command, and on resuming it, was alternately victor and vanquished. On the resignation of the governor and council, Aug. 11, 1849, Kossuth made Gen. *G.* dictator in his place. Shortly after this, the Hungarian forces laid down their arms. For this *G.* has been branded as a traitor, though the state of affairs seemed desperate enough to warrant submission. The most suspicious part of the affair is the leniency with which he was treated by the victors. He went to Klagenfurt, was afterwards allowed to leave on parole, and pursued his favorite study of chemistry at Pesth. A narrative of his connection with the insurrection, *My Life and acts in Hungary*, appeared in 1851. 280 of his former comrades, in 1884, presented him with a declaration, exonerating him from a charge of treachery made in 1849.

Gorgeous, (*gôr'jus,*) *a.* [O. Fr. *gorgias*, a ruff, or ornament for the throat or neck of females, — hence, gaudy, flaunting.] Showy; fine; splendid; glittering with gay colors; magnificent; as, "the *gorgeous* East."—*Milton.*

Gor'geously, *adv.* With showy magnificence; splendidly; finely.

Gor'geousness, *n.* Show of dress or ornament; splendor of raiment or dress.

Gor'ges, SIR FERDINANDO, lord-proprietary of the English colony of Maine, was B. of a noble family in England about the middle of the 16th century. After serving during the war against Spain, *G.* determined to leave his native country and become a landed proprietor "beyond sea." He accordingly fitted out an expedition in 1620, and received a royal charter of incorporation for the "governing of New England in America." Landing in Maine, he for some years ruled it as governor-general, and ultimately succeeded in obtaining from Charles I. a charter constituting him lord-proprietary, with almost sovereign powers. When the 4 New England colonies formed a confederacy in 1643, *G.*'s settlements were excluded, because Sir Ferdinando was then in England fighting as a royalist against the Puritan cause. After his death in 1647, the settlement of Maine submitted to the jurisdiction of Massachusetts.

Gorget, (*gor'jet,*) *n.* [Fr. *gorgette*, from *gorge*, the throat.] A piece of body-armor, either scale-work or plate, for the protection of the throat. It appears to have been first employed early in the 14th century. The *camail*, or throat-covering of chain-mail, which is sometimes called the *gorget of mail*, belonged more to the helmet than to the body-armor. In the 17th century, the *G.* was worn without any other body-armor. It is still worn by the officers of the French infantry.

(*Surg.*) An instrument used in the operation of lithotomy.

Gor'gias, LEONTINUS, a celebrated orator of the school of Empedocles, native of Leontinum, in Sicily; lived 417 B. C. A golden statue was erected to his honor at Delphi, and Plato has given his name to one of his Dialogues.

Gor'gon, *n.*; *pl.* GORGONS. (*Myth.*) One of the three celebrated sisters, daughters of Phorcys and Ceto. Their names were *Stheno, Euryale, and Medusa*, all of whom were immortal except Medusa. According to the mythologists, their hair was entwined with serpents, their hands were brass, their body was covered with impenetrable scales, and their teeth were as long as the tusks of a wild boar. They were so frightful that they turned to stone all those on whom they fixed their eyes. Mythologists differ in their accounts of them. They were conquered by Perseus, who, it is said, was furnished by different deities with weapons which he afterwards returned to them. The head of Medusa remained in his hands; and after he had finished all his laborious expeditions, he gave it to Minerva, who placed it on her ægis, with which she turned into stone all such as fixed their eyes upon it. It is said, that, after the conquest of the *G.*, Persens took his flight in the air towards Ethiopia, and that the drops of blood which fell to the ground from Medusa's head were changed into serpents, which have ever since infested the sandy deserts of Libya. The horse Pegasus also arose from the blood of Medusa, as well as Chrysaor with his golden sword. Hesiod fixed the residence of the *G.* in the west, Æschylus in Scythia, and Ovid in Libya, near the lake Triton. Homer speaks but of one Gorgon.

—Anything very ugly or horrid.

"*Gorgons* and hydras and chimeras dire." —*Milton.*

—*a.* Very ugly or terrible in aspect.

Gorgo'na, a small island in the Mediterranean Sea, 16 m. from the Tuscan coast, in the vicinity of which immense numbers of anchovies are taken. *Extent*, 2 m. long, by an equal width.

Gorgo'na, in the Republic of Colombia, an island in the Bay of Choco, abt. 110 m. S.W. of Buenaventura; Lat. 2° 57′ N., Lon. 78° 25′ W.

—A village on the isthmus of Panama, abt. 20 m. N.W. of the city of Panama.

Gorgonace'ea, *n.* (*Zoöl.*) A sub-order of *Alcyonaria*, embracing polyps which are cylindrical, short, connected laterally, and which secrete a solid central axis. The forms are excessively varied, and often extremely delicate and beautiful. They abound in tropical seas.

Gorgo'nean, *a.* Same as GORGONIAN, *q. v.*

Gorgone'ia, *n. pl.* [Gr. *gorgoneios*, i. e. *gorgeois*, pertaining to the Gorgon.] (*Arch.*) Carvings of masks imitating the Gorgon, or Medusa's head.

Gorgo'nia, *n.* **Gorgo'nidæ,** *n. pl.* (*Zoöl.*) A genus and family of the sub-order Gorgonacea, comprising branched polyps, which have a tendency to spread in a plane, forming a flattened or fan-shaped front, with a horn-like axis.

Gorgo'nian, *a.* Pertaining to or resembling a Gorgon.

Gorgonilla, (*gôr-go-neël'yȧ,*) an island of Ecuador, in the Pacific Ocean off Point Manglares.

Gor'gonize, *v. a.* To render utterly affrighted; to make stony hard or stiff, as at sight of the Medusa.

Gorgophone, (*gor-gof'ō-ne.*) (*Myth.*) A daughter of Perseus and Andromeda, who married Perieres, king of Messenia. After the death of Periercs she married Æbalus. She is the first whom the mythologists mention as having had a second husband.

Gorgophora, (*gor-gof'o-ra.*) (*Myth.*) A surname of Minerva, from her ægis (Fig. 38), on which was the head of the Gorgon Medusa.

Gorham (*go'ram*), in *Maine*, a post-town of Cumberland co., about 10 m. W. by N. of Portland. *Manuf.* Woollens, carpets, and powder. *Pop.* (1897) about 3,000.

Gorham, in *New Hampshire*, a post-town of Coos co. *Pop.* (1890) 1,710.

Gorham, in *New York*, a post-town and township of Ontario co., on Canandaigua lake, about 12 m. W.S.W. of Geneva. *Pop.* (1897) about 2,460.

Gorham, in *Ohio*, a township of Fulton co., on the Michigan line.

Goril'la, *n.* (*Zoöl.*) A species of large ape which inhabits Western Africa, and is generally allied to the Chimpanzee to compose the genus *Troglodytes*, although Geoffrey St. Hilaire has endeavored to establish a separate genus for it. For a great number of years there was a

vague tradition, unsubstantiated by reliable evidence, that apes of great size were to be seen on the west coast of Africa. It was not, however, till 1847 that the gorilla absolutely became known to naturalists. A skull of one of these large apes was sent to Dr. Savage, of Boston, by Dr. Wilson, an American missionary on the Gaboon river. Since that period skeletons and skins of the *G.* have not only been received, but also considerable information concerning the animal's habits and mode of living. M. Du Chaillu, in his *Explorations and Adventures in Equatorial Africa*, first described the appearance and habits of the *G.* in its native haunts; and, though his statements were greatly doubted, they have since been abundantly confirmed by other African explorers and travellers of more recent experience. The main points of difference between the *G.* and the chimpanzee are as follows: The gorilla is much longer than the latter animal; the ordinary height of a full-grown male is between 5 feet 6 inches and 5 feet 8 inches, and it is probable that many of the largest size exceed six feet in height. Its strength is tremendous, and its skeleton indicates great power in the jaws and limbs. The bony ridges above the eyes are very prominent, and the skull of the male exhibits a large occipital ridge on the top of the head. The brain is small, and the nasal bones project more than in the chimpanzee; these peculiarities give to the animal a hideous resemblance to the human face. The jaws and lower parts of the face project very much, and the teeth do not form an uninterrupted series, as in man. The canine teeth are very large, and the molars bear a greater proportion to the incisors, — thus again approaching the features of a human being. It is very broad across the shoulders, has thirteen pairs of ribs, and approaches nearer to the human form in the shape of the pelvis than any other ape. The legs, although shorter in proportion than those of a man, are longer than those of the chimpanzee. When standing erect, the arms nearly reach the knees. The feet are formed for walking on the ground, and the great toe is a true thumb. The hands are remarkable for their great size and strength, the fingers being short but very thick. The skin of the gorilla is black in color and covered with dark-gray hair, which changes to a tawny brown on the head. The hair is longest on the arms. The face is hairy, but the chest is bare. The mouth is large and wide, and there is scarcely any appearance of neck. The eyes are much sunk, and in general the countenance is marked by a ferocious scowl. It is a voracious feeder, its food being exclusively vegetable; and its belly is very large and prominent. Gorillas are not gregarious in their habits; they generally live on the ground, but spend much of their time in climbing trees in search of food. Their immense strength enables them to defend themselves against beasts of prey. They live in the densest parts of the tropical forests, and are much dreaded by the inhabitants. As yet the gorilla has not been tamed, and it would appear as if it were incapable of being so in an adult state. A few young gorillas have been brought to Europe, but pulmonary disease soon carried them off. The *G.* is not gregarious in habit, except to the extent that the young remain with the parents until of adult size. In walking they are rarely seen erect, the body being bent forward, and the long arms reaching the ground, progress being made by a sort of swinging motion between the arms. The *G.* is not so ferocious as it has been considered, usually seeks safety in flight, will not attack man unless cornered or wounded, and even then is not persistent in attack.

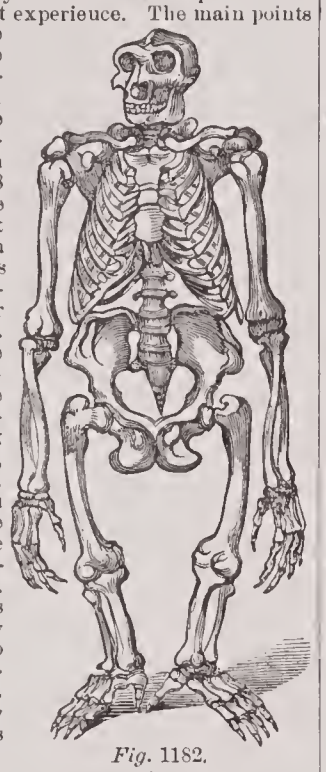


Fig. 1182.
SKELETON OF A GORILLA.

Gor'ing, *n.* [From GORE.] A pricking; a puncture.

Gor'ing-cloth, *n.* (*Naut.*) A piece of canvas cut obliquely and put in to add to the breadth of a sail; a gore.

Go'ritz, a town of Austria, cap. dist. Goritz, on the Isonzo, 20 m. N.W. of Trieste. *Manuf.* Leather, earthenware, confectionery and rosoglio. The most extensive printing establishment for Hebrew books is to be found in *G.*, whence the entire East is supplied. *Pop.* 16,659.

Gor'kha, a town of Nepaul, 53 m. W. of Khatmandu, Lat. 27° 52′ N., Lon. 84° 28′ E.

Gor'kum, a fortified city of S. Holland, on the Meuse, 21 m. S.E. of Rotterdam. *Manuf.* Hemp; with an extensive market for grain and fish. *Pop.* 10,400.

Gor'litz, a fortified city of Prussian Silesia, on the Neisse, 48 m. W. of Liegnitz. *Manuf.* Cloths, linens, lace, ribbon and hats. *Pop.* (1895) 56,800.

Gor'man, in *Minnesota*, a township of Otter tail co.

Gor'man, in *Texas*, a post-village of Eastlake co.

Gor'mand, *n.* [Fr. *gourmand;* W. *gor*, excess; *gormant*, tending to overfill; *gormodd*, excess, overmuch.] A greedy or ravenous eater; a glutton; a gourmand.
—*a.* Gluttonous; voracious.

Gor'mander, *n.* Same as GORMAND, *q. v.*

Gor'mandism, *n.* Love of good eating; gluttony; ravenousness; voracity.

Gor'mandize, *v. a.* To eat greedily or to excess; to swallow voraciously. — To feed ravenously.

Gor'mandizer, *n.* A greedy or voracious feeder.

Gor'mandizing, *p. a.* Eating greedily and voraciously.
—*n.* Act or habit of eating greedily and voraciously.

Gorogne'a, or **Gurgue'a,** (*go-ro-gā'a,*) a river of Brazil, joins the Parahiba abt. 95 m. N.N.W. of Oeiras. Length, abt. 320 m.

Gorse, *n.* [A. S. *gorst*, furze.] (*Bot.*) See ULEX.

Gorsuch's Mills, in *Maryland*, a post-office of Baltimore co.

Gor'sy, *a.* Abounding in, or resembling gorse; as, the *gorsy* heath.

Gort, a town of Ireland, in co. Galway, Connaught, abt. 16 m. N.N.E. of Ennis.

Gortschakoff, (*gort'sha-kof,*) the name of three Russian brother princes, two of whom distinguished themselves as military commanders, and one as a diplomatist. — Prince PETER, B. 1790, a military commander, took part in the Russian wars against Turkey, and in 1839 was made governor of Eastern Siberia. In 1843 he became general of infantry, and in 1851 retired from service. — Prince MICHAEL, B. 1795, played a prominent part in many of the Russian wars, and in 1855 succeeded Prince Menschikoff in the command of the Russian forces in the Crimea. He superintended the defence of Sebastopol, which, however, he was at last forced to evacuate, making a masterly retreat. D. 1861. — Prince ALEXANDER, the diplomatist, B. 1800, represented Russia at various European courts, and in 1855 negotiated the peace between Russia and the Western powers.

Gorukpore, (*gor-uk-poor',*) a fertile district of British India, pres. Bengal, bounded by Nepaul, Oude, Sarun, and Azinghur. *Area*, 7,346 sq. m. *Pop.* 2,640,000. — Its cap., of the same name, stands on the Raptee, 420 m. N.E. of Calcutta; *pop.* 5,600.

Gory, (*go're,*) *a.* [From GORE, *q. v.*] Covered with congealed or clotted blood; bloody; murderous.

Go'ry Dew, a term frequently applied to the dusky red film seen upon the damp walls of cellars, or other moist situations. Its disagreeable and alarming nature is due to the unpleasant fact of its resembling the stains of blood.

Gos'hawk, *n.* [A. S. *goshafoc*, from *gos*, a goose, and *hafoc*, a hawk.] (*Zoöl.*) See ASTUR.

Go'shen. (*Script.*) That tract of country in Egypt which was inhabited by the Israelites from the time of Jacob to that of Moses. It was probably the tract lying east of the Pelusian arm of the Nile, towards Arabia. It appears to have reached to the Nile, (*Ex.* i. 22; ii. 3,) since the Jews ate fish in abundance, (*Num.* xi. 5,) and practised artificial irrigation, (*Deut.* xi. 10.) It was near Heliopolis and Rameses, and not far from the capital of Egypt, (*Gen.* xlv. 10; xlvii. 11; *Ex.* 8–12.) It was a part of "the best of the land," at least for the pastoral Hebrews, (*Gen.* xlvi. 34,) and was evidently better watered and more fertile than at present. — *G.* was also the name of a city and territory in the mountains of Juda.

Go'shen, in *Connecticut*, a post-village and township of Litchfield county, about 30 miles W. by N. of Hartford.

Go'shen, in *Georgia*, a post-village of Lincoln co., abt. 95 m. N.E of Milledgeville.

Go'shen, in *Illinois*, a flourishing township of Stark county.

Go'shen, in *Indiana*, a thriving city, cap. of Elkhart co., on the Elkhart river, 25 m. N. of Warsaw. Has water power, important manufactures, and a large local trade, and two lines of railroad. *Pop.* (1897) about 7,000.

Go'shen, in *Iowa*, a township of Muscatine co.

Go'shen, in *Kentucky*, a post-office of Oldham co.

Go'shen, in *Maryland*, a post-office of Montgomery co.

Go'shen, in *Massachusetts*, a post-town of Hampshire co., about 100 m. W. by N. of Boston.

Go'shen, in *Missouri*, a post-office of Mercer co.

Go'shen, in *New Hampshire*, a post-town of Sullivan co., about 30 m. E. by N. of Concord.

Go'shen, in *New Jersey*, a post-village of Cape May co.
—A village of Ocean co.

Go'shen, in *New York*, a post-village and township, cap. of Orange co., about 60 m. N.N.W. of New York City. *Pop.* of village (1897) about 3,100.

Go'shen, in *Ohio*, a township of Auglaize co.
—A township of Belmont co.
—A township of Champaign co.
—A post-village and township of Clermont co., about 24 m. E.N.E. of Cincinnati.
—A township of Hardin co.
—A township of Mahoning co.
—A township of Tuscarawas co.

Go'shen, in *Pennsylvania*, a former township of Chester co., now divided into EAST and WEST GOSHEN.
—A township of Clearfield co.
—A post-village of Lancaster co., about 58 m. E.S.E. of Harrisburg.

Go'shen, in *Utah*, a post-village of Utah co., on Utah Lake, about 28 m. S.S.W. of Provo.

Go'shen, in *Vermont*, a thriving township of Addison county.

Go'shen, or **Goshen Bridge,** in *Virginia*, a post-village of Rockbridge co., abt. 32 m. W.S.W. of Staunton.

Go'shen Creek, in *N. Carolina*, enters the Cape Fear River in Duplin co.

Go'shenite, *n.* (*Min.*) A colorless or white variety of beryl from Goshen, Mass. — See BERYL.

Go'shenville, in *Pennsylvania*, a P. O. of Chester co.

Gos'lar, a fortified town of Prussia, in Hanover, on the Gose, 4 m. S.E. of Hildesheim. *Manuf.* Vitriol, carpets, leather, shot, and hardware. *Pop.* 9,440.

Gos'larite, *n.* (*Min.*) A rare native sulphate of zinc or white vitriol. It is formed by the decomposition of blende, and is found in the passages of mines. Lustre vitreous. Color white, reddish, bluish. *Sp. gr.* 2·036. *Comp.* Sulph. acid 27·9, oxide of zinc 28·2, water 43·9.

Gos'ling, *n.* [A. S. *gos*, a goose, and the diminutive termination *ling.*] A young goose; a goose not fully grown.
—A catkin on nut- and pine-trees.

Gos'pel, *n.* [A. S. *godspell* — *god*, good, and *spel, spell*, history, story, tidings.] The whole doctrine of the Christian religion; — more particularly, one of the first books containing an account of the life and teachings of Christ, written by Matthew, Mark, Luke, and John, and of which the authenticity rests upon the clearest evidence. The extant spurious gospels, forming a part of the apocrypha of the New Testament, are, "The History of Joseph the Carpenter," the "Gospel of the Infancy," the "Gospel of Thomas the Israelite," "The Protevangelion" of James, the "Gospel of the Nativity of Mary," and the "Gospel of Nicodemus, or Acts of Pilate." There were many others that are mentioned by the Church Fathers, but which are lost.
—*a.* Pertaining to the gospel: accordant with the doctrines contained in the gospel; as, *gospel* truth, *gospel* righteousness.

Gos'peler, *n.* He who reads in English the gospel to the people.

Gos'pel-gos'sip, *n.* One who, with over-officious zeal, runs about to lecture his neighbors upon matters pertaining to religion.

Gos'pel-light, *n.* The truths of the evangely; the new doctrine, as contradistinguished from that of the Church of Rome.

Gos'pel-truth, *n.* The truths or doctrines of the gospel; certain truth.

"I assure you this as *gospel-truth.*"—*Swift.*

Gos'port, a fortified city and port of England, in Hampshire, 1¼ m. W. of Portsmouth, from which it is separated by an arm of the sea; *pop.* 8,250.

Gos'port, in *Alabama*, a village of Clarke co., on the Alabama River, abt. 100 m. above Mobile.

Gosport, in *Indiana*, a post-village of Owen co., abt. 45 m. S.W. of Indianapolis.

Gosport, in *Iowa*, a post-office of Marion co.

Gosport, in *New Hampshire*, a township of Rockingham co.

Gosport, in *Virginia*. See PORTSMOUTH.

Goss, *n.* Same as GORSE, *q. v.*

Gos'samer, *n.* [Lat. *gossypium*, the cotton-tree.] A light filamentous substance, which often fills the atmosphere to a remarkable degree during fine weather in the latter part of autumn, or is spread over the whole face of the ground, stretching from leaf to leaf, and from plant to plant, loaded with entangled dew-drops, which glisten and sparkle in the sunshine. Various opinions were formerly entertained concerning the nature and origin of gossamer, but it is now sufficiently ascertained to be produced by small spiders of various species. Why *G.* appear at a particular season of the year, and why *G.* threads or webs are produced, are questions yet open to discussion. It is however well ascertained that the spider which produces the *G.* is frequently wafted up with it into the air, and some eminent authority believe that it has the power of guiding itself and vehicle in the atmosphere, — but if for the mere enjoyment of an aërial excursion, or in order to find insect-prey in the air, it is not said.
—A waterproof outer-garment of light material.

Gos'samery, *a.* Resembling gossamer; flimsy; flocculent; unsubstantial; as "*gossamery* affection."

Gossan. (*gŏz'zan,*) *n.* (*Geol.*) An ochreous mineral substance; an imperfect iron ore.

Gossaniferous, *a.* [Eng. *gossan*, and Lat. *ferre*, to bear.] Containing gossan; producing or having reference to gossan.

Gos'sip, *n.* [*Godsibb* — *God*, and A. S. *sib*, peace, concord, adoption, relation, companionship; O. Ger. *sibba*, a covenant.] An idle tattler, or talebearer; one who goes from house to house, retailing scandal or letting news; a busybody.

"The common chat of *gossips* when they meet."—*Dryden.*

—Mere tattle; idle talk; scandal; groundless rumor.
—*v. n.* To chat; to prate; to talk much and idly; as, "*gossiping* conversation." — *Law.*
—To tell idle tales; to run about tattling and talebearing.

Gos'sipry, *n.* Special intimacy or neighborly association; spiritual affinity. — Idle tattle; gossip; rumor.

"Many a flower of London *gossipry.*"—*E. B. Browning.*

Gos'sipy, *a.* Full of tattle, chat, or gossip; as, a *gossipy* woman.

Gossoon', *n.* [Fr. *garçon;* Sp. *garzon;* It. *garzone;* L. Lat. *garcia.*] A term used by the Irish to designate a boy, youth, or serving-man.

"Oh! but he wor the purty *gossoon.*"—*Crofton Croker.*

Gossyp'ium, *n.* [Lat. *gossypium.*] (*Bot.*) A genus of plants, order *Malvaceæ*, which yields the cotton-plant, one of the most important of all plants to man. The cotton-plants are tall shrubs, with lobed leaves, large mallow-like yellow flowers, and somewhat egg-shaped angular pods, the seeds of which are enveloped in a covering of cellular filaments which form the cotton of commerce. See COTTON.

Got, *imp.* of GET, *q. v.*

Got, Got'ten, *pp.* of GET, *q. v.*

Gote, *n.* [L. Lat. *gota*, a canal; A. S. *geótan*, to pour.] A channel, sewer, or passage for water. (Used in some parts of England.)









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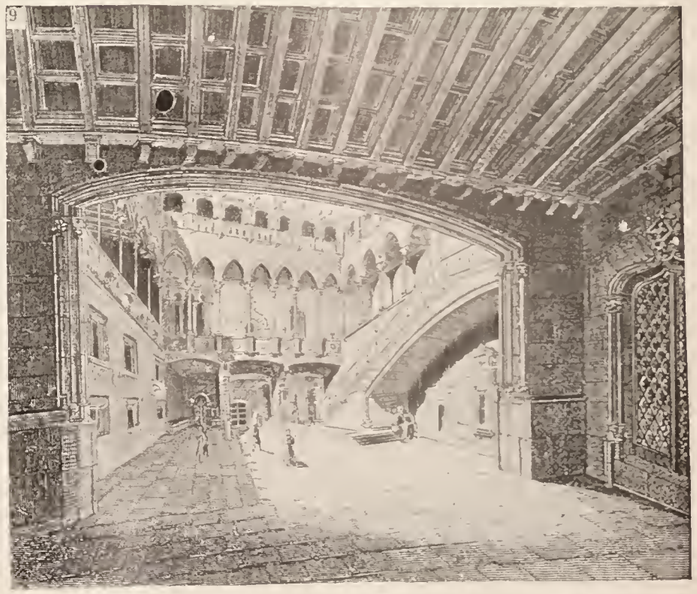
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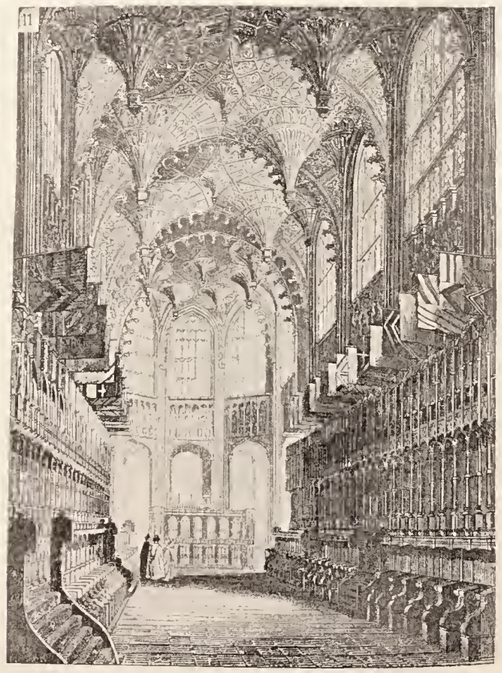
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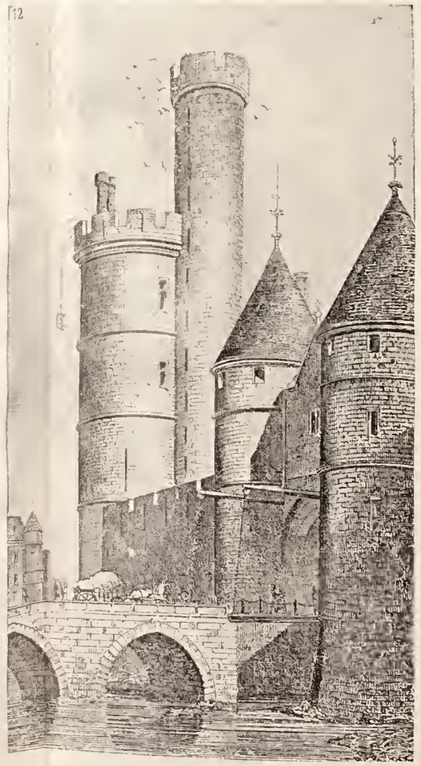


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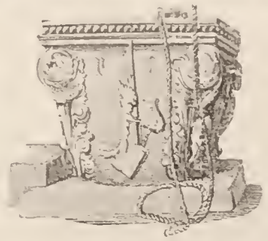














GOTHIC ARCHITECTURE. 1. Doge's Palace, Venice. 2. Canterbury Cathedral, England. 3. Choir of Cathedral, at Ratisbon. 4, 6. Capitals from ancient palace, Trent. 5. Fountain, Venice. 7. Keystone, Church at Gladbach. 8. Water-jet, Cathedral of Prague. 9. Court at Barcelona, Spain. 10. Interior, Cathedral of Litchfield, England. 11. Chapel of Henry VII., Westminster Abbey, London. 12. Nesle Tower, Paris. 13. Capital, Bernardo Palace, Venice. 14, 15. Fountains, Venice.

Goth, *n.* [Ger. *Gothen*, the Goths; O. Ger. *Guti, Gudi;* Goth. *Guthans;* A. S. *Geatas;* Lat. *Gothi, Gotones*, probably identical with the *Gētoĕ*, placed by Herodotus south of the Danube and near its mouths.] (*Geog.*) One of the ancient and distinguished tribe or nation called Goths, *q. v.*

—A rude or uncivilized person; a barbarian; one who is gauche, ignoraut, or ill-maunered; as, he is a perfect *Goth.*

Go'tha, capital of the duchy of Saxe-Coburg-Gotha, on the Leine, 44 m. N.W. of Coburg, and 516 N.E. of Paris. The town is beautifully situated on the declivity of a gentle hill, the palace of the reigning dukes being placed like a citadel on the apex. Gotha contains, besides its ancient palace of Friedenstein, a museum of rare and valuable curiosities, a library, and other institutions of a national and scientific character. *Manuf.* Muslins, cottons, porcelain, colored paper, cloth, linen, &c. *G.* sausages have a widespread celebrity. *Pop.* (1895) 27,652.—The *Almanach de Gotha*, a small pocket-book of abt. 1,000 pages, is published here. It is a universal political register, and it may be said that no book ever printed contains so much political or statistical information in so small a compass and with so much accuracy. As a work of such an extent cannot be brought down to the end of the year, the date of publication is stated, and in some instances a date has been given to each page, as completed, to show that the editor is not answerable for subsequent changes. The publication of this almanac commenced in 1764, in the German language, in which it was continued until Napoleon I. became emperor, when it was changed to the French language, which being the recognized language of courts, is found the most convenient, and has been ever since retained.

Goth'am. A colloquialism sometimes applied to New York city.

Goth'amist, *n.* A wiseacre; a person deficient in wisdom; — so called from Gotham, in Nottinghamshire, England, noted for some pleasant blunders.

Goth'amite, *n.* An inhabitant of New York city. *W. Irving.*

Gothard, St., (*got'ard,*) one of the most celebrated and romantic spots in Switzerland, being a high table-land nearly 11,000 feet above the sea at its greatest elevation, entirely surrounded, except by a narrow gorge on the N., by lofty mountains towering on all sides in Alpine grandeur, and shutting out the St. Gothard from the canton of Tessin on the N., Valais on the S., Uri on the W., and Grisons on the E. The celebrated hospital or hospice of St. Gothard stands at the highest point of the Pass of St. Gothard, having an elevation of 6,976 feet, and forms a most welcome harbor of refuge and repose to the weary traveller who journeys by this the most frequented route across the Alps, which at its summit rises to the height of 6,800 feet. By means of this pass, the high-road from Fluelen, on Lake Lucerne, is carried without interruption in a S.S.E. direction to Lago Maggiore in the N. of Italy. The construction of the road was commenced in 1820, and opened in 1832. In 1834, nearly one-third of the road, with numerous bridges and terraces, was swept away by the violence of a most terrific storm which burst on the summit of the pass; and in 1839 a similar occurrence took place. Since that time, however, the road has been in a good state of repair. It is one of the best and most convenient of the Alpine carriage-ways, and is free from snow for four or five months of the year, beginning with June. In the neighborhood of the hospice rise the Reuss, Rhone, and the Rhine. Upon the N., where the impetuous Reuss bursts its way through the rocky gorge, its foaming torrent is spanned by the far-famed *Devil's Bridge*, a solitary arch of stone springing from rock to rock fathoms above the rushing river. It was along the heights that skirt the St. Gothard and the Devil's Bridge that the Russians and the French, at the end of the last century, had so many encounters. The *St. G.* tunnel was completed in 1882.

Goth'ic, *a.* Relating to the Goths; as, *Gothic* taste.

—Rude; uncivilized; barbarous; ignorant; as, *Gothic* barbarism.

Goth'ic Architec'ture. The name given to the style of architecture that was adopted by European nations generally during the mediæval ages. By some the term is confined to that form of architecture which is peculiarly characterized by the pointed arch, while others consider that the Romanesque architecture which is distinguished by the use of the rounded arch in every form, and from which the pointed style of architecture was gradually developed, should also be included under this appellation. Adopting the latter and more comprehensive view of the subject, we may, therefore, consider Gothic architecture to consist of two grand divisions — the *Romanesque*, or *round-arched* Gothic (subdivided into Rhenish-Romanesque, Anglo-Saxon, and the Norman of France and England); and the *Mediæval*, or *pointed* Gothic (subdivided in England into Early English, Decorated English, and Perpendicular English, corresponding to the French Ogival Primital, Ogival Secondaric, and Ogival Tertiam, or Flamboyaut). See Romanesque Architecture, and Mediæval Architecture.

Goth'icism, *n.* Rudeness of manners; barbarism.

—A Gothic idiom of speech. — Conformity to the Gothic style of architecture.

Goth'icize, *v. a.* To make Gothic; to restore to a state of barbarism.

Goth'ic Lan'guage. See German Language and Literature.

Göth'ite, *n.* [From the poet Göthe.] A hydrated sesquioxide of iron. Occurs in prisms of a yellowish, reddish, and blackish-brown. Often blood-red by transmitted light. *Sp. gr.* 4·0–4·4. *Comp.* Sesquioxide of iron 89·9, water 10·1. Found with other oxides of iron, especially hematite or limonite.

Goth'land, a long narrow island in the Baltic, Lat. 56° 54′ to 57° 56′ N., Lon. 18° to 19° E., belonging to Sweden, and forming, with a number of rocky islets that surround it, a district named after the capital, Wisby. *G.* has an area of 1,227 sq. m., and with the exception of some low hilly ranges on the coast, the land is level and fertile, yielding abundant pasturage for cattle, and a fair proportion of the usual crops. *Pop.* about 55,000.

Gothland, an ancient prov. of Sweden, now divided into 12 læns or departments. It forms the southern peninsula of the country, is bounded on the S. by the Sound, and extending as far N. as the parallel of 60 degrees latitude, is bounded on the E. and W. by the Baltic and the Cattegat. Formerly the province was divided into East and West Gothland, by an oblique line bearing S.W. through Lake Wettern to Laholm Bay. The whole province is deeply intersected by numerous lakes, rivers, æstuaries, and inlets of the sea.

Goths, *n. pl.* [Lat. *Gothi, Gotones, Guttones.*] (*Hist.*) The name of an ancient people of Germany, who in early times inhabited the coast of modern Prussia, from the Vistula as far as Braunsberg or Heiligenbeil. The origin of this people has not been ascertained with any degree of certainty. It is generally believed that they once inhabited Scandinavia, a belief that is both supported by tradition and by the names of places there. The opinion further is, that they came from the south at a period long anterior to historic records. They are mentioned by Pytheas of Marseilles as inhabiting the shores of the Baltic, about the Frische Haff. They are afterwards mentioned by Tacitus; but from the time of Tacitus no more is heard of them until the beginning of the 3d century, when they are spoken of as a powerful nation on the coasts of the Black Sea. In the reign of the emperor Philippus they took possession of Dacia, and laid siege to Maucianopolis, the capital of Mœsia Secunda, which purchased peace for a large sum of money. A few years later they again entered Mœsia, but retreated before the army of Decius, upon which, however, they unexpectedly turned and completely annihilated, near Philippapolis, at the foot of Mount Hæmus (A. D. 250). The following year they again encountered the Roman army, and defeated it with great slaughter, at Forum Trebonii, in Mœsia, — the emperor Decius being among the number of the slain. His successor, the emperor Gallus, induced them to withdraw to their own territories with a large sum of money. They then seem to have extended themselves more to the eastward, and possessing themselves of a fleet, they sailed against Pityus, which they took; and subsequently Trebizond shared the same fate. In a second expedition they took Chalcedon, Nicomedia, Nicæa, Prusa, Apamea, and Cius. In a third expedition, comprising a fleet of 500 vessels, they landed at Cyzicus, ravaged the coast of Attica, took and plundered Athens, Corinth, Argos, Sparta, and many other places. In 269 they undertook another vast expedition, in which they ravaged Crete and Cyprus, and laid siege to Thessalonica; but they were at length defeated in three separate engagements, by the emperor Claudius, with immense slaughter. They, however, still continued to harass the Roman frontier, and in 272 the emperor Aurelian was obliged to cede them the province of Dacia; after which there was a period of comparative peace for about fifty years. In 322, their king, Uraric, crossed the Danube; but he was at length defeated and obliged to sue for peace. In the reign of Valens, they carried on a war with the Romans for three years (367–69), but without any decisive result. About this time internal commotions produced the division of the great Gothic kingdom into the kingdom of the Ostrogoths, or Eastern Goths, who inhabited the shores of the Black Sea from the Don to the Dnieper; and the Visigoths or Western Goths, who occupied Dacia, from the Dnieper to the Danube. About 375 the Huns invaded Europe from the east, and the Visigoths implored the protection of the emperor Valens, and leave to settle on the east bank of the Danube, which was granted them. The Ostrogoths, being refused admission into the Roman territory, took refuge in the mountains. The oppression of the Roman governors soon drove the Visigoths to rebellion, and in the war which ensued they completely defeated the Roman army at Adrianople, in 378, and the emperor Valens himself lost his life. They threatened Constantinople, but were unable to take it, and afterwards settled in Thrace and Dacia. They soon became so numerous and powerful, that the court of Constantinople saw no other way of securing itself against their attacks than by making them an integral part of the empire. After many vicissitudes, the Ostrogoths also obtained a settlement in Pannonia and Sclavonia, but not till the destruction of the kingdom of the Huns in 453. The Visigoths, in process of time, obtained a degree of power which excited the alarm of Greece and Italy. In 396, Alaric made an irruption into Greece, laid waste the Peloponnesus, and became prefect of Illyria and king of the Visigoths. He invaded Italy about the beginning of the 5th century, and by that manner brought on the destruction of the Roman empire, since Stilicho, the Roman general, could only obtain a victory over Alaric, at Verona, in 403, by withdrawing all the Roman troops from the borders of the Rhine. Alaric himself soon returned to Italy, and sacked Rome in 409, and again in 410. From Rome, Alaric turned to the south of Italy, where death cut short his victorious career. In 412, the Goths quitted Italy, the south of Gaul having been given up to them; and after having remained there for a short time, they crossed the Pyrenees and took possession of a large part of Spain, where Athaulf, the successor of Alaric, was assassinated. His successor, Wallia, assisted the Romans against the Vandals and Alani, in Spain, and was rewarded with a portion of western Gaul. The succeeding king of the Goths extended their empire both in France and Spain, and during the latter part of the 5th century it had reached the highest point of its prosperity, its capital being Toulouse. At that time it embraced the greater part of Spain, and a large portion of Gaul; but after that time the Goths in Gaul were compelled to retreat before the Franks, while in Spain their empire was overthrown, about two centuries later, by the Saracens. After the fall of the Western Roman empire, by the invasion of Odoacer, in 476, the eastern emperor, Zeno, persuaded Theodoric, king of the Ostrogoths, to invade Italy in 489. He was successful, and established the kingdom of the Ostrogoths in Italy. Theodoric reigned for thirty-three years, and greatly strengthened his power and extended his kingdom; but after his death, disputes arose as to his successor, and the country became embroiled in civil dissensions. Justinian, the Eastern emperor, in order to profit by these disorders, dispatched Belisarius to Italy in 526, who took possession of Rome, and, gaining the admiration of the Goths, was invited to become their king. This, however, he refused, but held the people in subjection to his master. Totila, a noble Goth, rebelled, and made himself master of southern Italy. He was about to destroy Rome, but listened to the remonstrances of Belisarius, that it would add more to his honor to spare it, and contented himself with dispersing the inhabitants, and repeopling it before the arrival of a fresh army from Constantinople under Narses. Totila fell in battle, and his successor, Theias, shared the same fate; Italy was reconquered, and the Gothic monarchy, established by Theodoric, ceased to exist, 554. The Goths, originally savage and barbarous, had become civilized and enlightened before the time of Theodoric. This prince is much praised for his moderation, integrity, and love of justice. The public buildings of the city were kept in repair, and overseers were appointed to look after them, and to guard the statues. He was also distinguished in some degree as a patron of the fine arts, science, and learning. Religious liberty was accorded to all; and there is said to have never been in Italy a better administration than that of Theodoric. The Visigoths were the first of all the German tribes to have a written code of laws, which was drawn up in the 5th century, half a century before that of Justinian.

Got'tenburg, or **Gothenburg,** a city of Sweden, gov. of W. Gothland, capital of province of same name, 280 m. W.S.W. of Stockholm, situated near the mouth of the Gotha-Elf, and immediately opposite the N. extremity of Denmark. *Manuf.* Cloth, canvas, paper; and there are also extensive dyeing establishments and refineries. *Pop.* (1895) 106,540.

Gottingen (*gut'ing-en*), a city of Prussia, in prov. Hanover, on the Leine, 72 m. S.E. of Hanover; Lat. 57° 31′ 48″ N., Lon. 9° 56′ 45″ E. *Manuf.* Mathematical and scientific instruments. Its university has a library containing 400,000 volumes and 3,000 manuscripts. The city has a botanical garden, a museum, an observatory, and numerous scientific collections. *Pop.* (1895) 24,880.

Gottlie'ben, a small town of canton Thurgau, Switzerland, 1 m. W. of Constance. Its castle was the prison of John Huss, Jerome of Prague, and Malleobus.

Gouda (*gow'da*), (Ter Gouw), a city of Holland, at the junction of the Yssel with the Gouda, 11 m. N.E. of Rotterdam. *Manuf.* Woollens, tobacco, sail-cloth, and cordage. *G.* contains a splendid cathedral, remarkable for its stained-glass windows. *Pop.* (1895) 17,850.

Gouffre (*goff'r*), a river of Quebec, enters the St. Lawrence from Charlevoix co.

Gouge, (*gouj,*) *n.* [Fr.; L. Lat. *guvia*, a carpenter's tool, probably from Lat. *curves*, bent; Sansk. *kuch*, to bend.] (*Carp.*) A semi-circular chisel used to cut grooves, channels, or holes in wood and stone.

—Trickery; fraud; imposition; also, a cheat; a trickster; an impostor. (Used colloquially in the U. States.)

—*v. a.* To scoop with a gouge, or as with a gouge.

—To force out with the thumb and finger, as a person's eye from its socket.

—To cheat; to get the better of in a bargain; to hum bug. (Used colloquially in the U. States.)

Gouge'-bit, *n.* (*Carp.*) A bit in the form of a gouge, used for boring wood.

Gough, Hugh Viscount, (*gof.*) an English military commander, b. 1779. He entered the British army at the age of 15, and as colonel of the 87th regt. he greatly distinguished himself in the Peninsular War. *G.* subsequently commanded in China during the war of 1841–2, and led the land-attack on Canton, for which he received the Grand Cross of the Bath. Proceeding to India, Sir Hugh defeated the Mahrattas and Sikhs in the severe battles of Maharajpore, Moodkee, Ferozeshah, and Sabraon, for which he was created a peer. During the last desperate struggle between the British and the Sikhs, in 1848–9, Lord *G.* again took command, and succeeded in thoroughly subjugating the Punjab. In 1850 he was created *Viscount Gough*, and received the baton of field-marshal in 1860. D. 1869.

Gough, John B., a celebrated American temperance advocate, was b. in England in 1817. In 1829, he emigrated to the U. States, and followed the avocation of a book-binder in New York, where he became notorious for his drunken habits. In 1842, however, he took the pledge, and from that time became a changed man. He not only practised total abstinence, but began to advocate the principle from the platform. His powers as a

speaker were soon developed, and his reputation as an orator spread through the U. States and Canada, in which he travelled and lectured. In Massachusetts, the influence of his oratory was so powerful, that his presence and advocacy were eagerly sought; and in the two years succeeding his reformation, he travelled more than 12,000 miles, delivered 605 lectures, and obtained 31,760 signatures to the pledge! In 1853, he proceeded to England, where his labors met with an equal success. He remained in that country two years, during which time he delivered 440 lectures, and travelled 17,500 miles. As he passed through the country, his fame as an orator increased, and thousands of reclaimed drunkards and happy homes are said to give evidence of the practical value of his labors. Returning to the U. S., he again addressed crowded audiences in many parts of this country until 1857, when he a second time visited Great Britain, where he met with additional converts and increased popularity. He returned to the U. S. in 1860. *G.* published his *Autobiography* and some orations in 1845, and *Gleanings from my Life Work* in 1881. D., 1886, in Philadelphia.

Goajon, JEAN, (*goo'zhon.*) a French sculptor and architect of the 16th century, who, being a Protestant, fell in the massacre of St. Bartholomew, 1572. He designed the fine façade of the old Louvre, and other works, which procured him the title of the French Phidias.

Gouke'ka (GOUKCHA, or SEVAN), **Lake of,** in Russian Armenia, 25 m. from Erivan. It is 48 m. in length, with a breadth varying from 5 to 20 m., and lies 5,300 feet above the sea.

Goulard's Extract, *n.* (*Chem.*) A tribasic acetate of lead prepared by dissolving litharge in a solution of acetate of lead. It is obtained in needle-like crystals.

Goulard Water, *n.* (*Med.*) Solution of Goulard's Extract in water; used as an eye-lotion.

Gould, JOHN, F.R.S., an eminent English naturalist, born 1804. He is author of *The Birds of Australia*, (a magnificent work in 7 vols., fol., containing descriptions of 600 species;) *Mammals of Australia; A Century of Birds from the Himalayas* and *The Birds of Great Britain*, &c. Died in 1881.

Goulds'borough, in *Maine*, a post-town of Hancock co., 110 m. E. of Augusta. *Pop.* (1890) 1,709.

Goulds'borough, in *Pennsylvania*, a post-office of Wayne co., on D., L. & W. R.R.

Gounod (*goo-nō*), CHARLES FRANÇOIS, a popular musical composer, and, after Auber, regarded as the head of the French lyric school, was born at Paris, 1818. He first became known by his pastoral of *Beaucis and Philemon.* Other musical works followed, which attained no very distinctive success, till his opera of *Faust* appeared, and took all the lovers of operatic music by surprise. What rendered its success more remarkable was the fact that, although Goethe's masterpiece had been previously set to music a score of times, not one of these efforts was considered worthy of the theme. *G.* was also the composer of a comic opera founded on Molières' "Medecin malgré lui," produced in London under the title of *The Mock Doctor;* of *La Reine de Saba; Mirelle*, 1864; *Romeo and Juliet*, produced at Paris and London in 1867, and *Polyeucte*, produced at Paris in 1878. In 1881 his great sacred trilogy, *The Redemption*, was produced, and in 1885 his last important work, *Mors et Vita.* Died in 1893.

Goura, (*goo'ra,*) *n.* (*Mus.*) The characteristic musical instrument of the black tribes of S. Africa, shaped like the bow of a Hottentot, (see Fig. 396,) and the string, made of intestines, is retained at one end by a knot in the barrel of a quill flattened and cleft. The quill, when opened, forms a long isosceles triangle, at the base of which is the hole which keeps the string fast; the other, when drawn back, being fastened to the end of the bow by a thin leatheru thong. The tension may be increased or diminished at the pleasure of the performer, who holds his instrument, while playing, in the manner of a huntsman's horn, the quill being applied to his mouth, and by alternate expiration and inspiration, many players are able to draw from the *G.* melodious notes.

Gourd, (*gōrd,*) *n.* [Fr. *courge*, and *gourde;* Belg. *kauwoorde;* It. *cucuzza;* Lat. *cucurbita*, probably, according to Varro, from *curvus*, crooked, bent.] (*Bot.*) The common name for a large cucurbitaceous fruit. (See PEPO.) The plant named *Cucurbita Pepo* yields the white *G.; C. maxima*, the red *G.*, or pumpkin; *Lagenaria vulgaris*, the bottle-*G.*, often used as a receptacle for fluid; *Luffa fœtida*, the sponge-*G.*; and *Trichosanthes anguinea*, the snake-*G.* The wild *G.* of the Old Testament (2 *Kings* iv. 39) is supposed to have been the bitter cucumber or colocynth.

—A false die. — *Shaks.*

Gourde, *n.* [Sp. *gordo.*] A name given to the colonial dollar in Cuba, Hayti, St. Domingo, &c., and in Louisiana to the American dollar.

Gour'diness, *n.* [See GOURDY.] (*Fur.*) A swelling on a horse's leg after a journey.

Gour'dy, *a.* [Fr. *gourd*, benumbed.] (*Fur.*) Swelled in the legs, as a horse.

Gourmand, (*gōōr'mănd,*) *n.* The French spelling of GORMAND, *q. v.*

Gour'net, *n.* (*Zoöl.*) See GURNET.

Gourock, (*goor'ock,*) a town of Renfrewshire, Scotland, on the Frith of Clyde, about 3 m. S.W. of Greenock. *Manf.* Woollen and linen goods. *Pop.* 3,000.

Gout, *n.* [Fr. *goutte;* Sp. *góta;* It. *gotta;* Lat. *gutta*, a drop; probably akin to Gr. *chūtos*, poured, shed, from *chĕō*, to pour, to shed.] (*Med.*) A painful disease of the joints, generally of the feet or hands, and more particularly of the great toes. It occurs mostly in persons advanced in life, and who indulge freely in the pleasures of the table; and is hereditary. The attack is usually preceded by a disordered state of the digestive system, and commonly begins by a painful swelling of the first joint of the great toe. It returns at longer or shorter intervals, when it may attack various other parts; but generally the great toe is the chief seat of the disease. Sometimes the attack comes on without any previous warning; but usually, for some days or weeks before, the patient has been suffering from indigestion, with diminished appetite, flatulence, costiveness, and a general feeling of lassitude and depression of spirits. He goes to bed, perhaps, in tolerable health, and after a few hours is awakened by the severity of the pain in the great toe, or sometimes the ankle, heel, or calf of the leg. The pain resembles that of a dislocated bone, and is attended with the sensation as if cold water was poured over the part; and this is succeeded by chilliness, shivering, and other febrile symptoms. These gradually abate as the pain increases, and it continues usually to the following night, with sometimes, however, a period of intermission during the day. The pain is of a burning or gnawing character. The next night, after some time of tossing and restlessness, the patient succeeds in falling asleep; a gentle perspiration breaks out, and he awakes to find himself refreshed, and the part comparatively free from pain. On examining the limb next morning, it is found to be considerably swollen, the toe red and shining, and the veins of the foot much distended. There are usually a number of subsequent attacks, becoming less and less severe, before what is known as "a fit of the gout" is over; so that it commonly extends over a period of several weeks, or even months. When the fit is over, the system is relieved, and the person feels, both in mind and body, much better than before the attack. At first, a fit of gout occurs only once perhaps in two or three years; but it becomes by degrees more and more frequent, more severe, and of longer duration every succeeding fit. In its progress, various parts of the body become affected, and translations take place from one joint or limb to another; and after frequent attacks, the joints lose their strength and flexibility, and become so stiff as to be deprived of all motion. Concretions of a chalky appearance are likewise formed about the joints; and affections of the kidneys arise from a deposit of the same kind of matter in them. This matter is a compound of uric acid and soda. The fits are more apt to occur in spring or autumn than at other seasons of the year; probably owing to the variableness of the weather at these times. As the fits become more frequent and severe, so the constitutional derangements become more marked and constant. The appetite fails, indigestion is more constant, there is a tendency to costiveness, the mind becomes restless and irritable, calcareous deposits are formed in the arteries, calculi form in the bladder, and frequently the heart becomes diseased. Such are the general features of what is termed the *regular gout;* but there are certain other kinds which differ widely from it in their general character. In *atonic gout*, the disease, instead of manifesting itself in the joints, attacks some of the internal organs, as the stomach, when the patient suffers from indigestion, nausea, vomiting, and severe pains; or the thoracic viscera, when palpitations, fainting, and asthma arise. *Retrocedent gout* (Lat. *podagra retrograda*) is when, after the inflammation has occupied a joint, it suddenly disappears, and is transferred to some internal part, as the stomach, heart, lungs, or brain, when it may give rise to various fatal disorders. *Misplaced gout* is when, instead of attacking the joints, the disease proceeds inward, and causes an inflammatory affection of some of the internal parts, with the same symptoms that attend inflammation of these parts from other causes. The cause of gout is the excess of uric acid in the blood, resulting either from an excessive formation or a checked excretion, for there is reason to believe that this substance exists in very minute quantities in the blood even in perfect health. Topical remedies are of little use in gout. If the patient is plethoric, the inflammation is to be reduced by bleeding, purging, a low diet, and sudorifics. The use of colchicum is very beneficial during a fit of gout, but it requires to be used with caution. The most efficient cure of this disease, however, is strict attention to diet and plenty of active exercise.

—A clot, or coagulated mass.

"I see on the blade of the dudgeon *gouts* of blood."— *Shaks.*

Goût, (*gōō,*) *n.* [Fr., from Lat. *gustus;* Sansk. *gas*, to eat, whence Gr. *geuō*, to taste.] Taste; relish; gusto; nice appreciation or fancy; as, "chacun a son *goût*" (every one to his taste).

Gout'ily, *adv.* In a gouty manner.

Gout'iness, *n.* State of being subject to the gout; gouty affections.

Gout'y, *a.* Diseased with gout; subject to the gout; as, a *gouty* person.

"Knots upon his *gouty* joints appear." — *Dryden.*

—Pertaining to the gout; relating to the gout.

Gou'ty Concre'tions, *n. pl.* (*Path.*) Concretions in the joints of gouty persons, called sometimes, from their appearance, *chalk-stones.* They are mostly composed of urate of soda.

Gouv'erneur, in *New York*, an important town of St. Lawrence co., 34 m. S. of Ogdensburg, on the R., W. & O. R.R. Iron ore, marble and talc are mined in the vicinity, and there are manuf. of iron, lumber, machinery, &c. *Pop.* (1897) about 3,800.

Gouv'ion-St.-Cyr, LAURENT, a general and marshal of France, distinguished in the campaign on the Rhine, 1795; and under Morcau and Joubert, in the campaign of Italy. After the fall of Napoleon he was made a peer of France, and served as minister of war. The latter years of his life were occupied in the composition of his several memoirs. Died 1830.

Govern, (*guv'urn,*) *v. a.* [Fr. *gouverner;* Sp. *gobernár;* Lat. *guberno;* Gr. *kubernō* — *kăbē*, the head, and *nans*, a ship.] To rule; to direct and control; to regulate by authority: to keep within the limits prescribed; to sway; as, to *govern* a country.

"Slaves to our passions we become, and then
It grows impossible to *govern* men." — *Waller.*

—To regulate; to influence; to direct; to control; to restrain; to command, as the feelings; as, to *govern* one's passions.

"Go after her, she 's desperate; *govern* her." — *Shaks.*

(*Gram.*) To affect so as to determine the case, mood, &c.; as, the verb "amo" *governs* the accusative case.

"Words that *govern* go before." — *Mauger.*

—*v. n.* To exercise authority; to administer the laws; to maintain the superiority; to have the control.

"By that rule . . . you still may *govern*." — *Dryden.*

Gov'ernable, *a.* [Fr. *gouvernable.*] That may be governed or subjected to authority; controllable; obedient; submissive to law or rule.

Gov'ernableness, *n.* Quality of being governable.

Governador', an island of Brazil, in the bay and abt. 8 m. N. of the town of Rio de Janeiro. *Area*, abt. 56 sq. m.

Gov'ernante, *n.* [Fr. *gouvernante.* See GOVERN.] A female who has the charge of young women; a governess; a preceptress; a duenna.

Gov'erness, *n.* An instructress; a female teacher; a preceptress; an educated woman who has the care of instructing and directing young ladies; as, a daily *governess.*

Gov'erning, *p. a.* Holding the power or superiority; directing; controlling; prevalent; as, a *governing* political party, a *governing* influence.

Gov'ernment, *n.* [Fr. *gouvernement.*] (*Pol.*) A word employed to denote either the particular forms under which a State is governed, the collective body of its laws, or the person or persons in whom the supreme power is vested. There are three distinct forms of *G.*, — a *monarchy*, in which the supreme power is in the hands of one person; an *aristocracy*, in which it is vested in a privileged minority; and a *democracy*, in which it is exercised either directly or indirectly by the great body of the people. Monarchy, in its abuse, becomes *despotism*; aristocracy tends to *oligarchy*; and democracy to *ochlocracy*, or mob government. The mixed form of *G.* is that which combines all, or at least two, of these forms, and is an attempt to combine the good qualities of each, and to guard against their evil tendencies.

"For forms of *government* let fools contest,
Whate'er is best administered is best." — *Pope.*

Every *G.* comprises within itself three distinct powers— the *legislative*, *judicial*, and *executive.* In its legislative capacity, it lays down the laws by which its subjects are to be governed; its judicial power is exercised in deciding, by means of various courts and judges, all questions connected with these laws; and its executive power, in carrying out or putting into execution its legislative enactments and judicial decisions. — See ARISTOCRACY, DEMOCRACY, MONARCHY, FEDERAL GOVERNMENT, &c.

(*Geog.*) A subdivision of territory over which the right of sovereignty is extended; as, the *government* of the Caucasus.

(*Gram.*) The influence of a word in regard to construction.

Government'al, *a.* [Fr. *gouvernemental.*] Pertaining to government; made by government; sanctioned by government.

Gov'ernor, *n.* [Fr. *gouverneur;* Lat. *gubernator.*] One who governs, rules, or directs; one invested with supreme authority; a ruler; a chief magistrate; as, the *governor* of Virginia. — A guardian; a tutor; a preceptor; one who has the care of a young man's education, &c.

"The great work of a *governor* is to fashion the carriage, and form the mind." — *Locke.*

—One to whom temporary authority is delegated.

"To you, lord *governor*,
Remains the censure of this hellish villain." — *Shaks.*

(*Naut.*) A pilot; a steersman. (R.)

(*Engineering.*) A contrivance by which the motion of the fly-wheel shaft regulates the velocity of the engine, by causing two balls to revolve in such a manner that they open, or close, the passage of the steam from the boiler, by means of a butterfly-valve, in proportion to the increase of velocity. Two heavy balls, B B, attached to the extremities of two rods, B F, B F, play upon a joint at E, passing through a mortise in the vertical shaft D D. These are united, by joints at F, to the short rods F H, which again are connected by joints at H to a ring which slides on the shaft D D. A horizontal wheel, W, is attached to D D, having a groove to receive a rope or strap on its rim, by means of which the motion is communicated to D D from a corresponding wheel on some shaft of the machinery to be regulated. It is evident, from the disposition of the rods, that if the balls B B are by any means raised or drawn asunder, the extremities F F of the rods turning on the pivot E will also be separated, and their distance from the axis increased. This will draw the rods F H in the same direction, and cause the ring or collar H to descend. This ring is connected with the end, I, of a lever, whose fulcrum is at G, and whose other extremity, K, is connected by some means with the part of the machine which supplies the power. Suppose now the velocity from

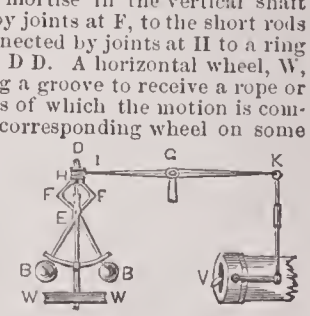


Fig. 1183.— ENGINE-GOVERNOR.

any cause to undergo a sudden increase; by reason of the increased centrifugal force arising from the whirling motion, the balls B B will recede from the shaft D D, and raise the extremity K of the lever. On the other hand, if the velocity is diminished, the centrifugal force of the balls will be diminished, they will fall by their own weight nearer the axis, and cause the end K of the lever to descend. When the governor is applied to a steam-engine, the rod K I communicates with a flat circular valve, V, placed in the principal steam-pipe, and so arranged that when K is elevated as far as the divergence of the balls will allow, the opening of the pipe will be closed by the valve V, and the passage of steam entirely stopped. On the other hand, when the balls subside to their lowest position, the valve will be entirely open. Thus, when the velocity is increased, the supply of steam is checked; and when it is diminished, the supply of steam is immediately increased; by which means a uniform proper velocity of the machinery is maintained.

Gov'ernorship, *n.* The rank or office of a governor.

Governor's Island, in *Massachusetts*, a small island at the main entrance of Boston Harbor. Fort Winthrop is built upon it.

Governor's Island, in *New York*, an island in New York harbor. Fort Columbus, the headquarters of the Department of the East, U. S. A., is built upon it.

Go'wan, *n.* [Scot., daisy.] (*Bot.*) The Scottish term for the daisy.

(*Min.*) Decomposed granite; but the term is sometimes applied to the solid rock.

Gowan'da, in *New York*, a post-village of Cattaraugus co., about 350 m. W. of Albany.

Gowa'nus, in *New York*, a village of Kings co., about 1 m. S. of Brooklyn.

Gow'ensville, in *S. Carolina*, a post-village of Greenville district.

Gower, Gwr, (*goor,*) a peninsula of S. Wales, projecting into the British Channel in the extreme W. of Glamorganshire. *G.* is 15 m. long, with an average width of 5 m.

Gow'er, in *Iowa*, a township of Cedar co.

Gow'er's Ferry, in *Iowa*, a village of Cedar co.

Gowk, *n.* See GAWK.

Gown, *n.* [W. *gwn;* Gael. *gun, guin;* It. *gonna, gonnella;* O. Fr. *gonnelle*, a woman's gown. Etymol. unknown.] A woman's upper garment; a dress; a robe; as, a silk *gown*. — A long, loose wrapper or upper garment worn by men indoors; as, a dressing-*gown*. — A long, loose robe, worn by professional men, as divines, barristers, students, &c.; the academic toga; — hence, the dress of peace, or of the civil magistracy, in distinction from the military.

"He Mars depos'd, and arms to *gowns* made yield." — *Dryden.*

—Any sort of dress, garb, or habit; as, the "*gown* of humility." — *Shaks.*

Gowned, *a.* Dressed in a gown; attired; clad.

"Sage and sober peers, all gravely *gown'd*." — *Spenser.*

Gown'man, Gownsman, *n.* One whose professional habit is the gown, as a divine or advocate, and particularly a member of an English university; — hence, a civilian, as opposed to the military; as, "lazy *gownmen*." *Rowe.*

Gown'-piece, *n.* A piece of cloth, or other textile fabric, sufficient to make a gown.

Gowt, *n.* See GOUT.

Go'ya, a town of the Argentine Republic, prov. of Corrientes, on the Parana River; *pop.* 1,500.

Goyan'na, a city of Brazil, prov. of Pernambuco, on the Goyanna River, abt. 35 m. N.W. of Olinda; *pop.* 6,000.

Goyave', a town of Guadeloupe, W. Indies, on Goyave Bay, at the mouth of Petit-Goyave River.

Goyaz', a central prov. of Brazil, bounded by Para on the W., Pernambuco and Minas-Geraes on the E., San Paulo on the S., and Matto Grosso on the W.; *area*, 274,700 sq. m. The surface, generally mountainous, is watered by the Aragnay, Tocantins, Vermelho, and Rio Grande; the soil is fertile. *Prod.* Barks, medicinal plants, coloring woods, sugar, bananas, cotton, and tobacco. *Pop.* 274,702.

Goyaz, formerly *Villa Boa*, cap. of the above prov., is situated on the Vermelho, 605 m. N.W. of Rio de Janeiro, Lat. 16° 20′ S., Lon. 50° 49′ W. *Manuf.* Cotton, tobacco, diamonds, crystals. *Pop.* 9,100.

Gozan', [Heb., fleece, pasture.] (*Anc. Geog.*) A prov. of Media, to which Tiglath Pileser, and afterwards Shalmanezer, sent the captive Israelites. (2 *Kin.* xvii. 6.) — The country was named after the river Gozan, now called the Kizzie Ozan, or Golden River, which rises in N.W. Persia and flows N.E. very tortuously into the Caspian Sea.

Go'zo, a small, rocky, but fertile island in the Mediterranean, a little to the N.W. of Malta. *Ext.* 9 m. long, with a breadth of 5. *Desc.* Rocky, but fertile. *Pop.* 16,500. — There is in this island a Cyclopean giant's tower which is an object of great interest. On the S.E. coast is Fort Chambray.

Goz'zard, *n.* [A corrupted form of *gooseherd.*] One who looks after and has charge of geese. (Vulgar.)

G. P. O. An abbreviation of *General Post-Office.*

Graaff-Reinet, a town of S. Africa, and one of the most important and prosperous of Cape Colony, is situated on the Sunday, which enters Algoa Bay near Port Elizabeth.

Graaf'schap, in *Michigan*, a post-office of Allegan co.

Grab, *n.* [Hind. *ghurâb*, an Arab coasting-vessel.] (*Navt.*) The name given in Hindostan to a three-masted vessel peculiar to the Malabar coast.

—A clutch; a sudden grasp, seizure, or snatch: as, the thief made a *grab* at his watch.

Grab, *v. a.* [Swed. *grappa*, to grasp. See GRABBLE, GRAPPLE, and GRIPE.] To snatch; to clutch; to catch hold of suddenly; to seize; to grasp.

Grab'ber, *n.* One who snatches, clutches, grasps, or seizes.

Grab'ble, *v. n.* [Dim. of *grab;* Ger. *grabbeln.*] To grope; to feel about with the hands; as, "*grabbling* and mumbling." — *Selden.*

—To lie prostrate or recumbent on the ground; to sprawl on one's belly; to grovel.

Grabow, (*gra'bo,*) the name of several towns in Germany, the largest 24 m. from Schwerin, on the railroad between Berlin and Hamburg. *Pop.* 6,746.

Gracchus, TIBERIUS SEMPRONIUS, a celebrated Roman tribune and reformer, B. about B. C. 166. He was the eldest son of the consul of the same name, and of Cornelia, daughter of Scipio Africanus; and losing his father at an early age, was brought up by his noble mother, with the aid of Greek tutors. He married the daughter of Appius Claudius, chief of the Senate, and soon after distinguished himself under Scipio at the siege of Carthage. At the age of about 30 he served as quæstor in Spain; but deeply moved by the frightful evils which he saw in the state of Italy and its population, he resolved to devote himself to the task of reform, and especially to the formation of a middle class of small landed proprietors. He entered the office of tribune B. C. 133, and soon proposed a measure reviving with some modifications a long disregarded Liciniau law, for the more equal distribution of the public lands. This measure, eagerly welcomed by the country-tribes, roused bitter opposition on the part of the rich holders of these lands, and at their instance Octavius, one of the tribunes, interposed his veto and prevented its passing into law. This course was repeated on a second attempt of *G.*; but at a third assembly Octavius was deposed and the bill passed. Soon after, *G.* made a proposal for distributing the property of Attalus, king of Pergamus, recently bequeathed to the Romans, among the poor. He also brought forward several measures of reform, which were subsequently carried by his brother Caius. On his offering himself a candidate for the tribuneship the next year, a riot arose, the senators making an attack upon the people, and the reformer was killed with many of his adherents. His body with theirs was thrown into the Tiber, leave being refused to Caius to bury it.

GRACCHUS, CAIUS SEMPRONIUS, younger brother of the preceding, and like him tribune and reformer, B. about B. C. 157. He served under Scipio at Numantia, and in his absence was named one of the commissioners for carrying out the distribution of public lands. After his brother's death he lived in retirement till B. C. 126, when he was sent as quæstor to Sardinia. Two years later, disregarding an order of the Senate, who would fain have him absent, he returned to Rome and was chosen tribune. He was by careful study and training an accomplished orator, and he applied all his powers to avenge the death of Tiberius, and to carry out his measures. He renewed and extended the Agrarian law; planted new colonies in Italy and the provinces; provided for the sale of corn at a low price: deprived the Senate of the judicial power; and had new roads made and old ones restored in all parts of Italy. These measures are called the Sempronian laws. Caius was re-elected tribune for 122, and at once proposed a wide extension of the Roman franchise. To diminish his popularity, the Senate employed Livius Drusus to outbid him for popular favor. At the same time Caius was sent, with his chief supporter Flaccus, to Carthage, to establish the new colony there. He was not again chosen tribune, and a meeting of the Senate was called to revoke one of his laws. The irritation was immense, the friends of Gracchus were armed, blood was shed, the great reformer was declared a public enemy, and in the combat which took place next day three thousand are said to have fallen, and Gracchus had his slave put him to death. Cornelia survived her sons many years, living in retirement at Misenum.

Grace, *n.* [Fr. *grace;* Lat. *gratia—gratus*, beloved, dear, agreeable; allied to *carus*, dear, and Gr. *charis*, grace, favor.] Good-will; kindness; disposition to oblige another; beneficence; generosity; favor bestowed or privilege conferred.

"Is this the reward and thanks I am to have for those many acts of *grace* I have lately passed." — *King Charles I.*

—The free, unmerited love and favor of God; divine influence graciously bestowed; the application of Christ's righteousness.

(*Theology.*) In its most general signification, *G.* is used to denote the love and favor of God towards mankind, more particularly in his sending his son Christ Jesus to die for sinners. It implies that the gift springs from the bounty and liberality of the giver, without any claim or merit on the part of the recipient. It is also employed to designate the influence of the Divine Spirit upon the mind, by which an individual is brought to receive the truths of Christianity; and hence, when an individual has been brought into that condition, he is said to be in a state of grace. It is also used to signify the gospel dispensation, as distinguished from the legal; as when the apostle Paul speaks of our being "no longer under the law, but under grace." Some theologians assert that there are two kinds of grace, — common and special. Common grace they regard as being extended unto all men; special grace, as that which is extended only to the elect, and by means of which they are brought unto Christ. Some speak of grace as being irresistible, efficacious, electing, justifying, sanctifying, &c. The nature of grace has been one of the most fruitful sources of controversy in the Church, giving rise to much bitterness of feeling, and introducing many hair-splitting distinctions that we are not qualified to examine.

(*Fine Arts.*) A quality arising from elegance of form and attitude combined. A figure may be just in its proportions, its parts and members may be all perfectly regulated, yet it may be deficient in grace. A woman can be beautiful but one way, yet she can be graceful a thousand. It is scarcely possible in words to express this quality, yet it is constantly seen in nature; and it is scarcely possible to contemplate a picture by Raffaelle without feeling its power.

(*Mus.*) Something added for ornament, as an appoggiatura, a shake, a trill, &c.

—In England, the title used in addressing a duke or an archbishop, and formerly the king.

"How fares it with your *grace?*" — *Shaks.*

(*Myth.*) See GRACES.

—A short prayer before or after meat; a benediction asked or thanks returned.

—An act, edict, vote, or decree of the senate or governing body. (Used at the English universities.)

—*pl.* (*Sports.*) A play in which a small hoop is thrown from one person to another by means of two sticks in the hands of each.

Days of grace. (*Law.*) See DAY.

Good graces. Favor; esteem; predilection; friendship.

"Demand deliv'ry of her heart,
Her goods and chattels, and *good graces.*" — *Hudibras.*

To say grace. To ask a blessing, or render thanks before or after meat.

"And what's more rare, a poet shall *say grace.*" — *Pope.*

Means of grace. Means of promoting religious feeling, or of securing the almighty favor.

—*v. a.* To honor; to dignify and elevate by an act of favor.

"*Grace* with a nod, and ruin with a frown." — *Dryden.*

—To adorn; to decorate; to embellish; to dignify.

"Great Jove and Phœbus *graced* his nobler line." — *Pope.*

—To furnish and fortify with heavenly grace.

Grace'-cup, *n.* The cup or health drunk after grace is said at table.

Grace'ful, *a.* Beautiful with dignity; full of grace; elegant; easy in gait or manner; agreeable in appearance, with an expression of dignity or elevation of mind or manner; as, a *graceful* woman, a *graceful* act, a *graceful* deportment, a *graceful* air, a *graceful* speaker, &c.

"Bold in the lists, and *graceful* in the dance." — *Pope.*

Grace'fully, *adv.* In a graceful manner; with a natural ease and propriety; with pleasing dignity; elegantly; as, she waltzes *gracefully.*

Grace'fulness, *n.* Quality of being graceful; elegance of manner, gait, or deportment; beauty, with dignity in manner, motion, or countenance.

Grace'less, *a.* Unregenerate; unsanctified; wanting in divine grace; — hence, corrupt, depraved, profligate, abandoned; as, a *graceless* youth, a *graceless* age.

Grace'lessly, *adv.* Without grace; in a graceless manner.

Grace'lessness, *n.* Quality or state of being graceless; profligacy; depravity; degeneracy.

Grace'ham, in *Maryland*, a post-village of Frederick co., abt. 75 m. N.W. of Annapolis.

Graces. [Gr. *Charites;* Lat. *Gratiæ.*] (*Myth.*) In Roman mythology, the three daughters of Venus, by Jupiter or Bacchus, who were named Aglaia, Thalia, and Euphrosyne. They were the constant attendants of their beautiful mother, and were represented as three young and lovely virgins, with their hands joined. They presided over kindness and all good offices, and their worship was the same as that of the nine Muses, with whom they had a temple in common. They were generally represented in a nude state, to show that kindness ought to be performed with sincerity and candor. The moderns explain the allegory of their having their hands joined to mean that there should be a perpetual return of kind and good deeds among friends. — With the Greeks, *Charites*, the daughters of Zeus and Eurynome, were the embodiments of gracefulness and beauty. In the Vedic mythology, the *Harits*, with whose name that of the Charites has been identified, are the horses of the sun, glittering with dazzling light. But it would probably be a mistake to suppose that the Greeks borrowed from Vedic writings an idea which comes to both Greeks and Hindoos from an earlier and common source. The word is traced to the root *ghar* or *har*, to be fat or glittering, — the transition from the idea of fatness to that of brilliance and beauty being shown in a large class of words both in Greek and other languages.

Grace'ville, in *Georgia*, a village of Houston co., abt. 68 m. S.W. of Milledgeville.

Gracias-a-Dios, (*gra'se-as-a-dre'oce,*) a town of Central America, State of Honduras, abt. 40 m. W.N.W. of Comayagua; *pop.* abt. 1,000.

Gra'cias-a-Di'os, a promontory on the E. coast of Patagonia, near the mouth of the Gallagos River.

Gra'cias-a-Di'os, a cape on the Mosquito Coast of Central America; Lat. 14° 59′ N., Lon. 83° 12′ W.

Gracila'ria, *n.* (*Bot.*) A species of plants, order *Gramiaceæ*. The *G. lichenoides* is the commercial Ceylon moss. It is nutritive, emollient, and demulcent, and may be employed in the form of a decoction or jelly as a food for children and invalids, and medicinally in pulmonary complaints, diarrhœa, &c. It is sometimes imported under the name of agar-agar; but *G. spinosa* has also been imported under the same name. Both species are largely used in the East for making nutritious jellies, for stiffening purposes, and for varnishing. *G. helminthocorton* is a Corsican moss. It has been used principally as a vermifuge, but its properties have been much overrated. *G. crassa*, or Ki-tsai, is cooked with a soy or vinegar in China, and is also used by the Chinese ladies for giving a gloss to their hair.

Gracil'ity, *n.* [Lat. *gracilitas.*] Slenderness; tenuity. (R.)

Gracio'sa, one of the Azores, in the Atlantic, 20 m. long, by an average of 6 m. in width. Its principal town is Santa Cruz. *Pop.* 16,000. — Also, one of the Canary islands, small, and of little note.

Gracioso, (*grath-e-o'so,*) *n.* [Sp.] The buffoon, a favorite character on the Spanish stage.

Gracious, (*grā'shus,*) *a.* [Fr. *gracieux*; Lat. *gratiosus.*] Favorable; kind; friendly; disposed to forgive offences and impart unmerited blessings; benevolent; beneficent; benignant; merciful; as, "the good and *gracious* God."—*South.*

—Proceeding from divine grace; renewed or sanctified by grace; influenced or controlled by divine influence.

"So hallowed and so *gracious* is the time."—*Shaks.*

—Acceptable; excellent; attracting or winning favor or esteem.

"The landlady and Tam grew *gracious*,
Wi' favours secret, sweet, and precious."—*Burns.*

—Beautiful; graceful; becoming; as, a *gracious* presence.

Gra'ciously, *adv.* Kindly; favorably; in a friendly or pleasing manner; with kind condescension.

Grack'le, Grak'le, *n.* [Lat. *graculus*, a jack-daw.] (*Zoöl.*) See QUISCALUS.

Gradation, (*gra-dā'shun,*) *n.* [Fr.; Lat. *gradatio* — *gradus*, a step, a pace. See GRADE.] A series of ascending steps or degrees, or a proceeding step by step; progress from one degree or state to another; a regular advance from step to step, or rank to rank.

"With no cold *gradations* of decay."—*Dr. Johnson.*

—A degree in any order or series; order; series; sequence; regular process by degrees or steps; as, "a direct *gradation* of consequences."—*South.*

(*Painting, &c.*) A term denoting the gradual receding of objects into the remote distance, by a proper strength or due diminution of light, shade, and color, according to their different distances, the quantity of light which shines upon them, and the medium of air through which they are seen.

(*Mus.*) A diatonic ascending or descending succession of chords.

Grada'tional, *a.* By gradation. (R.)

Grada'tioned, *a.* Having gradations; formed by gradations.

Grad'atory, *a.* [From Lat. *gradus.* See GRADE.] Gradual; advancing step by step. — Adapted for progressive movement.

Grad'atory, *n.* [Lat. *gradatorium.*] (*Arch.*) A step from the cloisters into the church.

Grade, *n.* [Fr.; A. S. *grad*; W. *grad*; Lat. *gradus*, a step. Probably connected with the obsol. Heb. *darag*, Heb. *darnach*, to advance, which, inverted, gives the word.] A step; a pace; a degree or rank in order or dignity; a step or degree in any descending series; as, the lowest *grade* of society, *grades* of military rank, &c.

—The degree of ascent or descent in a highway or railroad; a gradient; as, a *grade* of 10 feet per mile.

—*v. a.* To reduce to a level, as the line of a highway, canal, or railroad.

Grade'ly, *a.* [A. S. *grada*, step, order; D. *graad*, from Lat. *gradus.*] An extensively used English provincialism, denoting descent; orderly; with propriety.

Gra'dient, *a.* [Lat. *gradiens* — *gradior*, to step, to walk — *gradus*, a step, a pace.] Moving by steps; walking: as, "*gradient* antomata." (*Wilkins.*) — Rising or descending by regular degrees of inclination; as, the *gradient* line of a canal.

—*n.* A sloping way, line, or path; a grade.

(*Engineering.*) The proportionate ascent or descent on any portion of a line of railroad; thus an inclined plane 4 m. long, with a total fall of 84 ft., is said to have a gradient of 21 ft. in the mile.

Gra'din, Gradine', *n.* [Fr. See GRADE.] A seat placed above another.

"The *gradines* of the amphitheatre."—*Layard.*

(*Sculpt.*) A kind of indented chisel.

Gradis'ka, or **Berbir,** a strong fortress of European Turkey, in Lower Bosnia, on the right bank of the Save.

Grad'ual, *a.* [Fr. *graduel*, from Lat. *gradus.*] Proceeding by steps or degrees; advancing step by step; passing from one step to another; regular and slow; proceeding by degrees in a descending or ascending line or progress; as, a *graduat* progress, a *gradual* decline.

—*n.* An order of steps.

"Before the *gradual* prostrate they adored."—*Dryden.*

(*Eccl.*) In the liturgy of the Roman Catholic Church the term *G.* is applied to the few verses of the Holy Scriptures, generally the Psalms, which are chanted after the reading of the Epistle, in the service of the Mass. It is so called from the priest, during the time, being on the steps of the altar.

Grad'ually, *adv.* By degrees; step by step; regularly; slowly; in a gradual manner; as, he *gradually* got better.

Graduate, (*grad'ū-āt,*) *v. a.* [L. Lat. *gradus, graduatus*, to admit to academical degrees, from Lat. *gradus.*] To honor with a degree or diploma in a college or university; to confer a degree on.

"John Tregonwell, *graduated* a doctor, did good service." *Carew.*

—To divide, as any space, into small regular intervals; to form, as shades or nice differences; to mark, as degrees or differences of any kind; as, to *graduate* a thermometer.

—To advance by degrees; to temper; to prepare, modify, or improve gradually.

"Dyers *graduate* their colors with salts."—*Browne.*

—*v. n.* To receive a degree from a college or university; as, he *graduated* at Harvard. — To pass by degrees; to change gradually, as certain minerals.

—*n.* One who has received a degree in a college or university, or from some incorporated professional society; one who has taken university honors; as, an Harvard *graduate.*

—*a.* Graduated; formed by successive steps or degrees.

Grad'nateship, *n.* The state of a graduate.

Gradua'tion, *n.* [Fr.; L. Lat. *graduatio.*] Regular progression by succession of degrees; as, "the *graduation* of the parts of the universe." (*Crew.*) — Act of conferring or receiving academical degrees; as, *graduation* at college. — Act or process of dividing any space into small regular intervals or degrees, as philosophical instruments, &c. — Marks or lines indicating degrees, &c., on astronomical and other instruments. — The process of bringing a liquid to a certain consistence by evaporation.

Grad'uator, *n.* One who graduates; as, a *graduator* of philosophical instruments. — An instrument for dividing any straight or curved line into several intervals. — A vessel for accelerating the formation of vinegar by arrangements to diffuse the liquid over a large surface, so as to secure rapid acetification, in consequence of exposure to the air.

Gra'dus, *n.* [An abbreviation of the Lat. *gradus ad Parnassum*, a step to Parnassus.] A dictionary of prosody, designed for students of the classics. The first work of this kind was by the Jesuit Aler, and published at Cologne, 1702.

Gra'dyville, in *Kentucky*, a post-office of Adair co.

Græci, (*gre'ci.*) (*Anc. Geog.*) The inhabitants of Greece.

Græcia Magna. See MAGNA GRÆCIA.

Græfe, KARL FERD. VON, an eminent German surgeon, b. in Warsaw, 1787. He was nominated professor of surgery and director of the surgical clinic in 1811; and became afterwards surgeon-general of the army, and co-director of the Friedrich-Wilhelm Institute and the Medical Surgical Academy. To him the science is indebted for the introduction of many new instruments and methods of operating. Among his works are to be particularly mentioned: *Angiektasie, ein Beitrag zur rationellen Cur und Erkenntniss der Gefässausdehnung* (1808); *Normen für die Ablösung grosser Gliedmassen* (1812); *Rhinoplastik* (1818); *Die epidemisch-contagiöse Augenblennorrhöe Ægyptens* (1823); *Chirurgie und Augenheilkunde* (1820–40). D. 1840.—His son, ALBRECHT VON GRÆFE, a most eminent oculist, born in Berlin, 1828, has devoted himself more particularly to ophthalmology, and established in Berlin a private clinic and hospital for eye diseases, which has become so well known as to be frequented by patients and students from all parts of the world. He has been professor of ophthalmology from 1867. *G.* is a fine clinical lecturer, and ranks among the most eminent oculists of the present day.

Græf'enberg, in *Kentucky*, a post-office of Shelby co.

Græf'enberg, in *New York*, a village of Herkimer co.

Græf'enberg, in *Pennsylvania*, a P. O. of Adams co.

Graf, (*gräf.*) [Ger.] (*Her.*) A title of nobility, which, in Germany, corresponds to the title *count.* The first mention of this particular grade of nobility occurs in the 5th century. There are two classes of grafs in Germany at the present time, the first forming a section of the highest and oldest nobility, and the second representing the higher order of the lower nobles.

Graff, *n.* and *v.* See GRAFT.

Graf'fenberg, a village of Austrian Silesia, 20 m. S. of Neisse, famous for the hydropathic establishment of Priessnitz.

Graf'fer, *n.* [Fr. *greffier*, q. v.] (*Law.*) A notary; a scrivener.

Graft, *n.* [A.S. *græft*, carved, cut, from *grafan*, to cut, dig; O. Ger. and Goth. *graban*; Sansk. *gebh*, to open. See GRAVE.] A small slip, shoot, or scion of a tree, inserted in another tree by making an opening or incision in it, the tree serving as the stock which is to support and nourish the scion. — See GRAFTING.

—*v. a.* [A.S. *grafan.*] To insert, as a scion or shoot, or a small cutting of it, into another tree; to propagate by insertion or inoculation; hence, to insert, as something in a body to which it did not originally belong; to join, as one thing to another, so as to receive support from it. (Formerly written *graff.*)

"A new incident *grafted* upon the original quarrel."—*Swift.*

—*v. n.* To practise the insertion of foreign scions on a stock.

"*Graft* upon divers boughs of an old tree; if you *graft* but upon one stock, the tree can bear but few."—*Bacon.*

Graft'er, *n.* One who grafts; one who propagates fruit, &c., by ingrafting.

Graft'ing, *n.* (*Arboriculture.*) A mode of propagating plants which is applicable to most kinds of trees and shrubs, with the exception of heaths and herbaceous vegetables, which do not so easily admit of the operation. It is principally directed towards fruit-trees, in order to continue their varieties. A tree which is grafted consists of two separate parts,—the scion and the stock; the union of these two constitutes the graft, and the operation by which the union is effected is termed *grafting.* According to Loudon, the end of grafting consists: Firstly, in preserving and multiplying varieties of fruit-trees endowed, accidentally or otherwise, with particular qualities, which cannot be transferred to their offspring by seeds, and which would be multiplied too slowly or ineffectually by any other mode of propagation; secondly, to accelerate the fructification of trees, barren as well as fruit-bearing; thirdly, to improve the quality of fruits; fourthly, to perpetuate varieties of ornamental trees or shrubs; and lastly, to change the species of fruit on any one tree, and to renew its fruitfulness. *Whip splice*, or *tongue-grafting*, (2, 3, Fig. 1184,) is the mode most generally adopted in nurseries for propagating fruit-trees. It is necessary, in order to perform this correctly, that the top of the stock and the extremity of the scion should be of equal diameter. The scion and stock are cut off obliquely at corresponding angles, or as near the same as the operator can guess; a slit is then made in the sloped face of the stock downwards, and in the scion upwards; the tongue thus constructed of the scion is then inserted in the cleft of the stock, the inner barks of both being made to unite closely, and the whole is then bound round tightly with bass riband from left to right. The next thing to be done is to clay all round, over the bass, from about an

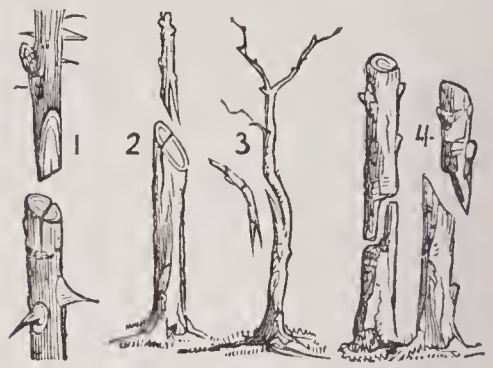


Fig. 1184. — GRAFTING.

inch below the graft to an inch above, closing up all the apertures, so that no light, wet, or wind can penetrate; for which object the clay is applied. *Cleft-grafting* (1, Fig. 1184) is another variety, and only differs from the above method in the scion being shaped like a wedge, and being inserted in a corresponding cavity in the stock. *Shoulder-grafting* (4, Fig. 1184), used chiefly for ornamental trees, is performed by cutting obliquely, and then cutting across a small part at the top of the stock, so as to form a shoulder, the scion being cut to fit it. — In grafting, it is particularly to be attended to that the *alburnum* of the scion is brought into contact with that of the stock. The hard wood of the one never unites with that of the other, remaining separate and marking the place of the operation even in the oldest trees. For scions or grafts, pieces of about six to eight inches long are generally taken from the shoots of the previous summer, with several buds; but portions of shoots of two years old are sometimes successfully employed. The time for grafting is in spring, as soon as the sap begins to appear. The scion should, if possible, be taken from a healthy and fruitful tree, but scions from the extremities of lateral branches are more likely to become speedily fruitful than those from the uppermost branches, where growth is most vigorous. The scion should be kept for a few days before grafting, so that the stock may rather exceed it, not only in vigor, but in the progress of its spring growth; and for this purpose may be placed in the ground, in a rather dry soil, sheltered from the direct rays of the sun. Scions may be kept for some time, and easily carried to a distance, by sticking their lower end into a potato. — The progress of the buds shows the union of the graft and stock, but it is not generally safe to remove the clay in less than three months; and the ligatures, although then loosened, are allowed to remain for some time longer. From some kinds of fruit-trees, fruit is often obtained in the second year after grafting. — *Budding*, q. v., is in principle the same as grafting; and *Flute-grafting* is a kind of budding in which a ring of bark is used instead of a single bud, and a stock of similar thickness having been cut over, a ring of bark is removed, and the foreign one substituted. This is commonly performed in spring, when the bark parts readily, and is one of the surest modes of grafting. — *Inarching*, q. v., or *grafting by approach*, in which the scion is not cut off from its parent stem until it is united to the new stock, is practised chiefly in the case of some valuable shrubs kept in pots, in which success by the ordinary methods is very doubtful.

Graf'ton, a town of Ontario, in the county of Northumberland, about 38 m. S.W. of Belleville.

Graf'ton, in *Illinois*, a post-village of Jersey co., on the Mississippi river, about 85 m. S.W. of Springfield. *Pop.* (1890) 927.

—A township of McHenry co.

Graf'ton, in *Maine*, a post-township of Oxford co.

Graf'ton, in *Massachusetts*, a post-town and township of Worcester co., about 40 m. W.S.W. of Boston. The township contains several other important manufacturing villages. *Pop.* (1895) 5,101.

Graf'ton, in *Michigan*, a post-office of Monroe co.

Graf'ton, in *New Hampshire*, a W. cen. county, bordering on Vermont; *area*, about 1,766 sq. m. *Rivers.* Connecticut, Pemigewasset, Lower Ammonoosuck, and the Saco rivers. There are also numerous lakes and ponds, the principal of which are Squam and Newfound lakes. *Surface*, hilly; *soil*, fertile. *Capitals*, Haverhill, Plymouth and Woodsville. *Pop.* (1890) 37,217.

—A post-township of Grafton co., about 45 m. N.N.W. of Concord.

Graf'ton, in *New York*, a post-township of Rensselaer co. *Pop.* (1890) 1,457.

Graf'ton, in *Ohio*, post-village and township of Lorain co., about 25 m. S. W. of Cleveland. *Pop.* of village (1890) 600.

Graf'ton, in *Vermont*, a post-town and township of Windham co., about 90 m. S. by E. of Montpelier. *Pop.* (1897) about 880.

Graf'ton, in *Wisconsin*, a post-village and township of Ozaukee co., on the Milwaukee river, about 22 m. N. of Milwaukee.

Graf'ton, in *West Virginia*, a post-village, cap. of Taylor

co., on the B. & O. R.R., 100 m. S.E. of Wheeling. *Pop.* (1897) about 3,340.

Grafton Centre, in *New Hampshire*, a post-village of Grafton co., abt. 45 m. N.N.W. of Concord.

Gragnano, (*gran-ya'no,*) a town of Italy, in the province of Naples, 2 miles W. of Castellamarc. *Manuf.* Woollen cloths. *Pop.* 11,425.

Gra'ham, John, of Claverhouse, Viscount Dundee, a scion of the noble family of Montrose, (*q. v.,*) was b. in Scotland, 1643, and after an education at St. Andrew's University, served in the French army from 1668 till 1672, when he entered the Dutch service as a cornet of horse-guards, and saved the life of William Prince of Orange, at the battle of Seneffe, 1672. Returning to Scotland in 1678, he joined as lieutenant a troop of horse commanded by his cousin, the 3d Marquis of Montrose. At this period, Charles II.'s govt. was engaged in its fruitless attempt to force Episcopacy upon the Scottish nation. The Covenanters flew to arms, and hostilities ensued between them and the royal authority. In this unhappy service *G.* was engaged, being defeated by the Puritans at Drumclog, 1679, and commanding the cavalry of the Duke of Monmouth at the battle of Bothwell Brig, where the Covenanters were utterly routed. It has been alleged that in his treatment of this religious body, *G.* was guilty of great inhumanity. This accusation has, however, been amply removed by the researches of recent historians. Attaining the rank of major-gen., *G.* was created a peer in 1688, as *Viscount Dundee.* When James II.'s bigotry had expelled him from the English throne, *G.* remained faithful to the last to the fortunes of the House of Stuart; and being joined by the Highland clans, and a strong body of Irish, he raised the standard of rebellion against the govt. of William III. and Mary. When Gen. Mackay, commanding the English forces, marched into the Highlands, he set out to meet him, and the two armies met at the wild Pass of Killicrankie, July 27, 1689. Mackay's force was abt. 4,000 men, while Lord Dundee had under his command not more than 2,500 foot, with one troop of horse. The battle was decided in a few minutes; one charge of the Highlanders put the English to rout with a loss of 2,000 men; their own being 900. Dundee fell by a musket-shot in the moment of victory, and d. at Blair Castle shortly afterwards. The character and services of Lord Dundee have been greatly exaggerated and blackened by party spirit. With the Highlanders, he was the brave and handsome cavalier, — the "*Bonnie Dundee*" of song and story — the last of the great Scots and gallant Grahams. With the Covenanters he was "Bloody Claverse," the most cruel and rapacious of the commanders of that age. His name and deeds have been worthily commemorated by Sir W. Scott, Wordsworth, Aytom, and Grant; and the *Memorials of Viscount Dundee,* by Prof. Napier (Edinburgh, 1857), have vindicated his memory from the aspersions of Macaulay and others.

Gra'ham, Sir James R. G., Bart., an English statesman, was b. 1792, of an ancient border family, and educated at Westminster and Cambridge. Early in life he became British minister in Sicily, and on his return to England entered Parliament, where he distinguished himself as an advocate of Parliamentary Reforms and the suppression of the Slave Trade. On the formation of Earl Grey's govt., *G.* held a seat in the cabinet, and afterwards became First Lord of the Admiralty. Seceding from the Whig party in 1834, he joined the section headed by Sir R. Peel, with whom he held the closest political relations till his death. To any govt. he was either a most formidable opponent or a tower of strength. D. 1861.

Gra'ham, Thomas, d.c.l., f.r.s., an eminent English chemist, b. 1805. After taking his M. A. degree at Glasgow University, he was elected Andersonian Professor there, which office he held till 1837, when he was appointed Professor of Chemistry in the university of London. In 1855 he was made by the govt. master of the mint. *G.*'s scientific acquirements are attested by his discoveries and his works. Among the most remarkable of the former is the law of the diffusion of gases, to which the Keith Prize of the Royal Society of Edinburgh was awarded in 1834, and his speculations on the constitution of phosphates and other salts, and his discovery of the diffusion of liquids, and of the new method of separation known as *dialysis,* for which he received the Copley Medal of the Royal Society in 1862. Among his published works may be mentioned the *Elements of Chemistry,* which has passed through two editions in England, and been extensively circulated on the Continent of Europe. *G.,* who was a corresponding member of the Academy of Sciences of the French Institute, d. 1869.

Graham, in *Arkansas,* a village of Independence co., abt. 10 m. N.W. of Batesville.

Graham, in *Indiana,* a post-township of Jefferson county.

Graham, in *Iowa,* a township of Johnson co.

Graham, in *Missouri,* a post-village of Nodaway co., on the Nodaway River, about 36 m. N. by W. of St. Joseph.

Graham, in *N. Carolina,* a post-village, cap. of Alamance co., abt. 58 m. W.N.W. of Raleigh.

Graham, in *Texas,* a post-town, capital of Young co. *Pop.* (1890) 725.

Graham, in *Va.,* a post-town of Tazewell co. *Pop.* 1,021.

Gra'hamite, *n.* (*Min.*) A var. of *Asphaltum* (q. v.) found 20 miles S. of Parkersburg, W. Va.

Gra'ham Land, a tract of elevated land, directly S. of Terra del Fuego, between Lat. 63° and 68° S., and Lon. 61° and 68° W. Discovered in 1832 by Biscoe.

Gra'ham's Creek, (or Fork,) in *Indiana,* enters the Muscatatuck in Washington co.

Gra'ham Station, in *W. Va.,* a P. O. of Mason co.

Gra'ham's Town, a town in the E. portion of Cape Colony, S. Africa, Lat. 33° 19′ S., Lon. 26° 30′ E. *Pop.* (1895) 11,250.

Gra'hamsville, in *New York,* a post-village of Sullivan co., about 20 m. S.S.W. of Albany.

Gra'hamsville, in *Ohio,* a post-office of Jackson co.

Gra'hamton, in *Kentucky,* a post-village of Meade co., about 30 m. S.W. of Louisville.

Gra'hamton, in *Pennsylvania,* a post-village of Clearfield co., abt. 115 m. W.N.W. of Harrisburg.

Gra'hamville, in *Pennsylvania,* a P. O. of York co.

Gra'hamville, in *S. Carolina,* a post-village of Beaufort dist., abt. 120 m. S. of Columbia.

Graigne, (*grāg,*) a town of Irelaud, in the co. of Kilkenny, on the Barrow, abt. 5 m. S. of Goresbridge; *pop.* 2,300.

Graigue, a town of Ireland, in Queen's co., Leinster, on the Barrow River, opposite Carlow; *pop.* 1,600.

Grail, *n.* [From L. Lat. *gradale.*] (*Eccl.*) Formerly, in the Roman Catholic Church, a book of hymns and prayers; a gradual.

(*Antiq.*) See Holy Grail, or Sangrealis.

Grail, *n.* [Fr. *grêle,* hail.] Small particles of earth; detritus; gravel.

"This knight, . . . lying down upon the sandy *grails.*" — *Spenser.*

Grain, *n.* [Fr.; Lat. *granum,* a grain, seed, kernel; Ir. *grain,* corn; W. *græanen,* a grain.] A seed of corn; a small kernel; especially a single seed of any cereal plant which is used for food. — The fruit of cereal plants in general, as wheat, rye, barley, oats, or the plants themselves; — used collectively; as, a cargo of *grain.*

"'Tis a rich soil, I grant you; but oft'ner covered with weeds than *grain.*" — *Collier.*

—Any small, hard mass or minute particle; as, a *grain* of sand, a *grain* of salt; — hence, by implication, any small portion or modicum; as, he has not a *grain* of sense, a *grain* of manhood, &c. — The body or substance of a thing, considered with respect to the size, form, or direction of the constituent particles. — The form of the surface of any thing with regard to smoothness and roughness; texture; state of the grit of any body composed of grain.

"Stones of a constitution so compact, and a *grain* so fine, that they bear a fine polish." — *Woodward.*

—The veins or fibres of wood, or other fibrous substances; the body or substance of wood, as modified by the fibres.

"Beech and linden of a softer *grain.*" — *Dryden.*

—A rough or fibrous texture on the outside of the skin of animals. — A crimson, scarlet, &c. dye or tincture; — sometimes used in poetry to denote *Tyrian purple.*

"All in a robe of darkest *grain.*" — *Milton.*

—A tine; a prong.

—*pl.* The husks of malt after brewing, or the residuum of any grain after distillation.

"Give them *grains* their fill,
Husks, draff to drink and swill." — *Ben. Jonson.*

(*Weights.*) The unit of our system of weights, being the 7,000th part of a pound (avoirdupois); in other words, the 70,000th part of the weight of an imperial gallon of water at 62° Fahr., the barometer being at thirty inches. Under the same conditions, a cubic inch of water weighs 252·458 grains. The ounce avoirdupois contains 437·5 grains; the apothecaries' and the troy ounce 480 grains. The French decigram is about 1·5 grains, the gramme being = 15·437 English grains.

Against the grain, against the fibrous direction of wood; — hence, unwillingly; reluctantly; hesitatingly; with displeasure or difficulty.

"Quoth Hudibras, It is in vain,
I see, to argue *'gainst the grain.*" — *Hudibras.*

To go against the grain of, to be repugnant or displeasing to; to occasion disgust, vexation, or mortification to. — *Grains of allowance,* something remitted or indulged; something above or under the exact weight.

"I would always give some *grains of allowance* to the sacred science of theology." — *Watts.*

In grain, innate; fixed; established; firmly seated.

"They lived as brothers, but not united *in grain.*" — *Hayward.*

To dye in grain, to dye with the tint called grain; or, in other words, to dye deeply, or in the raw material.

"Like crimson *dyed in grain.*" — *Spenser.*

—*v. a.* To paint an imitation of the grain or fibres of wood; to dye, stain, or color permanently; as, to *grain* a wainscoting. — To form into grains, as powder; to granulate.

—*v. n.* [Fr. *grainer.*] To assume a granular form, after partial crystallization; as, coarse-*grained* gunpowder.

Grain'age, *n.* Duties levied on grain.

Grained, *a.* Formed into grains; divided into small particles. — Painted in imitation of the grain of wood. —Dyed in grain; ingrained; as, "*grained* in honesty."

(*Bot.*) Having tubercles, as the segments of the flowers of the *Rumex.*

Grain'er, *n.* One who paints in imitation of wood. — A preparation used by tanners for imparting flexibility to skins; a lixivium.

Grain'ing, *n.* A method of painting in which the grain or fibres of wood are imitated. — Indentation. — A process whereby skins are softened in leather dressing.

(*Zoöl.*) An English fresh-water fish resembling the dace; *Luciscus Lancastriensis.*

Grain of Paradise, *n.* See Amomum.

Grains, *n. pl.* [Dan. *green,* a branch, a bough, the prong of a fork.] An iron instrument with four or more barbed prongs or points, used at sea for striking dolphins and other fish.

Grain'-staff, *n.* A quarter-staff.

Grain'-tin, *n.* (*Min.*) The finest description of tin; also, the ore of very rich tin sometimes found in the form of grains or pebbles.

Grain'y, *a.* Full of grains or corn: full of kernels.

Graip, *n.* [Scot.] A fork for lifting and scattering manure; also, a fork used in raising potatoes.

Grajehu, (*gra-zha-hoo',*) a river in Brazil, prov. of Maranhão, joins the Miarim near San Beuto. *Length,* abt. 240 m.

Grakle, *n.* See Grackle.

Grallatores, Grallæ, (*grăl-lai-to'reez.*) *n. pl.* [Lat. *grallæ,* stilts.] (*Zoöl.*) The Wading-birds, the fourth of the six orders into which Linnæus divided the class *Aves,* or Birds. The order is thus described by him: — Bill sub-cylindrical and rather obtuse; tongue entire, fleshy; feet wading, the thighs half-naked; body compressed; the skin very thin and sapid; the tail short. Their food consists of fishes, water-reptiles, and animalcules obtained in marshes, and their nests are generally found near the ground. It comprises all those birds which live both on land and sea, and to which both elements are essential. Those which are essentially aquatic have a short web to their toes; their wings are long, and having no settled district, they fly from one shore to another as the seasons change. Several fossil remains of the families of this order have been found. In the Paris basin, bones of birds referable to the genera Scolopax, Tringa, and Ibis, have been found, and in the fresh-water formation of Tilgate Forest the remains of a wader larger than a heron were found by Dr. Mantell. The fossil footsteps of wading-birds, observed by Professor Hitchcock, in the new red sandstone valley of the Connecticut, show that formerly at least seven species of Grallatores existed, varying in size from that of a snipe to twice that of an ostrich. — The families of the order are the Graidæ or *Crane;* the Aramidæ or *Courlan;* the Ardeidæ or *Heron;* the Cinconidæ or *Stork;* the Tantalidæ or *Ibis;* the Plataleidæ or *Spoon-bill;* the Phœnicopteridæ or *Flamingo;* the Charadridæ or *Plover;* the *Hæmatopodidæ* or Turnstone; the *Phalaropidæ* or Phalarope; the *Scolopacidæ* or Snipe; and the *Rallidæ* or Rail.

Grallato'rial, Grallatory, *a.* [From Lat. *grallator.* See Grade.] Pertaining, or having reference to the *Grallatores* or Waders.

Gram, *n.* See Gramme.

Gram, *n.* In India, a kind of grain used as food for horses.

Gram'arye, *n.* [Fr. *grimoire.*] The art of necromancy.

Gra'menite, *n.* (*Min.*) A hydrated silicate of iron, of a grass-green color, from Menzenberg. *Sp. gr.* 1·87. *Comp.* silica 42·7, sesquioxide of iron 38·0, water 19·3.

Gramer'cy, *interj.* [Contracted from *grant me mercy.*] A phrase formerly used to express thankfulness, attended with surprise.

"*Gramercy,* lovely Lucius, what 's the news?" — *Shaks.*

Gramina'ceæ, *n. pl.* [Lat. *gramen,* grass.] (*Bot.*) The Grasses, an order of plants, alliance *Glumales. Diag.* Split-sheathed leaves, a one-celled ovary, and a lateral naked embryo. — Of all the orders in the vegetable kingdom, this is the most important to man, as it affords his principal food, and is eminently serviceable in other respects, by supplying fodder for cattle, sugar, and numerous useful products. As a botanical group, there is none more natural, for the variations observed in the herbs, shrubs, and arborescent plants composing it are of the simplest kind, arising generally from differences in the proportions of parts. The stem of a grass is round, jointed, and commonly hollow. The leaves are alternate, with split sheaths, terminating above in membranous tongues or ligules. The flowers are perfect, or unisexual, and grow in bunches (*locustæ* or *spikelets*) or singly. There is

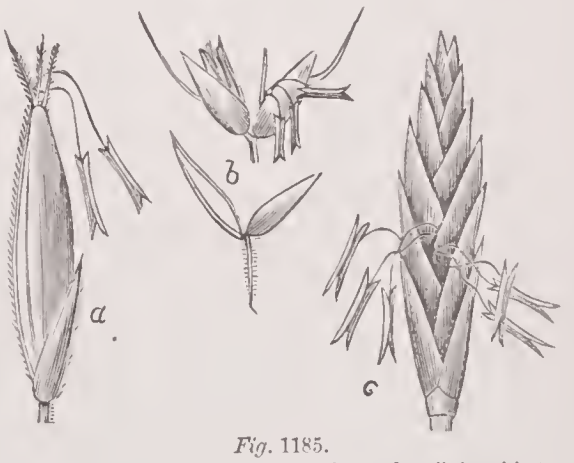


Fig. 1185.

a, spikelet with one floret: two anthers: *b,* spikelet with two florets, shown detached from the glumes; three anthers: *c,* spikelet with many florets; six anthers.

no true perianth, its place being supplied by imbricated bracts (the chaff-scales), of which there are commonly two, called *glumes* (Fig. 1185), placed at the base of the solitary flower, or at the base of each locusta; rarely, there is only one glume. Occasionally these envelopes are altogether absent. Each flower is also usually furnished with two additional alternate bracts, called *palea* (*a a,* in first illustration); sometimes the inner palea is wanting. There are also, in some cases, two or three scales, called *lodiculæ* or *glumellules,* present. The stamens vary in number from one to six, or even more — the number is frequently three; the filaments are

capillary; the anthers versatile (Fig. 1186). The ovary is superior and one-celled, with a solitary ascending ovule; the stigmas are feathery, or hairy. The fruit is a caryopsis. The seed has mealy albumen and a lenticular embryo, lying on one side at the base of the albumen. The form of inflorescence is a point of great importance in the classification of the grasses. The single flowers, or locustæ of flowers, may be arranged on a central column (*rachis*), so as to form a compact head or spike (as in wheat); or they may be placed on a more or less branched axis, so as to form a panicle (as in the oat). Grasses are universally distributed over the globe. In temperate and cold climates they are herbaceous, and of moderate height, while in tropical climates they become shrubby and arborescent, and sometimes grow to the height of fifty or sixty feet. Grasses usually grow together in large masses, and thus form the verdure of great tracts of soil; hence they have been termed social plants. There are 300 genera, and probably about 3,800 species. The most important genera are *Triticum*, wheat; *Hordeum*, barley; *Avena*, oat; *Oryza*, rice; *Zea*, Indian corn or maize; *Secale*, rye; *Panicum*, millet; *Saccharum*, sugar-cane; *Bambusa*, bamboo; *Andropogon dactylis*, and *Holcus*.

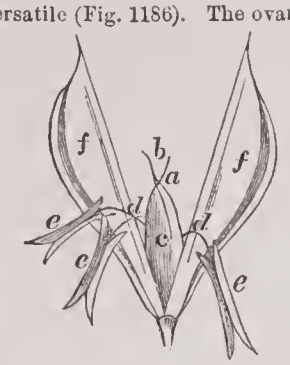


Fig. 1186.—SPIKELET WITH ONE FLORET; THREE ANTHERS: *a*, the floret; *b*, stigmas; *c*, ovule; *d*, filaments; *e*, anthers; *f*, glumes.

Graminaceous, (*gram-i-na'shus,*) *a.* [From Lat. *gramen, graminis.*] Gramineous; belonging to the grasses.

Gramin'eous, Gramin'eal, *a.* [Lat. *gramineus*, from *gramen, graminis*, grass. See GRASS.] Grassy; like or pertaining to grass; as, a *gramineous* plant.

Graminifo'lious, *a.* [Lat. *gramen*, and *folium*, leaf.] Having leaves resembling those of grass.

Graminiv'orous, *a.* [Lat. *gramen*, and *voro*, to devour.] Feeding or subsisting on grass, as cattle, horses, &c.

Grammalogue, (*gram'mā-lŏg,*) *n.* [Gr. *gramma*, a letter, and *logos*, speech.] (*Phonog.*) A letter-word; a word represented by a logogram; as, *it* represented by |, that is, *t*.

Gram'mar, *n.* [Fr. *grammaire;* Lat. *grammatica;* Gr. *grammati-ke*, from *gramma*, a letter, from *graphō*, to write.] The science which treats of the natural or conventional connection between ideas and words, and develops the principles which are common to all languages. — The art of speaking or writing a language with propriety or correctness; a system of general principles and of particular rules for speaking or writing a language; propriety of speech. — A book containing the principles and rules for the speaking or writing of a language; as, a Latin *grammar*. — A book containing the elements of any science. — Considered as an art, *G.* necessarily supposes the previous existence of a language, the object of which is to communicate thought. Without attempting any alteration in a language already in use, it furnishes certain rules, founded on observation, to which the method of speaking adopted in that language may be reduced; and this collection of rules is called the *G.* of that language. But apart from *G.*, as applied to any particular language, there is the pure science of *G.*, otherwise called universal *G.*, which views language only as significant of thought, and, neglecting particular and arbitrary modifications introduced for the sake of beauty or otherwise, examines the analogy and relations between words and ideas, — distinguishes between those particulars which are essential to language and those which are only accidental, — and thus furnishes a certain standard by which different languages may be compared, and their several excellencies or defects pointed out. *G.* owes its origin, like all other sciences, to a very natural and practical want. The first practical grammarian was the first practical teacher of languages; and if we want to know the beginnings of the science of language, we must try to find out at what time in the history of the world, and under what circumstances, people first thought of learning any language besides their own. At that time we shall find the first practical grammar, and not till then. Much may have been ready at hand, through the less interested researches of philosophers, and likewise through the critical studies of the scholars of Alexandria, on the ancient forms of their language as preserved in the Homeric poems. But rules of declension and conjugation, paradigms of regular and irregular nouns and verbs, observations on syntax, and the like, — these are the work of the teachers of languages, and of no one else. *G.*, therefore, is of comparatively modern origin. No ancient Greek ever thought of learning a foreign language. It was through the study of the ancient dialects of their own language that the Greeks of Alexandria were first led to critical and philological studies. The general outline of *G.* existed at an earlier period, but they were the first to study the language critically, analyzing and arranging it under general categories, distinguishing the various parts of speech, inventing proper technical terms for the various functions of words, &c. The first real practical Greek *G.* was that of Dionysius Thrax, a Thracian, who went to Rome, and taught the language there about the time of Pompey. He was the first who applied the results of the labors of former philosophers and critics to the practical work of teaching. His work thus became one of the principal channels through which the grammatical terminology which had been carried from Athens to Alexandria flowed back to Rome, to spread from thence over the whole civilized world. We can follow the stream of grammatical science from Dionysius Thrax to our own time in an almost uninterrupted chain of Greek and Roman writers. We find M. Verrius Flaccus, the tutor of the grandsons of Augustus, and Quintilian, in the first century; Scaurus, Apollonius Dyscolus, and his son Herodianus, in the second; Probus and Donatus, the teachers of St. Jerome, in the fourth. After Constantine had moved the seat of government from Rome, grammatical science received a new home in the academy of Constantinople. There were no less than 20 Greek and Latin grammarians who held professorships at Constantinople. Under Justinian, in the sixth century, the name of Priscianus gave a new lustre to grammatical studies, and his work remained an authority during the Middle Ages to nearly our own times. We ourselves have been taught *G.* according to the plan which was followed by Dionysius at Rome, by Priscianus at Constantinople, by Alcuin at York; and whatever may be said of the improvements introduced into our system of education, the Greek and Latin grammars used at our public schools are mainly founded on the first empirical analysis of language prepared by the philosophers of Athens, applied by the scholars of Alexandria, and transferred to the practical purpose of teaching a foreign tongue by the Greek professors at Rome. It is in the grammar of a language that we can trace its distinctive features. The English language, for instance, is made up of words borrowed from almost every country of the globe, — Latin, Greek, Hebrew, Celtic, Saxon, Danish, French, Spanish, Italian, German, — nay, even Hindustani, Malay, and Chinese words lie mixed together in the English dictionary; but not a single drop of foreign blood has entered into the organic system of the English language. "The grammar, the blood and soul of the language," (Max Müller, *Lectures on the Science of Language*, 3d ed. 1862,) "is as pure and unmixed in English as it was when spoken on the shores of the German Ocean by the Angles, Saxons, and Jutes of the continent." Grammar is, after all, but declension and conjugation. Originally, declension could not have been anything but the composition of a noun with some other word expressive of number and case. The like holds true with regard to verbs, though it may seem difficult to discover in the personal termination of the Greek and Latin the exact pronouns which were added to the root of the verb in order to express, *I* love, *thou* lovest, *he* loves. It stands to reason, however, that originally these terminations must have been the same in all languages, namely, personal pronouns. "It is very likely," says the author already quoted "that the gradual disappearance of irregular declensions and conjugations is due in literary, as well as in illiterate language, to the dialect of children. The language of children is more regular than our own. I have heard children say *badder* and *baddest*, instead of worse and worst. In treating of the *G.* of any language, grammarians usually divide the subject into four distinct heads: — *Orthography*, or the art of combining letters into syllables, and syllables into words; *Etymology*, or the art of deducing one word from another, and the various modifications by which the sense of any one word can be diversified consistently with its original meaning, or its relation to the theme whence it is derived; *Syntax*, or what relates to the construction or due disposition of the words of a language into sentences or phrases; and *Prosody*, or that which treats of the quantities and accents of syllables, and the art of making verses. All language is made up of words, which may be defined to be sounds significant of some idea or relation, and may be distinguished as — 1. Substantives; 2. Attributives; 3. Definitives; and 4. Connectives. *Substantives* are words expressive of things which exist, or are conceived to exist of themselves, and not as the energies or qualities of anything else. They are nouns and pronouns, the latter being a species of words invented to supply the place of nouns in certain circumstances. They admit of the accidents of gender, number, and case. Attributives are words that are expressive of all such things as are conceived to exist not of themselves, but as the attributes of other things. They are verbs, participles, adjectives, and adverbs. The attributes expressed by verbs have their essence in motion or its privation; and as motion is always accompanied by time, therefore *verbs* are liable to certain variations called tenses. To denote the several kinds of affirmation expressed by verbs, all verbs have what is termed moods or modes: as the indicative, I write; subjunctive, I may or can write; imperative, write thou. Verbs are also distinguished as active-transitive when the action denoted by them passes from the actor to some external object; active-intransitive, when no such passing takes place; passive, such as express not action, but passion, as suffering; and neuter, such as express an attribute that consists neither in action nor in passion. *Participles* are such words as express an attribute combined with time, as *writing, written*. *Adjectives* express, as inhering in their substantives, the several qualities of things of which the essence consists not in motion as its privation; as, *good, bad, proper*. Some qualities are of such a nature that one substance may have them in a greater degree than another; and therefore adjectives denoting these qualities admit, in most languages, of variation called degrees of comparison. Adverbs, from being attributes of attributes, have been called attributives of the second order, to distinguish them from verbs, participles, and adjectives, which denote the attributes of substantives, and are therefore called attributives of the first order. Adverbs are of two kinds, — those which are common to all attributives of the first order, *i. e.* which coalesce equally with verbs, participles, and adjectives, and those which are confined to verbs. *Definitives* are such words as serve to define and ascertain any particular object or objects as separated from others of the same class. These are commonly called *articles;* of which there are two kinds — the definite and indefinite. *Connectives* are such words as are employed to connect other words, and of several distinct parts to make one complete whole. They are of two kinds — *conjunctions* and *prepositions*. Conjunctions are those connectives which are commonly employed to conjoin sentences. They are of two kinds, — *conjunctives*, or such as conjoin sentences and their meanings too, and *disjunctives*, or such as, while they conjoin sentences, disjoin their meanings. Prepositions conjoin words which refuse otherwise to coalesce; and this they do by signifying those relations by which the things expressed by the united words are connected in nature. *Interjections* are a class of words which are to be found in perhaps all languages, but they cannot be included in any of the above classes, for they are not subject to the rules and principles of grammar, as they contribute nothing to the communication of thought.

Gramma'rian, *n.* [Fr. *grammairien.*] Anciently, a title of honor given to persons accounted learned in any art or faculty whatsoever; now, one who is skilled in or who teaches grammar.

Gramma'rianism, *n.* The principles or pedantic style of grammarians. (R.)

Gram'marless, *a.* Without a knowledge of grammar.

Gram'mar-school, *n.* A school in which the learned languages, Latin and Greek, are taught grammatically. — A school above a primary school and below a high-school. (U. S.)

Grammat'ic, Grammat'ical, *a.* [Fr. *grammatical;* Lat. *grammaticus;* Gr. *grammatikos.*] Belonging to grammar; as, *grammatical* rules. — According to the rules of grammar; as, *grammatical* construction, his speech is not *grammatical*.

Grammat'ically, *adv.* According to the principles and rules of grammar; as, to write *grammatically*.

Grammat'icalness, *n.* State or quality of being grammatical, or according to the rules of grammar.

Grammat'icaster, *n.* [L. Lat.] A low grammarian; a mere verbal pedant.

"My noble neophyte, my little *grammaticaster*."—*Ben Jonson.*

Grammat'icize, *v. a.* [Gr. *grammatikizō.*] To render grammatical.

— *v. n.* To act the grammarian.

Grammat'ico-histor'ical, *a.* Referring at once to grammatical usage and to historical modes of interpretation.

Gram'matist, *n.* [Gr. *grammatistēs.*] One who pretends to a knowledge of grammar; a grammaticaster.

Gram'matite, *n.* [Fr.] (*Min.*) See TREMOLITE.

Gramme, (*gram,*) *n.* [Fr.] The unit of weight in the French metric system. It is the weight of a cubic centimètre of distilled water at its greatest density, that is to say, at the temperature of 4·1° of the centigrade thermometer. It is somewhat under 15½ grains, its exact value in grains being expressed decimally by 15·4346.

Gram'mite, *n.* (*Min.*) Same as WOLLASTONITE, *q. v.*

Gram'mont. [Flem. *Gerardsbergen;* Lat. *Gerardi Mons.*] A town of Belgium, in the prov. of E. Flanders, on the Dender, 15 m. S.E. of Oudenarde. *Manuf.* Linen, carpets, and paper. *Pop.* 8,250.

Gram'mont, the name of an illustrious French family, the best known of whom are: — GABRIEL, a cardinal and diplomatist, in the time of Louis XII. and Francis I; D. 1534; ANTHONY, duke of Grammont, marshal of France, and viceroy of Navarre, author of *Memoirs*, D. 1678; ARMAND, son of the latter, and Count de Guiche, whose *Memoirs* also exist, 1638–1674; PHILIBERT, count de Grammont, son of Anthony, known by his memoirs, written by his brother-in-law Anthony, Count Hamilton, D. 1720; ANTHONY, duke de Grammont, a French marshal and ambassador, known as Count de Guiche, 1671–1725; LOUIS, duke de Grammont, lost the battle of Dettingen, and was killed at Fontenoy, 1745.—The last duke of Grammont, father of the duke of Guiche, and the countesses of Tankerville and Sebastiani. D. 1836.

Gram'pian, in *Pennsylvania*, the post-office of the village of PENNVILLE, in Clearfield co.

Gram'pians, a mountain range in Scotland, and the most important chain in N. Britain. — The *G.* commence in the W. part of Scotland, from the extremity of the lowest arm of the Frith of Clyde, between the counties of Argyle and Dunbarton, and, running N., sweep round in a deep semicircle to the E., till they nearly impinge on the German Ocean, in the county of Kincardine. Before, however, reaching this terminus, a branch is thrown off, which, trending in a N.W. direction, forms a lesser curve, which, passing through Aberdeen, Banff, and Elgin, is finally lost on the skirts of Inverness-shire. In this extended course it sends up several lofty peaks, that form the highest eminences in Scotland. Of these the most important are *Ben Lomond*, *Ben Ledi*, *Ben More*, *Ben Lawers*, and *Ben Voirlich*, (q. v.) — Also, the name of a mountain-chain in the colony of Victoria, South Australia, whose highest point is Mount William, which is 4,500 feet above the level of the sea.

Gram'pus, *n.* [Perhaps cont. from Fr. *grandpoisson*, great fish.] (*Zoöl.*) See DELPHINIDÆ.

Gran, (Mag. *Esztergam,*) a town of Hungary, situated at the confluence of the Gran and Danube, and 25 m. from Buda; *pop.* 15,850. *Manuf.* Weaving and dyeing. —Also, the name of a river in the same country, which, after a course of 130 m. from its source in the Carpathians, falls into the Danube at the town of the same name.

Granada, (*grăn-a'da,*) an ancient kingdom, and one of the old provs. in the S. of Spain, was bounded on the W. by Andalusia, on the E. by Murcia, and on the S. and S.E. by the Mediterranean. It is now divided into the 3 provs. of Granada, Almeria, and Malaga, the united areas of which amount to 11,063 sq. m. The surface of *G.* is mountainous and picturesque in a high degree. The mountain-ranges, the chief of which are the Sierra Nevada, the Sierra de Ronda, and the Alpujarras, as a general rule, run parallel with the coast. The principal rivers are the Almanzora, Almeria, Genil, Guadalhorce, and Guadiaro. The prov. of *G.* is, on the whole, fruitful and highly cultivated. The mountains are rich in silver, copper, lead, and iron; and many of the inhabitants are engaged in mining and smelting. Saline and mineral springs abound. *Pop.* 453,800. *G.* was part of the Roman prov. of Boetica; but after the Arab invasion it formed an independent Moorish kingdom. For a time it was exceedingly wealthy, having developed great agricultural and commercial resources. It was the last possession of the Moors in Spain, and was conquered by Ferdinand and Isabella in 1492.

Grana'da, the cap. of the above province. It was the ancient metropolis of the Moors in Spain, and stands on the Genil, 120 m. from Seville; Lat. 37° 16′ N., Lon. 30° 45′ 40″ W. The town exhibits the form of a half-moon, its streets rising above each other, with a number of turrets and gilded cupolas, the whole crowned by the Alhambra, or palace of the ancient Moorish kings, and in the background the Sierra de Nevada, covered with perpetual snow. It is built on two adjacent hills, and divided into four quarters. The river Darro runs between the two hills, and traverses the town, after which it falls into the larger stream of the Genil, which flows outside the



Fig. 1187. — THE ALHAMBRA.

walls. The principal buildings are the cathedral, the archbishop's palace, the mansion occupied by the captain-general of the province, the university, and several hospitals; but the grand ornament of Granada is the Alhambra, the wonder of Arabian architecture. Though now, like the town, in a state of decay, its remains sufficiently evince its original splendor. It commands a beautiful prospect; but a still finer is afforded by another Moorish palace, called the *Generalife*, built on the opposite hill, and the retreat of the court during the heats of summer. *Manuf.* Silk and woollen stuffs, gunpowder, saltpetre, paper, hats; and there is an oil-trade carried on. *Pop.* (1895) 76,110.

Grana'da, a city of Nicaragua, Central America, on the Lake Nicaragua, 30 m. from Nicaragua city; Lat. 10° 12′ N., Lon. 87° 46′ W. It is well built, and contains many handsome edifices. Its principal trade is in cocoa, indigo, wool and hides. *Pop.* (1895) 15,540.

Grana'da, in *Kansas,* a post-office of Nehama co.

Grana'da, New. See COLOMBIA, REPUBLIC OF.

Granade', Grana'do. *n.* (*Min.*) See GRENADE.

Granadil'la, *n.* [Sp., dim. of *granada,* pomegranate; Fr. *grenadille.*] (*Bot.*) The edible fruit of several species of passion-flower.—See PASSIFLORA.

Gran'ard, a town and parish of Ireland, in the co. of Longford, Leinster, about 59 m. W.N.W. of Dublin; *pop.* about 2,400.

Gran'ary, *n.* [Lat. *granaria,* from *granum,* a grain.] A storehouse for threshed grain.

Gran'by, JOHN MANNERS, MARQUIS OF, a famous English general, was the eldest son of the duke of Rutland, and commanded with honor during the Seven Years' War in Germany. He was very popular in his time; but his military qualities appear to have been much overrated by his contemporaries. After the peace of 1773, he retired into private life. Died 1770.

Gran'by, a village of Quebec, in the co. of Sheffield, about 50 m. S.S.E. of Montreal.

Gran'by, in *Connecticut,* a post-town of Hartford co., about 15 m. N.N.W. of Hartford. In this township are the celebrated Simsbury mines, formerly used as a prison. *Pop.* (1897) about 1,275.

Gran'by, in *Massachusetts,* a post-town and township of Hampshire county, about 100 miles W. by S. of Boston. *Pop.* (1890) 765.

Gran'by, in *Minnesota,* a township of Nicollet co.

Gran'by, in *Missouri,* a post-village and township of Newton county, about 6 miles W.S.W. of Springfield.

Gran'by, in *New York,* a township of Oswego county, on the Oswego river, about 25 miles N.W. of Syracuse.

Gran'by, in *Vermont,* a post-township of Essex co., about 45 m. N.E. of Montpelier.

Gran'by Centre, in *New York,* a post-village of Oswego co., about 25 m. N.W. of Syracuse.

Gran Cha'co, El, an extensive region of South America, in Paraguay and the Argentine Republic. It extends from about Lat. 21° to 22° S., and from the Paragnay river to about Lon. 64° W. It is traversed by numerous streams, the most important of which are the Pilcomayo, Bermejo or Vermejo, Parana, and Salado rivers. The *G. C.* is occupied by several roving bands or tribes of Indians, among which are the Tobayas, Guanés, and Payagnáses. The dragon's-blood tree abounds near the rivers.

Grand, *a.* [Fr.; Nor. *grant, graunt;* Sp. *grande;* Lat. *grandis,* large, great.] Large; great; extensive; hence, principal, chief, greatest; as, a *grand* army.

"And one by one, in turn, some *grand* mistake,
Casts off its bright skin yearly, like the snake."—*Byron.*

—Of great size, or noble, commanding, and imposing in form, appearance, or characteristic nature;—hence, figuratively, illustrious; eminent; dignified; august; majestic; noble; high in power or dignity; as, a *grand* lord, (said of persons;) splendid; magnificent; sublime; lofty; elevated; conceived or expressed with great dignity, (used with respect to things;) as, a *grand* design, a *grand* view, a *grand* discovery.

"The *grand* old ballad of Sir Patrick Spence."—*Coleridge.*

—Possessing an elevated or advanced rank, as in years or station; as, a *grand* duke, a *grand* vizier, a *grand* jury, &c.; also frequently forming the prefix of a compound word; as, a *grand*mother.

Grand, in *Colorado,* a N. co.; *area,* 2,100 sq. m. It is drained by North Platte, Grand and Laramie rivers, all of which rise within its limits. *Surface,* mountainous; there are extensive forests. *Minerals,* gold and silver. Mining and stock raising are the chief occupations. *Cap.* Hot Sulphur Springs. *Pop.* (1890) 604.

Grand, in *Ohio,* a township of Marion co.

Grand, in *South Dakota,* a township of Douglas co.

Grand, in *Utah,* an E. co.; *area,* 3,175 sq. m. It is bounded by Green river on the W., and intersected by Grand river. *Surface,* mountainous. *Cap.* Moab. *Pop.* (1895) 891.

Gran'dam, *n.* [*grand* and *dame.*] An old woman;—specifically, a grandmother.

Grand Bank. See NEWFOUNDLAND.

Grand Bay, in *Alabama,* a post-village of Mobile co., on the L. & N. R.R.

Grand Blanc, in *Michigan,* a post-village and township of Genesee co., about 50 m. N.W. of Detroit.

Grand Caillou (*kah-yoo*), in *Louisiana,* a bayou of Terre Bonne parish, flows S. into the Gulf of Mexico.

Grand Cane, in *Louisiana,* a post-village of De Soto parish.

Grand Che'nier, in *Louisiana,* a post-office of Cameron parish.

Grand'child, *n.* A son's or daughter's child.

"Fair daughter, and thou son and *grandchild* both!"—*Milton.*

Grand Coteau' (*ko-tō*), in *Louisiana,* a post-town of St. Landry parish.

Grand'-daughter (*daw'ter*), *n.* The daughter of a son or daughter.

Grand Detour', in *Illinois,* a post-village of Ogle co., on Rock river, about 166 m. N. by E. of Springfield.

Grand'-Duke, *n.* A reigning duke, inferior in rank to a king; as the *Grand-Duke* of Baden.—In Russia, a title given to the younger sons of the imperial family; as, the *Grand-Duke* Constantine.

(*Ornith.*) The great-horned owl.—See BUBO.

Grande, a river of Peru which falls into the Guapiri.—Two rivers of Brazil, one falling into the San Francisco, Lat. 11° 35′ S.; and the other into the Atlantic, Lat. 15° 26′ S.—A river of Zanguebar, East Africa, flowing into the Indian Ocean, Lat. 2° S.

Grande, or RIO GRANDE. See RIO GRANGE.

Grande Anse, a village and parish on the N. coast of Martinique, W. Indies, about 15 m. N. of Port Royal.

Grande Chute, in *Wisconsin,* a township of Ontagamie co.

Grand Ecore, in *Louisiana,* a village of Natchitoches parish, about 50 m. N.W. of Alexandria.

Grandee', *n.* [Sp. *grande,* from Lat. *grandis,* great.] The highest title of Spanish nobility. The collective body of the grandees is called *la grandesa.* To this class belonged that very powerful section of the nobility who, from their great wealth, were called the *ricos hombres* (rich men). The grandees were originally the descendants of the great feudatories of the crown, and were possessed of many important privileges; among which were exemption from taxation, and from the power of any civil or criminal court, without a special warrant from the king. They had also the right of bearing a banner, and of enlisting soldiers on their own account, and might even enter the service of a foreign prince at war with Castile without being guilty of treason. They had the right in all public transactions of being covered in the presence of the king, who addressed a grandee as *sui primi,* "my cousin-german." At length Cardinal Ximenes succeeded in breaking their power, and depriving them of many of their privileges. Subsequently it became the practice of the Spanish kings to raise new men to the rank of grandees, partly with the view of destroying the power of the ancient nobility, and partly to reward their friends. In this way three classes of grandees arose, differing in rank as well as in the privileges which they enjoyed. Under the government of Joseph Bonaparte the dignities and privileges of the grandees were entirely abolished. They were partially restored at the Restoration, but no very important privileges were bestowed upon them.

Grandee'ship, *n.* Rank or state of a grandee.

Grande Ronde, in *Oregon,* a river in the N.E. part of the State, rises on the S.E. slope of the Blue Mountains, and flowing N.E. enters the Lewis Fork of the Columbia river on the border of Washington.

Grande Terre, in the W. Indies. See GUADALOUPE.

Grandeur (*grand'jur,* *n.* [Fr.] State or quality of being grand; greatness; sublimity; loftiness; splendor of appearance; state; magnificence; elevation of thought, sentiment, or expression; elevation of mien, or air and deportment; nobility of action.

Grand'father, *n.* A father's or mother's father.

Grand'fatherly, *a.* Having the air, aspect, or manner of a grandfather; venerable; benignant.

"He was a *grandfatherly* sort of personage."—*Hawthorne.*

Grand'father Mountain, in *North Carolina,* an isolated elevation N.N.E. of Mount Mitchell, in Watauga co. *Height,* about 5,897 feet.

Grand Forks, in *North Dakota,* a N.E. co.; *area,* 1404 sq. m. It is bounded on the E. by the Red river of the North. *Surface,* chiefly prairie; timber plentiful: *soil,* fertile. *Cap.* Grand Forks. *Pop.* (1890) 18,357.

Grandglaise', in *Arkansas,* a P. O. of Jackson co.

Grand Gulf, in *Mississippi,* a post-village of Claiborne co., on the Mississippi river, 2 m. below the mouth of Black river, and 60 m. above Natchez; *pop.* about 150. The strong batteries erected at this place by the Confederates, for commanding the river, were taken by a Union flotilla under Admiral Porter, after a severe cannonade, May 3, 1863.

Grand Ha'ven, in *Michigan,* a fine city, cap. of Ottawa co., on Grand river, at its entrance into Lake Michigan, about 31 m. W. by N. of Grand Rapids. *Pop.* (1894) 5,276.

Grandific, *a.* [Lat. *grandificus.*] Making great.

Grandil'oquence, *n.* [L. Lat. *grandiloquentia,* from Lat. *grandiloquens* — *grandis,* and *loquor,* to speak.] Pompous or inflated language; bombast; use of lofty words or high-sounding phrases.

Grand'in, in *Missouri,* a post-village of Carter co.

Gran'diose, *a.* [Fr.] Imposing; striking; tending to produce an elevating effect; (used in a good sense.)—Bombastic; swelling in sound or sense; tumid; turgid; inflated; (used in a bad sense;) as, a *grandiose* style of writing.

Grandios'ity, *n.* [Fr. *grandiosité.*] Bombastic sense, style, or manner; also a grandiose, or pompous person.

Grand Isl'and, in *California,* a post-village and township of Colusa county, about 12 miles S. of Colusa.

Grand Island, in *Florida,* a post-village of Lake co., on St. J. & Lake C. R.R.

Grand Island, in *Nebraska,* an important city, cap. of Hall co., on Platte river, the St. J. & G. I., Un. Pac., and C., B. & Q. R.Rs., 154 m. W. by S. of Omaha. Here are railroad, machine and car shops, packing houses, beet-sugar factories, &c. Seat of Nebraska Soldiers' and Sailors' Home. *Pop.* (1897) about 10,000.

Grand Island, in *New York,* an island in the Niagara river, about 4 m. above the Falls; *area,* abt. 50 sq. m.—A post-town of Erie co. *Pop.* (1897) about 1,180.

Grand Isle, in *Louisiana,* a post-office of Jefferson parish, on the island of Grand Terre.

Grand Isle, in *Michigan,* an island near the S. side of Lake Superior; *area,* about 105 sq. m. The famous *Pictured Rocks* are on the S.E. shore of Grand Isle Bay, between Grand Isle and the mainland.

Grand Isle, in *Vermont,* an extreme N.W. co., bordering on New York and the Canadian province of Quebec; *area,* about 80 sq. m., consisting mostly of islands in Lake Champlain. *Rivers.* Richelieu river, and other smaller streams. *Surface,* undulating; *soil,* fertile. *Cap.* North Hero. *Pop.* (1897) about 3,940.—A post-town of the above co., on the island of South Hero, 50 m. N.W. of Montpelier. *Pop.* (1890) 800.

Grand Junction, in *Tennessee,* a post-village of Hardeman co., about 52 m. E. of Memphis.

Grand'-ju'ror, *n.* One who serves on a grand-jury.

Grand'-ju'ry, *n.* (*Law.*) See JURY.

Grand Lake, in *Arkansas,* a post-village of Chicot co., on the Mississippi river, about 25 m. S. of Columbia.

Grand Lake, in *Maine,* is situated on the E. border of the State, between Aroostook and Washington cos. and New Brunswick, communicating with Passamaquoddy Bay by the St. Croix river. It covers an area of about 60 sq. m.

Grand Ledge, in *Michigan,* a thriving town of Eaton co., on Grand river and D., L. & N. R.R., 12 m. W. of Lansing. *Pop.* (1897) about 2,950.

Grand'ly, *adv.* In an elevated, grand, or lofty manner; sublimely; nobly; splendidly; magnificently.

Grand Manan', or MENAN, in *Maine,* an island off the S.E. coast of Washington co; *area,* about 100 sq. m.

Grand Marsh, in *Wisconsin,* a P. O. of Adams co.

Grand-mas'ter, *n.* (*Hist.*) This name was applied, during the Middle Ages, to the chiefs of the various dominant orders of knighthood—as the Templars and the Hospitallers, the latter of whom were later termed the Knights of Malta. The grand-master was, in a sort of way, the sovereign for life of the order which he commanded, and his word was law in all matters, whether concerning life or death.—During the days of the ancient monarchy in France there was an officer termed the Grand-master of France, who was chief of all the officers of the household; and later, during the empire, there

were grand-masters of the universities; but the term has, in the present day, become obsolete.

Grand Mead'ow, in *Iowa*, a township of Clayton co.

Grand Mead'ow, in *Minnesota*, a post-village of Mower co.

Grand'mother, *n.* The mother of one's father or mother.

Grand Mound, in *Iowa*, a post-town of Cliuton co.

Grand Mound, in *Washington*, a post-village of Thurson co., about 13 m. S.S.W. of Olympia.

Grand'-nephew (*-nĕf'yu*), *n.* A brother's or sister's grandson.

Grand'ness, *n.* State of being grand; grandeur; greatness with beauty; magnificence.

Grand'-niece, *n.* A brother's or sister's granddaughter.

Grand Port'age, in *Minnesota*, a post-village of Lake co.

Grand Prai'rie, in *Ohio*, a village and township of Marion co.; *pop.* of township about 448.

Grand Prai'rie, in *Washington*, a village of Lewis co., about 16 m. S. of Claquato.

Grand Rap'ids, in *Illinois*, a township of La Salle co.

Grand Rapids, in *Michigan*, the second largest city in the State, cap. of Eaton co., on Grand river at head of navigation; has 8 lines of railroad, more than 60 furniture factories, extensive flouring mills and other industries. Near by are large deposits of gypsum, from which calcined plaster is made. Here are located the Michigan Soldiers' Home and the State Masonic Home. *G. R.* is a large distributing trade center, and a typical Western city of the most progressive class. *Pop.* (1894) 79,424; (1897) about 86,000.

Grand Rapids, in *Nebraska*, a post-village of Holt co., about 35 m. N.W. of O'Neill.

Grand Rapids, in *Ohio*, a post-village of Wood co., *Pop.* (1890) 572.

Grand Rapids, in *Wisconsin*, a city, the cap. of Wood co., on Wisconsin river and the C., M. & St. P. R.R., opposite Centralia. Has flour and wood-pulp mills, furniture factories, &c. *Pop.* (1895) 2,043.

Grand River, a river in *Colorado*, rises on the W. slope of the Rocky Mountains in Summit county, and flows S.W. into Utah, where it receives the name of Colorado river.

Grand River, in *Iowa*, a township of Adair co.

—A post-township of Decatur co.

—A township of Madison co.

—A township of Wayne co.

Grand River, in *Louisiana*, takes its rise in Atchafalaya Bayou, and flowing a general S.E. and S. course, enters Lake Chetimaches near its S.E. extremity.

Grand River, in *Michigan*, formed by the confluence of numerous smaller streams in Jackson co., and after traversing Eaton, Ingham, Iona, and Kent cos., enters Lake Michigan from Ottawa co. *Length*, about 270 m.—Grand Rapids, about 40 m. above its mouth, is caused by a stratum of limestone rocks, having a fall of 18 ft. in about 1½ m., affording abundant water-power.

Grand River, in *Missouri:* (1) Formed by the junction of the E. and W. forks in Livingston co., and flowing a tortuous S.E. course between Carroll and Chariton counties, enters the Missouri river near Brunswick.—(2) Another rises in Cass co., and flowing a general S.E. and E. course through Henry co., enters the Osage river from Benton co.

Grand River, in *Ohio*, traverses Trumbull and Ashtabula cos., and enters Lake Erie from Lake co.

Grand'ronde, in *Oregon*, a P. O. of Yamhill co.

Grand'sire, *n.* A grandfather; frequently used in the sense of any ancestor.

"The *grandsire* skilled in gestic lore."—*Goldsmith.*

Grand'son, *n.* The son of a son or daughter.

Grand Spring, in *Wisconsin*, a village of Dane co.

Grand Springs, in *Missouri*, a vill. of Lawrence co.

Grand Tow'er, in *Illinois*, a post-village of Jackson co.

Grand Trav'erse, in *Michigan*, a N.W. co.; *area*, about 485 sq. m. *Rivers.* Grand Traverse river and other smaller streams. *Surface*, broken; *soil*, fertile. *Cap.* Traverse City. *Pop.* (1894) 17,514.

—A post-village of the above county, at the S. extremity of Grand Traverse Bay, abt. 125 m. N. of Grand Rapids.

Grand Traverse Bay, in *Michigan*, an arm of Lake Michigan extending into Grand Traverse co., between Antrim and Leelenaw cos. Length about 30 m., by about 7 m. in width.

Grand View, in *Illinois*, a post-village and township of Edgar co., about 12 m. S.W. of Paris.

Grand View, in *Indiana*, a post-town of Spencer co. *Pop.* (1890) 694.

Grand View, in *Iowa*, a post-village and township of Louisa co., about 8 m. N. of Wapello.

Grand View, in *Ohio*, a post-township of Washington co.

Grand View, in *Texas*, a post-office of Johnson co.

Grand'ville, or **Gran'ville,** in *Illinois*, a village of Jasper co.

Grandville, in *Michigan*, a post-village of Kent co., on Grand River, about 8 m. below Grand Rapids City.

Grand'ville, JEAN IGNACE ISIDORE GÉRARD, a French artist and caricaturist, B. at Nancy, 1803; remarkable for depth and delicacy of observation and criticism, for his ingenious turn of thought, and accuracy in portraiture. *G.* has produced during twenty years a large number of inimitable sketches, the best of which are *Les Métamorphoses du jour*, and *Les Animaux parlants.* D. 1847.

Grane, Gran, or **Quade,** a town and seaport of Arabia, on a bay of the same name, at the N.W. extremity of the Persian Gulf; Lat. 29° 26′ N., Lon. about 48° E.; *pop.* about 9,000.

Grange, (*grānj,*) *n.* [Fr., a barn; L. Lat. *granea*, from Lat. *granum*, a grain; Sp. *granja*, a farm-house.] A barn; a granary; a place for storing grain.—A farm-house, with all out-buildings, &c.

—A branch of the order of the *Patrons of Husbandry.* See HUSBANDRY, PATRONS OF; FARMERS' ALLIANCE.

Grange'mouth, a seaport of Scotland, co. Stirling, at the mouth of the Carron, in the Frith of Forth, 11 m. S.E. of Stirling. *Pop.* (1895) 2,659.

Granger (*grān'jer*), *n.* A farm-bailiff; a land-steward.

Granger, in *New York*, a post-town of Allegany co., about 5 m. S. E. by S. of Portage. An adjoining village is called EAST GRANGER. *Pop.* (1890) 954.

Granger, in *Ohio*, a post-township of Medina co.

Gran'ger, or **Grain'ger,** in *Tennessee*, a N.E. co.; *area*, about 300 sq. m. *Rivers.* Clinch and Houston rivers. *Surface*, elevated, in some parts mountainous, Clinch Mountain traversing the co.; *soil*, generally fertile. *Min.* Iron ore in abundance. *County-seat*, Rutledge. *Pop.* (1890) 13,196.

Gran'gerville, in *Georgia*, a post-village of Macon co., about 90 m. S.W. of Milledgeville.

Grangerville, in *New York*, a post-village of Saratoga co., about 35 m. N. of Albany.

Gran'icus, a river of Bithynia, famous for a battle fought on its banks between the troops of Alexander the Great and those of Darius, 334 B. C., when 600,000 Persians were defeated by 30,000 Macedonians.

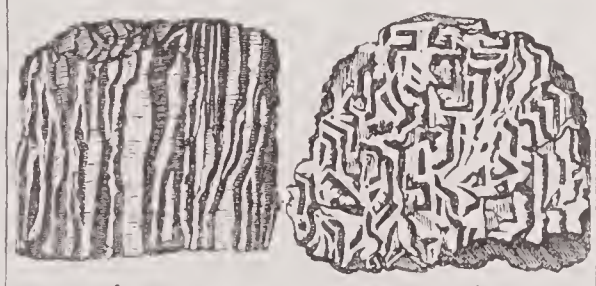
Graniferous, *a.* [From Lat. *granum*, grain, and *ferre*, to bear.] Seed-bearing, like grain.

Gran'iform, *a.* [Fr. *graniforme.*] Resembling grains of corn in form.

Granite, (*grăn'it,*) *n.* [Fr. *granit, granite;* It. *granito;* Sp. *granito*, from Lat. *granatus*, having many grains, from *granum*, a grain.] (*Geol.*) A kind of rock, so named from its granular structure. The typical *G.* is a crystalline aggregate of the three minerals, quartz, feldspar, and mica, with no appearance of layers in the arrangement of the mica or other ingredients. The proportions of the three components vary indefinitely, with this limitation, that the feldspar is always an essential ingredient, and never forms less than a third, rarely less than a half of the mass, and generally a still larger proportion. Sometimes the mica, sometimes the quartz becomes so minute as to be scarcely perceptible. The mica is in scales, white, black, or brownish, and may be separated into thinner scales with the point of a knife. The quartz is usually grayish-white, and without any appearance of cleavage. The feldspar is whitish or flesh-colored, and shows a flat, polished, cleavage-surface in one or two directions. Some granites are very close and fine-grained, others largely and coarsely crystalline. The colors of the rock are grayish, flesh-colored, or white, varying with the color of the constituent minerals. *Porphyritic G.* (Fig. 1188) has the feldspar distributed in distinct crystals. *Syenitic G.*, or syenite, contains hornblende in place of mica. *Albitic G.* is when the feldspar is *albite* or soda feldspar, which is usually white, the common or potash feldspar having a more grayish or reddish color. *Graphic G.*, or *pegmatite* (Fig. 1189), contains but little mica, and the quartz is distributed through the feldspar in shapes that give the surface the appearance of being covered with letters of an Oriental language. *G.* is one of the most valuable of building-stones. The hard, close-grained varieties are the most durable. It should be pure from pyrites or any ore of iron. By examining the rock in its native beds, good evidence can be obtained as to its durability. The more feldspathic are less enduring than the quartzose, and the syenitic or hornblendic variety is the most durable. (See SYENITE.) *G.* is capable of sustaining an immense pressure, which makes it peculiarly valuable for large works or buildings. Experiment has demonstrated that a weight of 24,556 lbs. is required to crush a half-inch cube of the best stone. *G.* abounds in New England. Excellent *G.* is quarried in Maine, Virginia, and New Hampshire, but the most celebrated quarries are in Massachusetts. The Quincy *G.* is properly a syenite. *G.* is detached in blocks of any length by drilling holes every few inches in the line of desired fracture, and driving in wedges of iron between steel *cheeks*, or half-round pieces fitting the sides of the hole. After removal the rock hardens somewhat, and is less easily cut than when first taken from the quarry. *G.* is abundant in S. Carolina and Georgia; but much of it, as well as that of some parts of California and Auvergne in France, is in a singular state of decomposition, in many places being easily penetrated with a pick. In the south this change has been referred to the action of sulphurous acid vapors, supposed to be produced by the decomposition of pyrites. Dolomieu called it the *maladie du granite*, and referred it to the action of carbonic acid from the interior. The feldspar and mica in these instances have decayed, but the quartz retains its form and place. The decomposition of the feldspar of some varieties of *G.* produces the kaolin used in the manufacture of porcelain. When *G.* decomposes readily, it passes into a good soil, not naturally rich, but capable of becoming so by the addition of organic matter. *G.* is widely distributed, many large tracts being entirely made up of it, and in many places it rises into lofty and picturesque peaks, forming the most magnificent scenery in the world.



Fig. 1188. — PORPHYRITIC GRANITE.
(Land's End, Cornwall.)



1 2

Fig. 1189. — GRAPHIC GRANITE.
1, Section parallel to the laminæ; 2, Section transverse to the laminæ.

Granit'ic, Granit'ical, *a.* Pertaining to, or like granite; having the nature of granite; as, *granitic* texture. — Consisting of granite; as, *granitic* rocks.

Granitic Rocks, *n. pl.* (*Geol.*) A name applied to those igneous rocks which partake of the character and appearance of granite. They are highly crystalline, and their compouent crystals are never rounded or waterworn; they present no traces of deposition or stratification; they occur in the earth's crust, as mountain-masses and veins, bursting through and displacing the sedimentary rocks; and they indurate, and otherwise alter (as all heated masses do) the strata with which they come in contact. From these circumstances they are held to be of igneous origin; and as far as geologists have been able to discover, they are the most deeply seated of all rocks, forming, as it were, the floor or foundation for all the superincumbent formations. As the earliest of the igneous rocks, they are generally found associated with primary and transition strata, tilting them up on their edges, bursting through them in dykes and veins, and variously altering their positions and mineral characters. *G. R.* form the principal mass of the most extensive mountain-ranges in the world. The Andes, the Alps, the Pyrenees, the Ural and Himalayan ranges, the Abyssinian and other ranges in N. Africa, the hills of Duncan and Namqua land in S. Africa, the mountains of Cumberland, Devon, and Cornwall, in England, the Grampians in Scotland, the Wicklow mountains in Ireland, and the Dofrefeld in Scandinavia, are all more or less composed of granitic rocks, or of primary strata, thrown up and altered in mineral character by these granitic intrusions.

Granitifica'tion, *n.* [Eng. *granite*, and Lat. *facere*, to make.] Art or process of being converted into granite.

Granit'iform, *a.* [Eng. *granite*, and Lat. *forma*, shape.] (*Geol.*) Having the form of granite; resembling granite in structure and shape.

Gran'itine, *n.* (*Min.*) See GRANITE.

Gran'itoid, *a.* [From Eng. *granite*, and Gr. *eidos*, form.] Resembling granite in granular appearance; as, *granitoid* gneiss.

Graniv'oræ, *n. pl.* [Lat. *granum*, a grain, and *voro*, I eat.] (*Zoöl.*) The name given by Temminck to an order of birds, including the Insessorial species which feed on grains; other animals with a similar diet are termed *granivorous.*

Graniv'orous, *a.* See GRANIVORÆ.

Gran'nam, Gran'ny, *n.* A vulgarized form of grandmother, or grandam.

"Oft my kind *grannam* told me, Tim take warning." — *Gay.*

Grant, *v. a.* [L. Lat. *grantare*, or *greantare*, to promise truly or on oath — *gratus, gratum*, acceptable, pleasing, agreeable.] To transfer, as the title of a thing, to another, for a good or valuable consideration; to convey by deed or writing; to cede.

"*Grant* me the place of this threshing-floor." — 1 *Chron.* xxi. 22.

—To bestow or confer on, without compensation, in answer to request.

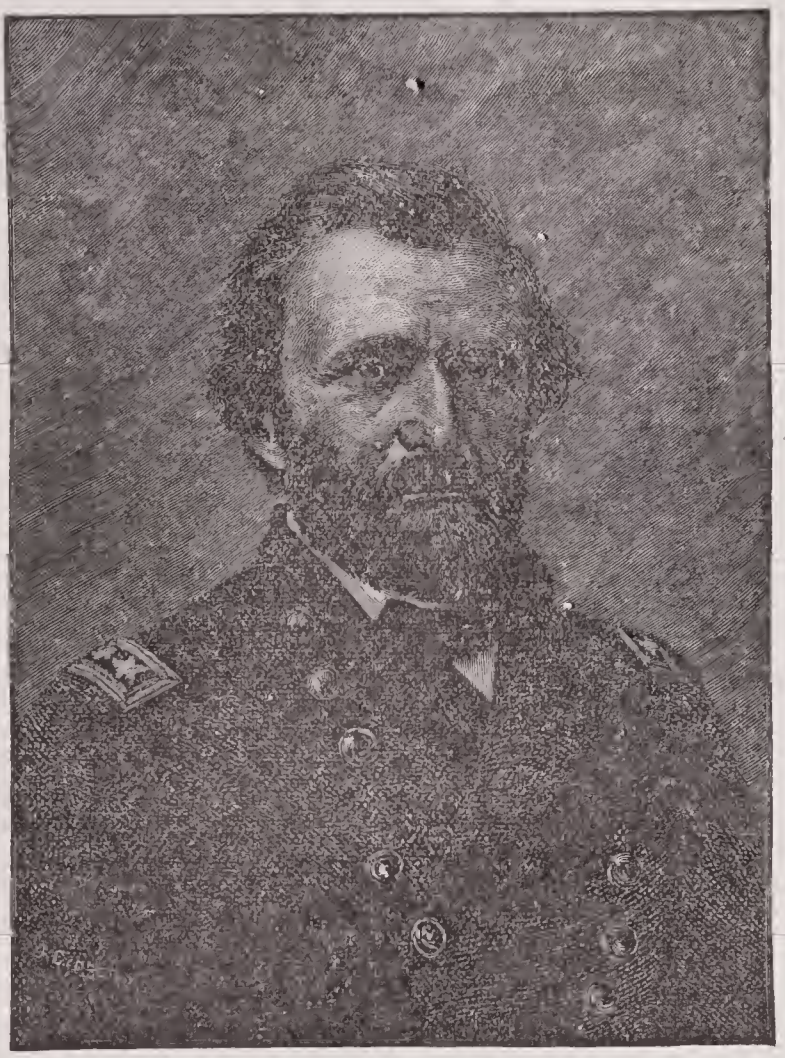
"O *grant* an honest fame, or *grant* me none." — *Pope.*

—To admit as true what is not proved; to allow; to yield; to concede; as, we may take it for *granted* that his assertion is true.

—*n.* Act of granting; a bestowing or conferring; concession.

"This *grant* destroys all you have urged before." — *Dryden.*

—A gift; a boon; a present; an allowance; the thing granted or bestowed; as, a *grant* of money.



Ulysses S. Grant

1822–1885

(*Law.*) A conveyance in writing of such things as cannot pass or be transferred by word only; the thing conveyed by deed or patent; as, a *grant* of land, a *grant* of precedence.

Public grant, the mode and act of creating a title in an individual to lands which had previously belonged to the government. The public lands of the U. States, and of the various States individually, have been to a great extent conveyed by deeds or patents issued in virtue of general laws; but many specific grants have also been made, and were the usual method of transfer during the colonial period.

Grant, James, a very popular English novelist and man of letters, b. 1822. He was one of the most voluminous of writers, and a list of his works would fill a column. Of these the more notable are *The Romance of War, or the Highlanders in Spain* (1846); *Adventures of an Aide-de-Camp* (1848); *The Scottish Cavalier* (1850); *Philip Rollo, or Les Mousquetaires Ecossais* (1854); *The Black Dragoons* (1857); *Memoirs of the Marquis of Montrose* (1858); *Mary of Lorraine* (1860); the *Constable of France* (1866); *Shall I win her?* (1874); *Six years ago* (1877), &c. Most of *G.*'s works have been translated into German, and several into French. D. 1887.

Grant, Sir Francis, r.a., a distinguished English portrait-painter, and President of the Royal Academy, b. 1803. His first pictures chiefly illustrated animal studies, such as the *Meet of Her Majesty's Staghounds*, and the *Melton Hunt*, painted for the Duke of Wellington. Turning his attention to portraiture, he has become in this line of art without a superior at the present day. Among his more celebrated male portraits are those of Lords Macaulay, Hardinge, Gough, Campbell, Derby, Palmerston, Clyde, Russell, and Stanley; Messrs. Disraeli, and Lockhart, and Sir Edwin Landseer. As a delineator of feminine beauty, Sir Francis stands at the head of his profession. D. 1872.

Grant, Ulysses Simpson, 18th president of the United States, was b. at Point Pleasant, Ohio, April 27, 1822, entered West Point Academy in 1839, graduated in 1843, received a commission in the U. S. Army in 1845, and served under Gens. Taylor and Scott in Mexico. In 1852 he was ordered to Oregon, and in Aug., 1853, became full captain. He resigned his commission in July, 1854, and soon after settled in business at Galena, Ill. From this privacy he was drawn out by the Civil War, and having acted first as aide-de-camp to the governor of his State in 1861, and afterwards as colonel of the 21st Illinois Volunteers, was appointed a brigadier-general in July of the same year. While in command at Cairo, he secured Paducah, and with it the State of Kentucky. In Nov., 1861, he fought and gained the battle of Belmont, and in Jan. of the following year conducted a reconnoissance to the rear of Columbus. After capturing Fort Henry, on the Tennessee, Gen. *G.* pursued the Confederates to Fort Donelson. There a severe battle raged almost without interruption for three days and three nights, when, Feb. 15, the fort was surrendered unconditionally. This brilliant feat elevated Gen. *G.* to the rank of major-general. Having been appointed to the command of the district of W. Tennessee, *G.* advanced up that river to Pittsburg Landing, where he had to contend against a force of nearly 70,000 men. The National lines were overwhelmed, crushed, dispersed; but Gen. *G.*, undismayed, formed new lines, planted new batteries, and thus held the Confederates in check till dark, when the long expected arrival of his rear-guard of 35,000 men, under Gen. Buell, enabled him to fight, April 6th and 7th, the glorious battle of Shiloh, whence the Confederates, abandoning the field, retreated to Corinth. Gen. *G.* was second in command to Gen. Halleck at the siege of Corinth, and when the latter was ordered to Washington, he was appointed to take command of the Department of Tennessee, in which capacity he marched against Vicksburg, the so-called "Gibraltar" of the Confederates on the Mississippi. After a long and memorable siege, this important place was surrendered unconditionally, and 37,000 prisoners, 150 cannons, with an immense amount of military stores, fell into the hands of the victors. Upon the defeat of Gen. Rosecrans at Chickamanga, *G.* was sent to repair the disaster, and, on Nov. 25, 1863, he defeated Gen. Bragg at Lookout Mountain. This great victory, by which E. Tennessee was reduced and Kentucky saved, was perhaps the most brilliant strategic and tactical movement of the war; it placed Gen. *G.* on a footing with the ablest generals of any country or of any age. A few months after, March 1, 1864, *G.* was raised to the highest military position in the land, — under the title of lieutenant-general he was constituted commander-in-chief of all the armies of the United States. Invested with this authority, the plan of Gen. *G.* was to destroy Lee's army. Washington was to be covered from raid, through the Shenandoah, by Gen. Sigel. Gen. Butler was to menace Richmond from the south. Sherman, in Georgia, was to press his campaign in that department with all vigor, that no reinforcements might be sent to the aid of Lee. Gen. *G.*, with Meade's army of 150,000 north of the Rapidan, was to draw Lee's army out of their intrenchments, and either destroy them, or compel them to rush from the menacing of Washington to the protection of their own capital. On the night of Tuesday, May 3, Gen. *G.* crossed the Rapidan, and entered what is called The Wilderness. By a flank movement, *G.* was getting into the rear of his foe. Lee rushed from his intrenchments, and endeavored to overwhelm *G.* Then began the most gigantic and terrific campaign recorded in history. After 11 days of bloody and almost uninterrupted battles, the two armies, on the 12th day of this unparalleled struggle, were still confronting each other, both on the defensive, sternly looking face to face, both prepared for another round! With the first dawn the battle was renewed by a tremendous but vain assault upon the Confederate lines. Gen. Lee, nevertheless, fearing *G.* might get between him and Richmond, cutting off his supplies, decided to retire, and *G.* succeeded in crossing the North Anna, and reached the famous banks of the Chickahominy. Finding the intrenchments of the enemy in his front too formidable to be carried by direct assault, *G.* moved his troops to join Gen. Butler at Bermuda Hundred. The performance of this movement, in the presence of Lee's army, who at many points were but a few rods from him, is perhaps one of the most brilliant pages of Gen. *G.*'s military career. Slowly wore away long months of expectation on the part of an impatient people. Sheridan was achieving glory in the Shenandoah Valley; Thomas was sweeping Tennessee clear of invaders; Sherman was pressing on his matchless march through the Confederate States; but *G.* was so quietly settled down behind Petersburg that he seemed regardless of his personal honors. Impenetrable to jealousy, he had but one aim, one thought — the grasping of Richmond; but the time was not yet come. With the coming of the spring of 1865, Lee, whose position and resources were quite exhausted by the self-possession and strategy of the Union commander-in-chief, now determined to assume the offensive, and on the night of March 27, 1865, he massed three divisions of his troops in front of Fort Steadman, and on *G.*'s right, and by a sudden rush at daybreak on the following morning, succeeded in surprising and capturing that important position. Before noon of the same day, however, it was retaken by the Union troops, with all its guns and 1,800 Confederate prisoners. At this time a battle, which continued until evening, was raging at Hatcher's Run. Three corps were massed under Gen. Sheridan below Petersburg, and on Sunday morning, April 2d, flanked the Confederates at Big Five Forks, capturing their intrenchments with 6,000 men. The attack, under Gen.

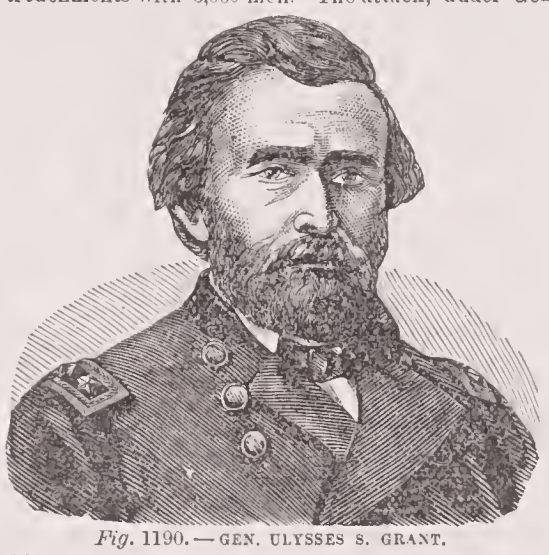


Fig. 1190. — GEN. ULYSSES S. GRANT.

G.'s direction, then commenced along the whole line, and the assault was so successful that on the same night his forces held the Confederate intrenchments from the Appomattox, above Petersburg, to the river below. At three o'clock that afternoon Gen. Lee telegraphed to Jefferson Davis that he had been driven from his intrenchments, and that Petersburg and Richmond must be abandoned, which operation was performed that night; and on the next day, April 3, 1865, the National army entered Petersburg, and Gen. Weitzel occupied Richmond. By rapid movements, Gen. *G.* cutting off Lee's retreat to Lynchburg and Danville, came up with him at Appomattox Court-house, and demanded his immediate surrender. The two chiefs met and arranged the details, and on Sunday, April 9, the Army of Northern Virginia capitulated. The whole of Gen. Lee's army, officers and men, were paroled, with permission at once to return to their homes. The former were granted the privilege of retaining their side-arms, and each of the field-officers one horse. All other property belonging to the Confederate govt. within the department was surrendered to the U. States. Gen. Johnston's surrender to Gen. Sherman, on the same terms as those accorded to Gen. Lee, speedily followed. In 1866 Gen. *G.* was promoted to the rank of General, that honor being created specially for him. In Aug., 1867, on the suspension of Mr. Stanton by President Johnson, Gen. *G.* consented to fill the office of Secretary of War ad interim, but the Senate having refused to approve the suspension, Gen. *G.*, Jan. 13, 1868, surrendered the office to Mr. Stanton. On June 20, 1868, Gen. *G.* was unanimously nominated by the Republicans as a candidate, and elected the following November President of the U. S. In Nov. 1872, Gen. *G.* was re-elected to the Presidency, defeating Horace Greeley. After his second term of service, in 1877, *G.* left the U. S. to travel abroad. Upon his arrival in England he was very hospitably received and entertained, the right of citizenship of London and other towns being conferred on him. Completing the tour of the world, he returned in 1879. By Special Act of Congress, March 3d, 1885, *G.* was placed upon the retired list of the Army, with the rank and pay of General. He d. at Mount McGregor, near Saratoga, N. Y., July 23d, 1885, after a lingering and painful illness and was buried at Riverside Park, New York city, Aug. 8th, 1885. He left for publication his personal memoirs, which were issued shortly after his death.

Grant, in *Arkansas*, a S. central co.; *area*, 617 sq. miles. It is intersected by Saline river and Hurricane creek. *Surface*, undulating, extensively covered with forests; *soil*, fertile. *Cap.* Sheridan. *Pop.* (1890) 7,786.

Grant, in *Indiana*, a N. E. co.; *area*, 420 sq. miles. It is intersected by the Mississinewa river. *Surface*, level; *soil*, fertile. *Cap.* Marion. *Pop.* (1897) about 45,000

Grant, in *Kansas*, a S. W. co.; *area*, 576 sq. miles. It is watered by Cimarron river, its N. fork, and Bear creek. *Surface*, nearly all prarie, *soil* being a black loam. *Cap.* Ulysses. *Pop.* (1895) 532.

Grant, in *Kentucky*, a N. co.; *area*, 280 sq. miles. It is drained by Eagle creek. The surface is undulating and extensively covered with forest; *soil*, fertile. *Cap.* Williamstown. *Pop.* (1890) 12,671.

Grant'able, *a.* That may be conveyed or granted.

"The office of the bishop's chancellor was *grantable* for life." *Ayliffe.*

Grantee', *n.* (*Law.*) The person to whom a grant or conveyance is made; — opposed to *grantor*.

Grant'er, *n.* One who grants.

Grant City, in *Iowa*, a post-village of Sac co., on Raccoon River, abt. 45 m. S.W. of Fort Dodge.

Grant City, in *Missouri*, a post-village, cap. of Worth county.

Grant'ham, a city of England, in Lincolnshire, on the Witham, 24 m. S. of Lincoln. A statue has been erected here to the great Newton, who received in *G.* the first rudiments of education.

Grantham, (*grant'am,*) a parish of Niagara district, Upper Canada, on Lake Ontario, abt. 30 m. S. of Toronto.

Grant'ham, in *New Hampshire*, a post-township of Sullivan co.

Grant'ly Harbor, in *Alaska*, an arm of Behring Strait, E. of Port Clarence. It is 10 m. long, by abt. 2½ wide.

Grantor', *n.* (*Law.*) The person who makes a grant; one who conveys lands, rents, &c.

Grant River, in *Wisconsin*, enters the Mississippi River from Grant co.

Grants'burg, in *Illinois*, a post-office of Johnson co.

Grants'burg, in *Indiana*, a post-office of Crawford co.

Grants'burg, in *Wisconsin*, a post-village, cap. of Burnett co.

Grant's Lick, in *Kentucky*, a post-village of Campbell co.

Grant's Mills, in *New York*, a small village of Delaware county.

Grants'ville, in *Maryland*, a post-village of Garrett co. about 25 miles N. W. of Cumberland.

Grantsville, in *Missouri*, a village of Linn co.

Grants'ville, in *Utah*, a post-village of Tooele co., about 35 m. W. of Salt Lake City.

Grants'ville, in *West Virginia*, a post-village, cap. of Calhoun co.

Grant'ville, in *Georgia*, a post-village of Coweta co., about 52 m. S.W. of Atlanta.

Grant'ville, in *Kansas*, a post-office of Jefferson co.

Grant'ville, in *Massachusetts*, a post-village of Norfolk co., abt. 13 m. S.W. of Boston.

Grant'ville, in *Pennsylvania*, a P. O. of Dauphin co.

Gran'ular, Gran'ulary, *a.* [From Lat. *granum.*] Consisting of grains; resembling grains; as, *granulary* bodies, a *granular* substance.

Gran'ularly, *adv.* In a granular manner.

Gran'ulate, *v. a.* [Fr. *granuler*, from Lat. *granum.*] To form into grains or small masses; as, to *granulate* gunpowder.

—To raise into small asperities; to make rough on the surface.

"The gullet . . . as it were, *granulated* with a multitude of glandules." —*Ray.*

—*v. n.* To collect or to be formed into grains; as, beetroot *granulates* into sugar.

Gran'ulate, Gran'ulated, *a.* Consisting of, or having the form of, grains.

—Possessing numerous small asperities of surface.

Granula'tion, *n.* [Fr.] Act of forming into grains, as sugar.

(*Surg.*) A term applied to the growth of fleshy fibre, which springs up in wounds and ulcers when the process of cure is being effected by the second intention. It is so called from the fact of the flesh springing up in separate particles, like grains or granules. Occasionally, when the system is out of order, and the part weak, the granulations spring up with remarkable rapidity; when such is the case they are called watery granulations, or *proud flesh*. This excessive and unhealthy activity is easily corrected by a weak solution of bluestone.

(*Metall.*) A process resorted to to obtain metals in a coarse state of division. The metal is melted in a crucible, and poured into water from the height of three or four feet.

Granule, (*gran'yūl,*) *n.* [L. Lat. *granulum*, dim. of Lat. *granum.*] A little grain; a small compact particle.

Granulif'erous, *a.* [*granule*, and Lat. *ferre*, to bear.] Presenting granulations.

Gran'uliform, *a.* [*granule*, and Lat. *forma*, shape.] (*Min.*) Having a granular structure.

Gran'ulite, *n.* [*granule*, and Gr. *lithos*, stone.] (*Geol.*) A granular mixture of feldspar and quartz, as when the mica of granite is wanting.

Gran'ulous, *a.* [Fr. *granuleux.*] Full of little grains; formed of granular substances.

Gran'velle, Antoine Perrenot, Cardinal de, a Spanish statesman, b. in Besançon, Aug. 20, 1517. Educated at Padua and Louvain, he early displayed a rare intelligence, great powers of application, ambition, and the most polished manners. He got himself admitted canon of Liége, was named bishop of Arras in 1514, and accompanied

his father to the Diets of Worms, and Ratisbon, and the Council of Trent. After the battle of Mühlberg he was charged with the arrangement of the conditions of peace with the Protestants, and at the same time captured Constance by surprise. On his father's death he succeeded him as councillor of state and chancellor of the empire. He negotiated the famous treaty of Passau, and, in 1553, the marriage of Don Philip (Philip II.) with Mary, queen of England. After the abdication of Charles V., *G.* remained with Philip in the Netherlands, aiding him in establishing his authority. He negotiated the peace of Chateau-Cambresis, and remained in the Netherlands as minister of the regent Margaret, duchess of Parma. In this post he became, of course, the object of popular odium; and, although the king made him archbishop of Malines, and the Pope created him a cardinal, he was recalled in 1564, and his place supplied by the Duke of Alva. The next five years he passed in retirement, in the pursuits of literature, and the society of learned men. In 1570, when Naples was threatened by the Turks, he was sent on a mission to Rome, and was soon after appointed viceroy of Naples. His administration, conducted with great ability, prudence, and integrity, ended in 1575, when he was recalled to Spain, and named president of the Supreme Council of Italy and Castile. He resigned the see of Malines on being appointed, in 1584, archbishop of Besançon; and D. at Madrid, Sept. 21, 1586. *G.* left an immense collection of the letters and despatches addressed to him, which were saved from destruction by the Abbé Boisot, who spent several years in arranging them. They form one of the most important sources of the history of the 16th century, and have been published at the expense of the French govt., under the auspices of M. Guizot.

Gran'ville, or GRENVILLE, the name of a distinguished English family, the principal of whom are:—SIR RICHARD, a military and naval commander, killed in action under Sir Thomas Howard, 1591.—SIR BEVIL, his grandson, a Royalist, and commander of a troop of horse raised at his own expense; killed at the battle of Lansdowne, 1643.—GEORGE, *Lord Lansdowne*, grandson of the latter, a poet and courtier, B. 1667, D. 1735.—See GRENVILLE.

Gran'ville, a seaport-town of France, dept. of La Manche, 12 m. N.W. of Avranches. Its principal trade is in the whale-, cod-, and other fisheries. *Pop.* 17,400.

Gran'ville, in *Illinois*, a flourishing township of Jasper co.

—A flourishing post-village and township of Putnam co.

Gran'ville, in *Indiana*, a post-village of Delaware co., on the Mississinewa River, abt. 65 m. N.E. of Indianapolis.

Gran'ville, in *Iowa*, a post-village of Sioux co., on the C. & N. W. Railway, 11 miles E. of Orange City. *Pop.* (1895) 373.

Gran'ville, in *Massachusetts*, a post-township of Hampden co. It contains GRANVILLE CENTER, EAST GRANVILLE, and WEST GRANVILLE. *Pop.* (1895) 1,061.

Gran'ville, in *Minn.*, a township of Kittson co.

Gran'ville, in *Missouri*, a post-village of Monroe co., 37 miles S. W. of Hannibal.

Gran'ville, in *Nebraska*, a township of Platte co.

Gran'ville, in *New York*, a post-town and township of Washington co., about 68 miles N.N.E. of Albany. *Pop.* (1890) 4,716.

Gran'ville, in *North Carolina*, a N. co. bordering on Virginia; *area*, about 600 sq. miles. *Rivers.* Tar river, and numerous smaller streams flowing into the Dan and Neuse rivers. *Surface*, hilly; *soil*, fertile. *Cap.* Oxford. *Pop.* (1890) 24,484.

Gran'ville, in *Ohio*, a post-village and township of Licking co., about 28 miles E.N.E. of the city of Columbus. *Pop.* of village (1890) 1,366.

—A township of Mercer co.

Gran'ville, in *Pennsylvania*, a township of Bradford co.

—A post-town of Mifflin co.

Gran'ville, in *Tennessee*, a post-village of Jackson co., about 60 miles E. by N. of Nashville.

Gran'ville, in *Vermont*, a post-town and township of Addison co.

Gran'ville, in *Wisconsin*, a post-township of Milwaukee co., about 10 miles N.N.W. of Milwaukee.

Gran'ville, in *West Virginia*, a village of Monongahela co., on the Monongahela river, about 50 miles S.E. of Wheeling.

Gran'ville Centre, in *Pennsylvania*, a post-office of Bradford co.

Gran'ville Corners, in *Massachusetts*, a former post-office of Hampden co.; now GRANVILLE.

Gran'ville Summit, in *Pennsylvania*, a post-village of Bradford co., about 30 miles S. of Elmira, N. Y.

Grape, *n.* [Fr. *grappe;* It. *grappo*, a cluster of grapes; L. Lat. *grappus;* W. *grab*, a cluster, a grape.] The fruit of the vine, *Vitis vinifera*.—See VITIS.

(*Mil.*) See GRAPE-SHOT.

(*Farriery.*) A mangy tumor or swelling, formed on the legs of a horse.

(*Ordnance.*) The cascabel of a cannon.

Grape'land, in *Texas*, a post-village of Houston co., on the I. and G. N. R. R.

Grape'less, *a.* Without grapes; as, a *grapeless* vine; wanting in the flavor and essential properties of grapes.

Grap'ery, *n.* A building or hot-house used for the rearing of grapes.

Grape'-shot, Grape, *n.* (*Mil.*) A kind of shot used against troops advancing in column at a short distance, or in naval warfare, to sweep the decks of an enemy's ship at close quarters. It consists of a number of balls fastened together, in the form of a short cylinder. The balls vary from half a pound to four pounds in weight, according to the calibre of the piece from which they are to be discharged. Grape-shot was formerly made by putting the balls into a canvas bag, which was secured to an iron plate, equal in diameter to the calibre of the gun, and having a pin passing through its centre and the bag of shot, about which the balls were secured by cord. This gave the shot in some measure the appearance of a bunch of grapes; whence its name. The shot are now placed between a series of iron plates, the whole being kept together by pressure, exerted by a nut screwed on to the end of the bolt which passes through them.

Grape'-stone, *n.* The stone or seed contained in the grape.

"A fly, a *grape-stone*, or a hair can kill." — *Prior.*

Grape'-sugar, *n.* (*Chem.*) Same as GLUCOSE, *q. v.*

Grape'-vine, *n.* The vine which bears grapes.

Grape'ville, in *Pennsylvania*, a post-office of Westmoreland co.

Graphic, Graphical, (*grăf'ik, grăf'ik-al,*) *a.* [Fr. *graphique;* Lat. *graphicus;* Gr. *graphikos* — *grapho*, to write.] Relating or belonging to the art of writing, describing, or delineating. — Inscribed; written.

"Works not *graphical*, or composed of letters." — *Browne.*

—Describing with accuracy; well delineated; life-like; as, a *graphic* account of a battle.

G. granite. (*Min.*) See GRANITE.

G. gold, and *G. tellurium.* (*Min.*) See SYLVANITE.

Graph'ically, *adv.* With good delineation; in a graphic or picturesque manner.

"The civet cat is *graphically* described by Castellus." — *Browne.*

Graph'ite, *n.* [Fr.; from Gr. *graphein*, to write.] (*Min.*) The plumbago, a mineral which occurs in prismatic masses with a transverse foliated structure, also granular and compact; lustre metallic. Color iron-black, steel-gray. *Sp. gr.* 2·0891. *Comp.* Pure carbon with a little oxide of iron mechanically mixed. It is found imbedded in granite, gneiss, mica schist, and crystalline limestone. It is sometimes the result of the alteration of coal by heat; and its common name *black lead* is inappropriate, there being no lead in its composition. It is infusible, very difficult of combustion, and when mixed with fire-clay is used for the manufacture of crucibles intended to withstand a high degree of heat. It undergoes no change in the air, and is used to cover articles of iron to prevent rust, and also for lubricating machinery. It is used also for the manufacture of pencils, either pure or ground up and mixed with clay. When *G.* is burned in oxygen, it leaves a residue of yellow ash composed chiefly of oxide of iron. It is an abundant mineral, occurring at many places in this country. At Sturbridge, Mass., and at Ticonderoga, N. Y., it is found in large masses and extensively worked. The mines of Cumberland, England, are celebrated for its *G.*

Graph'itoid, Graphitoid'al, *a.* [From *graphite*, and Gr. *eidos*, form.] Partaking of the qualities of, or resembling, graphite.

Graph'olite, *n.* [Gr. *graphein*, to write, and *lithos*, stone.] A kind of writing-slate.

Graphometer, (*gra-fom'e-ter,*) *n.* [Gr. *graphein*, and *metron*, measure.] (*Math.*) See SEMICIRCLE.

Graphomet'rical, *a.* Relating to a graphometer; taken by a graphometer.

Graph'otype, *n.* (*Arts.*) A comparatively recent mode of producing engravings for working as wood-cuts by letter-press, the principal value of which is that it needs no engraver to interpret the work of the artist. It is said that the cost of graphotypes is much less than that of wood-engravings. The process is thus described: A layer of prepared chalk is compressed by hydraulic pressure upon a plate until the surface of the chalk is as smooth as a sheet of paper. The artist draws on this surface with an ink which has the property of making the chalk which it touches harder than the remaining surface. A soft brush or a piece of velvet is now rubbed over the plate, from which it removes part of the untouched chalk, leaving the inky portion in relief. When these lines are considered deep enough, the whole plate is saturated with a chemical solution, which hardens the chalk. From this, impressions may be taken direct, or stereotypes or electrotypes may be obtained as soon as the stone is dry. Some graphotypes rival in beauty and delicacy the best engravings.

Grap'nel, Grap'ling, *n.* [Fr. *grappin*, from Ger. *greifen*, to gripe. See GRIPE.] (*Naut.*) A sort of small anchor with four or five flukes or claws, commonly used to moor boats or small vessels; hence, by implication, anything devised to hold or fasten.

Grap'ple, *v. a.* [Belg. *grabbelen;* It. *aggrapare*, to seize, from Goth. *greipan*, to seize, to gripe. See GRIPE.] To seize; to gripe; to lay fast hold on either with the hands or with hooks;—hence, to fasten on earnestly and confidently.

"Virtue meets envy, to *grapple* with at last." — *Waller.*

—*v. n.* To seize; to contend or struggle in close fight, as wrestlers;—hence, to come to close contest with; as, to *grapple* with a difficulty.

—*n.* A seizing; close hug in contest; close fight; the wrestler's hold or embrace.

"In the *grapple* I boarded them." — *Shaks.*

(*Naut.*) A hook or iron instrument by which one ship may take fast hold of another.

Grap'pling, *n.* A laying fast hold of; also, that by which anything is seized and held fast.

Grap'pling-irons, *n. pl.* (*Naut.*) Iron instruments employed for grappling and taking fast hold of a vessel.

Grap'tolites, Graptoli'tidæ, *n.* [From Gr. *graphein*, to write, and *lithos*, stone.] (*Geol.*) These fossil bodies, which have been found throughout the Silurian deposits, have been placed provisionally in the class *Polypi*. The axis of the polypary is sometimes straight, sometimes spiral, and serrated either on one or two sides. They occur in argillaceous strata, and it has been conjectured on good grounds that they present a more generalized structure, nearer to the ideal type of *Polypi*, than the specially differentiated Sertularians and Pennatulidæ of the present day.

Graptolit'ic, *a.* Of the nature of graptolites; as, *graptolitic* slate.

Grap'y, *a.* Full of clusters of grapes; full of, or resembling, grapes.

Grasli'itz, a mining town of Bohemia, 88 m. S. of Prague; *pop.* 6,400.

Grasp, *v. a.* [High Ger. *gripsen*, to seize, akin to GRIPE, *q. v.*] To catch; to seize; to lay hold of; to fasten on; to take possession of; to seize and hold by clasping, hugging, or embracing with the fingers or arms.

"I'll *grasp* my sceptre with my dying hand." — *Dryden.*

To grasp at, to endeavor to seize; to catch at.

"So endless and exorbitant are the desires of men, that they will *grasp at* all." — *Swift.*

Grasp, *n.* The gripe or seizure of the hand: possession; hold. — Reach of the arms; — hence, figuratively, the power of seizing; as, the crown was within his *grasp*. — Capacity of the intellect to comprehend a subject; as, *grasp* of mind.

Grasp'able, *a.* That which may be grasped.

Grasp'er, *n.* One who grasps, seizes, catches, or holds.

Grasp'ing, *p. a.* Seizing; catching; embracing; holding.

—Greedy; avaricious; sordid; miserly; as, a *grasping* disposition.

Grasp'ingly, *adv.* In a grasping manner; eagerly; greedily.

Grass, *n.* [A. S. *gærs, gers, græs;* Low Ger., D., and Ger. *gras;* Fris, *gres;* Swed. *gräs;* Heb. *gēresh*, product, from *gārash*, to drive or thrust out; Hind. *ghas.*] Herbage; the plant which forms the food of cattle, horses, and other beasts; green fodder.

(*Bot.*) One of the grasses or GRAMINACEÆ, *q. v.*

Grass of Parnassus. (*Bot.*) See PARNASSIA.

—*v. a.* To cover with grass or with turf; to furnish with grass.

—To bleach flax on the grass or ground.

—*v. n.* To breed grass; to be covered with grass; to become pasture. (R.)

Grass, in *Indiana*, a thriving township of Spencer co.

Grass'-cloth, *n.* (*Com.*) A name often, although erroneously, given to certain beautiful fabrics manufactured in the East from different kinds of fibres, none of which are produced by grasses. One of these fabrics is made from the fibre of *Bœhmeria nivea*, popularly called China-grass; another, also known as Pina Muslin, from the fibre of *Bromelia Pigna*. The kinds of cloth really made from the fibre of grasses are extremely coarse.

Grasse, (*grass,*) a town of France, cap. of dept. *Alpes Maritimes*, 9 m. from the Mediterranean, and 594 m. S.E. of Paris. *G.* is second only to Paris in its manufactures of essences and perfumes, made from the roses, orange-flowers, heliotropes, mint, &c., which, from the mildness of the climate, are most successfully grown in the vicinity. *Pop.* 15,556.

Grass'-green, *a.* Green with grass. — Green, like the color of grass; as, a *grass-green* ribbon.

—*n.* The hue or color of grass.

Grass'-grown, *a.* Covered or overgrown with grass; as, a *grass-grown* courtyard.

Grass Hills, in *Kentucky*, a village of Carroll co.

Grass'hopper, *n.* (*Zoöl.*) A genus of orthopterous insects, belonging to the family *Gryllides*, but distinguished from the true crickets by the roof-like position of the wing-covers, which in the crickets fold horizontally; while they are distinguished from the locusts by the inferior robustness of the body, and the length and slenderness of the legs and antennæ. There are several species, of which the common meadow *G.* (*Orchelimum vulgaris.* Harris) may be taken for the type. It is generally of a green color, with a brown stripe on the top of the head and thorax; it measures at maturity about ¾ of an in. to the end of the body; the hindermost thighs are smooth; there are 2 spines on the middle of the breast; and the antennæ extend beyond the end of the hind legs. The young *G.* comes from the egg without wings; passing through several moultings, the body increases in size and length, and little stump-like wings appear; the wings gradually become larger with each change of skin, the insect hopping about by means of its muscular hinge-thighs; after ceasing to grow, the wings are perfect organs of flight, and the *G.* enters upon its short life of activity, song, and reproduction; — the song by degrees becomes less, the body shrivels, the legs wither, the appetite ceases, and in 3 or 4 weeks the whole number is dead. The larvæ remain in the earth all winter, and are hatched in the spring. They are voracious as larva, pupa, and perfect insect, and in all these stages they are equally devoured by fowls, especially by turkeys. During the daytime the *G.* are silent, and conceal themselves among the leaves of trees; but at night they quit their lurking-places, and the joyous males begin the tell-talo call with which they enliven their silent mates. This proceeds from the friction of the taboret frames against each other when the wing-covers are opened and shut, and consists of two or three distinct notes, almost exactly resembling articulated sounds, and corresponding with the number of times that the wing-covers are opened and shut; and the notes are repeated, at intervals of a few minutes, for hours together. Though averse to the exertions of flight, and slow in their aërial excursions, particularly when the

weather is moist or cool, they are sometimes seen to fly to considerable distances. When roughly handled they bite sharply, and when flying they make a peculiar noise with their wings.

Grass'hopper, in *Kansas*, a township of Atchison co. *Pop.* (1895) 1,872.

Grass'hopper Falls, now VALLEY FALLS, in *Kansas*, a post-village and township of Jefferson co., about 23 m. S. W. of Atchison. *Pop.* (1895) 1,172.

Grass'iness, *n.* [From *grassy.*] The condition of being covered with grass, or abounding in grass.

Grass Lake, in *Michigan*, a post-village of Jackson co., on a small lake of the same name, about 65 m. W. of Detroit. *Pop.* (1894) 647.

Grass Land, *n.* (*Agric.*) Under this name are included water-meadows, upland pastures, and artificial meadows. The first are briefly treated of under IRRIGATION. *Upland pastures* are portions of land on which the natural grasses grow spontaneously, varying in quantity and quality with the soil and situation. When a pasture is naturally rich, the only care required is to stock it judiciously, to move the cattle frequently from one spot to another, and to eradicate certain plants which are useless or noxious. The urine of the cattle is the manure which chiefly keeps up the fertility of grass-land. A poor, arid soil is not fitted for grass, nor one which is too wet from the abundance of springs and the want of outlet for the water. These defects can only be remedied by expensive improvements. When an arable field is sown with the seeds of grasses and other plants which give herbage for cattle, it is called an *artificial meadow.*

Grass'land, in *W. Virginia*, a P. O. of Harrison co.

Grass'less, *a.* Wanting, or without grass.

Grass Lick, in *West Virginia*, a post-office of Jackson county.

Grass'-oil, *n.* (*Perfum.*) A volatile oil of a light straw color, obtained by distillation from certain grasses in India, of the genus *Andropogon*. It is fragrant, pungent, and stimulating, and is used in perfumery and medicine. It belongs to the same class in chemistry as oil of lemons.

Grass'-plot, *n.* A lawn; a spot of garden-space covered with grass; as, "*grass-plots* bordered with flowers." *Temple.*

Grass'-poly, *n.* (*Bot.*) See LYTHRUM.

Grass River, in *New York*, traverses St. Lawrence co., and enters the St. Lawrence River at St. Regis.
—A village of Lawrence co.

Grass'-tree, *n.* (*Bot.*) See XANTHORRHÆA.

Grass Val'ley, in *California*, a post-town and township of Nevada county, about 36 miles E. of Marysville.

Grass'y, *a.* Covered or abounding with grass; as, "the *grassy* turf." (*Milton.*)—Green; greenish; resembling grass.

Grass'y Creek, in *Kentucky*, a P. O. of Morgan co.

Grass'y Creek, in *North Carolina*, enters the Roanoke river from Granville co.
—A post-office in Ashe co.
—A township of Mitchell co.

Grass'y Fork, in *Indiana*, a township of Jackson co.

Grate, *n.* [It. *grata*; Lat. *crates*. See CRATE.] A partition or frame-work, made with a succession of parallel or cross bars, having interstices; a kind of lattice-work used for protecting doors, windows, &c.; a grating.

"Out at a little *grate* his eyes he cast."—*Dryden.*

—The iron or steel frame and bars for holding coals used as fuel for heating apartments, &c.

"An old-fashioned *grate* consumes coals, but gives no heat." *Spectator.*

—*v. a.* To furnish with grates, as a house; to fasten with a lattice-work of cross-bars, as a cellar-cloister.

Grate, *v. a.* [Fr. *gratter*; L. Lat. *gratere*, from Lat. *rado, radere*, to scratch, to rub.] To rub one thing roughly against another; to rub so as to produce a harsh or discordant sound; as, to *grate* the teeth.

"The *grating* shock of wrathful iron arms."—*Shaks.*

—To wear away in small particles, by rubbing with anything having a rough or granulated surface; as, to *grate* ginger.—To offend by anything harsh or vexatious; to fret; to irritate; to mortify; as, a noise *grating* to the ear.

"News, my good lord, from Rome . . . *grates* me."—*Shaks.*

—*v. n.* To rub hard, so as to injure or offend; to offend by importunity or oppression.

"What peer hath been suborn'd to *grate* on you?"—*Shaks.*

—To make a harsh sound by the attrition of rough bodies; as, a *grating* wheel.

Grat'ed, *a.* Supplied or furnished with a grate or grating; as, a *grated* cell.

Grate'ful, *a.* [From Lat. *gratus*. See GRACE.] Pleasing; acceptable; agreeable; gratifying; delightful; delicious; affording ease, pleasure, or relief; as, a *grateful* beverage, *grateful* sleep.—Thankful; having a due sense of benefits; appreciative of kindness received: well disposed toward one by whom a favor has been conferred; willing to acknowledge and repay a boon or benefit; as, a *grateful* heart.

Grate'fully, *adv.* With a due sense of benefits or favors; in a manner that disposes to kindness, in return for favors; thankfully; in a grateful manner.

"The lover's toil she *gratefully* repaid."—*Granville.*

Grate'fulness, *n.* Gratitude; thankfulness; quality of being grateful.
—Quality of being agreeable or pleasant to the mind or to the taste.

Grat'er, *n.* The person who, or thing which grates; specifically, a utensil with a rough, granulated, or indented surface, for grating, or rubbing off small particles of a body or substance; as, "rough as nutmeg-*graters*."—*A. Hill.*

Gra'tian, (*Augustus Gratianus,*) emperor of Rome, eldest son of Valentinian I., by his first wife Severa, B. in Pannonia 359 A. D., was elected by his father to the rank of Augustus, 367. On the death of Valentinian, 375, the troops elevated *G.* to the throne, giving him at the same time as a colleague his half-brother Valentinian II. Gaul, Spain, and Britain fell to *G.*'s share; and as his brother was only four years old, *G.* is supposed by many authorities to have been the monarch *de facto* of the rest of the Western Empire, fixing his residence at Treviri (now *Treves*). During the first part of his reign, a fierce warfare was carried on against the tribes who possessed the Danubian provinces and Illyricum; and he was on the point of marching into Thrace, to assist his uncle Valens against the Goths, when he was suddenly called upon to defend his dominions against the Lentienses, a tribe of the Alemanni. After the invaders had been defeated, *G.* advanced towards the Eastern Empire, but while on the way he learned that his uncle Valens had been defeated and killed by the Goths near Adrianople, 378. The sovereignty of the Eastern Empire then devolved upon *G.*, but feeling his inadequacy to the task of ruling the whole empire, he recalled Theodosius from Spain, and appointed him his colleague, 379. *G.* possessed some admirable virtues: he was pious, chaste, and temperate; his understanding was well cultivated, although not strong, and his eloquence attractive; but his fondness for frivolous amusements and unworthy associates excited the contempt of the army, so that when Maximus was proclaimed emperor by the legions in Britain, crowds of the disaffected flocked to his standard. *G.* was defeated by him near Paris, and afterwards fled to Lyons, where he was overtaken and killed, 383.

Graticula'tion, *n.* [Fr., from Lat. *craticula.*] The apportionment of a design into squares, for reducing it to smaller dimensions.

Gratifica'tion, *n.* [Fr., from Lat. *gratificatio.*] Act of pleasing or gratifying the mind, taste, or appetite; as, *gratification* of the palate.—That which affords or promotes ease, pleasure, or enjoyment; satisfaction; fruition; delight.
—Reward; recompense; honorarium.

Grat'ified, *p. a.* Pleased; indulged or humored agreeably to desire.

"A palled appetite must be *gratified* with sauces."—*Tatler.*

Grat'ifier, *n.* One who, or that which, indulges or gratifies.

Grat'ify, *v. a.* [Fr. *gratifier*; Lat. *gratificor*—*gratus*, and *facio*, to make.] To oblige: to do a favor to; to give pleasure to; to indulge; to delight; to humor; to satisfy; to soothe; to afford gratification; as, to *gratify* one's taste or appetite.

"For who would die to *gratify* a foe?"—*Dryden.*

—To requite; to recompense; as, I *gratified* him for his trouble.

Grat'ing, *n.* [See GRATE.] A harsh or jarring sound or friction.
—A grate. See GRATE.
—*pl.* (*Naut.*) Open, intersticed covers, of lattice-work form, placed over a ship's hatchways.

Grat'ingly, *adv.* Harshly; offensively; in a manner to jar, fret, or irritate.

Gratiola, (*grā-te-ō'la,*) *n.* (*Bot.*) The Hedge-hyssop, a genus of plants, order *Scrophulariaceæ*, having a 5-partite calyx, the upper lip of the corolla bifid, the lower trifid, only two stamens fertile, and the anthers pendulous. *G. officinalis*, a European species, is extremely bitter, acts violently as a purgative, diuretic, and emetic, and in overdoses is an acrid poison. It is administered in cases of worms, jaundice, dropsy, scrofula, mania, and venereal diseases; but requires to be used with caution. It was formerly so highly esteemed as a medicine, that the name of *Gratia Dei* (Grace of God) was given to it, and for the same reason it is known in France as *Herbe au Pauvre Homme* (Poor Man's Herb). It is said to be the basis of the famous gout medicine called *Eau medicinale.*—*G. Peruviana*, a South-American species, and *G. Virginica*, a native of this country, have somewhat similar properties, which are supposed to depend upon a bitter resinous principle called *Gratioline.*

Gratiot, (*gra'she-ot,*) in *Michigan*, a S. central co.; *area*, about 560 sq. m. *Rivers.* Pine and Maple rivers, and Salt and Beaverdam creeks. *Surface*, undulating; *soil*, fertile. *Cap.* Ithaca. *Pop.* (1894) 28,770.

Gratiot, in *Ohio*, a post-office of Licking co.

Gratiot, in *Wisconsin*, a post-village and township of Lafayette co., on the Pekatonica river, about 38 miles E. N. E. of Galena.

Gra'tis, *adv.* [Lat., from *gratia*, favor.] Without charge, fee, or recompense; freely; for nothing; gratuitously; as, advice *gratis.*

Gra'tis, in *Georgia*, a post-office of Walton co.

Gra'tis, in *Ohio*, a flourishing post-township of Preble county.

Grat'itude, *n.* [Fr.; L. Lat. *gratitudo*—*gratis*, grateful, thankful.] Quality of being grateful; an emotion of the heart, excited by a favor or benefit received; a sentiment of kindness or good-will towards a benefactor; thankfulness.

"The *gratitude* of place-expectants is a lively sense of future favors."—*Sir R. Walpole.*

Gratitude, in *New Jersey*, a village of Sussex co.

Gra'try, AUGUSTE JOSEPH ALPHONSE, a French theologian and orator, born at Lille, 1805. He studied mathematics; was admitted to the Ecole Polytechnique in 1825 entered the ecclesiastical profession; was appointed director of the College of Stanislas in 1841, and Almoner to the École Normale Supérieure in 1846. The publication of the third volume of the *Histoire de l'École d'Alexandrie*, by M. Vacherot, then director of studies at the school, led to a discussion between them, which terminated in the resignation of M. Vacherot in 1851. The Abbé *G.* quitted the Normal School in 1851 in order to devote himself, with the Abbé Petetot, to the reconstruction of the Oratorians of the Immaculate Conception, and was appointed professor of evangelical morality at the Sorbonne, 1863. In addition to his *Lettres et Répliques à M. Vacherot*, *G.* published, in 1855–7, a course of philosophy in three parts, under the following titles:—*De la Connaissance de Dieu, Logique*, and *De la Connaissance de l'Ame*; *La Philosophie du Credo*, in 1861; *Les Sources*, in 1861–2; *Commentaire sur l'Evangile de Saint Matthieu*, in 1863; *Jésus Christ. Réponse à M. Renan*, and *Les Sophistes et la Critique*, in 1864. He was elected to the French Academy in 1867. D. 1872.

Grat'tan, HENRY, a distinguished Irish statesman and orator, B. in Dublin, 1750, graduated at Trinity Coll., and went to London to study and practise the law. In 1772 he was called to the bar in his native country, and three years after entered the Irish House of Commons, where his brilliant eloquence and energetic bearing soon raised him to distinction as a gifted speaker, and won for him the deep veneration of his countrymen. It was not, however, till 1780, that he made that celebrated motion and speech, that nearly intoxicated the Irish nation, and made his name a household-word. In that year, the British Parliament having attempted to frame laws for the sister country, to the humiliation of the Irish Parliament and Executive, *G.* moved the resolution, which the House immediately seconded, "That the King's most excellent Majesty, and the Irish House of Lords, and Commons, are the only competent powers to make laws to govern Ireland." So enthusiastic was the national feeling on this occasion, that he was voted the sum of $500,000. Of this, however, *G.* refused to accept more than $250.000. On the union of the two crowns, at the opening of this century, *G.* took his seat in the Imperial Parliament, first for Malton, and afterwards for Dublin; but, like most of these great orators, the change from College Green to St. Stephen's seemed fatal alike to his eloquence, his prestige, and his power. *G.* was gentle in his manners, fervid and ornate in his eloquence, a discriminating statesman, an incorruptible patriot, and a most estimable man. D. 1820.

Grat'tan, in *Michigan*, a post-township of Kent county.

Gratu'itous, *a.* [Lat. *gratuitus*, from *gratia*, favor.] That which is done out of favor or kindness, without recompense or reward; free; voluntary; not demanded by justice; granted without claim, merit, or requirement; as, a *gratuitous* service.—Asserted or taken without proof; uncalled for by events or circumstances; adopted without substantial grounds or reason; as, a *gratuitous* assumption.

Gratu'itously, *adv.* Freely; voluntarily; without claim or merit; without an equivalent or compensation; without proof.

Gratu'itousness, *n.* State or quality of being gratuitous.

Gratu'ity, *n.* [Fr. *gratuité*; L. Lat. *gratuitas*, from Lat. *gratus.*] A free gift; a present; a donation; that which is given without a compensation or equivalent; something given in return for a favor; an acknowledgment; as, he dismissed him with a small *gratuity.*

Grat'ulate, *v. a.* [Lat. *gratulor, gratulatus*, from *gratus.*] To express joy or pleasure, as to a person on account of his success, or the reception of some good; to congratulate; to felicitate; to salute with declarations of delight.

"I *gratulate* at least my native clime."—*Dryden.*

Grat'ulate, *a.* Deserving gratulation, joy, or pleasure.

Gratula'tion, *n.* [Lat. *gratulatio.*] A manifestation of joy; an address or expression of felicitation to a person, on account of some good received by him; congratulation.

"Our *gratulations* flow in streams unbounded."—*Carey.*

Grat'ulatory, *a.* [Sp. *gratulatario.*] Congratulatory; expressing felicitation.
—*n.* An address expressive of joy or congratulation.

Gratz, a town of Austria, in Styria, on both sides of the Mur, a tributary of the Drave, 89 m. S.W. of Vienna; Lat. 47° 4′ N., Lon. 15° 26′ E. *Manuf.* Cotton, woollen, and silk fabrics, leather, iron, steel, and rosoglio. The most striking edifices in the city are, a mausoleum erected to the Emperor Ferdinand II., and the Johanneum, founded by the Archduke John in 1812, to encourage arts and manufs. in Styria.

Gratz, in *Kentucky*, a post-office of Owen co.

Gratz, or GRATZ'TOWN, in *Pennsylvania*, a post-village of Dauphin co., abt. 48 m. N. by E. of Harrisburg.

Graudenz', a fortified town of Prussia, prov. of West Prussia, on the Vistula, 60 m. S.E. of Dantzig. *Manuf.* Tobacco, carriages, beer, cotton and woollen cloths, and it has also a considerable trade in grain and other produce. *Pop.* 14,062.

Grau'lite, *n.* (*Min.*) Same as TECTICITE, *q. v.*

Grauwacke, (*grou'wake,*) *n.* (*Geol.*) See GRAYWACKE.

Grave, a final syllable in the names of certain places, from A. S. *gräf*, grove. It also denotes a ruler (Ger. *graf*, count, Du. *graaf*), and is chiefly used in composition, as land*grave*, mar*grave*, burg*grave*, &c.

Grave, *v. a.* [*imp.* GRAVED; *pp.* GRAVEN, or GRAVED.] [A. S. *grafan*; Ger. *graben*: Dan. *grave*; Swed. *grafwa*; Fr. *graver*; Sp. *grabar*; Gr. *grapho*, grave: allied to Ar. *Lafar.*] To carve or cut letters or figures, as on stone or other hard substance, with a chisel or edged tool; to engrave.

"Cornice with bossy sculptures *graven*."—*Milton.*

—To carve; to form or shape by cutting with a chisel. (*Mus.*) To render grave, as a tone or note.

—[Ger. *griebe*, pl. *grieben*, the dregs of melted tallow or fat.] (*Naul.*) To cleanse or bream a ship's bottom, and pay it over with hot pitch; for which purpose the dregs of melted tallow or fat were formerly used.

—*v. n.* To carve; to inscribe or delineate on hard substances; to practise the art of engraving.

"Thou shalt make a plate of pure gold, and *grave* upon it." *Exod.* xxviii. 36.

Grave, *n.* [A. S. *græf;* D. *graf;* Ger. *grab;* Dan. *grav;* Icel. *gröf*, formed from A. S. *grafan*, to dig, or its equivalents in the kindred tongues.] The ditch, pit, or excavated place in which a dead human body is deposited; a place of sepulture for the corpse of a human being; a sepulchre; a tomb; a mausoleum; any place for interment of the dead.

"Without a *grave*, unknell'd, uncoffin'd, and unknown."—*Byron.*

—Figuratively, the end of life; death; destruction.

"The paths of glory lead but to the *grave*."—*Gray.*

—*pl.* GREAVES. The sediment or waste of melted tallow. (*Law.*) The violation of a grave, by taking up the dead body or stealing the coffin or grave-clothes, is a misdemeanor at common law, and has been made the subject of statutory enactment in some of the U. States.

Grave, *a.* [Fr., Span., and Ital.; Lat. *gravis;* allied to Sansk. *guru*, heavy. The Lat. is by change of letters for *garvis*.] Important; momentous; thoughtful; serious; weighty; — used in reference to character, influence, relations, &c.; as, a *grave* demeanor, a *grave* subject.

"Most potent, *grave*, and reverend seigniors."—*Shaks.*

—Solemn; staid; formal; sober; plain; sedate; not light, gay, showy, or tawdry; as, a *grave* color.

(*Mus.*) Low in pitch; not acute; deep.

Grave accent. (*Pros.*) See ACCENT.

Grave Creek, the former name of MOUNDSVILLE, in *West Virginia*, a city, the cap. of Marshall co., on the Ohio river, about 12 m. below Wheeling. The city is pleasantly built upon a tongue of land about 1 m. in width, formed by the junction of the Big and Little Grave creeks, and was formerly divided into two distinct villages, which were called Elizabethtown and Moundsville, the former of which was the seat of justice. The latter received its name from the Mammoth Mound in the vicinity, which is one of the largest artificial mounds in the U. S., and the settlement was finally incorporated under that name.

Grave'-clothes, *n. pl.* The clothes or dress in which the dead are interred.

Grave'-digger, *n.* One who digs graves for interring the dead

Grave'do, *n.* [From Lat. *gravis*, heavy.] (*Med.*) A sense of cold, and oppression in the head; catarrh; coryza.

Grav'el, *n.* [Fr. *gravelle* or *gravèle*; Lat. *gravela*, a small stone, *gravella*, sand; probably corrupted from Lat. *glarea*, gravel.] The name given to aggregations of water-worn and rounded fragments of rocks, varying in size from a pea to a hen's egg. When the fragments are smaller, the deposit is *sand;* when larger, it is called *shingles.*—Small stones or fragments of stone, or very small pebbles, larger than particles of sand, but often mixed with them, and found in sabulous soils.

(*Med.*) See URINARY ORGANS, (DISEASES OF.)

—*v. a.* To cover or pave with gravel; as, to *gravel* a garden-walk.

—To stick in the sand;—hence, to clog; to embarrass; to check; to stop; to confuse; to puzzle.

"Mat, who was here a little *gravell'd*,
Toss'd up his nose, and would have cavill'd."—*Prior.*

—To hurt the foot of a horse, by gravel lodged under the shoe.

Grave'less, *a.* Wanting a grave; unburied.

"My brave Egyptians all, . . . lie *graveless*."—*Shaks.*

Grav'el Hill, in *New Jersey.* See BLAIRSTOWN.

Grav'el Hill, in *Virginia*, a P. O. of Buckingham co.

Gravelines, (*grav-leen'*,) a fortified seaport of France, dep. Nord, at the mouth of the Aa, 12 m. S. W. of Dunkerque. *Manf.* Liquors, with a considerable trade in fish and timber. Under Louis XIV. it was fortified by Vauban, but the harbor has become useless through neglect. *Pop.* 7,000

Grav'elliness, *n.* State or condition of being gravelly.

Grav'elly, *a.* Full of gravel; abounding with gravel; consisting of gravel; as, a *gravelly* soil.

Grav'elly Landing, in *New Jersey.* See PORT REPUBLIC.

Grav'el-pit, *n.* A pit from which gravel is dug.

Gravel Run Mills, in *Maryland*, a post-office of Baltimore co.

Grav'el Spring, in *Virginia*, a P. O. of Frederick co.

Grav'el-walk, (*-wauk,*) *n.* A walk, path, or alley paved or covered with gravel.

Grave'ly, *a.* Soberly; seriously; thoughtfully; in a grave, staid, solemn manner; without levity or mirth.

Gravemen'te, *adv.* [It.] (*Mus.*) With a depressed tone; solemnly.

Grave'ness, *n.* Quality of being grave: seriousness; staidness; sobriety of behavior; solemnity; gravity of manners or discourse.

Grave'olence, *n.* Rancidity; a strong, offensive smell. (R.)

Grave'olent, *a.* Strong-scented; having an objectionable smell.

Grav'er, *n.* One who carves or engraves; one who inscribes letters or designs on stone, wood, &c.; a sculptor.

—An engraver's burin, or square piece of steel fixed in a handle, and bevelled diagonally at the end.—An instrument used for turning iron, after it has been roughed out by the "heel-tool."

Grav'ery, *n.* Process or operation of graving or carving.

Graves, in *Kansas*, a post-office of Cloud co.

Graves, in *Kentucky*, a S.W. co., bordering on Tennessee; *area*, about 550 sq. m. *Rivers.* Mayfield's creek and other small streams. *Surface*, generally level; *soil*, generally productive. *Cap.* Mayfield. *Pop.* 28,534.

Gravesend', a town and seaport of Kent, England, on the right bank of the Thames, 33 m. W.N.W. of Canterbury and 24 m. E.S.E. of London. *Manf.* Rope-making and ship-building.

Gravesend', in *New York*, formerly a post-township of Kings co., bordering on the Atlantic Ocean; since Jan. 1, 1897, a part of Greater New York.

Graves' Ferry, in *Kentucky* a village of Russell co.

Graves' Moun'tain, in *Georgia*, a conical peak of Lincoln co.

Grave'-stone, *n.* A stone laid over a grave, or erected near it, as a monument.

Graves'ville, in *New York*, a post-village of Herkimer co., abt. 8 m. W.N.W. of Albany.

Gravesville, in *Wisconsin*, a post-village of Calumet co., abt. 75 m. N. by W. of Milwaukee.

Grave'-yard, *n.* An inclosure for the interment of the dead; a church-yard; a cemetery.

Grav'ic, *a.* Belonging to, or inducing, gravitation; as, *gravic* attraction. (R.)

Grav'id, *a.* [Lat. *gravidus*, from *gravis*, heavy.] Pregnant; being with child; enceinte.

Grav'igrade, *n.* [Lat. *gravis*, heavy, and *gradus*, step.] (*Zoöl.*) The name applied by Blainville to heavy-paced mammalia, as the elephant, &c.

Gravim'eter, *n.* [Lat. *gravis*, heavy, and Gr. *metron*, a measure.] (*Phys.*) An instrument for ascertaining the specific gravity of both liquid and solid bodies.

Gravina, (*gra-ve'na,*) a manufacturing town in the S. of Italy, on a stream of the same name, in the prov. of Bari, 37 m. S.W. of Bari city.

Gravina, (*gra-vee'na.*) in *Alaska*, a harbor on the S. coast, Lat 60° 44′ N., Lon. 145° 46′ W.

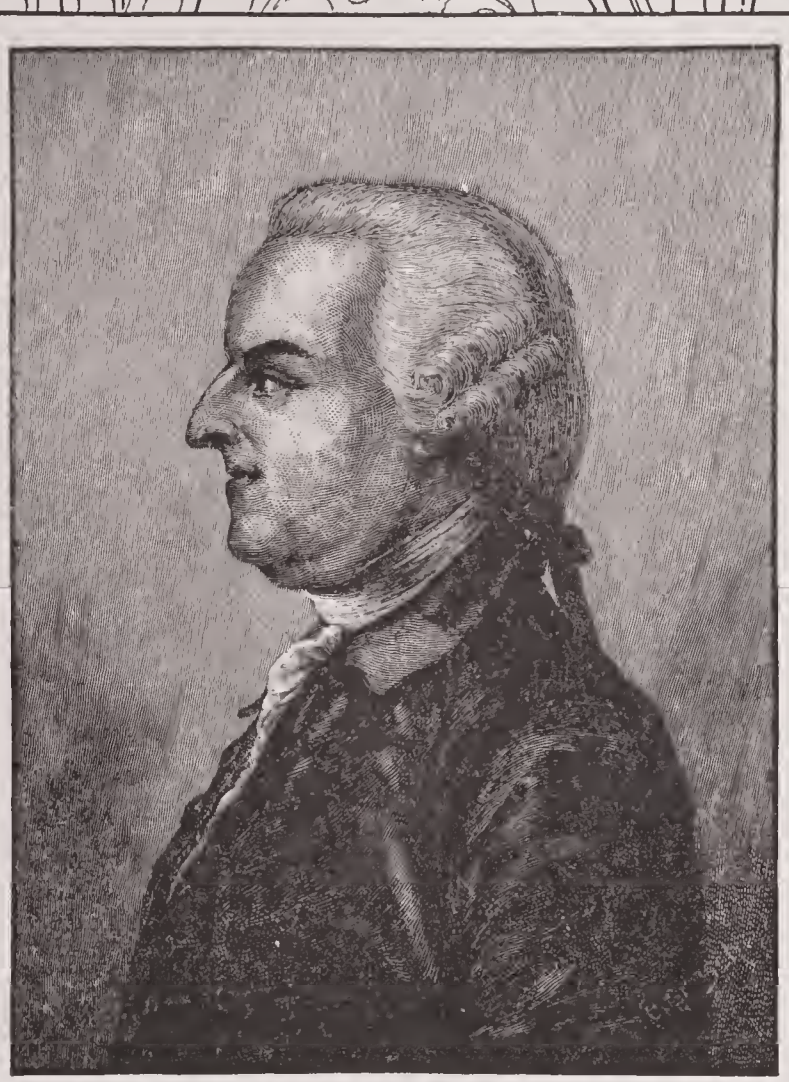
Grav'ing, *n.* Act of cutting letters or figures on hard substances.—That which is graved; carved work.—Impression; imprint; sensible effect, as upon the mind or feelings.

(*Naul.*) The act of breaming a ship's bottom, and paying it over with pitch.

Grav'ing-dock, *n.* A dry dock in which ships are placed for the purpose of having their bottoms surveyed, breamed, payed, and caulked. See DOCK.

Grav'itate, *v. n.* [L. Lat. *gravito, gravitatum;* Fr. *graviter*; Lat. *gravitas—gravis*, heavy.] To be attracted, as when one body tends toward another, according to the law of gravitation; to tend toward the centre.

Gravita'tion, *n.* [Fr.] (*Physics.*) A term often used synonymously with *gravity*, to denote that mutual tendency which all bodies in nature have to approach each other, with forces which are directly as their masses, and inversely proportional to the squares of their distances. That every particle of matter in the universe has a disposition to press towards, and, if not opposed, to approach to every other, is a fact of which we derive the knowledge partly from our constant experience of what takes place at the earth's surface, and partly by reasoning from the observed motions of the celestial bodies. This mutual tendency of all the particles of matter to each other is called the *attraction of gravitation.* In reference to any particular body, or mass of matter, the aggregate attraction of all its particles is usually called simply its *gravity.* Universal experience demonstrates that all heavy bodies, when unsupported, fall toward the surface of the earth. The direction of their motion may be ascertained by a plumb-line; and it is found to be always perpendicular to the level surface of the earth — that is, to the surface of stagnant water. But the earth is very nearly spherical, and a line perpendicular to the surface of a sphere must pass through its centre; hence the direction of a body moving in consequence of the force of terrestrial gravity is towards the centre of the earth. And this is the direction in which it must move if the force of gravity is the resultant of the attraction of all the particles of terrestrial matter on the falling body; for it has been demonstrated by Newton that a sphere attracts an exterior body in the same manner as if all its matter were condensed into a single point at its centre. As bodies when left without support fall from all heights to which they may be carried, it may be inferred that gravity acts on them during the whole time of their descent, and is therefore a uniformly accelerating force. This might also be inferred from the fact, which is easily rendered tenable, that bodies which fall from a greater height arrive at the earth with a greater velocity. But Galileo was the first who proved, by experiments, that the acceleration of falling bodies is uniform, and that the spaces through which they descend are consequently as the squares of the time of descent. The best method of showing, experimentally, that gravity is a uniformly accelerating force is by means of *Attwood's machine*, the description and figure of which are given under the word ATTWOOD. Terrestrial gravity acts equally on all bodies, that is to say, impresses on all of them an equal quantity of motion, whatever their nature may be. This property of gravity was also demonstrated by Galileo. In different hollow spheres, of equal weight and diameter, he enclosed equal weights of different substances; the spheres were suspended by strings of equal length, and made to vibrate in very small arcs, when it was found that the time of oscillation was the same in all of them. Common experience would seem to be at variance with this result. Light bodies, as feathers, paper, &c., fall slowly and irregularly; and some substances, as smoke, vapors, &c., even ascend. But this, as is well known, arises from the buoyancy of the atmosphere. In the exhausted receiver of an air-pump a piece of gold and a feather fall with the same speed, and strike the bottom at the same time. — Having ascertained the law according to which gravity acts on bodies at the surface of the earth, the next question is to determine its absolute intensity, or the velocity which it communicates to a body falling freely in a given time. On account of the rapidity of the descent of heavy bodies, this cannot be done by direct experiment; nor could Attwood's machine be employed for the purpose with sufficient certainty. The only mode by which an accurate result can be obtained is by measuring the length of a pendulum which makes a given number of oscillations in a given time. From experiments made with the greatest care, it appears that the extreme amount of the variation of the gravitating force between the equator and the poles is one part in 194 of the whole quantity; that is to say, any body which at the equator weighs 194 lbs., if transported to the pole would weigh 195 lbs. The difference of gravitation, therefore, at the equator and the poles, is expressed by the fraction $\frac{1}{194}$. Now it has been demonstrated by Newton that the ratio of the centrifugal force at the equator to gravitation there is $\frac{1}{289}$. This is considerably smaller than the fraction $\frac{1}{194}$; but the difference, which is $\frac{1}{590}$, arises from the oblate figure of the earth, in consequence of which a body placed at the pole is at a less distance from the centre than one at the equator, and is therefore attracted more than it would be at the equator, even if the earth stood still, and there be consequently no centrifugal force. From this it may be readily understood that the variation of the intensity of gravity, or, in other words, the figure of the earth, may be deduced from the number of oscillations of the pendulums of the same construction would perform in 24 hours in places situated under different latitudes; or it might also be determined from a comparison of the different lengths which must be given to a pendulum in order that it may perform in every place the same number of oscillations in a given time.—*Universal Gravitation.* Although Kepler made some shrewd guesses at the motions of the planets and the causes of tides and other similar phenomena, it is to Sir Isaac Newton that we are indebted for the principles and applications of *universal gravitation*, and through it, by means of pure geometry, we are able to possess the correct information that we have with regard to the movements of the earth, sun, and moon, and other heavenly bodies. The first rule is one which is very comprehensive, and which gives a good idea of the whole basis of the science; it is, that the attraction of one body upon another body does not depend upon the mass of the body which is attracted, but is the same whatever be the mass of the body so attracted, provided that the distances be the same. For instance, the planet Jupiter attracts the sun, and also attracts the earth; but although the sun's mass is 300,000 times that of the earth, yet the attraction of Jupiter on the earth is exactly equal to his attraction of the sun, *because the earth and sun are equally distant* from Jupiter. One of the simplest illustrations of this force is that of throwing a stone in a straight or horizontal plane, when the stone's course will be evolved in a curve, and the stone at length will drop to the ground. The flights of shot and shell are likewise illustrative of the same rule. (See GUNNERY.) Newton, before applying his theory of universal gravitation, sought for a law by which he could regulate the diminishing intensity of the same, and, after several experiments and calculations, he laid down the rule that the force of gravity diminishes exactly as the square of the distance increases, or, in other words, that the attractive force of the earth at the distance of the moon must be as much less than it is at the surface of the earth, as the square of the radius of the earth is less than the square of the moon's distance from the earth. Newton also found, that since the true diameter of the moon is to the true diameter of the earth as 100 is to 365, the mass of matter in the moon is to the mass of matter in the earth in the proportion of 1 to 39,788; and also that the accelerative gravity on the surface of the moon is to the accelerative gravity on the surface of the earth, as 1 is to 3, or is just $\frac{1}{3}$ of that of the earth. He also proved that bodies moving under an attractive force which diminishes according to the inverse square of the distance, must describe conic sections, having a focus at the centre of force; and also that they must conform to the laws of motion which Kepler discovered to belong to the planetary orbs. Newton likewise was successful in determining that most of the inequalities of the moon and the planets are consequences of the mutual gravitation of the different bodies which compose the various systems upon each other; and in addition, that the same incomprehensible power not only regulates the motions of the different planets and satellites, but also causes the precession of the equinoxes, produces the tidal action, and determines the figure of the earth. Gravitation, as applied to the celestial bodies, when we consider its effects, enables us to form many conclusions as to its nature, mode of action, and influence. We see that gravity is a force which is transmitted from body to body *instantaneously*, and not successively; for were we able to measure its transmission, that is, if we consider it in the light of being transmitted successively, we would find that the secular variation of the mean lunar motion would be sensibly affected. If we consider the question whether gravity is affected by the density of the bodies through which it has to pass in order to attract other bodies, we would be forced to agree with Laplace, that it is of so subtile and all-powerful a matter, or force, that not even the densest bodies in the universe can offer any obstacle to its free passage, or retard its effects on the body to be acted upon. In concluding this subject, it may be said



Thomas Gray

1716–1771

that if the earth's flattening at each of its poles were greater or less than 1-300th of its diameter, then the effect of this alteration on the moon would, in changing the position of its fundamental plane, thus produce an inequality in the longitude greater or less than 8″, by which the moon is sometimes before or behind her mean place. And, consequently, the deduction can be drawn, that by observing the moon, the oblateness of the earth can be discovered. As this theory has been found to be true and just in its foundation, it is one of the most striking testimonies of the correctness of Newton's laws of *universal gravitation*.

Grav'itative, *a.* Tending to gravitate or be attracted toward a centre.

Grav'ity, *n.* [Fr. *gravité;* Lat. *gravitas—gravis*, heavy, weighty.] Seriousness; sobriety of manners; staidness of disposition; solemnity of deportment or character.

"Great Cato there, for *gravity* renowned." — *Dryden.*

—Weight; relative importance; force of circumstance: enormity; as, according to the *gravity* of the case.

(*Mus.*) Lowness of note; depth of sound;—correlative to *acuteness*.

Gravity, (*Centre of.*) (*Physics*) The centre of gravity of a body is a point such that the force of gravity acting upon the part of the body on one side of this point always balances the force of gravity acting upon the part on the opposite side, no matter how the body may be placed. The centre of gravity is not always in the body itself; thus, if a straight strip of metal or wood be fastened to the sides of a ring so as to pass through its centre, it will be found that the ring will rest in any position when the centre is supported, and that it will not thus remain at rest on any other point. The centre of gravity, then, of a ring which is exactly alike throughout its whole extent is at the centre of the ring. If one part of the ring is heavier than the other, the centre of gravity will be found to be between the centre and the heavier part. When two balls of the same weight are connected by a straight rod (Fig. 1191), the centre of gravity will be found to be at the centre of the rod. If one ball be twice as heavy as the other, the centre of gravity will be in the rod at a point twice as near the heavier ball as the lighter ball. If the heavier ball be three times the weight of the lighter ball, the centre of gravity will be thrice as near this ball as the other. If the balls are connected by a curved rod, the centre of gravity will no longer be in the rod, but in a straight line which joins the balls. Its distance from the balls will be as explained above. — When a body is *at rest*, it is said to *be in equilibrium*. When it is at rest in such a position that on being slightly disturbed it again returns to this position, it is said to be in stable equilibrium. When it is at rest in such a position that on being slightly disturbed it seeks a new position of rest, it is said to be in unstable equilibrium. When a body remains at rest equally well in any position, it is said to be in indifferent equilibrium. — In every case it will be found that the centre of gravity of a body seeks the lowest position that it can take. Hence, when a body is so situated that its centre of gravity is raised by tipping it in any direction, it is in stable equilibrium; when any disturbance of the body tends to lower its centre of gravity, it is in unstable equilibrium; when, on being disturbed, its centre of gravity neither rises nor falls, it is in indifferent equilibrium. The broader the base of a body is, compared with its height, the more stable is its equilibrium. If, however, the body is not upright, it may be in unstable equilibrium, even when the base is broad. On the other hand, a body may be in stable equilibrium even when the base is very narrow. Thus the image in Fig. 1192 is balanced on its toe by means of the two heavy balls beneath, because these balls bring the centre of gravity below the point of support. — When a body is suspended by a string, and allowed to find its position of rest, the centre of gravity is in the line of continuation of the string. In every kind of machinery this important law, by which the centre of gravity always tends to assume the lowest place, is kept constantly in view in arranging the weight of different parts of a machine or engine.

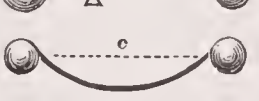
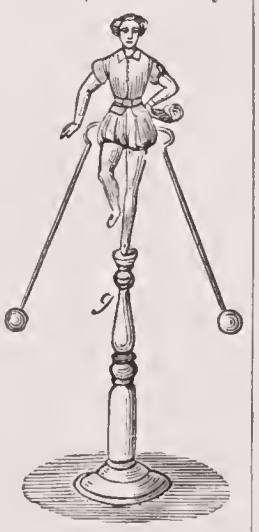


Fig. 1191.


Fig. 1192.

Gravity, (*Specific.*) See SPECIFIC GRAVITY.

Gra'vy, *n.* [Ger. *griebe*, crispy remains of melted fat, &c.; Low Sax. *greve;* Swed. *grefwar.*] The fat and juicy matter that drips from flesh in roasting, or when baked or boiled, serving as a sauce or dressing for the meat when served at table; as, *gravy* soup.

Gray, Grey, *a.* [A. S. *græg;* Ger. *grau:* Dan. *graa:* D. *grauw;* Swed. *gra;* Gr. *geraios*, old,—*gêrôn*, an old man.] Having the color of the hair of an aged person; hoary; hence, white with a mixture of black, or a dark mixed color; ash-colored; resembling the combined color of pepper and salt; as, a *gray*-headed man, *gray* eyes, a *gray* mare, &c.

"My hair is *gray*, but not with years." — *Byron.*

—Mature; old; venerable; as, *gray* in experience.

"Age . . . spares *gray* Marathon." — *Byron.*

—*n.* A gray tint or color; a mixed hue of white and black; the color which is nearest in relation to black. — In its common acceptation, it denotes a class of cool cinerous colors, faint in hue; whence we have *blue-grays*, *olive-grays*, *green-grays*, *purple-grays*, and grays of all hues in which blue predominates; but no yellow or red grays, the predominance of such hues carrying the compounds into the classes of brown and maroon.

—An animal of a gray color, as a horse, a badger, &c.

"O'er Blenheim's field he rode that day
A blood-horse, — a proud, arching *gray*."—*Lloyd.*

Gray, ASA, an American botanist, was born in Oneida co., N. Y., in 1810, and graduated at Fairfield College in 1831. After a short time spent in the practice of medicine, he devoted himself, under Prof. Torrey, of N. York, to the study of botany. In 1834 he received the appointment of botanist of the U. S. Exploring Expedition; but the delay of that enterprise led him, in 1837, to resign his post. In 1842, Dr. *G.* became Professor of Nat. History at Cambridge, Mass. In addition to his lectures at New York, Prof. *G.* published in 1836 his *Elements of Botany*, enlarged into the *Botanical Text-book;* and in 1838 commenced, with Dr. Torrey, *The Flora of North America*. In 1848 he published the *Manual of Botany for the Northern United States*, and the first vol. of the *Genera Boreali-Americana Illustrata*, and afterwards his *Botany of the United States Pacific Exploring Expedition under Captain Wilkes*. In 1874 he was chosen one of the regents of the Smithsonian Institute, and in 1878 the Académie des Sciences of Paris elected him a corresponding member. D. 1888.

Gray, GEORGE ROBERT, an English naturalist, senior assistant in the zoölogical department of the British Museum, B. 1808, is the author of a large and important illustrated work, the *Genera of Birds*, published in 1849, and which has been styled by Sir William Jardine "a ready index to the whole subject of ornithology." Mr. *G.* has been also an extensive contributor to the leading scientific journals of the day. D. 1872.

Gray, JOHN EDWARD, F.R.S., brother of the above, B. 1800, was the head of the zoölogical department of the British Museum, and a member of the chief scientific societies of Europe. He was esteemed one of the first naturalists of the age, and was the author of many valuable works on zoölogy and botany. Died in 1875.

Gray, THOMAS, a celebrated English poet, B. in London in 1716; educated at Eton, and Peter House, Cambridge, and entered at the Inner Temple, with a view of studying for the bar. Becoming intimate, however, with Horace Walpole, he was induced to accompany him in his tour of Europe; but they parted at Reggio, and *G.* returned to England in 1741. Here he occupied himself several years in literary schemes, which he admirably commenced, but wanted energy to mature. So slow was he to publish, that it was not until 1747 that his *Ode on a Distant Prospect of Eton College* made its appearance; and it was only in consequence of the printing of a surreptitious copy, that, in 1751, he published his *Elegy written in a Country Church-yard*. He declined the office of laureate on Cibber's death, in 1757; and the same year published his odes *On the Progress*


Fig. 1193. — GRAY'S HOUSE AT STOKE POGIS.

of Poesy, and *The Bard*. In 1768, the duke of Grafton presented him with the professorship of modern history at Cambridge. But though *G.* published little besides his poems, he was a man of extensive acquirements in natural history, the study of ancient architecture, &c.; his correspondence places him among our best epistolary writers; and some of his posthumous pieces afford proof of his profound and varied erudition. As a poet, he is energetic and harmonious; and his lyrics, though few, have been rarely, if ever, surpassed. D. 1771.

Gray, a town of France, dep. Haute-Saône, 27 m. from Dijon. *Pop.* (1895) 8,250.

Gray, in *Maine*, a post-town of Cumberland co. *Pop.* (1897) about 1,580.

Gray, in *Minnesota*, a township of Pipestone.

Gray, in *New York*, a post-office of Herkimer co.

Gray An'timony, *n.* (*Min.*) Sulphuret of antimony. See STIBNITE.

Gray Cop'per, *n.* (*Min.*) Same as TETRAHEDRITE (*q. v.*).

Gray'-beard, *n.* A hoary old man;—generally used in a contemptuous sense.

"*Gray-beard* thy love doth freeze."—*Shaks.*

Gray'-fly, *n.* (*Zoöl.*) The Trumpet-fly.

Gray Hawk, in *Kentucky*, a post-office of Jackson co.

Gray'hound, *n.* Same as GREYHOUND, *q. v.*

Gray'ish, *a.* Somewhat gray; partially or moderately gray.

Gray'lag, Grey'lag, *n.* (*Zoöl.*) The wild goose, *Anser ferus*. See ANSERINÆ.

Gray'ling, *n.* (*Zoöl.*) A fresh-water fish, of the *Salmonidæ* family, in many respects very similar in its habits to the trout, delighting in clear rapid streams, and swimming with rapidity. It inhabits the northern rivers of Europe and Asia, and has been found in America in the cold clear waters of Great Bear and Winter lakes.

Gray'-mill, *n.* (*Bot.*) See LITHOSPERMUM.

Gray'ness, *n.* Quality of being gray or grayish.

Grays, in *Arkansas*, a post-office of Woodruff co.

Gray's, in *Washington*, a former county, now forming part of Chehalis co.

Grays'burg, in *Tennessee*, a post-office of Greene co.

Gray's Harbor, in *Washington*, an arm of the Pacific Ocean, extending into Chehalis county. It receives the Chehalis river.

Gray's Lake, in *Illinois*, a post-village of Lake co.

Gray's Land'ing, in *Pennsylvania*, a post-office of Greene county.

Gray'son, in *Arkansas*, a post-office of Crittenden co.

Gray'son, in *California*, a post-town of Stanislaus co., about 37 m. S. of Stockton.

Gray'son, in *Kentucky*, a W. central county; *area*, about 520 sq. m. *Rivers.* Rough, Bear, Clifty, and Caney creeks. *Surface*, level; *soil*, fertile. *Min.* Coal and limestone. *Cap.* Litchfield. *Pop.* (1890) 18,688.

—A post-village, cap. of Carter co., on Little Sandy river, about 110 m. E. by N. of Frankfort. *Pop.* (1897) 510.

Gray'son, in *Texas*, a N. co., bordering on Indian Territory; *area*, about 960 sq. m. *Rivers.* East and Elm forks of Trinity river. *Surface*, undulating; *soil*, very fertile. *Cap.* Sherman. *Pop.* (1890) 53,211.

Gray'son, in *Virginia*, a S. S. W. co., bordering on N. Carolina; *area*, about 485 sq. m. *Rivers.* Kanawha river, and other smaller streams. *Surface*, diversified, Iron Mountain extending along its N. W. border, and the Blue Ridge along its S. E. *Min.* Iron. *Cap.* Independence. *Pop.* (1890) 14,394.

Gray'son Court-House, in *Virginia*. See INDEPENDENCE.

Gray'son Springs, in *Kentucky*, a P.O. of Grayson co.

Gray's Valley, in *Pennsylvania*, a village of Tioga co.

Grays'ville, in *Illinois*. See GRAYVILLE.

Grays'ville, in *Indiana*, a post-office of Sullivan co.

Grays'ville, in *Kentucky*, a village of Todd co., about 194 m. S. W. of Frankfort.

Grays'ville, in *Ohio*, a post-village of Monroe co.

Grays'ville, in *Pennsylvania*, a post-village of Hunterdon co., about 100 m. W. of Harrisburg.

Gray'-trout, *n.* (*Ichth.*) A large kind of trout, the *Salmo erion* of Linnæus; called also Bull-trout.

Gray'ville, in *Illinois*, a city of White co., on the C., C., C. & St. L. R. R.; 40 m. S. W. of Vincennes. Has some manuf. *Pop.* (1897) about 2,500.

Grazalema, (*gra-tha-lay'ma.*) a strongly fortified town of Spain, in the province of Cadiz, 54 m. E.N.E. of the latter city. The trade of *G.* is mostly in bacon. *Pop.* 7,200.

Graze, *v. n.* [Fr. *raser*, from Lat. *rado, rasus*, to scrape or rub off. See GRATE.] To rub or touch lightly in passing; to brush lightly, as the surface of a thing; to lacerate slightly in rubbing; as, he was *grazed* by a bullet.

Graze, *v. a.* [A.S. *grasian*, Ger. *grasen*, Dn. *grazen*, to graze; formed upon the respective nouns signifying GRASS, *q. v.*] To feed or supply with grass, as cattle; to furnish pasture for.

"A field or two to *graze* his cows."—*Swift.*

—To feed upon; to eat from growing herbage.

"Their steeds free *graze* the flowery ground."—*Dryden.*

—To tend grazing cattle.

"O happy man, *grazing* his cattle in those pleasant fields."
S. Daniel.

—*v. n.* To eat grass; to feed on growing grass; as, *grazing* cattle.

—To supply grass; as, *grazing* lands.

Graz'er, *n.* That which grazes or feeds on grass, &c

"The cackling goose, close *grazer*." — *Philips.*

Grazier, (*grā'zher.*) *n.* One who admits cattle to pasture; one who rears or feeds cattle for market; one who deals in fat cattle wholesale.

"She has a pot of money, her father being a rich *grazier*." *Collins.*

Graz'ing, *n.* A lea; a pasture; a patch of meadow.—The act of feeding on growing grass: the raising or feeding of cattle. — A rub or light touch in passing; as, the *grazing* of carriage-wheels.

Grazioso, (*grat'se-ō'zo.*) *n.* [It.] (*Mus.*) An indication to the performer that the music to which this word is affixed is to be executed elegantly and gracefully.

Grease, (*grēs.*) *n.* [Fr. *graisse;* It. *grasso*, from Lat. *crassus*, fat, gross; akin to Gael. *creis*, fat.] Animal fat in a soft or fluid state; oily, or unctuous matter of any kind, as tallow, lard, &c.: — confined to the fatty products of land animals only; as, candle-*grease*, bear's-*grease*, engine-*grease*, &c.

"A girdle, foul with *grease*, binds his obscene attire." — *Dryden.*

(*Farriery.*) An inflammatory swelling in a horse's heels, which suspends the usual greasy secretion of the part, and produces dryness followed by cracks and ulcerous issues; it is generally brought on by over-exertion, or by standing too long in the stable.

—*v. a.* To smear, daub, or anoint with grease, fat, or other slushy matter; as, to *grease* machinery, to *grease* one's

hair. — To bribe: to corrupt with money or presents; as, they *greased* his palm with gold.

"Envy not the store
Of the *greased* advocate that grinds the poor." — *Dryden.*

—To cozen: to cheat; to swindle; to diddle; to overreach.

Grease'-cock, *n.* (*Mach.*) A short pipe fixed in the cylinder cover of a steam-engine, with two stop-cocks inserted at a short distance apart, and a funnel at the top for holding tallow. When the upper cock is opened, the tallow falls into the intermediate space; the cock is then closed, and the lower one opened for the melted grease to enter the cylinder, and lubricate the piston without allowing the steam to escape.

Grease'r, *n.* A term of contempt applied to Mexicans in the W. States of the Union.

Greas'ily, *adv.* With grease: in a greasy manner. — Grossly; in a corrupt or indelicate manner.

Greas'iness, *n.* State of being greasy or fatty; unctuousness; oiliness.

Grea'son, in *Pennsylvania*, a P. O. of Cumberland co.

Greas'y, *a.* Smeared or defiled with grease; as, a *greasy* apron.

—Oily; unctuous; fat; consisting of, or containing, grease; as, a *greasy* mess. — Fat of body; bulky; — used in a contemptuous sense; as, a "*greasy* knight." — *Shaks.*

(*Farriery.*) Affected with the disease called *grease*, as a horse.

Grea'sy, in *Illinois*, a former P. O. of Macoupin co.

Grea'sy Ridge, in *Ohio*, a post-office of Lawrence co.

Great, (*grāt,*) *a.* (*com.* GREATER; *sup.* GREATEST.) [A.S., Low Ger., and D. *groot*; Fris. *grat*; Ger. *gross*; O. Ger. *grôz*; probably allied to Lat. *grandir*, grown big, large, or great.] Large in bulk or dimensions; big; being of extended length or breadth; vast; enormous; immense; huge; as, a *great* distance, a *great* castle, a *great* desert, a *great* river, a *great* length, breadth, size, &c. — Large in number; expressing a large, extensive, or unusual degree of anything; numerous; as, a *great* multitude. — Long continued; considerable in time, length, or duration.

"Thou hast spoken of thy servant's house for a *great* while to come" — 2 *Sam.* vii. 19.

—Important; weighty; momentous; as, a *great* undertaking, a *great* principle, &c.

"They never fail who die in a *great* cause." — *Byron.*

—Chief; principal; of vast power or excellence; supreme; illustrious; pre-eminent; distinguished; as, a *great* man, the *Great* Seal, &c.

"The heart ran o'er
With silent worship of the *great* of old." — *Byron.*

—Admirable; superior; eminent; distinguished by any quality or qualities, or acquirements; as, a *great* idea, a *great* poem, a *great* action.

"*Great* thoughts, *great* feelings came to them,
Like instincts, unawares." — *Monckton Milnes.*

—Noble; dignified; grand; majestic; august; strong; mighty; as, a *great* hero, a *great* genius, &c.

"The world knows nothing of its *greatest* men." — *H. Taylor.*

—Distant by one more generation; — in the ascending or descending line; as, a *great*-grandfather.

By the great, in the abstract, gross, or whole. — "Carpenters build a house *by the great*." — *Moxon.*

Great circle-sailing. (*Naut.*) The steering of a ship in the arc of a great circle of the sphere, or, in other words, the nearest course between two places.

Great Seal, the chief or principal seal of state; in England, the seal of state intrusted to the keeping of the Lord Chancellor.

The great, the wealthy; the powerful; the distinguished; — opposed to the *lowly*.

Great Angh'wick Creek, in *Pennsylvania*, enters the Juniata River in Huntingdon co.

Great Bar'rington, in *Massachusetts*, a post-town of Berkshire co., on the Housatonic river and the N. Y., N. H. & H. R. R., 40 m. S.S.E. of Albany, N. Y. Has extensive manufactures of paper, cottons and woollens. *Pop.* (1895) 4,794.

Great Ba'sin, or FREMONT BASIN, in *Utah* and *Nevada*, an extensive tract of land lying between the Sierra Nevada and Wahsatch Mountains, having an area of about 175,000 sq. m. As yet its exploration has not been very thorough. It is surrounded on all sides by mountains and high hills, and consists for the most part of a dry arid desert, interspersed with a few fertile spots. It has some rivers, and a number of lakes, or *sinks*, which have no outlets, and of all of which the waters are salt, except Utah Lake. See GREAT SALT LAKE.

Great Bear Lake. See BEAR LAKE, GREAT.

Great Bend, in *New York*, a post-village of Jefferson co., about 160 m. N.W. of Albany.

Great Bend, in *Pennsylvania*, a post-borough and township of Susquehanna co., on the Susquehanna river, and the D., L. & W. and Erie R. Rs., 47 m. N. of Scranton. It has extensive tanneries, sawmills, and other manufactories, and is surrounded by a prosperous farming, grazing, and dairying region. *Pop.* (1897) about 1,250.

Great Bridge, in *Virginia*, a post-village of Norfolk co., about 80 m. S.E. of Richmond.

Great Brit'ain, in a geographical sense, the largest and most important island of Europe, is generally termed the *British Empire*, or *United Kingdom of Great Britain and Ireland*. Britain (Britannia) was the ancient name of the island, by which it was known to the Romans. The same race that constituted the original population of Britain occupied also Armorica in France, and to this day speak essentially the same language. The distinction is for the most part made by the names of Bretagne, or "Little Britain," but Great Britain is spoken of when the affairs of the most important island of the world come into question. The term Great Britain was but little used by the islanders, until the accession of James VI. of Scotland to the crown of England united the entire island under one sovereignty. In the reign of Anne, on May 1, 1707, Great Britain became the legal name of the kingdom. It comprised England, Scotland, and Ireland (not to mention Wales, the smallest of the dependencies). The official style of the empire is the *United Kingdom of Great Britain and Ireland*, but in current language the term comprises the entire kingdom, English, Scotch, and Irish, and includes the entire imperial power. Under the head *British Empire* we have given the table and population of all the possessions under British rule. The details of the physical geography are given under *England*, *Ireland*, *Scotland*, and *Wales*, and more minutely under the names of the several counties, lakes, rivers, islands, &c. Under this head are noticed: 1. The geography of the island of Great Britain; 2. The United kingdom of Great Britain and Ireland —its general institutions, statistics, &c.; 3. An historical sketch of England; observing that the geography and history of Ireland down to the present day will be found under its own name. — The island of Great Britain lies between Lat. 49° 57′ 30″ and 58° 40′ 24″ N., and between Lon. 1° 46′ E. and 6° 13′ W., and is the largest island in Europe. It is bounded on the N. by the Atlantic, on the E. by the North Sea, on the S. by the English Channel, and on the W. by the Atlantic, the Irish Sea, and St. George's Channel. The most northerly point is Dunnet Head, in Caithness; the most southerly, Lizard Point, in Cornwall; the most easterly, Lowestoft Ness, in Norfolk; and the most westerly, Ardnamurchan Point, in Argyleshire. Its greatest length is about 608 m., and its greatest breadth (from Land's End to the E. coast of Kent) about 320 m.; while its surface contains about 89,600 sq. m. — *Geology.* The geology of *G. B.* is of peculiar importance, the rocks of the earth's crust having been first systematically studied and expounded here. British geologists have given to the world the names whereby the various strata are known, and British rocks form the typical series of the earth's strata. The whole recognized series of stratified deposits occur in Britain, one or two only being more fully developed elsewhere; and it is only in these singular cases that the foreign equivalents are taken as the types. British geology is no less important from the influence it has had in the development of the country, its mineral wealth, especially the coal and the iron, being the real muscle and sinew of Britain's tremendous commercial power. — *Min.* The values of the principal minerals produced in the year 1896 were as follows: coal, £46,250,000; iron ore, £2,865,709; tin, £370,530; copper, £24,762; lead, £308,734; gypsum, £71,835; granite, £547,999; chalk, £153,864; clay, £1,839,607. — *Nat. Hist.* The natural history of Great Britain corresponds generally with that of continental Europe. Very few species, either of plants or animals, are peculiar to *G. B.* The flora of the greater part of the island most nearly resembles that of Germany; but in the S. of England there is, as might be expected, a closer correspondence with that of the N.W. of France; and some plants found in the Channel Islands and on the French coast appear nowhere in Britain but in the S.W. of England. The mountains of Wales, Cumberland, and Scotland have a vegetation resembling that of Scandinavia more than that of the mountains of Central or Southern Europe. — *Ethnology.* The present population of the island of *G. B.* is the result of successive waves of immigration and conquest. When the Romans invaded Britain (54 B. C.) the inhabitants were Celtic; and they continued to be essentially so until the 5th and 6th centuries, when — the Romans having previously retired — the level parts of the country were gradually overrun and subdued by German tribes from the opposite coasts. Then followed invasions of Danes and other Scandinavian nations, and lastly the Norman Conquest. As the Normans, however, were originally from Scandinavia, they cannot be considered as adding any new ethnological element; so that the inhabitants of England (excepting Wales) and of the Lowlands of Scotland may be considered as sprung from an amalgamation of the original Celtic with German and Scandinavian blood, the latter having predominated so as to determine the language, institutions, and character of the resulting race. Wales, and the Highlands of Scotland, are still inhabited by representatives of the ancient Celtic tribes. (See SCOTLAND, PICTS AND SCOTS, IRELAND, CELTÆ, ANGLO-SAXONS, WALES.) — *Agric.* The soil of *G. B.* is almost exclusively devoted to the production of two of the primary necessaries of society — breadstuffs (chiefly wheat, barley, and oats); and grass, roots, &c., as food for domestic animals. For this purpose, both the soil and the climate are admirably suited. McCulloch estimates the number of acres in England under grain crops at 6½ millions (wheat 3 millions, barley 1, oats and rye 2, beans and peas ½); and the total produce at 27½ million quarters — value $185,000,000. The produce of potatoes, turnips, rape, and clover is estimated at $130,000,000. The annual value of the pastures and meadow-lands is immense. The Highland and Agricultural Society of Scotland began in 1856 to collect careful statistics of that part of the island; but owing to a misunderstanding with the Treasury, the undertaking was not continued beyond 1857. In that year there were 3,556,572 acres under rotation, the chief crops being grass and hay, 1,459,805 acres; oats, 938,613 acres, yielding 32,750,763 bushels; wheat, 223,152, yielding 6,154,986 bushels; barley, 198,387, yielding 6,564,429 bushels; turnips, 476,691 acres, yielding 6,690,109 tons; potatoes, 139,819 acres, yielding 430,468 tons. The total number of live-stock in Scotland in 1857 amounted to 6,989,368; viz., 185,409 horses, 974,437 cattle, 5,683,168 sheep, and 146,354 swine (see also IRELAND). The amount of corn and cattle raised in the United Kingdom, however, is not nearly equal to the consumption of the population. The average importation, of grain especially, amounted to 10,100,000 quarters during the last 15 years. The farming capital employed in the United Kingdom has been estimated in a widely different manner by various authorities. On the whole, *G. B.* is very backward as compared with America in the matter of statistics, and it is almost impossible to get accurate information on any product that is not a direct object of exportation. — *Manuf., &c.* The manufactures of England are commensurate with her greatness in other respects. The most important is that of cotton, which employs more hands than any other in the kingdom, and furnishes about two-fifths of the exports. The principal seats of this manufacture are Lancashire, Cheshire, Derbyshire, and Yorkshire. The chief woollen and worsted manufactories are in Yorkshire, Lancashire, and Gloucestershire. The great centres of the hardware manufacture are Birmingham and Sheffield, the former having work-shops of iron, steel, copper, and brass wares, and the latter being famed chiefly for cutlery, agricultural implements, grates, fire-arms, &c. The weaving of linen is carried on to a large extent at Leeds, and in the cos. of Lancaster, Dorset, Durham, and Salop. The glove-trade of the midland and W. cos. is important, the principal establishments being at Woodstock, Worcester, Ludlow, &c. The other manufactures comprise paper, hats, glass, pottery, soap, lace, &c. Shipbuilding is also a prominent branch of industry. (See IRELAND and SCOTLAND.) — The imports for the year 1895 amounted to $2,083,438,150, to which the U. S. contributed $403,036,960. The exportations were valued at $3,514,137,835, of which the U. S. received $93,997,425. — *Shipping.* To carry on this vast trade *G. B.* possesses 12,943 registered sailing vessels, with an aggregate tonnage of 2,987,161; and 8,263 steamers, with an aggregate tonnage of 5,969,020; making a total of 21,206 vessels, of 8,956,181 tons burden. The total shipping of the British empire comprised 36,181 vessels, of 10,572,272 tons. — *Pop.* The population of *G. B.* and her colonies, census of 1891, was: United Kingdom, *area*, 120,973 sq. m., *pop.* 37,888,439; colonies in Europe, 124 sq. m., *pop.* 191,531; in Asia, 1,864,838 sq. m., *pop.* 291,346,541; in Australasia, 3,259,210 sq. m., *pop.* 4,238,368; in Africa, 285,560 sq. m., *pop.* 4,035,869 (in addition to extensive protectorates); in America, 4,282,936 sq. m., *pop.* 6,737,654; making a total of 9,813,639 sq. m., *pop.* 344,438,393. — *Revenue and Expenditure.* For the year ending March 31, 1895, the revenue amounted to $473,428,810, and the expenditures to $469,592,105. — *National Debt.* On the same date the national debt of *G. B.* amounted to $3,304,994,705, it having decreased about $700,000,000 in 20 years. — *Army.* The maintenance of a standing army in the time of peace, without the consent of Parliament, is prohibited by the Bill of Rights of 1690. From that time to the present, the number of troops which the security of the kingdom and its possessions render it necessary to maintain, as well as the cost of the different branches of the service in detail, have been sanctioned by an annual vote of the House of Commons. According to the army estimates laid before the House of Commons in the session of 1895, the total regular force of *G. B.*, on the peace-footing, during the years 1896–97 was to consist of 155,403 men. But the standing army does not constitute the whole army; the army estimates contain votes of money for four classes of reserve, or auxiliary forces, namely, the *militia*, the *yeomanry*, the *volunteers*, and the *enrolled pensioners*, forming a grand total of the Imperial force of 669,553 men. Of these 77,465 constitute the British Indian army. — *Navy.* The strength of the navy in 1897 was: armored ships, 86; unarmored, 126; gunboats, 85; torpedo boats, 250; with training, receiving, store ships, transports, &c. These are armed with a total of 6,426 guns, of which 10 are of 80 tons and over in weight and nearly 100 of from 40 to 80 tons. Of the great battle ships of the British navy, 9 (built or building) are of 14,900 tons displacement, and about 12,000 horse-power. The navy, as thus augmented, will require in all a total of 93,700 officers and men. — *Government.* The government of *G. B.* is of the kind known as a "Constitutional Monarchy," in which the sovereign accepts of the dignity under an express agreement to abide by certain prescribed conditions. The sovereignty is hereditary in the family of Brunswick, now on the throne, and in the person of either a male or a female. The sovereign (through ministers) is the directing power in the executive of government; while the legislative function is exercised by PARLIAMENT, *q. v.* — *Religion. G. B.* is a Protestant state, but all religions — not offensive to public or private morals — may be professed, and their different forms of worship practised, without interference from any quarter whatever. The church "established" by special acts of the legislature in England, is Episcopal in its form of government, and called the "United Church of England." In Scotland, the established church was Presbyterian (See IRELAND and SCOTLAND.) No information regarding the number of persons belonging to the Church of England, and those adhering to other religious creeds in England, is given in the official censuses, and we are obliged to deduce the relative importance of the other denominations from the number of their places of worship. From these we are led to believe that the difference in number, between those adhering to the established church and those belonging to the "Dissenters," as they are termed in England, cannot be very material. The disestablishment of the Irish Church (*i. e.*, the Episcopal Church of England) was carried under Gladstone's administration in 1869, but went into effect Jan. 1, 1871. Of late years, the question of the disestablishment of the church in England has given rise to much discussion

The Archbishop of Canterbury is the head of the church; this see was established in 597; the income is $75,000. —*Hist.* Nothing authentic is known of the history of England before Cæsar, who twice invaded the island, then called Britannia, in 55 and 54 B.C. Claudius resumed the idea of subjugating Britain A.D. 43, and from that time until 85, the Roman armies, making further progress at different times, penetrated as far as the Grampian Hills, but the N. portion of the island was never subdued by the invaders. In 411, Honorius abandoned Britain, whose inhabitants, finding it impossible to defend themselves against the Picts, called to their aid the Saxons, who (449) assisted them so effectually that they took possession of the country and founded the four kingdoms of Essex, Wessex, Sussex, and Kent. The Angles, who followed them, established three other kingdoms, viz., East Anglia, Deira, and Mercia (540–584). All these kingdoms ended by being reduced to one, under Egbert, the Saxon king of Wessex (827). After 835 the Danes ravaged England from time to time, but in 871 Alfred the Great forced them to desist, and from thence till near the end of his reign (900) the Danes left the island in peace. Returning in 981, the Danes succeeded, in 1013, in putting their king, Sweyn, on the throne, which was not recovered by the Saxon dynasty till 1041. In 1066, William, Duke of Normandy, conquered the kingdom and founded a new dynasty, which, in 1154, was replaced by the Plantagenets (of Norman race on the female side), and of whom Henry II. was the first king in England. This family reigned till 1485. The greatest events during this lapse of time were, the union of five large provinces of France with England by the accession of Henry II.; the struggle of this prince with Thomas A Becket (1162 to 1170); — the conquest of Ireland (1171); the wars of Richard the "Lion-Hearted" against France (1194 to 1199); the loss of Normandy by John (Lackland) in 1204; the institution of Magna Charta, the basis of the English constitution (1215), — the insurrection of Montfort, Earl of Leicester, against Henry III. (1258 to 1265), — the temporary dominion over Scotland, during the anarchy in that country (1286 to 1314), — the hundred-years war against France (1337–1453), — and the civil war between the houses of York and Lancaster, called the war of the *Two Roses*, which ended with the downfall of the then royal family (1480–1485). Then followed the Tudor dynasty, under which the royal power reached its zenith, and during which time the Protestant religion was substituted for Catholicism, — a change successively accomplished under Henry VIII., Edward VI., and Queen Elizabeth (1533 to 1603). This queen was succeeded by James I., the founder of the Stuart dynasty, who first united under his sway Scotland, England, and Ireland, under the name of Great Britain. His son Charles I., too favorable to Catholicity and to absolute power, perished on the scaffold (1649), a republic was proclaimed, and Cromwell (*q.v.*), under the title of Protector remained master of the realm until 1658. In 1660, the Stuarts were reëstablished, but the errors of James II. brought about a new revolution in 1688, which finally overthrew the Stuart dynasty and gave to the English, as sovereign, William III., prince of Orange, who had married Mary, daughter of James II. Under Queen Anne, who succeeded him, the union of England and Scotland was consummated, and her reign was further illustrated by the victories of Marlborough. After the death of Queen Anne (1714), the house of Hanover came to the throne as the nearest heirs of the royal line, and this family still holds the throne of England. Under this dynasty took place the Seven Years' War (1756 to 1763); the conquest of Canada (1763); the loss of the Anglo-American colonies, now the U. S. (1776–1783); the conquest of India (1757 to 1816); the struggle against the French revolution and against the Empire (1793 to 1815); the Irish Union (1800); the repeal of all penal laws against Catholics and Non-conformists (1820 to 1829); the repeal of the Corn Laws (1846); the Crimean war against Russia, in concert with France (1854–1855); the Sepoy mutiny, and its prompt repression, in Hindostan, (1857–1858), and the several expeditions against China (1842 to 1860); the Reform Bill (1868), and the Fenian agitation (for which see IRELAND); the Ashantee (1864) and Abyssinian (1868) wars; the Irish land act (1870); the settlement with the U. S. of the Alabama Claims (1873); the disestablishment of the Irish Church; the annexation of the Feejee Islands (1874); the assumption by the queen of the title of Empress of India (1876); the Berlin treaty (*q. v.*), the acquisition of Cyprus; the Fisheries settlement with the U. S. (1878), the Afghan and Kaffir wars (1878–79), the extension of the franchise (1885), and the Nile expedition (1897). From 1879 to the present time Irish agitation has been for Great Britain a source of serious disquiet (see IRELAND). In 1882 Mr. Gladstone adopted a policy of conciliation, but the murder of Lord Frederick Cavendish and of Mr. Burke caused its abandonment and the immediate passing of a coercion law which virtually placed Ireland under martial law. In 1882 the Egyptian army, under the leadership of Arabi Bey, having revolted from the Khedive's authority, Great Britain sent a large naval expedition to Egypt, bombarded Alexandria, and defeated the rebellious forces. Since that date the Egyptian government has been under British suzerainty, and in 1896 a British expedition was sent up the Nile with the purpose of regaining the provinces of Egypt held by the Mahdist forces. Within the past decade *G. B.* has largely extended its territory in Africa, bringing great areas in the south and east of the continent under its protection. During the same interval several subjects of dispute have arisen with the U. S., which have all been peacefully settled. An imposing festival took place in London in June, 1897, on the occasion of the 60th anniversary of Queen Victoria's accession, the fact that she had reigned longer than any preceding monarch giving the greatest interest and importance to the ceremonies, in which representatives from all sections of the empire took part. During the period of Queen Victoria's reign the progress of *G. B.* politically, industrially and commercially has been very considerable, while its relations to the other States of Europe have in many respects changed and its comparative importance has to some degree declined. Politically, the principles of democracy have greatly progressed, the franchise having been extended until it has become well-nigh universal, while several acts for parliamentary reform have been passed. One important step in this direction was the Local Government Act of 1888, which gave to elected bodies the local administration previously held by the "gentry." In Ireland, reform has taken the shape of Land Acts in favor of tenants and to enable them to obtain possession of the land tilled by them; but the desire for home rule seems unabated by these and other concessions. Industrially, there has been considerable advance in the condition and rate of wages of the working people, while the principle of socialism, not heard of half a century ago, has grown until to-day it exerts a powerful influence upon the industrial population and has influenced important legislation in its favor. Commercially, the changes since the queen's accession have been radical. In 1846 the corn-laws were abolished and other restrictions on trade and commerce removed, *G. B.* adopting that principle of free trade of which to-day she is the one great advocate among nations, and to which many ascribe her commercial supremacy. At present, however, this supremacy is threatened by other nations, notably the United States and Germany, which have come into the field as powerful rivals, and each of which has gained a market for its manufactures, to some degree, within *G. B.* itself. The political supremacy of *G. B.* has similarly declined through the growth in strength and activity of Germany, Russia and France, her only superiority to-day being the strength of her fleet, which still in a measure assures her the empire of the sea.

SOVEREIGNS OF ENGLAND.

DANES AND SAXONS.

A. D.	A. D.
827. Egbert.	975. Edward II., (the Martyr.)
837. Ethelwolf.	979. Ethelred II.
857. Ethelbald II.	1013. Sweyn.
860. Ethelbert.	1014. Canute (the Great).
866. Ethelred I.	1014. Ethelred II. (again).
871. Alfred the Great.	1016. Edmund II. (Ironside)
901. Edward I., (the Elder.)	1017. Canute (again).
925. Athelstan.	1035. Harold I.
940. Edmund I.	1040. Hardicanute.
946. Edred.	1043. Edward (theConfessor)
955. Edwy.	1066. Harold II.
957. Edgar.	

NORMANS.

1066. Dec. 25. William I.	1100. Aug. 5. Henry I.
1087. Sep. 26. William II.	1135. Dec. 26. Stephen.

PLANTAGENETS.

1154. Dec. 19. Henry II.	1272. Nov. 20. Edward I.
1189. Sep. 3. Richard I.	1307. July 8. Edward II.
1199. May 27. John.	1327. Jan. 25. Edward III.
1216. Oct. 28. Henry III.	1377. June 22. Richard II.

HOUSE OF LANCASTER.

1399. Sep 30. Henry IV.	1422, Sep. 1. Henry VI.
1413. March 21. Henry V.	

HOUSE OF YORK.

1461. March 4. Edward IV.	1483. June 26. Richard III
1483. April 9. Edward V.	

HOUSE OF TUDOR.

1485. Aug. 22. Henry VII.	1553. July 6. Mary.
1509. April 22. Henry VIII.	1558. Nov. 17. Elizabeth.
1547. Jan. 28. Edward VI.	

HOUSE OF STUART.

1603. March 24. James I.	1625. March 26. Charles I.

INTERREGNUM. — The Commonwealth.

HOUSE OF STUART, (*restored.*)

1660. May 29. Charles II.	1689. Feb. 13. William III
1685. Feb. 6. James II.	and Mary.
	1702, March 8. Anne.

HOUSE OF HANOVER.

1714. Aug. 1. George I.	1820. Jan. 29. George IV.
1727. June 11. George II.	1830. June 26. William IV.
1760. Oct. 25. George III.	1837. June 20. VICTORIA.

Great Fish River, or THEW-EE-CHOH, a river of British N. America, enters the Arctic Ocean in Lat. 67° 7′ 31″ N., Lon. 94° 39′ 45″ W.

Great'-hearted, *a.* High-spirited; undejected.

Great Island, an island in Bass's Straits, between Australia and Tasmania. Ext. 40 m. in length, with a breadth of 12 m. *Pop.* 41,000.

Great Island, an island of Ireland, in Cork harbor: *area*, abt. 12 sq. m. — Another in Wexford harbor.

Great Island, in *New Hampshire*, an island and light-house at the entrance of Portsmouth harbor. It exhibits a fixed light 90 ft. above the sea-level. Lat. 43° 3′ 30″ N., Lon. 70° 43′ W.

Great Kanawha, (*ka-naw'wa,*) a river in *N. Carolina*, *Virginia*, and *W. Virginia*, which rises in Watauga co., in the former State, and taking a tortuous N.E. course through Ashe co., enters Virginia in Grayson co.; thence traversing Carroll co., it makes its way through the Iron Mountain (a ridge of the Alleghany Mountains) into Wythe co., and from here following a general N.E., N., and N.W. course between Pulaski and Montgomery and through Giles cos., pierces another ridge of the Alleghany Mountains, and enters W. Virginia between Mercer and Monroe cos.; thence generally N.W. through a third ridge of the Alleghanies, it continues by Greenbrier and Raleigh cos., and through Fayette, Kanawha, Putnam, and Mason cos., till it empties into the Ohio River at Point Pleasant. Above the Gauley River it bears the name of NEW RIVER. *Length*, abt. 400 m.

Great'ly, *adv.* In a great degree; much. — Nobly; illustriously; magnanimously.

Great Mills, in *Maryland*, a P. O. of St. Mary's co.

Great Neck, in *New York*, a post-village of Queen's co.

Great'ness, *n.* Largeness of bulk, dimensions, number, or quantity; magnitude; large amount; extent; high degree; as, the *greatness* of reward, the *greatness* of an enterprise, &c.

—High rank, place, station, or position; elevation; distinction; dignity; eminence; command; power; grandeur; pomp; magnificence.

"Some are born great, some achieve *greatness*, and some have *greatness* thrust upon them."—*Shaks.*

—Swelling pride; affected state.

"It is not of pride or *greatness* that he cometh not aboard your ships."—*Bacon.*

—Elevation of mind; nobleness of disposition; magnanimity.

"The eternal substances of his *greatness*."—*Beau. and Fl.*

—Strength, extent, or power of intellectual faculties; as, *greatness* of genius. — Intensity; force; degree of quality; as, *greatness* of heat, *greatness* of sound.

Great Oak, in *Iowa*, a post-township of Palo Alto co.

Great Ogee'chee River, in *Georgia*. See OGEECHEE.

Great Ohoo'pee River, in *Georgia*. See OHOOPEE.

Great (or SANDY) **Point,** in *Massachusetts*, a promontory and light-house on the N. extremity of Nantucket Island. It exhibits a fixed light 70 ft. above the sea-level. Lat. 41° 23′ 20″ N., Lon. 70° 3′ W.

Great Pond, in *Maine*, a post-office of Hancock co.

Great Salt Lake, in *Utah*, the largest lake of the Great Basin (*q. v.*). It is about 90 m. long, 30 m. in width, and covers an area of 2,100 sq. m. Its surface is 4,200 ft. above the sea-level. In the middle of the lake, several islands rise as high as 3,250 feet above the level of the water; the principal island is in Lat. 41° 10′ N., and Lon. 112° 21′ W. The islands are 9 in number; one of them is 12 miles, and another 16 miles in length. The water of the lake is so salt as to form one of the purest and most concentrated brines known in the world. It contains 22 per cent. of chloride of sodium, slightly mixed with other salts. This lake, in whose waters no living creature is found, receives from the south, by the Jordan, the waters of the Utah Lake, which are fresh, and those of the Wear River from the north; but it has no outlet. It has been called the "still innocent Dead Sea;" and, certainly, in the quality of the water, and the wild weird aspect of the surrounding scenery, the lakes greatly resemble each other. The first mention of the *G. S. L.* was by Baron La Hontan, in 1689, who did not himself visit it, but who gathered some notions of it from the Indians west of the Mississippi. It was first explored and described in 1843, by Colonel Fremont. A thorough survey was made in 1849–1850 by Captain Howard Stansbury, of the United States army, whose report was printed in 1852. About 38 m. to the S.E., and connected with it by the Utah or Jordan River, is Utah Lake, the waters of which are fresh.

Great Salt Lake, city and county. See SALT LAKE.

Great Slave Lake, [Fr. *Lac de l'Esclave.*] a considerable lake in British N. America, of a very irregular shape, and covering an area of upwards of 15,000 sq. m. It lies between Lat. 60° 40′ and 63° N., and between 109° 30′ and 117° 30′ W. Its main outlet is the Mackenzie River, which flows into the Arctic Ocean.

Great Slave River, a river of British N. America, connects Lake Athabasca with the Great Slave Lake; *length*, about 300 m.

Great South Bay, in *New York*, an arm of the Atlantic Ocean on the S. coast of Suffolk co., Long Island. It is 50 m. long and from ½ to 5 m. wide. Great South Beach, which is about 35 m. long, and has Fire Island Light-house on the W. extremity, separates it from the ocean.

Great Valley, in *New York*, a post-town of Cattaraugus co., about 50 m. S. E. of Dunkirk. It was formerly a reservation of the Seneca Indians. *Pop.* (1897) about 1,940.

Great Western, in *Pennsylvania*, a village of Armstrong co., about 212 m. W.N.W. of Harrisburg. P. O. BRADY'S BEND.

Great Works, in *Maine*, a post-village of Penobscot co., about 80 m. E. of Augusta.

Greave, *v. a.* (*Naut.*) To bream; to grave.

Greaves, (*grēvz,*) *n. pl.* [Fr. *grèves*, armor for the legs; Sp. *grevas*. The O. Fr. *greve* signifies the shrunk, shin, forepart of the leg.] Pieces of armor used at a very early period to defend the leg between the knee and the ankle. They formed a part of the armor of Eastern nations in the time of Saul, as we learn from the story of Goliath of Gath, the champion of the Philistines, who "had *greaves* of brass upon his legs." The Greeks and Romans also wore metal greaves. The Saxons protected the leg by bands of cloth, the Danes by pieces of thick leather. At the time of the Norman Conquest, armor for the legs consisted of hose, on which scales or rings of metal were fastened. When plate-armor came into use, the *G.* consisted of plates of polished steel, covering the fore part of the legs. The metal shin-piece still forms a part of the picturesque dress of the Albanians.

Grebe, *n.* (*Zoöl.*) See COLYMBIDÆ.

Gre'ble, in *Pennsylvania*, a post-office of Lebanon co.

Grecian, (*grē'shan,*) *a.* (*Geog.*) Relating, or belonging to Greece.

—*n.* (*Geog.*) A Greek; a native or inhabitant of Greece. — A Jew who understood Greek. (*Acts* vi. 1.) — One who is a ripe scholar in the Greek language, history, or literature.

"The most accomplished of *Grecians*." — *De Quincey.*

Grecian fire. See GREEK FIRE.

Grecism, (*grē'sizm,*) *n.* [Fr. *grécisme.*] An idiom of the Greek language; a Hellenism.

Grecize, (*grē'sīz,*) *v. a.* To make Grecian. — To translate into Greek.

Gre'cize, Gre'cianize, *v. n.* To speak the Greek language.

Grecque, (*grĕk,*) *n.* [Fr.] A French coffee-pot.

Grecque, (A la,) *a.* [Fr.] After the Greek manner or fashion.

Greece, in *New York,* a post-township of Monroe county.

Greece, a modern kingdom of Europe, and the most celebrated state of antiquity. In its flourishing period, *G.* comprised the entire S. portion of the E. peninsula of Europe, extending N. to Lat. 42°, including the Ionian Islands, Crete, and the islands of the Archipelago This famous region was originally called *Hellas,* and received the name of *G.* from Græcus, Prince of Thessaly The modern kingdom of *G.,* though smaller than the ancient country of the same name, comprises the territories of the most celebrated and interesting of the ancient states of *G.,* together with the islands of Eubœa, the Cyclades and the two Sporades, and has been considerably enlarged by the annexation of Thessaly and part of Epirus, ceded by Turkey in 1881 in execution of the treaty of Berlin. *Total area* (islands included) 25,101 sq. miles.—*Government.* The present constitution of *G.,* adopted in 1864, vests the whole legislative power in a single chamber of representatives, called the *Boulé,* whose numbers are elected by universal suffrage; the executive is vested in the King and his ministers (who are responsible to the Boulé), who are assisted by a Council of State.—*Finances.* The finances of *G.* are and have long been in a state of great disorder. The revenue, amounting annually to about $18,000,000, is every year inferior to the expenditure, and the public debt steadily increases, amounting in 1890 to $107,305,518; in 1895 to $159,149,403. Continental *G.* is naturally divided into two principal portions, the N., or Hellas, and the S., or Morea (the ancient *Peloponnesus*). These two portions are connected by the Isthmus of Corinth. Politically *G.* is divided into 16 provinces, or *Nomarchies,* corresponding to our States, and these in turn are subdivided into *Eparchies. Pop.* of Greece (1896) about 2,148,000.—(*Physical Geog.*) No country is more remarkable for the irregularity of its shape, its shores, and its surface. Its N. portion, Hellas, stretches W.N.W. to E.S.E. for about 200 miles, gradually decreasing in breadth from Acarnania to Cape Colonna in Attica. Its S. portion, the Morea, is a peninsula, said to derive its modern name from its supposed resemblance to a mulberry-leaf. It is united N.E. to Hellas by the Isthmus of Corinth. The greatest length of the Morea, N. to S., is about 140 m.; its breadth varies from 60 to 135 m.: it comprises about half the area of the newly erected kingdom.—The surface of Greece is throughout mountainous, and scarcely any room is left for plains. Such of the latter as exist are principally along the sea-shore, or near the mouths of rivers, or else are mere basins, once forming the beds of mountain lakes, enclosed on all sides by mountains, or communicating with each other only by deep and narrow gorges. Such are the plains of Mantineia, Orchomenos, Stymphalus, Topolias, and Copais. The most extensive tracts of plain country are in W. Hellas, and on the N.W. and N. shores of the Morea. These are also the most productive parts of the country; but other very fertile, though small, plains are scattered through the E. of Greece, as those of Bœotia, E. Phocis, Marathon, and many others, which are still, as anciently, the granaries of the country. The most flourishing cities of antiquity, as Athens, Eleusis, Megara, Corinth, Argos, Sparta, and Thebes, were situated in the midst or on the borders of these plains; and others, as Tripolizza, Leondari, Mistra, Gastouni, Patras, Missolonghi, Zeitoun, and Livadia, which in modern times have ranked among the principal towns in Greece, have been similarly located. — *Mountains.* They belong to the Alpine system, being a continuation of the Julian Alps, so remarkable in their whole extent for their numerous grottoes and caverns. The principal chain—that of Pindus—runs N.W. to S.E. through the centre of Hellas, as far as the Isthmus of Corinth. On entering Greece, the Pindus chain is supposed to be nearly 7,700 feet in height. It sends off on its W. side some ranges through Acarnania and Ætolia, and the range of Mount Zagora or Helicon in Bœotia; but its offsets on this side are of very inferior height. The mountains of Acarnania in general are estimated at only about 1,900 feet in height; and Mount Paleo Vouna, the summit of Helicon, has only 5,738 feet of elevation. On the E. side the branches of Pindus are more lofty; Mount Guiona, the highest point in Greece, and near its N. boundary, is 8,239 feet high; and Katabothra (*Œ'a*), 7,061 feet. The celebrated Mount Parnassus is a part of the central mountain-chain: its principal summit, Liakoura, is 8,068 ft. in height. Mount Elatea (*Cithæron*) is 4,629 ft.; and in Attica, Parnes 4,636, Pentelicus 3,642, and Hymettus (*Trelo-vouni*) 3,370 ft. high. A mountain-chain runs through Eubœa in its whole length nearly parallel to that of Pindus; its highest point, Mount Delphi (*Dirphossus*), near its centre, reaches the elevation of 5,725 ft. A chain passes through the isthmus, and nearly through the Morea E. to W., giving off lateral branches, which reach quite to the extremities of the four S. promontories of the peninsula. The culminating point in this part of Greece is Mount St. Elias (*Taygetos*), in Maina, 7,000 feet high.—*Rivers and Lakes.* *G.* has no navigable rivers, nor would any be worth notice, were it not for the classical recollection which attach to every portion of both soil and water of this celebrated country. The Aspro-Potamus (*Acheleus*), between Ætolia and Acarnania, is the largest; the principal remaining ones are the Gavios Mavro-Potamus (*Cephissus* of Bœotia), which runs into the Lake Topolias, the Hellada (*Sperchius*) Asopo, the Athenian *Cephissus* and *Ilissus;* in the Morea, the Rouphia (*Alpheus*), Vasilico (*Eurotos*), Iliaco (*Peneus*), Planizza (*Inachus*), Mavro-nero (the ancient *Styx*), &c. The principal lake is that of Topolias (*Copais*), in W. Bœotia, said to be 1,000 feet above the sea. There are a few insignificant pools in the Morea, including the Lernean and Stymphalian lakes so famous in classical fable. — Marshes are numerous. Nearly the whole N. shore of the Morea, from Corinth to Patras, is low and marshy; and the inhab. of both those towns, as well as of Nauplia, Argos, and Zeitoun, the plain of Marathon, and a portion of that of Athens, suffer, at certain seasons of the year, from *malaria* generated by stagnant pools. The want of navigable rivers in Greece is obviated by the numerous gulfs and inlets of the sea, which indent its coasts on every side, and afford unusual facilities to commerce, while they add to the variety and beauty of the scenery. The principal gulfs or bays are those of Volo, Zeitoun, Egina, or Athens (*Sinus Saronicus*), and Argos or Nauplia on the E.; Kolokythia and Koron on the S.; Arkhadia, Patras, and Arta, on the W.; and the extensive and beautiful Gulf of Corinth, between Hellas and the Morea. Between Eubœa and the main-land are the channels of Talanti and Egripo, united by the ancient *Euripus.* The shores of Greece are mostly abrupt. The chief headlands are, Capes Mantelo in Eubœa, Colonna (*Sunium*), and Skyllo (*Scyllæum*) on the E.; St. Angelo (*Malea*), Matapan (*Tænarum*), and Gallo (*Acritas Pr.*), on the S.; and Klarenza and Skropha on the W. coast.—*Geology and Mineralogy.* The greater portion of the country consists of secondary formations. *G.,*



Fig. 1195. — VALE OF TEMPE, (THESSALY.)

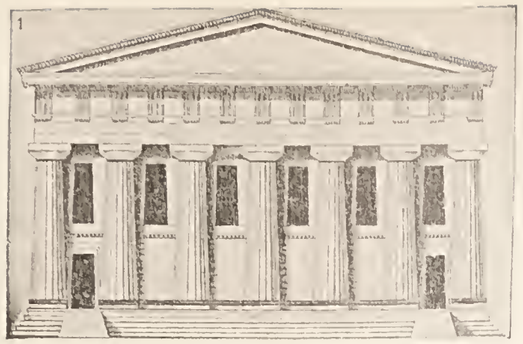
generally speaking, is a region of compact gray limestone. The shores of the Morea are bordered by tertiary formations, containing an abundance of fossil shells. Volcanic action is clearly traceable, particularly in some of the islands. The whole of *G.* abounds with caverns and fissures, whence sulphurous and other mephitic vapors arise, which were taken advantage of in antiquity, at Delphi and elsewhere, for practising religious deceptions. There are numerous hot and cold mineral springs, both saline and sulphurous; but few have yet been analyzed. In some parts the soil is impregnated with nitre; this is especially the case near Corinth and Kalavrita. Marble of various colors, red and green in the Morea, and white at Pentelicus in Attica, porphyry, slate, gypsum, zinc, lead, iron, gold, and silver in small quantities, cobalt, copper, manganese, alum, sulphur, and asphaltum, are among the principal mineral products. It is the opinion of the most competent authorities that the gold, silver, copper, and lead mines of Attica and the islands of Siphnos and Seriphos are far from being exhausted. Iron abounds in Scyros, at Tænarum, and in Eubœa, where, also, as well as in Elis, there are abundant seams of coal.—*Climate.* Temperate, and for the most part healthy, except in the low and marshy tracts around the shores and lakes, some of which are very unhealthy. The mean temperature, in a country the surface of which is so uneven, must, of course, vary considerably; but the medium temperature of the year in the plains of N. Greece may be about 60°, and in those of the S. about 64° 5′ Fahr. At Athens the thermometer not unfrequently rises in July above 100° Fahr. Snow falls in the mountains by the middle of Oct., and even in the plains it is occasionally six inches deep; but it never lies long in the latter. The winters at Athens are confined to the first two months of the year. Both spring and autumn are rainy seasons; and in Dec. the rains are generally so heavy that many parts of the country are laid under water; but throughout the whole summer, which may be said to comprise half the year, a shower, or a cloud in the sky, is rare in several parts of the country. — *Productions.* The more common products of Greek soil in ancient times were wheat, barley, and other cereals; flax, wine, and oil, with fruits of various kinds. The figs of Attica were and still are famed for the excellence of their flavor. Forests once covered many of the hills, and supplied timber for domestic purposes and for ship-building: they are still extensive in some parts. The most important productions of modern *G.* are those mentioned above, with maize, rice, millet, currants, and silk. Honey is produced in great quantity on Hymettus and in some parts of the Peloponnesus. The mulberry-tree is largely grown for the silk-worm; and on the north and south shores of the Gulf of Corinth, as well as in Arcadia, and the west coast of the Peloponnesus, the Corinthian grape or currant is most extensively cultivated. Vines flourish in almost all parts, but the island of Santorin possesses the most famous vineyards, with the greatest variety of grapes, and furnishes a wine highly prized by the Russians. The olive grows in a wild state over all parts of *G.*; when ingrafted, it yields an excellent fruit, which the inhabitants pickle in very large quantity, as a staple article of food. The oil of the olive serves to supply light, and is used in cooking and for food, as we employ butter. Cotton, madder, tobacco, and leguminous plants grow in considerable quantity. Fruit-trees are especially fertile; figs and apricots are plentiful and of excellent quality; oranges, citrons, lemons, pomegranates, almonds, water-melons, gourds, and others of less note are widely spread, largely produced, and of excellent quality.—*Agriculture.* The agricultural implements are still as rude as in the days of the Peloponnesian war, or even of Hesiod; and this, added to the scarcity of ploughing-oxen, ruggedness of the country, general thinness of soil, and difficulty of tillage and irrigation, is enough to damp the ardor of even a more energetic population. The houses of the country-people are in most parts little better than mere hovels, and a large proportion of the arable land is untilled. The modes of tillage are of the most primitive kind; and thus, though nearly half the male population of *G.* is employed in agricultural labors, they make but slight impression on the general aspect of the country, and influence little the amount of exports; in fact, they do not produce as much grain as supplies the wants of the population, and that, too, though a higher yield is given in many parts of *G.* than in other countries. Much labor, however, is bestowed on the cultivation of the olive, vine, mulberry, and fruit trees. The greater part of the land belongs to the state; rent is paid in kind, and in a certain proportion (one third) to the net produce. — *Scenery.* Travellers in *G.* generally speak in high terms of its scenery, of which Fig. 1195 may give an idea. It has everywhere the finest views, and is interesting, not less from its natural beauties than its classical associations, and the ruins of ancient art and splendor scattered everywhere over it.

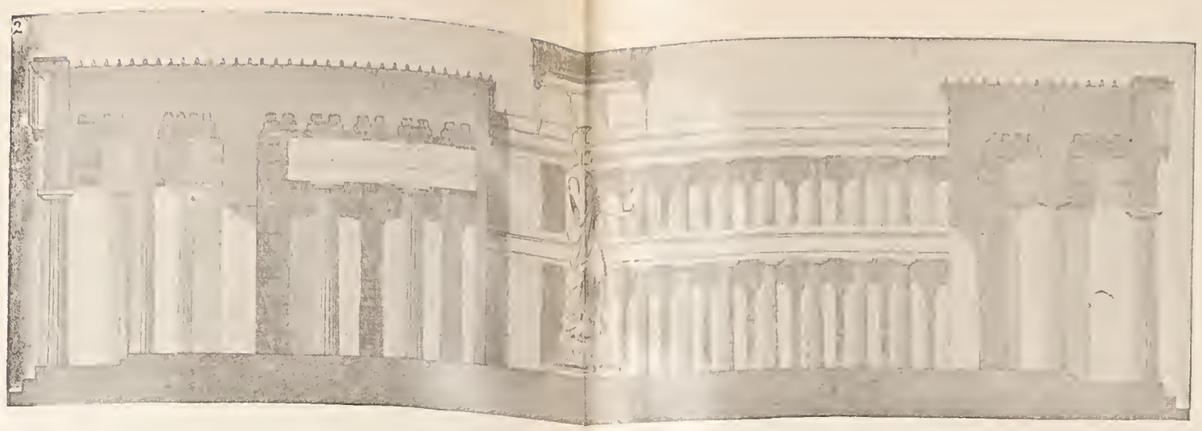
"Yet are thy skies as blue, thy crags as wild;
Sweet are thy groves, and verdant are thy fields,
Thine olive ripe as when Minerva smiled,
And still his honied wealth Hymettus yields;
There the blithe bee his fragrant fortress builds,
The freeborn wanderer of thy mountain air;
Apollo still thy long, long summer gilds,
Still in his beam Mendeli's marbles glare;
Art, Glory, Freedom fail, but Nature still is fair.

"Where'er we tread, 'tis haunted, holy ground;
No earth of thine is lost in vulgar mould,
But one vast realm of wonder spreads around,
And all the Muse's tales seem truly told,
Till the sense aches with gazing to behold
The scenes our earliest dreams have dwelt upon;
Each hill and dale, each deepening glen and wold,
Defies the power which crushed thy temples gone:
Age shakes Athena's tower, but spares gray Marathon."

Childe Harold, canto II.

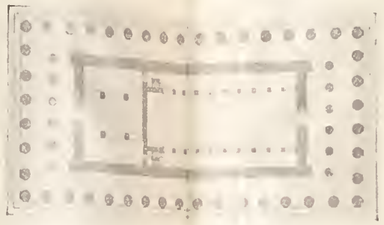
Manners and Customs. The following statements embody the valuable testimony of Thiersch as to the habits and state of the people when he visited *G.* in 1831–32: — "There is a pretty marked distinction among the inhabitants of the three great divisions of *G.* — Greece N. of the Isthmus, the Peloponnesus, and the Islands. The inhabitants of N. Greece have retained a chivalrous and warlike spirit, with a simplicity of manners and mode of life which strongly remind us of the pictures of the heroic age. The soil here is generally cultivated by Bulgarians, Albanians, and Wallachians. In E. Greece, Parnassus, with its natural bulwarks, is the only place where the Hellenic race has maintained itself; in the mountainous parts of W. Greece there are also some remnants of Hellenic stock. In these parts the language is spoken with more purity than elsewhere. The population of the Peloponnesus consists nearly of the same races as that of N. Greece; but the Peloponnesians are more ignorant and less honest than the inhabitants of Hellas. The Albanians occupy Argolis and a part of the ancient Triphylia. Among the rest of the inhabitants, who all speak Greek, there are considerable social differences. The population of the town is of a mixed character, as in N. Greece, where there is an active and intelligent body of proprietors, merchants, and artisans in the towns, and among them some of Greek stock. The *Mainotes* form a separate class of the population. They are generally called Mainotes from the name of one of their districts; but their true name, which they have never lost, is Spartans. They occupy the lofty and sterile mountains between the gulfs of Laconia and Messenia, the representatives of a race driven from the sunny valley of the Eurotas to the bleak and inhospitable tracts of Taygetos, though the plains which are spread out below them are no longer held by a conqueror, and the fertile lands lie uncultivated for want of laborers. In the islands there is a singular mixture of Albanians and Greeks. The Albanians of Hydra and Spezzia have long been known as active traders and excellent mariners. The Hydriotes made great sacrifices for the cause of independence in the late war; the Spezziotes, more prudent and calculating, increased


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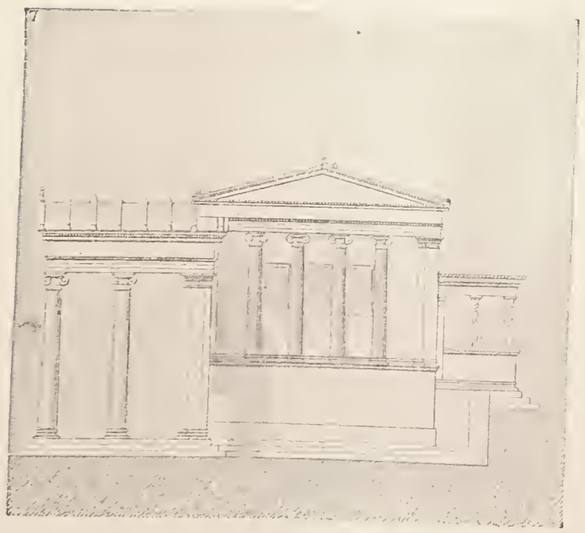

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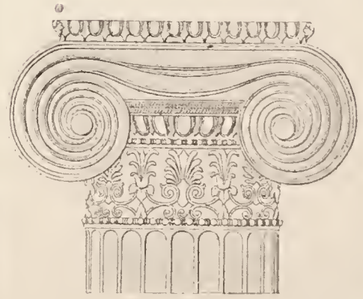

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GREEK ARCHITECTURE. 1. Temple of Zeus at Agrigentum, Sicily. 2. Longitudinal section of the Parthenon, Athens. 3. Restoration of Temple of Poseidon, Pæstum, Italy. 4. Erechtheion on the Acropolis at Athens. 5. Plan of the Parthenon. 6. Temple of Zeus at Olympia. 7. Erechtheion on Acropolis (side-view). 8. Capital from the Great Temple at Eleusis, Greece. 9. Foliated Capital from Temple of Apollo at Miletus, Asia Minor. 10. Lantern of Demosthenes, Athens. 11. Capital at Bassæ, Greece. 12. Ionic Capital from the Erechtheion. 13. Cross-section of the Erechtheion.

their wealth and their merchant-navy. The island of Syra, which has long been the centre of an active commerce, now contains the remnant of the population of Ipsara and Chios. The Ipsariots are an active and handsome race, and skilful seamen; the Chiots, following the habits of their ancestors, are fond of staying at home and attending to their shops and mercantile speculations. They amass wealth; but they employ it in founding establishments of public utility, and in the education of their children. In Tinos, the peasants, who are also the proprietors, cultivate the vine and the fig even amidst the most barren rocks; in Syra, Santorin, and at Naxos, they are the tenants of a miserable race of nobility, whose origin is traced to the time of the crusades, and who still retain the Latin creed of their ancestors. Besides these, there are various bodies of Suliotes, of people from the heights of Olympus, Candiotes, many Greek families from Asia Minor, Fanariotes, and others, who have emigrated or been driven by circumstances within the limits of the new kingdom. The Ipsariots are those who are supposed to have the least intermixture of foreign blood. They have the fine and characteristic Greek physiognomy, as preserved in the marbles of Phidias and other ancient sculptors; they are ingenious, loquacious, lively to excess, active, enterprising, vaporing, and disputatious. The modern Greeks are generally rather above the middle height, and well shaped; they have the face oval, features regular and expressive, eyes large, dark, and animated, eyebrows arched, hair long and dark, and complexion olive-colored. The islanders are commonly darker, and of a stronger make than the rest; but the Greeks are all active, hardy, brave, and capable of enduring long privations. Generally speaking, the women of the islands and of Hellas (Fig. 1196) are much handsomer than those of the Morea. The character of the Greeks while under Turkish rule was thus summed up by Mr. Hope: —(*Anastasius*, i. 78-80.) 'The complexion of the modern Greek may receive a different cast from different surrounding objects; the core is still the same as in the days of Pericles. Credulity, versatility,



Fig. 1196. — A MODERN GREEK GIRL.

and the thirst for distinction, from the earliest periods formed, still form, and ever will form, the basis of the Greek character. ... When patriotism, public spirit, and preëminence in arts, science, literature, and warfare, were the road to distinction, the Greeks shone the first of patriots, of heroes, of painters, of poets, and of philosophers. Now that craft and subtlety, adulation and intrigue, are the only paths to greatness, the same Greeks are — what you see them.' The Albanians are of a much more serious and pensive disposition than the Greeks; and it has been remarked that they may be considered to bear the same relation to the latter that the Doric did to the Ionic population in ancient times. The *language* of the modern Greeks (for the Albanian is of Illyrian origin) is called *Romaic*. It has a greater similarity to the ancient Greek than the Italian to the Latin; but many of the alterations from the ancient tongues which distinguish both the modern languages are analogous. Many of the popular customs of the Greeks bear the impress of antiquity; various superstitious observances are kept up; and even the ordinary amusements of the people are the same which were popular in ancient times. The far-famed *Romaica*, for instance, the theme of so many travellers, is obviously the same as the Cretan or Dædalian dance; and another modern dance, the *Albanatico*, is supposed to resemble the Pyrrhic dance of the ancients." — *Manuf.* Unimportant, and almost wholly domestic. — *Commerce.* The Greeks have particularly distinguished themselves by the spirit and success with which they have engaged in nautical and mercantile enterprises. Their commerce, next to their freedom, was the grand source of the prosperity of Athens, Corinth, and other Greek cities of antiquity. And in this respect the modern Greeks have been no unsuccessful imitators of their illustrious progenitors. The great articles of export from Greece consist of currants, silk, figs, wool, olive-oil, valonia, wine, sponge, wax, and tobacco; the principal imports being manufactured cotton and woollen goods, corn, with a great variety of subordinate articles, principally from England, France, and Germany.—*Education* is free to all, from the humblest school to the university; hence an unusual number of Greeks make their way into the learned professions, and an extensive educational machinery is necessary to supply the demand for knowledge. The schools are divided into communal, or elementary, and Hellenic, in the latter of which ancient Greek is taught together with other branches. Above these are various technical schools, and the University of Athens.—

History. The Greek nation boasts of the highest antiquity; and in the early and mythic period of their history it is almost impossible to separate fable from fact. The Pelasgi were the first inhabitants, succeeded by the Hellenes. Having gained the advantage over the Pelasgi, and driven them to the islands, they peopled the continent with their own nation, who were divided into four tribes, viz., Æolians, Dorians, Ionians, and Achaians. The Hellenes spread in different directions over the country, and were soon joined by colonists from Egypt and Phœnicia. The first constitution of Greek cities is beyond the reach of exact history; but it seems that monarchy was the earliest form; and Sicyon is stated to have founded (B. C. 2000) Athens, Thebes, Sparta, Corinth, and Argos. Of the mythic or heroic period, the principal events are the siege of Thebes, and the Trojan war, commencing 1198 B. C. The confusion arising from the latter event deprived many kingdoms of their princes, and encouraged the ambition of the Dorian heraclidæ to such an extent that they expelled the inhabitants of the Peloponnesus. A fresh impulse was given to emigration; large bodies of people crossed the Ægean, and colonized the shores of Asia Minor; and as the governments changed with the rulers, the states of Greece now began to partake of that republican form which was afterwards their peculiar characteristic. The civil policy of Sparta and Athens, the growing power of which latter now began to lessen the influence of the other states, military knowledge, the arts of refinement and politics, advanced rapidly, and the quick and sensitive Greeks carried refinement of manners to an extent not yet exceeded in modern times. They had at the same time an extensive commerce with Gaul, Italy, and Sicily. Their enterprise and love of liberty bore them successfully through all the troubles of the Persian war (B. C. 463); but from the same reasons they became involved in intestine feuds. The Peloponnesian war, which lasted 30 years (ending B. C. 404), destroyed their union, and paved the way for Philip of Macedon, who (B. C. 338) gained the decisive battle of Cheronæa, and thus became master of Greece. The brilliant conquests of Alexander engaged them for a few years; but their courage was now enervated, and their love of liberty almost extinguished. When the Achaian league proved a vain defence against the kingdom of Macedon, Greece was utterly unable to contend with the arms of Rome; and after a brief contest, ending with the battle of Corinth (146 B. C.), the entire country became an integral portion of the Roman empire. Literature and the arts, long on the decline, were finally destroyed by Justinian, who closed the school of Athens. In 600, Alaric the Goth invaded the country, followed by Genseric and Zaber-Khan in the 6th and 7th, and by the Normans in the 11th century. After the Latin conquest of Constantinople (1204), Greece was divided into feudal principalities, and governed by various Norman, Venetian, and Frankish nobles, until 1261, when the entire country, except Athens and Nauplia, were reunited to the Greek empire under Michael Paleologus. Invaded by the Turks in 1438, it was finally conquered by them in 1481; but the Venetians not feeling disposed to allow the new masters quiet possession, the country was, during the subsequent two centuries, the scene of bloody wars, ended only by the treaty of Passarovitz, which secured Greece to the Turks. Except the single province of Maina, the whole country remained under their sway till 1821, when a *hetairia* was formed, and Ypsilanti proclaimed that Greece had thrown off the yoke of Turkey. The revolution broke out in Greece and Wallachia simultaneously, continuing with various success, much bloodshed, and many atrocities, until the interference of the European powers and the battle of Navarino (1827) insured the independence of the country, unwillingly accorded by the Sublime Porte (1829). The provisional government, established during the revolution, was not successful in securing the confidence of the people, and the chief, Count Capo d'Istria, was assassinated (1831). The allied powers had already determined to erect Greece into a monarchy; and the crown was finally conferred on Otho, a younger son of the King of Bavaria, who was proclaimed in 1832. In 1862, a revolution forced him to leave the country. He was deposed by the National Assembly, and George, the second son of the King of Denmark, was elected (by the Boulé) King of Greece, March 18, 1863. He married Olga, daughter of the Grand Duke Constantine, of Russia, Oct. 17, 1867. The Crown Prince Constantine, born Aug. 2, 1868, received the title of Duke of Sparta. Of historical events since that date, one of the most interesting was the revival of the ancient Olympic games in 1896, the ancient stadion being restored for the purpose, and athletes from the countries of Western Europe and the U. S. taking part. Several prizes were gained by American athletes, R. Garret, of Princeton College, winning from the Greek champion the prizes for throwing the discus and putting the weight. During 1896 a rebellion against Turkish rule broke out in the island of Crete, in which volunteers from Greece took part, though the government discouraged this movement, and sought to preserve neutrality. A strong popular sentiment in favor of Cretan independence, however, broke out in Greece; and in the early months of 1897 the government was obliged to take an active part in the insurrection, a Greek regiment being sent to Crete in spite of the efforts of the powers of Europe to prevent. Greek and Turkish armies also gathered on the frontiers of the two countries, a body of volunteer Greeks invaded Turkish territory, and in reprisal the Turkish army crossed the frontier, attacked the Greek army, drove it back in a rapid succession of defeats, and occupied Thessaly. The government of Greece had been obliged by a vigorous popular movement to take this course, and sent its armies into the field in a state of very imperfect discipline and poorly provided with munitions of war. The Turks, on the contrary, were ably led and in an excellent state of organization, the result being that the personal valor of the Greeks served them poorly in the absence of discipline and generalship. The demoralization of the defeated Greek army became so great that an occupation of Athens by the victorious Turks was imminent. At this critical juncture the powers of Europe intervened, obliged Greece to withdraw her troops from Crete, induced Turkey to consent to an armistice, and made earnest efforts to effect a settlement. Turkey demanded Thessaly, which her armies occupied, and a large indemnity in money. The former the powers refused to grant, demanding that she should accept the former frontier, but agreed to an indemnity within the power of Greece to meet. At the time of this writing the matter of the evacuation of Thessaly seems virtually settled by reluctant and sullen acquiescence on the part of Turkey.

Greed, *n.* [Icel. *grâd*, avidity.] Gladness; lust of gain; covetousness.

Greed'ily, *adv.* With a keen appetite for food or drink; voraciously; ravenously; with keen or ardent desire; eagerly.

Greed'iness, *n.* Quality of being greedy; voracity; ardent desire; keenness of appetite; eagerness; avidity.

Greek, *a.* Relating or pertaining to Greece; Grecian; as, a *Greek* profile.

Greek, *n.* A native or inhabitant of Greece; a Grecian; a Hellene.—The language of Greece.

Greek Architecture. The early architecture of Greece is exemplified in the massive remains of walls at Mycenæ, Argos, and others of the old Grecian cities, which are composed of huge, irregular, undressed blocks of stone roughly piled together. (See CYCLOPEAN ARCHITECTURE.) It is utterly devoid of ornament, but in one or two instances examples remain of attempts to adorn the stones forming the piers and lintel of a gateway with rude representations of animals, as in the principal entrance to the Acropolis of Mycenæ mentioned above. Grecian architecture, properly so called, was the production of a far later age, and may be traced to that of Egypt and Western Asia, combining, as it does, the strength and solidity of the former with the more elegant features and decorative principles of the latter. The Doric, the first of the three Greek orders, assimilates more closely to the architecture of Egypt than either of the others, in its substantial and massive proportions: it is simple in character, but always conveys to the mind of the spectator a striking impression of its dignity and



Fig. 1197. — THE PARTHENON, (as it is.)

beauty. The Ionic order, and its ornamentation, is derived from the architecture of Western Asia, and is characterized by a greater degree of lightness in its proportions than the Doric order possesses, and the introduction of decorations in minor details. The Corinthian, the last, and by far the most elegant of the Greek orders, surpasses the Doric and Ionic orders in its elaborate adornment and symmetry of proportion; but, even in this, a similarity to the architecture of Egypt can be traced in the bell-shaped capitals of its columns, and the clusters of leaves that curl outward from its surface. But, although each order exhibits a decided step in advance of that which precedes it, as far as elegance and ornament are concerned, the three orders were uniformly characterized by beauty and harmony of proportion; and it may be said that the buildings of ancient Greece, especially the temples, were superior to those of any climate and any age as regards simplicity of form, the purposes for which they were intended, and the habits and requirements of the people for whose use they were erected. The chief characteristics and the scale of proportions preserved in the three Grecian orders, will be found elsewhere (see ARCHITECTURE); and the principal parts that compose what is termed an *order* in classic architecture have been treated under their respective headings (see ARCHITRAVE, BASE, CAPITAL, COLUMN, CORNICE, ENTABLATURE, FRIEZE); but it may be desirable to state here the particular features and marks by which each order may be readily distinguished, and to point out some recent discoveries that have been made with regard to the method adopted by the Greeks to give the appearance of perfect beauty to their works, and to avoid anything that might offend the eye of any of this highly civilized and educated people. It should also be stated, that each order consists of two distinct parts, — the *column* and the *entablature*, — which are again subdivided, the former into the *base*, *shaft*, and *capital*; and the latter into the *architrave*, *frieze*, and

cornice; and that it is by certain differences in these divisions and subdivisions that the orders themselves are distinguished. The Doric order may be readily discerned by having no base to the column, the lower end of the shaft resting immediately on the pavement; the shaft itself is also adorned with broad shallow flutings separated by a sharp ridge, the capital being composed of a broad echinus moulding surmounted by an abacus, while the frieze is adorned at intervals with projecting pieces called *triglyphs*, which are about half the width of the lower diameter of the column, having the appearance of being separated into three equal parts by two vertical grooves cut deeply into the material of which it is formed, the horizontal section of which is in the shape of the letter V, the outer edges of the piece being chambered off at the same angle. This order was in some instances richly adorned with sculpture in low relief along the frieze, and in high relief on the metopes or spaces between the triglyphs, the tympanum of the pediment rising in an obtuse angle above the entablature being also filled with sculpture in high relief, and frequently with perfect statues. The Ionic and Corinthian capitals are to be distinguished from each other, the former by its volutes, and the latter by its exquisitely carved foliage and its height, which is considerably greater than that of the capitals of the Doric and Ionic orders. There is little perceptible difference in the shafts of the columns of the Ionic and Corinthian orders, or in their entablatures. The temples of the Greeks were generally placed on a level platform, consisting of three steps (Fig. 1197) rising one above another, and of greater or less depth in proportion to the height and diameter of the columns that were placed upon them. These steps were too deep to afford the means of access to the temple, and it is supposed that intermediate steps were placed at intervals along the larger ones, to allow the worshippers to pass easily from one to another, and thus to gain the level of the portico. The Greek windows and doorways, like those of the Egyptians, were narrower at the top than at the bottom, the sides inclining inwards. They were generally surrounded by a moulding, which was broken at the top of the window by a right angle, and turned outwards on either side, for a short space, in a horizontal direction, before resuming its perpendicular course, so that an architrave or lintel was formed above the window of the same width as the sill below. The doorway was always in the centre of the *pro-naos*, or portico of the temple, and was carried up to a considerable height for the purpose of admitting light into the interior. The arch is never employed in Grecian architecture, which is chiefly characterized by the use of the beam supported on columns, by which an appearance of great strength and solidity is obtained. It is also marked by its strict adherence to outlines formed by horizontal lines, and lines that are vertical, or nearly so, being frequently slightly inclined inwards. It is a known principle in perspective, that straight lines proceeding to a great distance in the same direction present a slightly curved appearance to the eye of an observer. To correct this appearance, the Greek architects carefully constructed their vertical and horizontal lines in the form of a very slight and scarcely perceptible curve, giving their columns an *entasis*, as it is termed, or a slight outward swelling near the middle; which principle of construction was effected by means of certain fixed rules. The columns also, instead of being vertical, had a slight inclination inwards, and their pavements, and the platforms on which the temples stood, were constructed with a very slight rise in the centre. Mr. Pennethorne discovered the existence of these curves in 1837, and the truth of his statements was subsequently corroborated by Mr. Penrose, who examined many of the ruined temples of Greece, and made careful measurements of their proportions, which led to a discovery of the principles on which they were constructed. Of the three orders of Grecian architecture, the Parthenon at Athens (Fig. 1197), and the Temple of Minerva at Ægina (Fig. 37), may be cited as the best examples of the Doric order; the Erechtheum and Pandrosium at Athens, of the Ionic order; and the choragic Monument of Lysicrates (Fig. 594), in the same city, as the most beautiful and almost the only existing pure Greek specimen of the Corinthian order. Examples of the Doric and Ionic orders, or rather adaptations of them, are common in modern architecture, one of the best, if not the best, being the Girard College (Fig. 1160) in Philadelphia. There are but imperfect data for determining the style of architecture adopted among the Greeks for dwellings of a private character.

Greek Church, also called the *Greek Catholic*, the *Orthodox Greek*, the *Orthodox*, or the *Eastern Church*, originated in the dissensions that took place between the patriarchs of Constantinople and the popes of Rome. In consequence of the political position of the city as the seat of the imperial government, the Church of Constantinople sought to render itself independent of the See of Rome. Disputes on various points of doctrine occurred from time to time between the two churches, but the great breach did not take place till 862, under the patriarch Photius. He reproached the Western Church with having introduced various innovations, — as the celibacy of the priests, the introduction of images into churches, and the double procession of the Holy Ghost, with the addition of "filioque" (and from the Son) to the Nicene Creed. On the fall of Photius, however, the breach was in a manner healed, though very imperfectly, and in the 11th century dissensions broke out afresh. The final separation took place in 1054, when Leo IX. excommunicated the patriarch Michael Cerularius, who had inveighed against the corruptions of the clergy, and attacked the errors of the Western Church. Several attempts were made on either side to effect a reconciliation, but in vain. The popes were anxious to effect a union in order to extend their dominions; and the emperors of Constantinople, when pressed by the Turks, attempted to obtain the assistance of the West by a promised restoration of the Eastern Church to that of Rome. At a later period attempts were made by some of the Protestant churches to come to an amicable arrangement with the Eastern Church, but with like unsatisfactory results. The Greek Church denies the authority of the Pope, and maintains that the Church of Rome is not the only true Catholic church. It acknowledges no vicar of Christ upon earth like the Pope; disclaims infallibility, works of supererogation, and indulgences. It rejects purgatory, but admits of prayers for the dead; and forbids all kinds of carved images, but permits paintings, and pays a kind of secondary homage to the Virgin and saints. It denies auricular confession to be a divine command, but practises confession attended with absolution, and sometimes penance. It admits the seven sacraments, but baptism is performed by immersion of the body three times in water; and the communion of both kinds is practised with leavened bread, and the wine is mixed with water. The anointing of the body with the chrism is allowed to all sick persons as a means of restoring them to health, and purifying them from their sins. The secular clergy are permitted to marry but once, and only a virgin; and laymen are allowed to marry only three times. Like the Roman Catholic Church, it accepts tradition as well as the Bible, but differs from it, as well as from all Protestant churches, in maintaining that the Holy Ghost proceeds only from the Father, and not also from the Son. The ritual of the Greek Church consists almost entirely in outward ceremonies, preaching or religious instruction being rarely resorted to. Their fasts are more numerous and more strictly observed than those of the Roman Catholics. The clergy are divided into two classes, — the higher and the lower; the former comprising patriarchs, metropolitans, archbishops, and bishops, all of whom are chosen from among the monks, and must live in celibacy; the latter, the monks, or black clergy (from their dress), and the secular, or white clergy. The lower secular clergy are the archpriests, priests, deacons, hypodeacons, and lectors. The



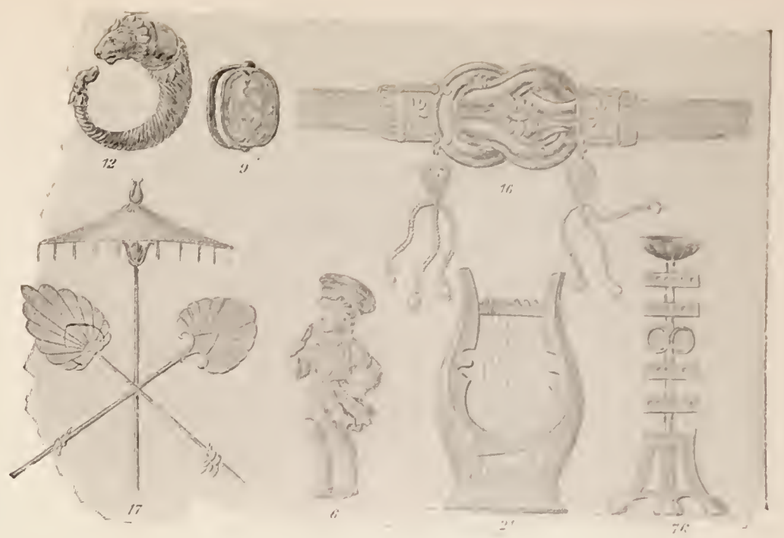
Fig. 1198. — A GREEK CHURCH.

monks, as well as the nuns, who are less numerous, generally follow the rule of St. Basil, with the exception of those of mounts Sinai and Lebanon, who follow the rule of St. Anthony. One of the most celebrated convents is that of mount Athos. The total number of persons belonging to the Greek faith is estimated at about 66,000,000; of whom about 49,000,000 are in Russia, 12,000,000 in Turkey, 3,500,000 in Austria, 900,000 in Greece, 180,000 in the Ionian islands, 125,000 in Montenegro, and about 3,000 in Prussia. As regards its government, the Greek Church is made up of ten independent groups, numbering in all 279 bishoprics. 1. The Church of Constantinople, governed by a patriarch, having under him 136 bishops; 2. the Church of Alexandria, under the patriarch of Alexandria, who resides at Cairo, and has five bishops; 3. the Church of Antioch, with its patriarch and 17 bishops; 4. the Church of Jerusalem, with its patriarch and 14 bishops; 5. the Russian Church, with 60 bishops, governed by a synod; 6. the Church of the island of Cyprus, with four bishops; 7. the Austrian Greek Church, with 11 bishops; 8. the Church of Mount Sinai, with 1 bishop; 9. that of Montenegro, with 1 bishop; and 10. the Hellenic Church in Greece, with 24 archbishops and bishops. Besides these ten divisions of the Greek Church, which recognize each other as orthodox, there are a number of sects, particularly in Russia, which fully acknowledge the doctrinal basis of the Greek Church, but for various reasons keep aloof from it. The Greek Church predominates over all Russia, European Turkey, Greece, the Ionian Islands, and Montenegro. In Turkey, the patriarch of Constantinople has not only spiritual, but also a kind of temporal jurisdiction, as he is regarded by the Turkish law as the head of the Greek Christians, who have to pay him a yearly tribute. The Russian Greek Church asserted its independence on the fall of Constantinople, in the middle of the 15th century, when a patriarchate was established at Moscow. The patriarchate was abolished by Peter the Great, who organized a supreme court for the regulation of spiritual matters, to sit at the new capital of St. Petersburg. Since that time the Church of Russia has been virtually controlled by the Czar. The *United Greek Church* is a section of this body, which, by the continued efforts of the Roman Church, were induced to acknowledge the supremacy of the Pope, while they, on the other hand, were permitted to abide by all the peculiar usages of the Greek Church which did not affect fundamental doctrines; — as the use of the Greek language in divine service, the reception of the Lord's supper in both kinds, &c., &c. In Russia, almost all the members of the United Greek Church were induced, under the reigns of Catharine II and Nicholas, to dissolve their connection with the Church of Rome; and at present this section of them is most numerous in Austria. Total est. strength, 1896, 98,000,000, over 70,000,000 being in Russia. For an account of the ceremonies, liturgies, &c., of the Greek Church, see Neale's *History of the Eastern Church*.

Greek Empire, (The.) (*Hist.*) The *G. E.*, also styled EMPIRE OF THE EAST, or BYZANTINE EMPIRE, was founded in 395, A. D., when Theodosius the Great divided the Roman Empire between his two sons, Arcadius and Honorius. The former, a feeble and luxurious character, was made emperor of the Eastern division, comprising Syria, Asia Minor, and Pontus, in Asia; Egypt in Africa; and Thrace, Mœsia (now Bulgaria), Macedonia, Greece, and Crete in Europe. Arcadius let the govt. of the empire fall from the hands of his minister Rufinus into those of the eunuchs Eutropius and Gainas, and lastly to the shameless empress Eudoxia, who ruled until the time of her death, 404. After Theodosius II. had held the reins during 6 years, he resigned the govt. in favor of his sister Pulcheria, who ruled powerfully, while her brother was kept apart from all state affairs. After the death of Theodosius II., Pulcheria married the senator Marcianus (450–457), whose firmness repelled the invasions of Attila. Marcianus was followed by Leo I., surnamed *Macella* (the Butcher), a Thracian of low birth, but elevated to the throne by the commander-in-chief, Aspar, who, being himself an Arian, would not venture to encounter the perils that sovereignty might have entailed on one of his religious views. Leo II., grandson of the former, succeeded, but died after a few months, in consequence of which the crown came into the possession of his father, Zeno (474–491), who was banished by Basiliscus (475), but who reascended the throne in 477. Though a weak and unpopular ruler, he contrived to retain his power in spite of several serious revolts. Ariadne, widow of Zeno, by her second marriage raised the courtier Silentiarius to the throne under the title of Anastasius I. (491–518). By the help of the Goths, this monarch overthrew, after a six years' contest, the robber tribes of Mount Taurus. A new enemy, however, now appeared on the Danube in the Bulgarians, against whose desolating raids Anastasius built the Long Wall, to protect the peninsula on which Constantinople lies. The war with the Persians also broke out anew during his reign, and religious tumults often purpled the streets of Constantinople itself. After his death, the army raised Justinus I. to the throne. His nephew, Justinian (q. v.), succeeded (527–565), and became celebrated by his code of laws, and by the victories of his great generals, Belisarius (*q. v.*), and Narses, (*q. v.*) But the rapid decline of the empire after his death showed that he had not been able to give it any internal consolidation or vitality. It was during the reign of Justinian that those pestilent contests of the Blues and Whites against the Greens and Reds (political factions so named from the colors respectively worn) first attained any consequence; and though the first disturbance was terribly chastised by Belisarius in 532, they continued to distract the capital periodically down to the 7th century. Justin II. (565–578), a weak man, governed by his wife Sophia, yielded a part of Italy to the Longobards, was unsuccessful against the Persians, allowed the Avari to plunder the Danubian provinces, and ultimately became insane through vexation and anxiety. Tiberius, the captain of the guard, was then made regent, and after the death of Justin II. received the imperial dignity. He ruled with mildness and prudence (578–582), purchased a peace with the Avari, concluded the war with Persia, and left as his successor the commander-in-chief Mauricius, who reigned from 582 to 602. His niggardly treatment of the army caused a military insurrection, in which he was slain along with his son; and Phocas, one of his generals, was elevated to the throne. Phocas proved a bad ruler. Through his monstrous vices, tyranny, and incapacity for government, the empire lapsed into still deeper anarchy. Suddenly, however, a deliverer appeared in the person of Heraclius (*q. v.*), son of the exarch or governor-general of Africa, who headed a conspiracy, marched to Constantinople, overthrew the tyrant, and ascended the throne, 610. But great as was the genius of Heraclius, he had to submit to twelve years of defeat before he could organize and discipline a victorious army. In 622 he opened those magnificent campaigns in which the power of Persia was crushed, and which, in the opinion of Gibbon, were equal to those of Scipio or Hannibal. He lived, however, to see more formidable foes in the Arabs, who, inspired by fanatic zeal, and led by the Caliph Omar, captured, during 635–641, the countries on the Euphrates, with Syria, Judæa, and Egypt. The power of the Greeks, which was demanded to resist the Arabian invasions, was miserably divided and weakened by their unending religious quarrels, especially the controversy of the Orthodox against the Monothelites, (*q. v.*) The empire was breaking asunder, and Heraclius, now worn out with the fatigues of war, had abandoned his enervated senses to pleasure, and his enfeebled intellect to theological discussions. He died in 641. Constantine III., who succeeded his father Heraclius, also died soon after, and was followed by Heracleonas, who lost the crown, and was mutilated in an



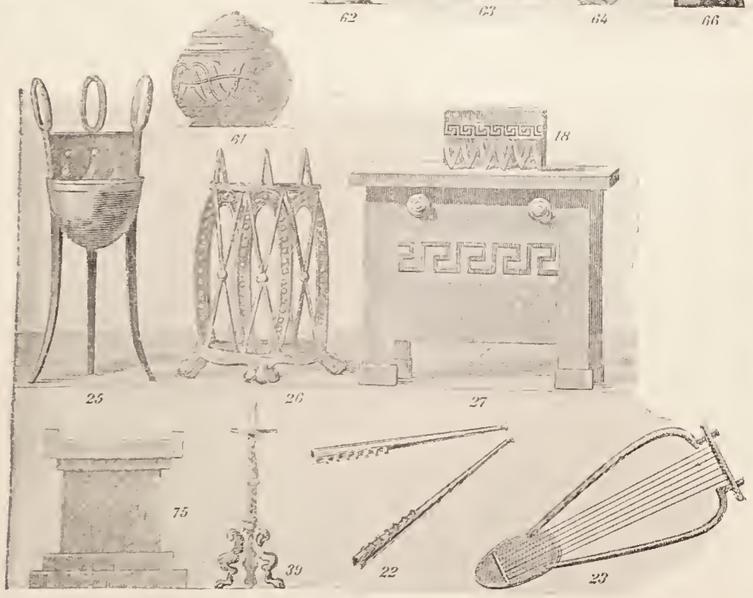


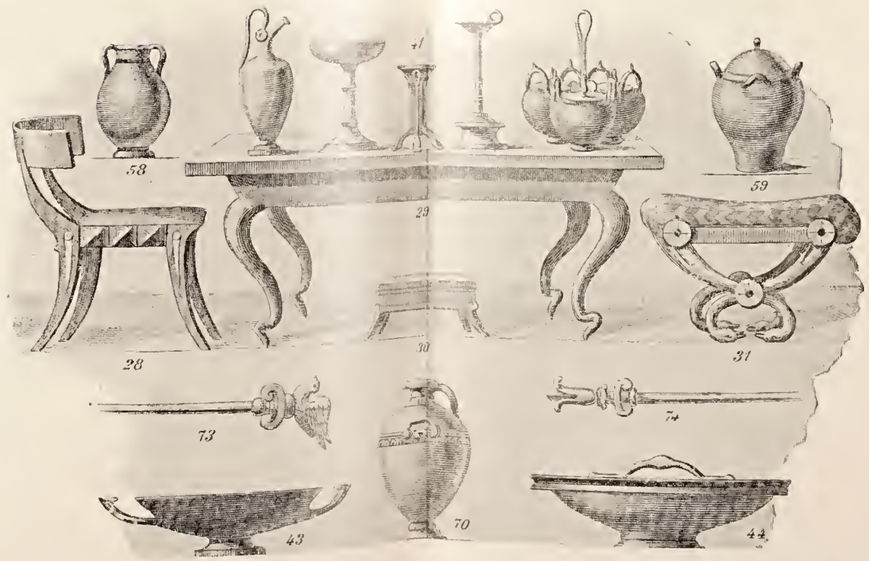














GRECIAN ANTIQUITIES. 1, 2. Hair arrangement and diadems of the women. 3-16. Jewelry: Bracelets, anklets, ear-rings, brooches, girdles, etc. 17. Fans and parasol. 18, 19. Toilet accessories. 20. Tambourine. 21, 24. Lyres. 22. Flutes. 23. Lute. 25-34. Household furniture. 35. Wash-basin. 36-38. Baskets. 39-44. Household utensils and table-ware. 45, 46. Amphoræ. 47, 48. Mixing-bowls. 49-55. Drinking-vessels. 56, 57. Oil-flasks. 58, 59. Pots. 60-70. Earthen vases of different periods. 71. Golden vase from the tomb of a Scythian king (Southern Russia). 72. Tools. 73-74. Sceptres. 75, 76. Altars. 77, 78. Actors' masks.

insurrection. The next ruler was Constans, son of Constantine III., who ruled from 642 to 668, made himself odious by cruelty, and perished in an insurrection. His son, Constantine IV., Pogonatus (668–685), enforced a treaty of peace on the invading Arabs (675) by his successful use of the Greek fire in warfare. Justinian II. (685–711), son and successor of Pogonatus, was victorious in a war against the Monothelite Maronites; but was defeated by the Bulgarians (688), and by the Arabs (692). His cruelty caused an insurrection, at the head of which was Leontius, who, in 695, deposed him, cut off his nose (hence his surname *Rhinotmetus*), and banished him to the Tauric Chersonese; in 705 he was restored to the throne, but adversity had taught him no wisdom. A part of his subjects revolted, and the king, abandoned by his army and by the Bulgarians, was assassinated in 711. With him the dynasty of Heraclius expired. Philippicus Bardanes (the leader of the last insurrection against Justinian II.) was next raised to the throne (711); but after having made himself odious by favoring the metaphysical tenets of the Monothelites, he was deposed and brutally deprived of eyesight (713). His successor, Anastasius II., prudently screened himself from a mutinous army by retiring into a monastery (716), and left the crown to Theodosius III., who abdicated in 717, when Leo, the Isaurian, and general of the army of the East, did not recognize him, and marched with hostile intent to Constantinople. Leo (*q. v.*) himself ascended the throne in 717, and drove back the Arabs from Constantinople, but unhappily gave occasion, in 726, for that contest concerning the worship of images which rent the empire for more than a century. In 728 the exarchate of Ravenna was lost, and the eastern provinces became the prey of the Arabs, over whom, however, he won a great victory in Phrygia. He died in 741. — Constantine V. (741–775), son of Leo III., on account of his zeal as an iconoclast, was hated by the monks, who gave him the surname "Copronymos," because he had polluted the font at his baptism. He was a brave ruler, recovered from the Arabs parts of Syria and Armenia, and ultimately defeated the Bulgarians, against whom he had long been unsuccessful. His son, Leo IV. (775–780), was a mild ruler. After him Constantine VI. ascended the throne under the guardianship of his ambitious mother, Irene (*q. v.*), who raised a powerful party in favor of image-worship. Constantine having made an attempt to liberate himself from the influence of his mother and her paramour Stauratius, Irene barbarously caused her own son to be blinded (797). He died soon after this atrocity; and Irene, who had boldly conceived the design of marrying the Emperor Charlemagne, and thus uniting the east and west of Europe in one vast realm, excited the opposition which, in 802, placed her treasurer, Nicephorus, on the throne. Irene was banished to Lesbos, where she died in 803. Nicephorus, who fell in battle against the Bulgarians (811), was succeeded by his son Stauratius, who soon yielded the throne to his brother-in-law, Michael I., from whom it was taken by the Armenian general Leo V., a powerful ruler, who conquered the Bulgarians, but fell (820) in a conspiracy excited by his zeal against image-worship. Michael II., the "Stammerer," was raised from a dungeon to the throne, and ruled until 829. In his reign, Crete and Sicily passed into the hands of the Arabs. Under the reign of his son, Theophilus, praised by the Byzantine historians for his love of justice (829–842), Theodora, widow of Theophilus and guardian of Michael III. (842–867), brought the controversy about images to a close at the Council of Nicæa (842), when the worship of these was fully sanctioned and re-introduced. Theodora, having been banished to a convent by her son, the government was for some time held by Bardas, uncle of Michael III., and after his assassination, by Basilius I., the "Macedonian," who caused Michael to be put to death, and afterwards ruled ably from 867 to 886. But though on the whole successful against the Arabs, the latter contrived to make themselves masters of Syracuse. His dynasty (the Macedonian) maintained itself on the Byzantine throne, with some few interruptions, until 1056. The reign of his son, Leo VI., the "Philosopher" (886–912), was not prosperous. The inroads of the Bulgarians and of the Arabs, who, in 904, plundered Thessalonica, continued to increase during the government of his son, Constantine VII., "Porphyrogenitus," who ruled mildly but feebly (912-959). Under his son, the dissolute Romanus II. (959–963), Crete was retaken from the Arabs by the vigor of his general, Nicephorus Phocas, who, on the death of the emperor, married his widow, Theophania. She, however, caused him to be murdered in 969, as she wished to marry John Tzimiskes, who ruled till 976, and, like his predecessor, was victorious against the Arabs and Bulgarians, and also the Russians, who about this time began to emerge from obscurity as an enemy of the Byzantine power. His successor, Basilius II. (976–1025), the son of Romanus, conquered the Bulgarian kingdom, and attached it as a province to the empire, which it remained till 1186, when it again became independent. His brother, Constantine VIII. (1025–1028), did not resemble him. Romanus III. next ascended the throne, but was assassinated by his wife Zoë, a profligate but crafty princess, who raised successively to the imperial dignity Michael IV. (1034), Michael V. (1041), and Constantine IX. (1042). Meanwhile, Russians and Arabs devastated the realm. In Asia, the Seljuk Turks proved dangerous enemies; while in Lower Italy the Normans narrowed the Byzantine power to the possession of Otranto. After Constantine's death, in 1054, Theodora, sister of Zoë, was elected empress; and on her death, in 1056, Michael VI., who was deposed by Isaac I., (Comnenus.) — With Isaac I., (Comnenus.) who came to the throne in 1057, the dynasty of the Comnenian emperors began. He retired to a monastery (1059), and was succeeded by Constantine X., whose widow, Eudocia, married Romanus IV., and raised him to the throne. Romanus was deposed in 1071 by Michael VII. (son of Constantine X.), who in his turn was dethroned by Nicephorus III. (1078), who reigned until 1081, when he was deposed by Alexius I., (Comnenus, *q. v.*,) (1081–1118). This last reign was marked by the commencement of the Crusades. The successors of Alexius — his son, Karo-Johannes (1118–1143), and Manuel I. (1143–1180) — were able rulers, and victorious in their engagements with the Turks. Manuel's son, Alexius II., was murdered by his guardian, Andronicus (grandson of Alexius I.), who raised himself to the throne. He was the last prince of the Comnenian dynasty, and fell in an insurrection excited by his own cruelty, 1185. — After the first turbulent reign of Isaac II., who was blinded and deposed by his brother Alexius III., who took the surname of Comnenus in 1195, the Crusaders restored Isaac to the throne (1203), and also crowned his son Alexius IV.; but the restless citizens of Constantinople elected Nicolas Kanabus, who took the title of Alexius V., and pursuing the usual bloody course, put his predecessor to death. — In 1204, the French and the Venetians (collectively named *Latins*) advanced on Constantinople, and captured the city, April 12, having made themselves masters of the European provinces. The whole was divided into four parts, of which the first, including the metropolis, fell to the lot of Baldwin, Count of Flanders, who was made emperor, and to whom the other participants in the expedition did fealty for their respective shares. The Venetians obtained the coasts of the Adriatic and Ægean seas, a part of the Morea, and several islands; Bonifacius, Count of Montferrat, Macedonia, and part of Greece; several dukedoms, countships, &c., were also established at Athens, Philippopolis, and other places for French knights; while a number of Greek princes, both on the mainland and in the islands, maintained their independence. In the west of Asia Minor Theodorus Lascaris, who had been elected emperor at Constantinople, formally transferred the seat of government to Nicæa; and finally, in the N.E. of Asia Minor, the governor of the province of Colchis, Alexius Comnenus, ruled at Trebizond with absolute authority; while one of his successors, John Comnenus, even assumed the title of emperor. At Constantinople, neither Baldwin nor his successors could strengthen the sinking empire. Baldwin himself died (1206) a prisoner in the hands of the Bulgarians. After him came his brother Henry, who ruled bravely and wisely till 1216. For the next four years, the empire was actually without a ruler, and a prey to utter anarchy. In 1221, Robert, son of Peter, Count of Auxerre and Courtenay, came to the throne, and was succeeded by John of Brienne, titular king of Jerusalem (1228–1237); and the latter by Baldwin II. (1237–1261). During these reigns a great part of the empire was seized by John Vatazes, successor of Theodorus Lascaris of Nicæa (1222–1255). This ruler was followed in Nicæa by Theodorus II. (1255–1259), whose son, Johanues, was superseded by Michael VIII., (Palæologus,) who by the help of the Genoese captured Constantinople (July 25, 1261), and thus put an end to the Latin dynasty. — Michael, the first of the *Palæologi*, endeavored to strengthen the realm. He attempted to unite the Greek Church with the Latin, but his son, Andronicus II., who came to the throne in 1282, re-established the Greek ritual. Andronicus II. was compelled to divide the throne with his grandson, Andronicus III., who became sole emperor, 1328, and unsuccessfully opposed the Turks; he D. 1341. Under his son, Johannes V., the Turks first gained a firm footing in the European provinces; Sultan Murad took Adrianople, 1361, and made it the seat of government. Manuel II., son and successor of Johannes, was besieged in Constantinople by Bajazet, and compelled to cede to the Turks one of the main streets of the city. In 1422, the metropolis was again besieged by Murad II., who, after he had overthrown the force sent to aid the emperor by Ladislas, king of Hungary, at the battle of Varna, made Constantinople, 1444, the limit of the domains of Johannes VI., son of Manuel, and compelled him to pay tribute. Constantine XI, brother of Johannes, fell heroically in the defence of Constantinople, which was captured by Mohammed II., May 29, 1453, when the *G. E.* was brought to a close.

Greek'ess, *n.* A female Greek. (R.)

Greek Fire, *n.* A composition of a highly combustible nature, supposed to have been formed of naphtha, pitch, and sulphur. It is said to have been invented about 670, by Callinicius of Heliopolis, in the reign of Constantine III., and used with terrible effect against the fleet of the Saracens. It burst into a flame on exposure to the air, and burned under water. It was hurled upon the enemy from cross-bows and other engines of war. *G. F.* was used against the Crusaders at the siege of Acre under Richard I., and was a recognized means of defence before the invention of gunpowder.

Greek'ish, *a.* Grecian; peculiar to Greece, or to the Greeks.

Greek Language and Literature. The earliest inhabitants of Greece were the Pelasgi, who, according to Herodotus, spoke a barbarous or foreign tongue. They were allied to the Iranen tribes of the north of India; consequently, that element in the Greek language which exhibits an affinity for the Sanskrit, is the Pelasgic: and hence the strong resemblance in words and inflections, which is found to exist between the two languages. The Hellenes, or Greeks proper, subsequently migrated into the country, and the language of the aboriginal inhabitants came to be looked upon as barbarous. The Hellenes were an Ionian race, and their language is said to have had an affinity to the Persian. It is but right to state, however, that this account of the origin of the Greek language is not universally received, for the subject is so involved in doubt, that no certainty can be arrived at regarding it. The Greek is a branch of the so-called *Indo-Germanic*, or Aryan family of languages. It consists of three principal dialects, — the Æolic, Doric, and Ionic: to which, at a later period, was added the mixed Attic dialect; and besides these there were several minor dialects. The Doric was a rough, hard, broad dialect, with long *a* predominant over all the other vowels. It was spoken originally in the mountains of Thessaly, whence it travelled southward, and became the language of the greater part of the Peloponnesus. It was purest in Messenia, and softest in Syracuse and Agrigentum. Its centre was Sparta. It is found in the writings of Pindar, Theocritus, Bion, and Maschu. The Æolic was a more ancient dialect than the preceding, but was refined at an earlier period, and was less harsh than the Doric, although also broad and open. It was spoken north of the Isthmus of Coriuth (with the exception of Megaris, Attica, and Doris), in the Æolic colonies of Asia Minor, and on some islands of the Ægean Sea. It contains some of the Pelasgic forms, and is to be found in the fragments of Sappho, Myrtis, and Alcæus. The Ionic is the softest and most musical of all the dialects. It abounds in vowels and diphthongs, and is partial to labials and lingnals. It was the earliest cultivated of the dialects, and is that of Homer, and other of the early authors, as Hesiod, Herodotus, &c. It was spoken principally by the people of Attica and the Iouian colonies of Asia Minor. The Attic sprang from the Ionic, from which at first it differed but little. It was developed principally after the Persian wars, and was brought to perfection by the poets, philosophers, and historians of Greece, who flourished after that time. It held a middle place between the hardness of Æolic and Doric, and softness of the Ionic. It was harmonious and powerful in its expressions, concise and regular in its syntax. Æschylus, Sophocles, Euripides, Thucydides, Aristophanes, Plato, Demosthenes, and Isocrates, have rendered it immortal. Grammarians afterwards distinguished between the genuine Attic, as it exists in these masters, and the Attic of common life, calling the latter the *common Greek*, or *Hellenic dialect;* and even the later Attic writers, posterior to the golden age of the literature, were called *Hellenes*, or *common Greeks*. In this latter class are Aristotle, Theophrastus, Apollodorus, Polybius, Plutarch, and others, many of whom, however, wrote genuine Attic. — At what time this language first began to be expressed in writing is a question of much uncertainty. According to tradition, Cadmus the Phœnician introduced the alphabet into Greece about 1500 years B. C. To him sixteen of the letters of the present alphabet are attributed; four, according to Pliny, were introduced by Palamedes at the time of the Trojan war, and four by Simonides of Ceos during the Persian war. The ancient letters were all uncial, or what we call *capital;* the present cursive or *round* letters occur first in inscriptions of the age Augustus, and resemble the Coptic forms. The Greeks wrote originally from right to left; afterwards alternately, the one line from right to left, and the next from left to right (called *bonstrophedon*, as being the mode in which oxen ploughed in a field); and finally from left to right, as we do now. The Greek language may be termed the parent tongue of civilization. It is rich in roots, flexible in the formation of words, picturesque in its mode of expressing thought, highly plastic and euphonious; simple and sublime in Homer, playful in Anacreon, majestic in Æschylus and Pindar, noble in Sophocles, pathetic in Euripides, elegant in Xenophon, subtle in the Sophists, distinct in the Stoics, clear in Aristotle, and fluent in the orators. Its syntax is free, full of inversions, subtle and perfect, yet without obscurity. Its antiquity, its intrinsic excellence, its literature, and its influence on the progress of the fairest portion of mankind, challenge our deepest admiration. "In order," says Mure, "to the attainment of the highest excellence, it is essential, first, that a language should be the original invention of the people who speak it; secondly, that this people should be gifted not only with a fine sense of euphony, but with variety and extent of intellectual powers. These favorable circumstances were combined in the case of the Greek in a greater degree than in that of any other known language. While it is in all essential respects a radically original tongue, its mechanism, both in sound and structure, reflects all the harmony, versatility, and precision which mark the genius of the race by whom it is spoken." (*Language and Literature of Ancient Greece.*) — The language of modern Greece is what is termed *Romaic*, or Neo-Hellenic. It differs from the ancient Greek chiefly in the formation of the tenses, and in the termination of the nouns; but the difference between the two is not greater than between the Doric and the Attic dialects of ancient Greece. The tendency of late years has been to assimilate it more and more to the ancient tongue; and a good ancient Greek scholar will have little difficulty in making out a Greek newspaper of the present day. — The origin of Greek literature is lost in the darkness of antiquity. The earliest existing monuments of it carry us back to nearly 1000 years B. C., and even then we find the art of poetical composition existing in the highest perfection. The admirable structure and the wonderful language of the Homeric poems imply a long period of antecedent culture. Although both the Iliad and Odyssey display traces of the infancy of the nation, and manifest a spirit of simplicity peculiar to the childhood of

the human race, yet the class of poetry under which they fall appears in them at its full maturity; all the laws which reflection and experience can suggest for the epic form are observed with the most refined taste; all the means are employed by which the general effect can be heightened; nowhere does the poetry bear the character of a first essay or an unsuccessful attempt at some higher poetical flights; indeed, as no subsequent poems, either of ancient or modern times, has so completely caught the genuine epic tone, there seems good reason to doubt whether any future poet will again be able to strike the same chord." (*Müller.*)—Of the poets previous to Homer nothing satisfactory is known. The names of several of them, as Olen, Orpheus, Musæus, and a number of others, are preserved to us; but their works are all lost. The poems which have come down to us under their names are manifest forgeries. The Iliad is founded on the legends of the war of Troy; the Odyssey, on the return of Odysseus (Ulysses). Various other poems, as the "Batrachomyomachia," or Battle of the Frogs and Mice, are attributed to Homer; but they evidently belong to a later period. The Homeric poems were made use of as models, and as a basis with which to connect their works, by a series of later poets, who are commonly known as the "cyclic," but of whose works only the titles, brief abstracts, and fragments, have been preserved. Hesiod, the next great epic poet after Homer, was a Bœotian, and is believed to have flourished about the middle of the 9th century before Christ. His principal poems are the *Works and Days*, the leading subject of which is the various occupations and duties of life in its several relations; and the *Theognia*, containing a history of the origin of the world and the genealogies of the gods. Lyric poetry arose on the decline of the epic, and was much cultivated from about B. C. 776 to the commencement of the Persian wars. The spirit of the times, and the various contests in which the different states were engaged, greatly favored this kind of poetry. Next to the gods, who were celebrated at their festivals with hymns, their country, with its heroes, was the leading subject of their song; and in everything there was a more powerful impulse towards meditation, investigation, and labor, for the attainment of a desired end than before. Among those who were distinguished in the field of lyric poetry, or in the improvement of music, history furnishes us with the names of Archilochus of Paros, inventor of the iambus; Tyrtæus of Miletus, author of war-songs; Callimachus of Ephesus, inventor of the elegiac measure; Alemon the Lydian; Arion of Methymna, who perfected the dithyrambus; Terpander of Antissa, inventor of the barbitos (a kind of lyre); the tender Sappho of Mitylene; her countryman Alcæus; Erinna, the contemporary of both; Mimnermus of Colophon, the flute-player; Stesichorus of Himera; Ibycus of Rhegium; Anacreon and Simonides of Ceos; Hipponax of Ephesus; Timocreon of Rhodes; Lasus of Hermionea; Corinna of Tanagra, the friend and instructress of Pindar. As gnomic writers, Theognis, Phocylides, and Pythagoras deserve to be named; and as a fabulist, Æsop. In the order of time, several of these belong to a later period, but they are properly placed here on account of the connection. The greatest of all the masters of lyric song, however, was Pindar, born at Cynoscephalæ, in Bœotia, in B. C. 522. Of his numerous compositions we have only the four series of Epinician odes, *i. e.*, odes written in commemoration of victories gained at the four national festivals, — the Olympic, Pythian, Nemean, and Isthmian. The earliest writers of prose were those who first engaged in philosophical speculations. Of their writings, however, only a few fragments have been preserved. Thales was the founder of the Ionic philosophy, to which belonged Pherecydes, Anaximander, Anaximenes, Anaxagoras, &c. Pythagoras established the Italian school, and was followed by Alcmæon, Timæus, Epicharmus, Theagenes, Archytas, and others. In history the Ionians took the lead. Cadmus, of Melitus, about 540 B. C., is the earliest; Acesilaus of Argos soon followed; then Pherecydes of Leros, Charon of Lampsacus, Hellanicus of Mitylene, Dionysius of Melitus, — all of whom preceded Herodotus, but are rather chroniclers than historians, in the strict sense of the term. The first great historian was Herodotus of Halicarnassus (484 B. C.), whose delightful work is still preserved, and well entitles him to the name of the "Father of History." The drama took its rise from the festivities with which the country people solemnized the gathering in of the vintage, and which were accompanied with songs and dances. By degrees, variety and some measure of art were given to these proceedings. The first direct step to the introduction of the drama was made by Thespis, and by Phrynichus, B. C. 536–511. Æschylus, the great perfecter of the tragic art, was born at Eleusis, 525 B. C. Sophocles and Euripides, the other great masters of Greek tragedy, flourished soon after Æschylus. Comedy was first brought into regular form by Epicharmus, who lived about 500 B. C. Cratinus, Crates, Phrynichus, and Eupolis, are well-known names in this field; but the greatest is Aristophanes, who flourished in the early part of the 5th century B. C. In what is termed the "old comedy," public and private characters were introduced by name; but subsequently it was forbidden by law to introduce any living person by name, and what is known as the "middle comedy" arose in consequence. The "new comedy" was a still further modification which comedy first assumed in the age of Alexander. The earliest writer of the new comedy was Philippides, who flourished 323 B. C.; and the two most celebrated of his successors were Philemon and Menander. The fertility and excellence of the Greek dramatic literature were most remarkable. The prose compositions that belong to this age were equally distinguished by their appropriate excellence. In history we have Thucydides, born 471 B. C., whose work on the Peloponnesian war is not only the first specimen of what has been called philosophical history, but remains unsurpassed down to the present time. The historical works of Xenophon, born 447 B. C., though not equal to that of Thucydides in vigor of coloring and depth of reflection, are yet adorned with every grace of narrative and description. In philosophy, to which the teachings of Socrates, born 468 B. C., gave a great impulse, we have the writings of Plato, born 428 B. C., and his pupil Aristotle, born 384 B. C. Plato was endowed with a brilliant imagination, and loved to soar into the highest regions of speculation; while Aristotle was a student and observer, practical results being the object of his investigations. He never entered the world of ideas with Plato, but everything he wrote embodied the results of careful and extensive observations, or comparison of observations. His works embrace the subjects of logic, rhetoric, physics, metaphysics, natural history, and politics. Plato founded the Academic school, whose point of reunion was the Academy, on the Cephissus, north of Athens. Aristotle established the Peripatetic school in the Lyceum, near the Ilissus, on the opposite side of the city. Public discussion was the general rule in the Gr. republic. Solon, Pisistratus, Miltiades, Aristides, Themistocles, and Pericles were orators as well as legislators, counsellors, and generals. Pericles was the first to cultivate the art, and to adorn his mind with the teachings of philosophy, and general literary culture. The first rhetorical school at Athens was opened by Georgias of Leontine. Other sophists and teachers of rhetoric were Protagoras, Prodicus, Hippias, &c. Among the Athenian orators whose works are extant, in whole or in part, are Antiphon, Andocides, Lysias, Isocrates, Lycurgus, Hyperides, Æschines, Demades, Demosthenes, and Dinarchus. Mathematics was now cultivated, and geography served to illustrate history. Astronomy is indebted to the Ionic school, arithmetic to the Italian, and geometry to the Academic school, for many discoveries. As mathematicians, Theodorus, of Cyrene, Meton, Enctemon, Archytas, of Tarentum, and Eudoxus, of Cnidus, were celebrated. Geography was particularly enriched by voyages of discovery, which were occasioned by commerce. The study of nature was likewise pursued by the philosophers; and the healing art, hitherto practised by the Æsculapiades in the temples, was raised to a distinct science by Hippocrates. After the death of Alexander, although literature still continued to be cultivated in Greece, yet, till the Roman conquest, the principal seat of letters and science was Alexandria; and this period is called the *Alexandrian age*. Its characteristics were erudition, criticism, and the study of science; and in poetry, the only original species was the bucolic or idyl. The principal poets were Bion of Smyrna, Theocritus, Aratus, Lycophron, Callimachus, and Marchus. Mathematics, astronomy, and geography made great progress during this period. During the Roman supremacy, and down to the introduction of Christianity, the principal poet was Nicander; the most important prose writers, Polybius, Apollodorus, Dionysius Thrax, Diodorus Siculus, Dionysius of Halicarnassus, and Dionysius Periegetes. From this period to the close of the Roman empire in the West, are two parallel series of writers, — the Pagan, and the Jewish and Christian. Of the former the more important are, Babrius, Strabo, Epictetus, Plutarch, Dion Chrysostomos, Arrian, Pausanias, Marcus Antoninus, Aristides, Lucian, Diogenes Laertius, Achilles Tatius, Dion Cassius, Athenæus Herodianus, Philostratus, Plotinus, Longinus Iamblichus; of the latter, Josephus Philo, the authors of the books of the New Testament, Clement of Rome, Justinus, Polycarp, Irenæus, Clemens of Alexandria, and Origen. From the establishment of the seat of government at Constantinople, A. D. 330, till the capture of that city by the Turks, A. D. 1453, the names in Greek literature are comparatively few. They comprise the series of authors known as the *Byzantine historians;* the ecclesiastical and other writers, Eusebius, Athanasius, Gregory Nazianzen, Epiphanius, Synosius, Socrates, Basilius, Georgius Pisides, Mulales, Georgius Syncellus, Nicephorus, Photius, Constantine Porphyrogenitus, Leo (Philosophus) Theodosius; the rhetoricians and grammarians; a few poets, as Moschus, Quintus of Smyrna, Colluthus, Agathas, and in the 12th century, Ptochoprodomus; the romance writers Longus, Xenophon of Ephesus, Heliodorus; the historians, as Zosimus, Procopius, Anna Comnena, Chalcocydylas, &c. After the capture of Constantinople, intellectual pursuits languished under the tyranny of the Turk. — Since the establishment of the Greek kingdom, literature has made great progress in Greece, chiefly in the department of education, in which the publications have been innumerable. Works of distinguished merit have signalized the names of Tricoupi, the Rangabes, Soutsos, Asopios, — the *History of Greek Literature*, by the latter, challenging a fair comparison with similar works in other countries.

Gree'ley, HORACE, an American journalist and author, B. at Amherst, N. H., in 1811. About 1825, his parents having removed to Vermont, Horace, who had always been a lover of books, obtained employment as an apprentice in a printing-office, and in Aug., 1831, arrived at New York, where he secured occasional work as a journeyman printer in various offices. In 1834, in partnership with Messrs. Winchester and Gibbett, *G.* started *The New Yorker*, a weekly literary journal, which, after several years' trial proving unprofitable, was abandoned, and in 1841 he commenced the publication of the *New York Tribune*, a journal which has been eminently successful. In 1848, *G.* was chosen to fill a vacancy in the 30th Congress, and served through the short time preceding Gen. Taylor's inauguration; in 1851 he visited Europe, and was chosen chairman of one of the juries of the Great Exhibition in London, and afterward published an account of his travels. *G.* was the author of a collection of addresses, essays, &c., published under the title of *Hints toward Reforms*, and of *A History of the Struggle for Slavery Extension or Restriction in the United States from 1787 to 1856*, published in 1856. He ardently supported the Union cause during the Civil War, of which he wrote a history entitled *The American Conflict*, published in 1864 and 1867. He afterward wrote his autobiography, under the title of *Recollections of a Busy Life*, which appeared in 1868. In 1872, *G.* was nominated by the Democratic party a candidate for the Presidency in opposition to Gen. Grant, but he failed to be elected. Died Nov. 29, in the same year.

Gree'ley, in *Colorado*, a post-town, cap. of Weld co., on 3 R. R. lines, 52 m. N. E. of Denver. *Pop.* (1897) 2,700.

Greeley, in *Kansas*, a post-village of Anderson co. *Pop.* (1895) 514.

Greek'-rose, *n.* The rose-campion.

Green, *a.* (*comp.* GREENER; *super.* GREENEST.) [A. S. *grene;* Low Ger., Dan., and Swed. *grön;* Du. *groen;* Ger. *grün.* The root is found in O. Ger. *grôên*, A. S. *growan*, to become green.] Having the color of growing plants; being of the color of herbage and plants when growing; verdant; of a color between blue and yellow; emerald.

—New; fresh; recent; vigorous; full of life; undecayed; as, a *green* old age.

"Our *green* youth copies what gray sinners act."—*Dryden.*

—Unripe; immature; as, *green* fruit, *green* geese, &c. — Half raw; not thoroughly roasted. — Immature in age or judgment; young; inexperienced; raw; awkward; ganche; as, a *green* hand, a *green* youth. —Wan; of a sickly, pale-green color; as, "the *green*-sickness." (*Garth.*) —Unseasoned; not dry; possessing its natural juices; as, *green* timber.

"Dry wood is more fragile than *green*."—*Bacon.*

—*n.* The color of growing herbage or plants; a hue betwixt green and yellow.—A grassy plat or plain; a piece of ground covered with grass or herbage; as, a bowling-*green*. "O'er the smooth enamell'd *green*." (*Milton.*)—Fresh leaves, wreaths, or branches of trees or verdure; —generally in the plural.

"The fragrant *greens* I seek, my brows to bind."—*Dryden.*

—*pl.* (*Cookery.*) The leaves and stems of young plants, dressed and prepared for food; green vegetables; as, bacon and *greens*.

G. colors. Green, one of the prismatic colors, produced by combination of blue and yellow rays, is very common in the vegetable kingdom, but very rare in the mineral. There is only one metal, copper, which affords in its combinations the various shades of green in general use. The other metals capable of producing this color are, chromium in its protoxide, nickel in its hydrated oxide, as well as its salts, the seleniate, arseniate, and sulphate; and titanium in its prussiate. *G.* pigments are prepared also by the mixture of yellows and blues; as, for example, the green of Rinman and of Gellert, obtained by the mixture of cobalt-blue and flowers of zinc: that of Barth, made with yellow lake, Prussian blue, and clay; but these paints seldom appear in the market, because the greens are generally extemporaneous preparations of the artists. *Mountain G.* consists of the hydrate, oxide, or carbonate of copper, either factitious, or as found in nature. *Bremen* or *Brunswick G.* is a mixture of carbonate of copper with chalk or lime, and sometimes a little magnesia or ammonia. It is improved by an admixture of white lead. It may be prepared by adding ammonia to a mixed solution of sulphate of copper and alum. *Frise G.* is prepared with sulphate of copper and sal-ammoniac. *Mittis G.* is an arseniate of copper, made by mixing a solution of acetate or sulphate of copper with arsenite of potash. It is, in fact, Scheele's *G. Sap G.* is the inspissated juice of buckthorn-berries. These are allowed to ferment for 8 days in a tub, then put in a press, adding a little alum to the juice, and concentrated by gentle evaporation. It is lastly put up in pigs' bladders, where it becomes dry and hard. *Schweinfurt G.*: see SCHWEINFURT. *Verona G.* is merely a variety of the mineral called green earth.

Green, in *Illinois*, a flourishing township of Woodford county.

Green, in *Indiana*, a township of Grant co.

—A township of Hancock co.

—A township of Marshall co.

—A township of Noble co.

—A township of Wayne co.

Green, in *Michigan*, a township of Mccosta co.

—A township of Alpena co.

Green, in *Missouri*, a township of Platte co.

Green, in *Ohio*, a township of Mahoning co.

—A township of Scioto co.

—A township of Summit co.

Green, in *Wisconsin*, a S. county, bordering on Illinois; *area*, abt. 576 sq. miles. *Rivers.* Pekatonica and Sugar rivers. *Surface*, broken and hilly; *soil*, fertile. *Min.* Lead and limestone. *Cap.* Monroe. *Pop.* (1895) 23,420.

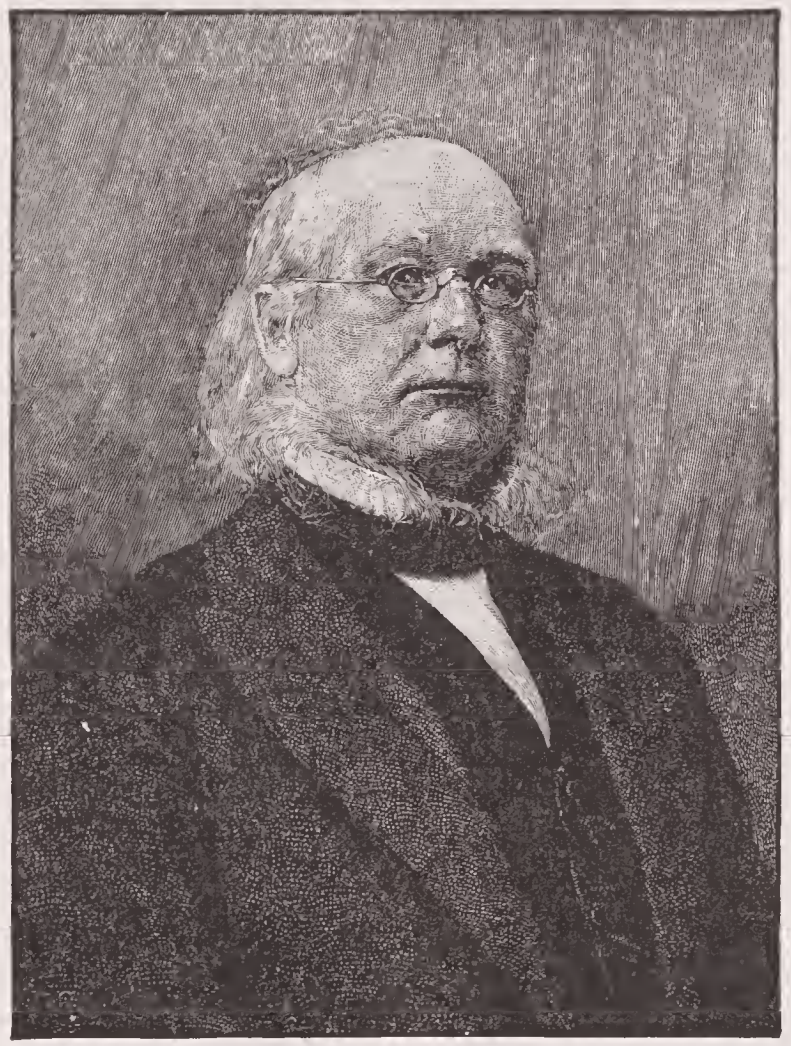
Green'back, *n.* A name which, from its color, was popularly given to the paper-money first issued by the United States Government in 1862.

Green'backville, in *Virginia*, a post-town of Accomac county.

Green Bank, in *Pennsylvania*, a P. O. of Lancaster co.

Green Bank, in *New Jersey*, a post-village of Burlington co., on the Mullica river, about 35 m. S. S. E. of Mt. Holly.

Green Bay, in *Iowa*, a post-township of Clarke county.



Horace Greeley

1811–1872

Green Bay, in *Alabama*, a post-office of Covington co.
Green Bay, in *Michigan* and *Wisconsin*, a considerable arm of Lake Michigan. It receives numerous rivers besides the surplus waters of Winnebago lake by the Fox river, and extends from Brown co., in Wisconsin, to Delta co., in Michigan. It is 100 miles long and averages 25 miles in width. Its depth is said to exceed 500 feet.
Green Bay, in *Virginia*, a P. O. of Prince Edward co.
Green Bay, in *Wisconsin*, an important city, cap. of Brown co., at the mouth of Fox river, and at the S.W. extremity of Green bay, about 113 miles N. of Milwaukee; has very extensive manufs., including several breweries, saw mills which produce upwards of 150,000,000 feet of lumber yearly, cooperage works, flour and planing mills, cigar factories, etc. Being located on one of the best harbors of the Great Lakes, this city, enjoys a large and increasing shipping trade. *Pop.* (1895) 18,290.
Green'bone, *n.* (*Ichth.*) See GARFISH.
Green'borough, in *New York*, a post-village of Oswego co., about 170 miles W.N.W. of Albany.
Green'-brier, *n.* (*Bot.*) See SMILAX.
Greenbrier, in *Ohio*, a post-office of Monroe co.
Greenbrier, in *Pennsylvania*, a post-office of Northumberland co.
Greenbrier, in *Tennessee*, a post-village of Robertson co.
Greenbrier, in *West Virginia*, a S.E. co., bordering on Virginia; *area*, about 1,050 sq. miles. *Rivers.* Greenbrier river, and some smaller streams. *Surface*, diversified by mountains and valleys; *soil*, fertile. *Cap.* Lewisburg. *Pop.* (1890) 18,034.
Greenbrier Mountain, in *West Virginia*, a spur of the Alleghenies, in Greenbriar and Pocahontas cos. Height, over 2,000 feet.
Greenbrier River, in *West Virginia*, rises in the N. part of Pocahontas co., and, flowing a general S.W. course through Greenbrier co., enters the Kanawha river, about 35 miles above Fayetteville. The mouth is 1,333 ft., and the source about 1,500 ft. above sea level.
Green'-broom, Greenweed, *n.* (*Bot.*) The *Genista tinctoria*. See GENISTA.
Green'burg, in *New York*, a township of Westchester co., on the Hudson river, about 130 miles S. of Albany.
Green'bush, in *Georgia*, a post-office of Walker co.
Greenbush, in *Illinois*, a post-village and township of Warren co., 87 miles N.W. of Springfield.
Greenbush, in *Iowa*, a village of Warren co., about 10 miles from Des Moines.
Greenbush, in *Maine*, a post-town of Penobscot co. *Pop.* (1897) about 670.
Greenbush, in *Michigan*, a township of Clinton co.
Greenbush, in *New York*, one of a cluster of picturesque villages in Rensselaer co., on the E. bank of the Hudson river, opposite Albany, and collectively termed East Albany; the P. O. is a branch of that of Albany. *Pop.* (1897) about 8,000.
Greenbush, in *Ohio*, a village of Brown co., about 90 miles S.S.W. of Columbus.
—A post-village of Preble co., 20 miles S. W. of Dayton.
Greenbush, in *Wisconsin*, a post-village of Sheboygan co., about 2 miles E. of Fond du Lac.
Green Camp, in *Ohio*, a post-village and township of Marion co.
Green'castle, a fort and harbor of Ireland on the coast of Donegal, Ulster, about 4 miles N.E. of Moville. It is a considerable fishing station.
Greencastle, in *Indiana*, a city, cap. of Putnam co., on 3 railroad lines, 32 miles W.S.W. of Indianapolis. Seat of De Pauw University. Has extensive manuf. of lightning-rods, carriages, pumps, lumber, &c.; there are stone quarries near by; shipments are largely grain and live stock. *Pop.* (1895) 4,390.
Greencastle, in *Iowa*, a post-office in Jasper co.
—A township of Marshall co.
Greencastle, in *Kentucky*, a post-office of Warren co.
Greencastle, in *Missouri*, a post-town of Sullivan co., about 16 miles N. E. of Milan. The railroad station is CASTLE, on the Q., O. & K. C. R. R.
Greencastle, in *Ohio*, a post-office of Fairfield co.
Greencastle, in *Pennsylvania*, a post-borough of Franklin co., 11 miles S.W. of Chambersburg. *Pop.* (1897) about 1,850.
Green Cove Springs, in *Florida*, a post-town, cap. of Clay co. *Pop.* (1897) about 1,200.
Green Creek, in *Ohio*, enters the Sandusky river in Sandusky co.
—A township of Sandusky co.
Green Creek, in *New Jersey*, a P. O. of Cape May co.
Green'-crop, *n.* A crop of green vegetables, such as artificial grasses, mangold-wurzel, turnips, etc.
Green'dale, in *Illinois*, a village of Marion co., about 82 miles E. of St. Louis, Mo.
Greendale, in *Pennsylvania*, a P. O. of Armstrong co.
Greene, in *Alabama*, a W. central co.; *area*, about 544 sq. m. *Rivers.* Black Warrior and Tombigbee rivers. *Surface*, generally level; *soil*, fertile. It is one of the richest and most populous counties in the state. *Cap.* Eutaw. *Pop.* (1890) 22,007.
Greene, NATHANIEL, an American revolutionary general, born at Potowhommet, Warwick co., R. I., in 1742. His father was a preacher in the Society of Friends. Young *G.*'s school-education was of the simplest and most limited character; but by his own industry he soon acquired a tolerable knowledge of the principal branches of an English education, including history and mathematics. He made some progress in the study of law; he also early evinced a decided predilection for books treating on the art of war. On the commencement of the troubles between the colonies and Great Britain, he volunteered as a private (1774); but the following year he was chosen, by the Assembly of Rhode Island, general of the contingent furnished by that colony to the army near Boston. He was made major-general in the Continental army in 1776, and accompanied Washington on his brilliant expedition into New Jersey near the close of the same year. He performed a prominent part in the disastrous battle of Germantown (1777) on which occasion his courage and skill did much toward retrieving the reputation of the American arms. In 1778 he was appointed quartermaster-general, and for more than two years he fulfilled the duties of that position with faithfulness and ability. After the defeat of Gen. Gates (1780) at the battle of Camden, S. C., *G.* was appointed to the command of the southern army, which he found demoralized, and in a state of utter destitution. His presence, however, soon restored the confidence of the troops. Through his skilful strategy, even his reverses produced the fruits of victory. In March, 1781, he was defeated by Lord Cornwallis in the hard-fought battle of Guilford Court House, but the English general derived no permanent advantages from this success. Cornwallis having retreated into Virginia, *G.* defeated, after a severe action (September, 1781), the forces of Col. Stewart at Eutaw Springs, and thereby put an end to the British power in South Carolina. This was the last battle in which Gen. *G.* was engaged, although he held his command till the end of the war. He died from the effect of a sunstroke at Mulberry Grove on the Savannah River, in 1786. He is admitted by universal consent to have been, among the American generals, second only to Washington in military talents, and in the important services which he rendered to his country.



Fig. 1199.—NATHANIEL GREENE.

Greene, GEORGE WASHINGTON, grandson of the above, a writer and historian, born in Rhode Island, 1800. His best known works are; *Historical Studies* (1850); *Biographical Sketches* (1860); *Historical View of the American Revolution* (1865); *Life of Nathaniel Greene* (1867); *History of Rhode Island* (1877). Was U. S. Consul at Rome (1837-45); professor of History at Cornell University (1872). Died in 1883.
Greene, in *Arkansas*, a N.N.E. co., bordering on Missouri; *area*, about 591 sq. m. *Rivers.* Cache, St. Francis, and Anguille rivers. *Surface*, generally level; *soil*, fertile. *Cap.* Paragould. *Pop.* (1897) about 15,000.
Greene, in *Georgia*, a N.E. central co.; *area*, about 361 sq. m. *Rivers.* Oconee, Ogeechee, and Appalachee rivers. *Surface*, hilly; *soil*, not very fertile. *Cap.* Greensborough. *Pop.* (1890) 17,051.
Greene, in *Illinois*, a W. co., *area*, about 544 sq. miles. *Rivers.* Illinois river, and Macoupin and Apple creeks. *Surface*, generally level; *soil*, fertile. *Capital*, Carrollton. *Pop.* (1890) 23,791.
Greene, in *Indiana*, a S.W. co; *area*, about 540 sq. m. *Rivers.* West Fork of White River, and some smaller streams. *Surface*, diversified; *soil*, fertile. *Min.* Iron ore, and bituminous coal in abundance. *Cap.* Bloomfield. *Pop.* (1890) 24,379.
—A post-township of Jay co.
—A township of Madison co.
—A township of Morgan co.
—A township of Park co.
Greene, in *Iowa*, a W. central co. *area.* 576 sq. miles. *Rivers.* Racoon, and several smaller streams. *Surface*, undulating; *soil*, fertile. *Cap.* Jefferson. *Pop.* (1895) 16,299.
Greene, in *Kentucky*, a central co.; *area*, abt, 275 sq. m. *Rivers.* Green river and Barren Fork, Russell's, Robinson's, and Meadow creeks. *Surface*, undulating; *soil*, fertile. *Cap.* Greensburg. *Pop.* (1890) 11,463.
Greene, in *Maine*, a post-town of Androscoggin co., on Androscoggin river, abt. 41 m. N. by E. of Portland. *Pop.* (1897) about 900.
Greene, in *Mississippi*, an S.E. co., bordering on Alabama; *area*, about 820 sq. m. *Rivers.* Chickasawha and Leaf rivers. *Surface*, level; *soil*, not very fertile. *Cap.* Leakesville. *Pop.* (1890) 3,906.
Greene, in *Missouri*, a S. W. co.; *area*, about 688 sq. m. *Rivers.* Niangua, Pomme de Terre, James and Sac rivers, and Finley creek. *Surface*, generally level; *soil*, fertile. *Min.* Lead and limestone. *Cap.* Springfield. *Pop.* (1897) about 52,000.
—A village of Bollinger co.
Greene, in *New Jersey*, a township of Sussex co.
Greene, in *New York*, an S.E. co.; *area*, about 660 sq. m. *Rivers.* Hudson and Schoharie rivers, and Catskill and other smaller creeks. *Surface*, broken and mountainous, the Catskill mountains traversing its whole length; *soil*, fertile in the valleys. *Cap.* Catskill. *Pop.* (1890) 31,598.
—A post-village and township of Chenango co., on the Chenango river, about 56 miles S.S.E. of Syracuse. *Pop.* (1897) about 1,170.
Greene, in *North Carolina*, an E. central co.; *area*, abt. 310 sq. m. *Rivers.* Contentny creek, and some smaller streams. *Surface*, level; *soil*, fertile. *Cap.* Snow Hill. *Pop.* (1890) 10,039.
Greene, in *Ohio*, a S.W. co.; *area*, about 416 sq. m. *Rivers.* Mad and Little Miami rivers, and Cæsar's and Massey's creeks. *Surface*, level; *soil*, very fertile. *Cap.* Xenia. *Pop.* (1897) about 30,000.
—A township of Ashland co.
—A township of Clark co.
—A township of Harrison co.
—A township of Hocking co.
—A village of Licking co.
—A township of Monroe co.
—A township of Ross co.
—A township of Shelby co.
—A township of Trumbull co.
—A township of Wayne co.
Greene, in *Pennsylvania*, a S.W. co., bordering on W. Virginia; *area*, about 640 sq. m. *Rivers.* Monongahela river, and Wheeling, Dunkard's and Ten Mile creeks. *Surface*, broken and hilly; *soil*, fertile. *Min.* Bituminous coal in abundance. *Cap.* Waynesburg. *Pop.* (1890) 28,935.
—A township of Beaver co.
—A township of Clinton co.
—A township of Erie co.
—A township of Franklin co.
—A township of Greene co.
—A township of Indiana co.
—A post-village of Lancaster co.
—A township of Mercer co.
—A township of Pike co.
Greene, in *Rhode Island*, a post-office of Kent co.
Greene, in *Tennessee*, an E. co., bordering on North Carolina; *area*, about 588 sq. m. *Rivers.* French, Broad, and Nolachucky rivers. *Surface*, much diversified; *soil*, fertile. *Min.* Iron in abundance. *Cap.* Greenville. *Pop.* (1890) 26,614.
Greene, in *Virginia*, a N. central co.; *area*, about 200 sq. m. *Rivers.* Rapidan river and other smaller streams. *Surface*, diversified; *soil*, fertile. *County-town*, Stanardsville. *Pop.* (1890) 5,622.
Green'-earth, *n.* (*Min.*) Same as SELADONITE (*q.v.*).
Green'ery, *n.* Verdure; green herbage or plants.
Green'-eyed (-īd), *a.* Having green eyes;—hence, jealous, suspicious.

"Beware, my lord, of jealousy; it is the *green-eyed* monster." *Shaks.*

Green'field, in *Arkansas*, a village of Craighead co., about 60 miles E. by N. of Batesville.
Greenfield, or **Greenfield Hill,** in *Connecticut*, a village of Fairfield co., about 56 miles N.E. of New York.—See FAIRFIELD.
Greenfield, in *Georgia*, a village of Colquitt co.
Greenfield, in *Illinois*, a city of Greene co., on C., B. & Q. R. R., 30 miles S. of Jacksonville; in a farming and grazing region. *Pop.* (1897) about 1,450.
—A village of Grundy co.
Greenfield, in *Indiana*, a city, cap. of Hancock co., on the P., C., C. & St. L. R. R., 21 miles E. of Indianapolis; has rolling mill and other manuf., and a good local trade. *Pop.* (1897) about 4,500.
—A township of Lagrange co.
—A township of Orange co.
Greenfield, in *Iowa*, a post-township of Adair co.
—A township of Jones co.
—A township of Warren co.
Greenfield, in *Kansas*, a township of Elk co.
Greenfield, in *Maine*, a post-township of Penobscot co.
Greenfield, in *Massachusetts*, a post-town and township, cap. of Franklin co., between the Green and Connecticut rivers, about 100 m. W.N.W. of Boston. The village is well laid out and contains some handsome and substantial public buildings. *Manuf.* Cassimeres, tools, &c. *Pop.* (1895) 6,229.
Greenfield, in *Michigan*, a post-township of Wayne co.
Greenfield, in *Minnesota*, a township of Wabasha co.
Greenfield, in *Missouri*, a city, cap. of Dade co., on the W. fork of the Sac river, about 24 miles W.N.W. of Springfield. *Pop.* (1897) about 1,000.
Greenfield, in *Nevada*, an unimportant village of Esmeralda co.
Greenfield, in *New Hampshire*, a post-township of Hillsborough co. *Pop.* (1890) 607.
Greenfield, in *New York*, a township of Saratoga co.
—A post-office of Ulster co.
Greenfield, in *Ohio*, a township of Fairfield co.
—A township of Gallia co.
—An important manufacturing town of Highland co., on B. & O. and Ohio So. R. Rs., 24 miles W. of Chillicothe. *Pop.* (1897) about 2,840.
—A township of Huron co.
Greenfield, in *Pennsylvania*, a post-township of Erie co.
—A township of Lackawanna co.
—A village of Mercer co. about 5 miles N.E. of West Middlesex.
—A borough of Washington co.
Greenfield, in *Tennessee*, a post-village of Weakley co. *Pop.* (1897) about 950.
Greenfield, in *Virginia*, a post-village of Nelson co., about 90 miles W.N.W. of Richmond.
Greenfield, in *Wisconsin*, a township of Lacrosse co.
—A township of Milwaukee co.
—A township of Monroe co.
—A township of Sauk co.
Greenfield Centre, in *New York*, a post-village of Saratoga co., about 37 miles N. by W. of Albany.
Greenfield Landing, in *Missouri*, a village of Mississippi co.
Greenfield Mills, in *Indiana*, a post-office of La Grange co.
Greenfinch, *n.* (*Ornith.*) A European bird of the fam. *Fringillidæ*, a species of Grosbeak, very common to Eng-

land, where it is also called the Green Linnet, and Green Grosbeak. It imitates the songs of other birds.

Green Fire, *n.* (*Chem.*) Combustion attended with a green flame. The following compound will burn with a beautiful green light: 10 grains chlorate of baryta, mixed with 10 grs. of nitrate of baryta in a mortar, and then with 12 grs. of sulphur on paper. The compound should not be kept, as it is liable to spontaneous combustion.

Green'ford, or GREEN VILLAGE, in *Ohio*, a post-village of Mahoning county, about 158 miles N.E. of Columbus.

Green'gage, *n.* A choice variety of plum, having a green pulp in its ripe state.

Green Gar'den, in *Illinois*, a post-township of Will co.

Green Gar'den, in *Pennsylvania*, a post-office of Beaver co.

Green'-groeer, *n.* A vender of green vegetables and fruits.

Green Grove, in *Kentucky*, a P. O. of Cumberland co.

Green Grove, in *Penna.*, a P. O. of Lackawanna co.

Green'-hand, *n.* One who is raw and inexperienced; a green-horn; as, he is a *green-hand* at the work.

Green Ha'ven, in *New York*, a P. O. of Dutchess co.

Green Heart, *n.* (*Bot.*) See NECTANDRA.

Green Hill, in *Georgia*, a post-office of Stewart co.

Green Hill, in *Missouri*, a village of Montgomery co.

Green Hill, in *North Carolina*, a P. O. of Rutherford co.

Green Hill, in *Ohio*, a post-office of Columbiana co.

Green Hill, in *Tennessee*, a post-office of Wilson co.

Green Hill, in *West Virginia*, a P. O. of Wetzel co.

Green'hood, *n.* A state of greenness or immaturity.

Green'-horn, *n.* A raw, inexperienced person; one who is new to the world and its ways.—A newly-arrived immigrant in the U. States. (Vulgar.)

Green'-house, *n.* (*Hort.*) A building appropriated to the cultivation of such exotic plants as do not require much artificial heat, but cannot endure the open air, at least in the colder part of the year. As a green-house does not require artificial heat during summer, the roof is sometimes made capable of being then removed; more generally, many of the plants are carried out into the open garden. Air is freely admitted into the *G.-H.* in fine weather, even in winter, during the warmest part of the day, care being taken that the plants are not exposed to frost, nor to ungenial and chilling winds. *G.-H.* are sometimes appropriated chiefly to particular genera of plants, under such names as *Heathery*, *Camellia-house*, &c. According to the present use of the term, a *G.-H.* differs from a *conservatory* only in the plants being in pots, which are very generally placed on the shelves of *stages*, having a slope not very different from that of the roof.

Green'ing, *n.* A sort of green apple.

Green Iron Ore, *n.* (*Min.*) Same as DUFRENITE, *q. v.*

Green'ish, *a.* Somewhat green; having a tinge or tint of green; as, "*greenish* locks."—*Spenser.*

Green'ishness, *n.* State or quality of being greenish.

Green Isl'and, a small island of British N. America, in Hudson's Strait, abt. 100 m. N.W. of Cape Chudleigh.

Green Isl'and, an island of Lower Canada, in the St. Lawrence River, abt. 115 m. below Quebec.

Green Isl'and, an island of Jamaica, W. Indies, abt. 8 m. S.W. of Lucea.

Green Isl'and, in *Alaska*, a small island in Prince William Sound.

Green Isl'and, in *Iowa*, a post-office of Jackson co.

Green Kay. See CAYO VERDE.

Green Lake, in *Minnesota*, a post-office of Kandiyohi co.

Green Lake, in *Wisconsin*, a lake in Green Lake co. It covers an area of 16 sq. m.

—A central county; *area*, about 360 sq. m. *Rivers.* Fox, Grand, and White rivers, besides Green and Pecawa lakes. *Surface*, undulating; *soil*, very fertile. *Cap.* Dartford. *Pop.* (1895) 15,939.

—A post-village and flourishing township of Green Lake co.

Green'land, an extensive country of N.E. America, to the N. of Davis's Straits. It is the most northern land of the western hemisphere. On the W. it is bounded by Davis's Straits and Baffin's Bay; on the N. by some unknown ocean, or by the north pole; on the E. by the Arctic Ocean; and on the S.E. by the Atlantic Ocean.—GEN. DESC. High, rocky, and sterile. A central ridge of lofty mountains, covered with perpetual snow, stretches from N. to S., and divides it into E. and W. Greenland. The coasts are surrounded by many thousand islands of different sizes, on which the inhabitants frequently fix their residence, on account of their good situation for sea-game. In the inlets and bays which intersect the coast, immense masses of ice are accumulated during a series of years, which, being loosened during the heat of summer, lose their points of support from the shore, and being set adrift by the currents, embarrass the navigation of the polar seas, and become the terror of the mariner. These masses of ice are formed both of fresh and salt water, and sometimes rise more than 500 feet above the surface of the water. *Climate.* Owing to its northern position, *G.* is exposed to all the rigors of the frozen zone. During summer, the heat, particularly in the islets, is very great; insomuch that, in the month of July, Fahrenheit's thermometer sometimes rises to 84° in the shade. *Zoöl.* The animals which are most abundant are white hares, reindeer, dogs resembling wolves, Arctic foxes, and white bears, which are very fierce and mischievous. Ravens are plentiful, and eagles of a very large size, falcons, with other birds of prey. The seas abound in whales, seals of different kinds, sea-cows, sword-fish, porpoises, halibut, turbot, cod, haddock, with various other sorts of white fish. *Inhab.* The Greenlanders, or Esquimaux, of both sexes are frequently short, but often of full stature, and well proportioned, fat, and plump. They seem allied to the Mongolian race, and are often impoverished, depending on hunting and fishing for their subsistence. In their houses and manner of living they have the general habits of savages. In the S. they grow a little corn, some potatoes and kitchen herbs. *Pop.*, including Danes (1897) 9,750. Lat. between 59° 49′ and 78° N.; Lon. between 20° and 75° W.—*G.* was first discovered by a Norwegian, between the 8th and 9th century. A colony was established, which continued to increase and thrive; and in a short time the country contained 12 parishes, 190 villages, 1 bishop's see, and 2 convents, under the jurisdiction of the archbishop of Drontheim. A colony had also been settled in Western *G.*, which maintained a regular intercourse with Europe, and increased to four parishes containing 100 villages. The first-named colony was called the "Eastern," though both are now known to have been on the west coast. During the fifteenth century these colonies were depopulated by a plague called the "black death," together with the hostile attacks of the natives and a visit from a marauding fleet, said to have been British. Davis re-discovered the country in 1587, and the Danes re-established communication with the lost colonies. The commerce of *G.* is principally carried on with Denmark, to which it belongs, and consists mostly of seal and whale oils, kryolite, and eider-down. The recent explorations in *G.* of Nordenskjöld, Greely, Nansen, Peary, and others prove that the whole interior of *G.* is an icy desert, with no open water, and with elevations reaching 7,000 feet above the sea. See ARCTIC EXPLORATIONS; NANSEN; PEARY, &c.

Green'land, in *West Virginia*, a P. O. of Grant co.

Green'landite, *n.* (*Min.*) A black, brittle mineral, containing the columbate and tantalate of iron and manganese. *Sp. gr.* 5·4–6·5.

Green Lead Ore, *n.* (*Min.*) Same as PYROMORPHITE (*q. v.*).

Green'leaf, in *Minnesota*, a post-township of Meeker co.

Green'ly, *adv.* With a green or greenish color; newly; freshly; immaturely.

—*a.* Of a green color.

Green Mount, in *Pennsylvania*, a P. O. of Adams co.

Green'mount, in *Virginia*, a P. O. of Rockingham co.

Green Mountain, in *Pennsylvania*, a spur of the Blue Mountains in the S. part of Schuylkill co.

Green Mountains, a considerable mountain range commencing in Hartford co., Connecticut, and extending N. through Massachusetts and Vermont into Lower Canada. *Length*, abt. 240 m. Their greatest elevation is in Vermont, where Mount Mansfield, or North Peak, rises to a height of 4,389 ft. Connell's Peak, Shrewsbury Mountain, Mansfield, South Peak, Killington Peak, and some others, reach abt. 4,000 ft. The *G. M.* are the northern portion of the Appalachian chain, but they neither possess in so marked a degree the features of uniformity of elevation and parallelism of its ridges that characterizes the same chain further S., nor have they the abruptness and precipitous outlines of the granite summits of the White Mountains of New Hampshire. Its geological formation are the metamorphic slates, gneiss, quartz rock, limestone, &c., of the Laurentian epoch, the general range of which is abt. N. 15° E., with a prevailing dip of 30° to 55°. These give a smooth outline to the surface of the hills; and though the soil they produce is not generally fertile, the slopes are covered on the disappearance of the snow in spring with fine pastures of rich green grass, which may have given to the mountains their name, though this is commonly referred to the growth of evergreen forest-trees, as the hemlock, balsam, fir, spruce, pine, cedar, &c., which abound upon the poorest land and along the margin of the streams.

Green'ness, *n.* Quality of being green; viridity; verdancy; as, the *greenness* of a meadow.—Immaturity; unripeness; as, the *greenness* of fruit. "This prince's errors were excused by the *greenness* of his youth."—(*Sidney.*)—Freshness; vigor; newness.

"The picture of a man in the *greenness* and vivacity of his youth. *South.*

Green Oak, in *Indiana*, a post-office of Fulton co.

Green Oak, in *Michigan*, a post-township of Livingston co.

Green'ock, a town and sea-port of Renfrewshire, Scotland, on the Frith of Clyde, 19 m. N.W. of Glasgow. *Manuf.* Candles, soap, pottery, glass, sugar-refining, rope-making, canvas, &c. *G.* has a spacious and commodious harbor, and iron shipbuilding is largely carried on. *Pop.* (1895) 64,388.

Green'ock, in *Arkansas*, a village of Crittenden co., on the Mississippi River, abt. 135 m. E.N.E. of Little Rock.

Green'ockite, *n.* (*Min.*) Sulphuret of cadmium. Crystals hexagonal. Color various shades of yellow. Nearly transparent. *Sp. gr.* 4·8. *Comp.* Sulphur 22·3, cadmium 77·7. Occurs at Bishoptown, Scotland, and the Ueberoth zinc-mine near Friedensville, Pa.

Greenore', a promontory of Ireland, in the co. of Wexford, at the entrance of Wexford harbor.

Greenore, a promontory and light-house of Ireland, on the coast of co. Louth, abt. 2 m. S.E. of Carlingford

Green'ough, HORATIO, an American sculptor, was a native of Boston, U. S. He was born in 1803, and after completing his education, went to study sculpture at Rome, where his first commission was from Fenimore Cooper, for whom he executed his *Chanting Cherubs*, the first original group from the chisel of an American sculptor. He afterward visited Paris, and then settled at Florence. He executed, under a government commission, a colossal statue of Washington, and a large group entitled *The Rescue.* He also made many portrait-busts, among them one of Lafayette, and numerous monuments. Died in 1852.

Green'ovite, *n.* (*Min.*) A variety of Titanite (*q. v.*), of a red or rose-red color from the presence of manganese.

Green Park, in *Pennsylvania*, a P. O. of Perry co.

Green'plain, in *Virginia*, a P. O. of Greeneville co.

Green Point, in *New York*, a former post-village of Kings co., on Long Island, just N. of Williamsburgh; now the 17th Ward of Brooklyn and part of Greater New York.

Green Pond, in *South Carolina*, a post-village of Colleton co.

Green'port, in *New York*, a township of Columbia co.

—A post-village and port of entry of Suffolk county, on Long Island, about 95 m. E. by N. of New York City. The village is well built, upon one of the best harbors of the coast, and commands a considerable trade. *Pop.* (1897) about 2,400.

Green Prairie, in *Minnesota*, a P. O. of Morrison co.

Green Ridge, in *Missouri*, a post-office of Pettis co.

Green Ridge, in *New York*, a P. O. of Richmond co.

Green River, in *Idaho*, *Wyoming* and *Utah*, rises in Oneida co. in the former State, and flowing S.E. into Utah, it crosses the N.E. corner of Green River co., and enters Wyoming; thence into Utah again, it turns to the S.E. and S., and traversing Wasatch, San Pete, and Beaver cos., joins the Grand river in Iron co., to form the Colorado river, of which it is the largest branch.

Green River, in *Illinois*, enters Rock river in Henry co.

—A post-village of Henry co., about 70 m. N.W. of Peoria.

Green River, in *Kentucky*, rises in Lincoln co., and flowing a general S.W., W., and N. course through Casey, Adair, Greene, Hart, Edmondson, Butler, Ohio, Muhlenburg, McLean, and Webster cos., enters the Ohio river in Henderson co. *Length*, about 300 m. It passes the Mammouth Cave in Edmondson co., and receives the Big Barren river in Butler co. At Tebb's Bend, on this river, a smart action of several hours took place, July 4, 1863, between a body of Confederate raiders under Morgan, the famous cavalry leader, and about 200 Michigan troops under Col. Moore, in which the former were repulsed with a loss of more than 200 killed and wounded. Moore, being intrenched, lost only 6 killed and 23 wounded.

Green River, in *New York*, a P. O. of Columbia co.

Green River, in *Vermont* and *Massachusetts*, rises in Windham co., of the former State, and flowing S. into Franklin co., Massachusetts, enters the Deerfield river about the center of the co.

—A post-office of Windham co.

Green River, in *Wyoming*, a post-village, cap. of Sweetwater co.

Green'-room, *n.* In a theatre, the retiring room allotted to the company of performers.

Green'sand, *n.* (*Geol.*) The name given to certain deposits, generally of the cretaceous period, and deriving its name from the presence of green particles of silicate of iron. They contain also soda, potash, and small quantities of phosphate of lime. It is commonly called *marl*, and is used extensively as a fertilizer.

Greens'borough, in *Alabama*, a post-village, cap. of Hale co., on Southern R.R., 50 m. W.N.W. of Selma. Seat of Southern University (Methodist). *Pop.* (1897) about 1,800.

Greensborough, in *Arkansas*, a post-office of Craighead co.

Greensborough, in *Georgia*, a city, cap. of Greene co., on Ga. R.R., 84 m. W. of Augusta. *Pop.* (1897) 1,436.

Greensborough, in *Indiana*, a post-village and township of Henry co., on Blue river, about 36 m. E. by N. of Indianapolis.

Greensborough, in *Maryland*, a post-village of Caroline co., about 60 m. E. of Annapolis. *Pop.* 902.

Greensborough, in *Mississippi*, a village of Webster co.

Greensborough, in *North Carolina*, a thriving city, cap. of Guilford co., on Southern R.R., 48 m. S.W. of Danville, Va. Has large iron and steel works; iron ore abundant in vicinity. *Pop.* (1897) about 4,500.

Greensborough, in *Pennsylvania*, a post-borough of Greene co., on the Monongahela river, about 20 m. S.E. of Waynesburg. *Pop.* (1897) about 500.

Greenborough, in *Vermont*, a post-township of Orleans co. *Pop.* (1890) 918.

Greensburg, in *Indiana*, a city, cap. of Decatur co., on C., C., C. & St. L. R.R., 47 m. S.E. of Indianapolis. *Pop.* (1897) about 4,000.

Greensburg, in *Kentucky*, a post village, cap. of Greene co., on Green river, about 85 m. S.S.W. of Frankfort. *Pop.* 552.

Greensburg, in *Louisiana*, a post-village, cap. of St. Helena parish, near Tickfaw river, about 40 m. N.E. of Baton Rouge.

Greensburg, in *Missouri*, a post-village and township of Knox co., about 10 m. N. of Edina.

Greensburg, in *New Jersey*, a former name of WILBURTHA, a post-office of Mercer co.

Greensburg, in *Ohio*, a township of Putnam co.

—A village of Summit co.

—A post-village of Trumbull co., about 185 m. N.E. of Columbus.

Greensburg, in *Pennsylvania*, a post-borough, cap. of Westmoreland co., on Penna. R.R., 31 m. E. of Pittsburg. In a coal-mining, coke, and natural gas region; has important local manufactures and a good general trade. *Pop.* (1897) about 5,000.

Greens'burg, in *W. Virginia*, a village of Berkeley co.
Greensburg Cross Roads, in *Ohio*, a village of Sandusky co.
Green'shank, *n.* (*Zoöl.*) See TOTANUS.
Green-sickness, *n.* (*Path.*) See CHLOROSIS.
Green'-stall, *n.* A green-grocer's stall for the retailing of fresh vegetables, fruit, &c.
Green'-stone, *n.* (*Min.*) A variety of trap-rock, composed of feldspar and hornblende, and having generally a greenish color, hence its name. It has a more or less compact structure—the component crystals in one specimen being scarcely discernible with a pocket lens, while in another they form a course aggregated, and specimens exhibiting all the intermediate stages may be found. In the finest they are not so small and compact as in basalt. Its crystalline structure separates greenstone equally from the earthy tufas and the glassy pitchstones. It may become porphyritic from a portion of the feldspar forming into larger distinct crystals. In weathering, the disintegrating greenstone assumes a dark-brown color, and exfoliates round limited centers, giving the rock an appearance as if it were composed of a number of large boulders.
Green's Corners, in *New York*, a village of Oneida co., about 19 m. N. of Utica.
Green's Farms, in *Connecticut*, a village of Fairfield co., about 54 m. N.E. of New York.
Green's Fork, in *Indiana*, a township of Raudolph co.
—A post-office of Wayne co.
Green's Land'ing, in *Maine*, a P. O. of Hancock co.
Greens'pond, an island and village of Newfoundland, in Bonavista bay, about 30 m N.W. of Bonavista.
Greens'port, in *Alabama*, a post-village of St. Clair co., on the Coosa river, about 120 m. N. of Montgomery.
Green Spring, in *Del.*, a post-town of New Castle co.
Green Spring, in *Ohio*, a post-village of Seneca co.
Green Spring, in *West Virginia*, a post-office of Hampshire co.
Green Spring Furnace, in *Maryland*, a post-office of Washington co.
Green Sul'phur Springs, in *West Virginia*, a post-office of Summers co.
Green'sward, *n.* Turf covered with green grass.
Green'town, in *Indiana*, a post-town of Howard co., about 56 m. N. by E. of Indianapolis.
Greentown, in *Ohio*, a post-village of Stark co., about 10 m. N. of Canton.
Green Tree, in *New Jersey*, a village of Burlington co., about 12 m. E. of Camden.
Green Tree, in *Pennsylvania*, a P. O. of Allegheny co.
Green'up, in *Illinois*, a post-office and township of Cumberland co., on Embarras river, about 110 m. E.S.E. of Springfield. *Pop.* of village (1897) 858.
Green'up, in *Kentucky*, an extreme N.E. co., bordering on Ohio; *area*, about 352 sq. m. *Rivers.* Ohio and Little Sandy rivers, and Tygart's creek. *Surface*, broken; *soil*, fertile. *Min.* Iron and coal in abundance. *Cap.* Greenup. *Pop.* (1890) 11,911.
—A post-village, capital of the above co., on the Ohio river, about 131 m. E.N.E. of Frankfort. *Pop.* (1897) abt. 700.
Green'vale, in *Illinois*, a post-village of Jo Daviess co., about 22 m. N.W. of Freeport.
Greenvale, in *Iowa*, a post-office of Dallas co.
Greenvale, in *New York*, a village of Queens co.
Green Village, in *New Jersey*, a P. O. of Morris co.
Green Village, in *Pennsylvania*, a post-village of Franklin co., about 40 m. S.W. of Harrisburg.
Green'ville, in *Alabama*, a city, capital of Butler co., on L. & N. R.R., 44 m. S.W. of Montgomery. Seat of several educational institutions. *Pop.* (1897) abt. 3,000.
Greenville, in *Arkansas*, a township of Clarke co.
—A post-office of Bradley co.
—A village of Washington co.
Greenville, in *California*, a post-office of Plumas co.
Greenville, in *Connecticut*, a post-village of New London co., on the Quinnebang river, about 2 m. N.E. of Norwich Landing. *Pop.* (1897) about 1,500.
Greenville, in *Georgia*, a post-village, capital of Meriwether co., about 108 m. W. of Milledgeville. The vicinity is noted for its medical springs.
Greenville, in *Illinois*, a post-village, capital of Bond co., about 45 m. E. of Alton. *Pop.* (1890) 1,868.
—A township of Bureau co.
Greenville, in *Indiana*, a post-village and township of Floyd co., about 15 miles northwest of New Albany.
Greenville, in *Kentucky*, a post-town, cap. of Muhlenberg co., about 170 m. S. W. of Frankfort. *Pop.* 968.
Greenville, in *Maine*, a post-town of Piscataquis co., about 80 m. N. by E. of Augusta. *Pop.* (1890) 781.
Greenville, in *Michigan*, a city of Montcalm county, on Flat river and 2 railroads, 24 m. N. E. of Grand Rapids. Has important manuf. *Pop.* (1894) 3,113.
Greenville, in *Mississippi*, an important shipping town, cap. of Washington co., on the Mississippi river, 100 m. N. W. of Jackson. *Pop.* (1890) 6,658.
Greenville, in *Missouri*, a village of Clay co.
—A post-village, cap. of Wayne co., on St. Francis river, about 130 m. S. E. of Jefferson City.
Greenville, in *North Carolina*, a post-village, cap. of Pitt county, on Tar river, about 100 m. E. by S. of Raleigh. *Pop.* (1890) 1,937.
Greenville, in *New Jersey*, a former post-village of Hudson county. Now part of Jersey City.
—A village of Sussex co., about 7 m. S. W. of Newton.
Greenville, in *New York*, a post-town of Greene county, about 24 miles S. S. W. of Albany. *Pop.* (1890) 1,951.
—A township of Orange co.
Green'ville, in *Ohio*, a city, cap. of Darke co., on 3 railroads, 35 m. N. W. of Dayton. The village is built upon the site of a fort of that name, erected in 1793 by Gen. Wayne, who also in this vicinity concluded a treaty of peace with the Indians. *Pop.* (1890) 5,437.
—A village of Stark county, about 6 miles west of Massillon.
Greenville, in *Pennsylvania*, a village of Clarion co., about 8 m. S. E. of Clarion.
—A village of Indiana co. See PENN RUN.
—A post-borough of Mercer co., on Shenango creek, about 25 m. S. W. of Meadville. It was formerly called West Greenville. *Pop.* (1897) about 4,000.
—A village of Montgomery co.
—A township of Somerset co.
Greenville, in *Rhode Island*, a post-village of Providence co., about 12 m N. W. of Providence.
Greenville, in *S. Carolina*, a N. W. co., bordering on N. Carolina; *area*, about 716 sq. m. *Rivers.* Ennoree, Tiger, Saluda, and Reedy rivers. *Surface*, diversified, the Blue Ridge extending along the N. W. border; *soil*, fertile. *Cap.* Greenville. *Pop.* (1890) 44,310.
—A city, cap. of Greenville co., on Reedy river, about 80 m. N. W. of Columbia. *Pop.* (1890) about 11,000.
Greenville, in *Tennessee*, a post-village, cap of Greene co., about 250 m. E. of Nashville. Also spelled GREENEVILLE.
Greenville, in *Texas*, a post-town, cap. of Hunt co., about 250 m. N. N. E. of Austin. *Pop.* (1890) 4,330.
—A village of Polk co., about 15 m. N. of Livingston.
Greenville, in *Virginia*, a S. E. co., bordering on N. Carolina: *area*, about 325 sq. m. *Rivers.* Nottoway and Meherrin rivers. *Surface*, level; *soil*, moderately fertile. *Cap.* Emporia. *Pop.* (1890) 8,230.
—A post-village of Augusta co., on the South river, about 120 m. W. N. W. of Richmond.
Greenville, in *Wisconsin*, a post-township of Outagamie county.
Green Vit'riol, *n.* (*Min.*) Same as MELANTERITE (*q. v.*)
(*Chem.*) Copperas, or sulphate of iron.—See IRON.
Green'-weed, *n.* Same as GREEN-BROOM.
Greenwich (*grĕn'ĭj*), a borough of the city of London, England, on the right bank of the Thames, 6 m. S. E. of London bridge. *G.* contains a magnificent hospital for invalid seamen, founded in 1696, and built under the superintendence of Sir Chris. Wren. The Royal Observatory, erected by Charles II., is under the charge of the Astronomer Royal, a position that has been filled by Flamsted, Halley, Bradley, Bliss, Maskelyne, Pond, Airy, etc. The longitude of all English charts and maps is reckoned from this observatory, and the captains of ships take their time, as given at 1 P. M. It is also from *G.* that the longitudes in this work have been calculated. *Pop.* (1895) 87,750.
Green'wich, a seaport town on the N. coast of Prince Edward Island, British N. America; Lat. 46° 28′ N., Lon. 62° 47′ W.
Greenwich, in *Connecticut*, a post-township of Fairfield co., on Long Island Sound, about 31 m. N.E. of New York; *pop.* (1890) 10,131.—PUTNAM'S HILL, in W. Greenwich, near Horse Neck, is celebrated as the scene of General Israel Putnam's daring exploit during the War of Independence.
Greenwich, in *Massachusetts*, a post-town of Hampshire co., on Swift river, about 80 m. W. of Boston. *Pop.* (1895) 526.
Greenwich, in *New Jersey*, a post-village and township of Cumberland co., on Delaware bay, about 6 m. W.S.W. of Bridgeton.
—A township of Gloucester co.
—A township of Warren co
Greenwich, in *New York*, a post-village and township of Washington co., on the Hudson river, about 36 m. N.E. of Albany. *Pop.* of village (1890) 1,663.
Greenwich, in *Ohio*, a township of Huron co.
—A post-office of Huron co.
Greenwich, in *Pennsylvania*, a township of Berks co.
Greenwich Village, in *Massachusetts*, a post-village of Hampshire co., about 75 m. W. of Boston.
Green'wood, *a.* Belonging or relating to a green wood; hence, arboraceous; rural; bucolic.
"Among wild herbs under the *greenwood* shade."—*Fairfax.*
—*n.* A wood when green, as in summer
Green'wood, in *Arkansas*, a post-town, capital of Sebastian co., about 18 m. S.E. of Fort Smith.
Greenwood, in *California*, a post-village of El Dorado co., about 18 m. N. by W. of Placerville.
Greenwood, in *Delaware*, a post-town of Sussex co.
Greenwood, in *Florida*, a post-office of Jackson co.
Greenwood, in *Illinois*, a post-village of McHenry co., about 60 m. N.W. of Chicago.
Greenwood, in *Indiana*, a post-town of Johnson co., about 10 m. S.S.E. of Indianapolis. *Pop.* (1890) 862.
Greenwood, in *Iowa*, a village of Polk co.
Greenwood, in *Kansas*, a S.E. central co.; *area*, about 1,155 sq. m. *Rivers.* Verdigris river, and numerous smaller streams. *Surface*, undulating. *Soil*, fertile. *Cap.* Eureka. *Pop.* (1895) 14,961.
Greenwood, in *Louisiana*, a post-town of Caddo parish, about 350 m. N.W. of New Orleans.
Greenwood, in *Maine*, a post-town of Oxford co.
Greenwood, in *Maryland*, a P. O. of Baltimore co.
Greenwood, in *Massachusetts*, a P. O. of Middlesex co.
Greenwood, in *Michigan*, a post-office of Ogemaw co.
—A township of Oceana co.
—A township of Clare co.
Greenwood, in *Minnesota*, a village and township of Hennepin co., on Crow river, about 27 m. W.N.W. of Minneapolis.
Greenwood, in *Mississippi*, a post-town, capital of Le Flore co. *Pop.* (1890) 1,055.
Greenwood, in *Missouri*, a post-town of Jackson co.
Greenwood, in *Nebraska*, a post-office of Cass co.
Greenwood, in *New York*, a post-township of Steuben co. *Pop.* (1897) about 1,500.
Greenwood, in *Pennsylvania*, a post-township of Columbia co.
—A village of Bradford co.
—A township of Crawford co.
—A township of Juniata co.
—A township of Perry co.
Greenwood, in *S. Carolina*, a post-village of Abbeville co., about 85 m. W. by N. of Columbia. *Pop.* (1897) about 1,490.
Greenwood, in *South Dakota*, a village of Charles Mix co.
Greenwood, in *Tennessee*, a post-office of Wilson co.
Greenwood, in *West Virginia*, a post-office of Doddridge co.
Greenwood, in *Wisconsin*, a township of Vernon co.
Green'wood Cemetery, in *New York*. This, the principal necropolis of New York city and neighborhood, on Long Island, is in East Brooklyn, E. of Gowanus bay. It covers an area of 475 acres, occupies a site of the most picturesque beauty, and is laid out so handsomely with a view to fineness of natural effect as to make this cemetery one almost without a rival in the world. From its heights the waters of New York Bay may be seen on the one hand, and the broad expanse of the Atlantic on the other. There are 20 miles of roadway and more than 25 miles of foot-paths. Its monuments are numerous and costly. The main gateway is adorned with four magnificent sculptures, in *alto relievo*, representing four scenes in the resurrection. The number of interments up to 1897 exceeds 300,000.
Green'wood Iron Works, in *New York*, a village of Orange co.
Greers'ville, in *Ohio*, a post-office of Knox co.
Greet, *v. a.* (*imp.* and *pp.* GREETED; *pp.* GREETING.) [A.S. *gretan*; D. *groeten*; Fris. *greotjan*; Ger. *grüssen*; Low Sax *griten*, to greet.] To address with salutations, or expressions of good wishes; to salute in kindness or respect; to hail; to congratulate; to send kind wishes to; to meet and address with kindness or good-will.
"My lord, the mayor of London comes to *greet* you." — *Shaks.*
—To address in any manner; to accost.
"Now, Thomas Mowbray, . . . mark my *greeting* well." — *Shaks.*
—*v. n.* To meet and salute.
"Greece, . . . our eyes unhappy! never *greeted* more." — *Pope.*
Greet'er, *n.* One who greets.
Greet'ing, *n.* Salutation at meeting; compliment addressed from one absent; expression of good-will, kindness, or joy.
"Nor *greetings* where no kindness is." — *Wordsworth.*
Grega'rious, *a.* [Lat. *gregarius—grex, gregis*, a flock or herd; probably allied to Sansk. *granth*, to join or put together.] Going in flocks or herds; living in numbers; not habitually solitary.
Grega'riously, *adv.* In a gregarious manner; in a flock, herd, or company.
Grega'riousness, *n.* State or quality of being gregarious.
Gregg, in *Indiana*, a township of Morgan county.
Gregg, in *Pennsylvania*, a township of Centre county.
Greggs'port, in *Nebraska*, a township of Otoe county.
Greggs'ville, in *W. Virginia*, a post-office of Ohio co.
Gre'go, Griego, *n.* [Sp. *Griego.*] A short mantle or cloak with a hood attached, worn in Greece and the Levant.
Grego'rian, *a.* [Fr. *Grégorien*, from Lat. *Gregorius.*] Denoting what belongs to Gregory; as, the *Gregorian* calendar.
G. Calendar. (*Chron.*) See CALENDAR.
G. chant or tones. [Lat. *cantus Gregorianus*; It. *canto firmo*; Fr. *plein chant*; Ger. *choral*; Eng. *plain chant.*] (*Mus.*) The name given to certain choral melodies introduced into the service of the early Christian Church by Pope Gregory the Great, and still forming the basis of cathedral music. By the Gregorian tones, or modes (*toni, modi*) of Gregory, must be understood a certain melodious formula, made out of the union of a perfect fifth and a perfect fourth, or their inversion, to give the church-song greater variety. All the old writers agree as to the diatonic genus of the Gregorian tones, but they do not all agree as to the number of the tones: some counting fourteen, others twelve, while in some old Roman choral-books we find only eleven. The foundation of the system of the Gregorian tones may be explained thus: As there are seven notes from *a* to *g*, there should be at least seven different modes, or tone-systems, varying from each other according to the position of the semitones; but as the final or key-note of each mode might be the first note, or might be in the middle, the same scale could therefore, as it were, be viewed from two sides, which gave rise to the fourteen systems of tones. It was, however, found that two of those were at variance with a fundamental rule of church-song—viz., that every mode or scale must possess a perfect fifth or perfect fourth; and that the modes containing a false fifth from *b* natural to *f* natural, or a false fourth from *f* to *b*, could not be used, and on account of the dissonant character of these intervals must be rejected. This reduced the number of the tones to twelve. It was further found, that, as four of the twelve were merely transpositions of some of the others, there were really only eight, and that they were in every respect sufficient for all the purposes of church-song. The eight Gregorian tones, as they are handed down to us, were in time fixed by a royal mandate of Charles the Great—*octo toni sufficere videntur.* The different charac-

ter of the Gregorian tones depends entirely on the places of the semitones. Several of the tones have various endings, some as many as four, while the second, fifth, and sixth tones have each only one ending.

G. telescope. (*Optics.*) The first and most common form of the reflecting telescope, invented by James Gregory, an English professor of mathematics in the University of St. Andrew's, 1663.

G. year. (*Chron.*) See CALENDAR.

Greg'orite, *n.* (*Min.*) A titanic iron ore. — Same as MENACCANITE, *q. v.*

Greg'ory I., (POPE,) surnamed the Great, was B. of a noble family at Rome, about the year 544. He discovered such abilities as a senator, that the Emperor Justinus appointed him prefect of Rome, after which he embraced the monastic life in a society founded by himself. Popo Pelagius II. sent him as nuncio to Constantinople, and on his return made him apostolical secretary. He was elected successor to that pontiff in 590. Pope *G.* was pious and charitable, had lofty notions of the papal authority, was a reformer of the clerical discipline, and after his death was canonized. He is, however, accused, but on slight and doubtful evidence, of burning a multitude of the works of ancient authors, lest the attention to heathen literature should supersede the monkish and ecclesiastical studies of the age. His works are comprised in 4 vols. D. 604.

GREGORY II., (ST.,) succeeded Constantine in the pontificate, 715, and D. 731.

GREGORY III., a native of Syria, succeeded to Gregory II., and D. 741. — He sent legates to Charles Martel to demand succor against the Lombards, which embassy is considered to be the origin of the apostolical nuncios in France.

GREGORY IV., a Roman, succeeded to Valentine in 828, and was greatly esteemed for his learning and piety. D. 844.

GREGORY V., a German, and a kinsman of the Emperor Otho, succeeded to John XV., 996. An anti-pope, named John XVII., was set up against him by Crescentius, a consul of Rome, but was expelled by the emperor. D. 999.

GREGORY VI., a Roman, succeeded to John XIX., who finding the lands and revenues of his church greatly diminished by usurpations, and the roads infested by robbers, acted with such vigor that a powerful party was raised against him by those who had been accustomed to live by plunder. At a council, held at Sutri in 1046, Gregory abdicated the pontificate.

GREGORY VII., HILDEBRAND, son of a carpenter, was a native of Soano, Tuscany. He was the friend and counsellor of Leo IX. and the four succeeding popes, and on the death of Alexander II. was elected to succeed him, 1073. He obtained confirmation in his election from the Emperor Henry IV., and immediately applied himself zealously to reform two of the grossest evils of the Church, — simony and the licentiousness of the clergy. In his view, however, marriage, no less than concubinage, was a sin in them. He menaced the emperor and the king of France, the latter without effect. In 1074 he assembled a council, by which it was forbidden the prelates to receive investure of a layman; and this was the first step in the quarrel with the emperor, which lasted so many years. Henry, disregarding the papal authority, was summoned to Rome; but he held a diet at Worms, and pronounced the deposition of the pope. To this *G.* replied by procuring the deposition of the emperor and the election of another, Rodolph of Suabia. Henry now promised submission; and in the early winter of 1077 went with his wife and child to Italy. The pope was at the castle of Carnossa, and there, after keeping the penitent king of Germany three days waiting at the gate, he received and gave him absolution. The terms imposed on him were intolerable, and he soon broke them, made war on Rodolph, and defeated him, set up a rival pope in Guibert, archbishop of Ravenna, with the title of Clement III., and after several unsuccessful attempts entered Rome in 1084, had himself crowned emperor by his own pope, and besieged *G.* in San Angelo. The pope was delivered by Guiscard, and retiring to Salerno, D. there in 1085. — Whatever may be said of the power in itself, or of the length to which it has at times extended, the occasion and the object of its exercise in the hands of *G.* were always such as to command the sympathy of the philosophical student of the history of the Middle Ages By his firm and unbending efforts to suppress the unchristian vices which deformed society, and to restrain the tyranny which oppressed the subject as much as it enslaved the Church, he taught his age "that there was a being on earth whose special duty it was to defend the defenceless, to succor the succorless, to afford a refuge to the widow and orphan, and to be the guardian of the poor." Dean Milman sums up his history of *G.* as of one who is to be contemplated not merely with awe, but in some respects, and with some great drawbacks, as a benefactor of mankind.

GREGORY VIII., B. at Benevento, succeeded Urban III., 1187, and D. the same year, after having exhorted the Christian princes to undertake a new crusade. He is not to be confounded with the anti-pope Bourdin, who assumed the same name.

GREGORY IX., (POPE.) UGOLINO, was a native of Campania, and a near relative of Innocent III. He became a bishop of Ostia, and cardinal, and in 1227 succeeded Honorius III. His coronation surpassed in magnificence any which had preceded it, and the ceremony lasted three days. The principal events of his pontificate were the various incidents of his contest with the great Emperor Frederick II., whom he repeatedly excommunicated, absolving his subjects from their allegiance, and proclaiming a crusade against him. In 1229, *G.* levied a tithe on all movables in England towards the expenses of his war with Frederick. He established, a few years later, the inquisition at Toulouse and Carcassonne, excited, by his haughty demeanor, a revolt at Rome in 1234, and was driven from the city, to which he did not return for three years. St. Anthony of Padua, St. Dominic, and St. Elizabeth were canonized by *G.*, who D. in 1241, at a very advanced age.

GREGORY X., of the illustrious family of Visconti, was elected pope in 1271, after an interregnum of two years, at which time he was in the Holy Land. He assembled a council at Lyons, to promote a union between the Eastern and Western churches, and other objects. D. 1276.

GREGORY XI., (PETER ROGER,) a native of Limousin, in France, was a nephew of Clement VI., and son of the count of Beaufort. He was elevated to the pontificate in 1370, after the death of Urban V., was a patron of learning, and endeavored to reconcile the princes of Christendom, and to reform the religious societies. He transferred the papal see from Avignon to Rome, where he died, 1378.

GREGORY XII., (ANGELO CORARIRO,) a native of Venice, was raised to the pontificate in 1406, during the schism in the East, Benedict XIII. being the other pope. Both were deposed by a council held at Pisa, and Alexander V. elected in their stead. *G.* submitted, and laid aside the pontifical dignity. D. 1417.

GREGORY XIII., BONCOMPAGNI, was a native of Bologna, and succeeded Pope Pius V. in 1572. He was deeply versed in the canon and civil law, and had distinguished himself at the council of Trent. He ornamented Rome with many fine buildings and fountains; but his pontificate is chiefly memorable for the reformation of the calendar, which took place under his auspices, and bore his name. D. 1585.

GREGORY XIV., (NICHOLAS SFONDRATE,) succeeded Urban VII. in 1550. He was the son of a senator of Milan, and involved himself in an unsuccessful war against Henry IV. of France. D. in 1591.

GREGORY XV., (ALESSANDRO LUDOVICO,) was a native of Bologna, and descended from an ancient family. He succeeded Paul V. in 1621, and was the founder of the College of the Propaganda. It was this Pope who, in 1622, canonized Ignatius Loyola, Francis Xavier, and Philip de Neri. He was author of several works, one of which is entitled *Epistola ad Regem Persarum, Shah Abbas, cum notes Hegalsoni*, 8vo., 1627. D. 1623.

GREGORY XVI., MAURO CAPELLARI, B. at Belluno in 1765, and succeeded Pius VIII. 1831. His pontificate was a period of no ordinary interest and difficulty in the history of the Church, and in the relations of the Vatican with the temporal powers of Christendom. Simple in his habits, though narrow in his ideas and timid in his manners, he nevertheless displayed great energy in conducting the affairs of the Church. D. 1846, and was succeeded by Pius IX.

Gregory, bishop of Neo-Cæsarea, in the 3d century, was surnamed THAUMATURGUS, or the Wonder-worker, on account of the miracles which he is said to have performed. The Church flourished under his care until the Decian persecution in 250, when he thought it prudent to retire for a time. He was a pupil of the celebrated Origen, and appears to have been a man of learning. D. about 265.

Gregory, JAMES, a Scottish mathematician and philosopher, B. at Aberdeen, 1638. At the age of 29 he became professor of mathematics in St. Andrew's; from which he was transferred to the same chair in Edinburgh, 1674. He died at the early age of 36 (1675,) having given the most brilliant promise as well as great performance. We owe him one form of the reflecting telescope; and in analytic power he sometimes rivalled Newton. His memoirs are very numerous, all bespeaking talents and originality of the first order.

GREGORY, *David*, nephew of the preceding, B. at Aberdeen, 1661; at the age of 23 he succeeded his uncle in the metropolitan chair. David was an elegant mathematician and a good astronomer. He became Savilian professor at Oxford, and was one of the first who comprehended and taught the philosophy of Newton. He died in 1708.

GREGORY, *John*, a physician and miscellaneous writer, grandson of James *G.*, B. in 1724, at Aberdeen; studied at Edinburgh and Leyden; became professor of physic at Edinburgh; and was appointed first physician to the king of Scotland. His works are, *A Comparative View of the State and Facilities of Man with those of the Animal World; Observations on the Duties and Offices of a Physician; Elements of the Practice of Physic;* and *A Father's Legacy to his Daughters.* Died 1773.

Gregory (St.), commonly called GREGORY OF TOURS, was B. in 544, in Auvergne. He was chosen bishop of Tours in 573, and D. 595. He was author of a *History of the Franks*, and is the most ancient of French historians.

Gregory Nazi'anzen (St.), a father of the Church, bishop of Constantinople, eminent for his piety, eloquence, and learning; B. in 326, near Nazianzus, in Cappadocia, of which place his father, a convert from heathenism, was bishop. He received an excellent education, which he improved at Athens, where he formed an acquaintance with St. Basil. On his return home he was ordained; hesitated long between the contemplative and the active life; adhered to the Nicene doctrine, and endeavored to keep together its persecuted adherents; assisted his father in his pastoral duties, and at length became minister to a small congregation of the Nicene Christians at Constantinople. Distinguishing himself greatly by his fervent eloquence, and no less by his wisdom and moderation, he was made bishop of Constantinople by Theodosius in 380. After filling this high and difficult post for one year, he resigned it, and returned to his native place, where he D. in 389. He excelled all his contemporaries in pulpit eloquence; and his style has been compared to that of the orators of ancient Greece. Many works of *G. N.* are extant, and consist of orations, letters, and poems. Ullman's interesting monogram on this eminent preacher has been translated into English.

Gregory of Nyssa (St.), the younger brother of St. Basil, was ordained bishop of Nyssa in 372. The zeal he displayed against the Arians excited the resentment of the Emperor Valens, who belonged to that sect, and he was banished; but on the accession of Gratian he was restored to his see. He was present at the council of Constantinople in 381, and at another in 394, and D. soon afterwards.

Gre'gree, *n.* A talisman, charm, or fetish, used by some African tribes.

Greifenberg, (*grīf'en-bairg,*) a town of Prussia, prov. Pomerania, on the Rega, 40 m. N.E. of Stettin. It is celebrated for its linen manufactures.

Greifenha'gen, a town of Pomerania, Prussia, on the Oder, 12 m. S.E. of Stettin. *Manuf.* Woollen cloths and leather.

Greifswalde, (*grīfe's-val'dy,*) a city and port of Pomerania, Prussia, capital of the circle of Stralsund, on the Rick, 9 m. from the Baltic and 16 m. S.E. of Stralsund. *Manuf.* Tobacco, salt, oil, grain-brandy. *G.* contains a celebrated university founded 1456, a large public library, and a botanical garden.

Greig, (*greg,*) in *New York*, a post-township of Lewis co.

Greigs'ville, in *New York*, a post-village of Livingston co., abt. 28 m. S.S.W. of Rochester.

Grein'er, in *Michigan*, a post-village of Wayne co.

Greiz (*grīz*), a town of Central Germany, chief city of the principality of Reuss-Greiz, on the Elster, 54 m. S. W. of Leipsic. *Manuf.* Weaving.

Gre'mial, *a.* Pertaining to the lap. (R.)

Grena'da, an island in the Windward group of the West Indies, Lat. 12° 2′ N., Lon. 61° 48′ W. *G.* is mountainous, the ridges ranging N. and S., but is adapted to the production of all tropical fruits and grains. *Area*, 140 sq. m. *G.* was discovered by Columbus in 1498, first settled by the French, and in 1762 taken by the English, who retain its possession. *Pop.*, with dependencies, (1895) 56,300, of whom the great majority are negroes. The climate is unhealthy.

Grena'da, in *Alabama*, a post-office of Lawrence co.

Grena'da, in *Georgia*, a post-office of Talbot co.

Grena'da, in *Mississippi*, a post-town, cap. of Grenada co., on the Yallobusha river, about 113 m. N. by E. of Jackson. *Pop.* (1890) 2,416.

Grenade, (*gre-nād',*) *n.* [Fr. *grenade*, a pomegranate, a small bomb; Sp. *granáda*, from Lat. *granātum*, a pomegranate, from *granum*, a grain. See GRAIN.] (*Mil.*) A shell or hollow ball of iron, 2½ inches in diameter, which, being charged with powder and provided with a fuze, is thrown as a missile during sieges. As soon as the composition in the fuze is consumed, the fire communicates with the powder, and the *G.* is burst into fragments, doing great injury. *G.* are particularly useful in annoying an enemy. (Also called *hand-grenade.*)

Grenadier, (*gren-a-deer',*) *n.* [Fr.] (*Mil.*) The name given at first to the soldiers who threw grenades; but afterwards conferred on certain troops of the line, distinguished by peculiarities of dress, accoutrements, &c. The name originated with the French in 1667, but was speedily adopted into all the armies of Europe; and wherever it has been introduced, the finest men of a regiment have always been selected to form what is called the *grenadier company.*

—*a.* (*Mil.*) Composed of grenadiers: relating to grenadiers; as, the *grenadier* company of a battalion.

Gren'adine, *n.* A thin silken fabric used for ladies' dresses, &c.

Gren'adines, a cluster of small islands between St. Vincent and Grenada, two of the Antilles, extending from Lat. 12° 30′ to 13° N., and consisting of Bequia, Carriacon, Union, and other small islands. They belong to Great Britain.

Grena'do, *n.* (*Mil.*) See GRENADE.

Gren'atite, *n.* (*Min.*) Same as STAUROLITE, *q. v.*

Grenelle', an ancient burg between Paris and Auteuil, subsequently a faubourg of Paris, and now an integral part of the city. *G.* is particularly noted for its celebrated Artesian well, 1,704 feet deep, which supplies all the upper portion of Paris with water.

Gren'gesite, *n.* (*Min.*) A variety of PROCHLORITE, *q. v.*

Greno'ble, [Lat. *Gratianopolis,*] a fortified town of France, dept. Isère, at the confluence of the river Isère with the Drac, 390 m. S.E. of Paris. *Manuf.* Gloves, cotton articles, hemp, and various sorts of liquors. *G.* contains a university, a very celebrated artillery-school, a school of surgery and midwifery, and an academy of arts and sciences.

Gren'ville, GEORGE, an English statesman, B. 1712. He entered parliament in 1741, and retained a seat in the Lower House for 29 years. After filling subordinate political positions, he was appointed, in 1762, Secretary of State, and before the close of the same year, First Lord of the Admiralty. In the year following, he became Chancellor of the Exchequer and First Lord of the Treasury; but in 1765 he resigned the premiership, and D. 1770. *G.* was an eloquent speaker, and a man of consummate business ability, although he is credited with the authorship of the impolitic Stamp Act, which prepared the way for the severance of the American colonies from the mother country.

Gren'ville, a N.E. co. of prov. of Ontario, bordering on New York; *area*, about 421 sq. m. *Rivers.* St. Lawrence, Rideau, and Nation rivers. *Surface*, diversified; *soil*, fertile. *Cap.* Prescott.

Gren'ville, a vill. of prov. of Quebec, co. of Two Mountains, on the Ottawa River, abt. 60 m. W. of Montreal.

Grenville. See GRANVILLE.

Grès. The French name for a sandstone or a grit. Thus the new red sandstone is called *le nouveau grès rouge;* the grès of Fontainebleau is also a well-known member of the tertiary grès.

Gresh'am, SIR THOMAS, founder of the Royal Exchange of London, and the Gresham Lectures, B. in London 1519, was the son of Sir Richard Gresham, merchant and lord mayor of that city, and acquired universal fame as a merchant for his knowledge, sound judgment, and integrity. Besides his munificent endowments in the interest of commerce and the arts, he served the state as ambassador, and contributed greatly to placing the financial affairs of England upon a sound basis, being in constant intercourse and correspondence with Sir W. Cecil. He was greatly honored by Queen Elizabeth. Died in 1597. See GRESHAM'S LAW, in SECTION II.

Gresh'ville, in *Pennsylvania*, a P. O. of Berks co.

Gresset, (*grĕs-sā'.*) JEAN BAPTISTE LOUIS, a French poet and dramatist, B. 1709. For a long time he excited the admiration of Parisian circles, wrote some elegant poems, became a member of the Academy, and was the companion of the wits and literati of the French capital; but at length he renounced his favorite pursuits, and withdrew from the gay world, to enjoy the tranquillity of retirement. D. 1777. His literary fame rests principally on his *Vert Vert*, his *Chartreuse*, and *Le Méchant*.

Gresso'rial, *a.* [From Lat. *gradi, gressus*, to go.] (*Zoöl.*) Applied to the feet of birds which have three toes forward, two of which are connected, and one behind.

Gret'na-Green, a village of Scotland, in Dumfriesshire, 27 m. S.E. of Dumfries, on the high-road between London and Edinburgh, celebrated for the irregular marriages formerly contracted there. They originated in the greater laxity admitted by the law of Scotland than by that of England, on the subject of marriage. In Scotland, a marriage may be contracted by a mutual declaration to that effect by the two parties in the presence of witnesses, a mode which is much more simple and expeditious than that of England; and hence it was largely taken advantage of by runaway couples from England; the rule being, that a marriage is valid in England if contracted according to the law of the place in which it was solemnized. *G.-G.* being the most convenient place on Scotch ground for parties from England, the marriages usually took place there; but they were also celebrated at Springfield, Annan, Coldstream, and other places along the border. At *G.-G.* and the other places there were usually one or more persons who took upon themselves the duties of the priest, and in whose presence the declaration was made. The marriage service of the Church of England was sometimes read, in order to please the parties. The practice is said to have been begun at *G.-G.* rather more than a century ago, by a person named Paisley, a tobacconist. Afterwards it was carried on by various individuals, each inn, in fact, having its rival priest, besides various others, who carried on the business on their own account. Latterly, the best-known of these worthies was a blacksmith, though he is said to have had a formidable rival in a person who was employed in breaking stones on the roadside, and who in this way had the advantage of getting the first word of the parties in passing. Though sometimes large sums were received, the effect of competition had been to reduce the fee, in some cases, as low as half a crown. The marriages effected in this way were at one time estimated as high as 500 a year. The practice, however, has virtually been put a stop to by 19 & 20 Vict. c. 96, which declares that no valid marriage can be contracted in Scotland, unless one of the parties had, at the date thereof, his or her usual place of residence there, or had lived in Scotland for twenty-one days next preceding such marriage.

Gret'ry, ANDRÉ ERNEST MODEST, a French composer, B. in Liége, 1741, is considered one of the founders of the French comic opera, and for 40 years enjoyed a popularity which the efforts of rival composers could not impair. His new successful operas are, *Zemire et Azor*, *Barbe Bleue*, and *Richard Cœur de Lion*. D. 1813.

Greut, *n.* (*Pal.*) Same as GRIT, *q. v.*

Greuze, (*grōōs,*) JEAN BAPTISTÉ, a celebrated French *genre* painter, B. at Tournus, 1725. His subjects are mostly taken from domestic life, and at once appeal to the commonest emotions. Among his most esteemed works are, *The Little Girl with the Dog*, the *Village-Bride*, the *Paralytic Father*, the *Broken Pitcher*, &c. His pictures generally fetch very high prices, and one of them was recently (1865) sold, at the sale of the Pourtales collection, for $20,000. D. very poor, 1805.

Grew, (*grū,*) *imp.* of GROW, *q. v.*

Grew'ia, *n.* [After Dr. Grew, a botanist of the 17th cent.] (*Bot.*) A genus of plants, order *Filiaceæ*. Two species, *G. sapida* and *Asiatica*, yield small red acid fruit, commonly used in India for flavoring sherbet. Some of the species have a fibrous inner bark, which is used for rope-making, &c.; and the wood of *G. elastica* is very strong and elastic. They are widely dispersed, but not found in America.

Grew'some, Grue'some, *a.* [Scot.] Forbidding; awful; ghastly; frightful.

"Hech, sirs, it was a *gruesome* sight."—*Douglas.*

Grey, *a.* Same as GRAY, *q. v.*

Grey Friars. See FRANCISCANS.

Grey, CHARLES, second EARL, an English statesman, B. at Falloden, near Alnwick, Northumberland, 1764, became in 1786 a member of parliament, and in 1792 was one of the founders and most active members of the "Society of the Friends of the People." In 1797 he brought forward a motion for parliamentary reform, for which he continued to labor strenuously, although he was, for many years, unsuccessful in carrying the object of his wishes. When Lord Grenville, in 1806, came into office, *G.*, as Lord Howick, (from the elevation of his father to the peerage,) became First Lord of the Admiralty, and, as one of the leaders of the House of Commons, carried the Act for the abolition of the slave-trade. In the following year, the cabinet was broken up, and he, in the same year, succeeded to the title, by the death of his father. In the House of Lords he became one of the leaders of the opposition. For many years he remained out of office; but in 1830 he was called upon by William IV. to form a new cabinet, after the fall of the Wellington administration. He accordingly became prime minister, and announced "peace, retrenchment, and reform" as the objects of his policy. In 1831 the Reform Bill was introduced by Lord John Russell into the House of Commons; but in the following year the ministers resigned, on account of a motion of Lord Lyndhurst. They were restored to power, however, and in the same year the bill was passed. In the succeeding year Earl Grey resigned, and, after about a couple of years, retired from public life. D. 1845.

Grey, LADY JANE, a noble English lady whose accomplishments and misfortunes have rendered her an especial object of interest, was the daughter of Henry Grey, marquis of Dorset (afterwards duke of Suffolk), by the Lady Frances, daughter of Charles Brandon, duke of Suffolk, and Mary, younger sister of Henry VIII. She



Fig. 1200. — LADY JANE GREY. (After Holbein.)

was B. in 1537, at Bradgate, her father's seat in Leicestershire; and early in life gave proofs of talents of a superior order. She wrote an incomparable hand, played well on different instruments, and acquired a knowledge of the Greek, Hebrew, and Latin, as well as of the French and Italian languages. Roger Ascham has given a beautiful and affective narrative of his interview with her at Bradgate, where he found her reading Plato's *Phædo* in Greek, while the family were amusing themselves in the park. In 1551 her father was created duke of Suffolk; and at this time Lady Jane Grey was much at court, where the ambitious duke of Northumberland projected a marriage between her and his son, Lord Guilford Dudley, which took place at the end of May, 1553. Soon after this, Edward VI. died, having been prevailed upon, in his last illness, to settle the crown upon the Lady Jane, who reluctantly accepted it, and was proclaimed with great pomp. This gleam of royalty, however, was of short duration; for the pageant reign lasted but nine days. The kingdom was dissatisfied, and the nobility indignant at the presumption of Northumberland, so that Mary soon overcame her enemies, and was not backward in taking ample revenge. The duke of Northumberland was beheaded, and Lady Jane and her husband were arraigned, convicted of treason, and sent to the Tower. After being confined some time, the council resolved to put these innocent victims of a parent's unprincipled ambition to death. Lord Guilford suffered first, and as he passed her window his lady gave him her last adieu. Immediately afterwards she was executed on the same scaffold, suffering with calmness and resignation, Feb. 12, 1554.

Grey, a W. central co. of prov. of Ontario, bordering on Georgian Bay. *Area*, abt. 2,321 sq. m. *Rivers.* Saugeen and Maitland rivers. *Surface*, diversified; *soil*, moderately fertile. *Cap.* Owen Sound. *Pop.* abt. 60,000.

Grey'hound, *n.* [A. S. *grighund.*] (*Zoöl.*) A species of dog, *Canis graius*, used for the chase, which appears to have been known even in the most remote ages of antiquity, as it is represented on some of the oldest of Egyptian monuments. Its first portraiture that can be relied on is in a painting on one of the tombs of the fourth dynasty of Egypt, which must be upwards of 4,000 years old. The cultivated English greyhound, according to Blaine's *Encyclopædia of Rural Sports*, exhibits a model of elegance, and a combination of symmetrical proportions probably unrivalled by any other animal but the race-horse; and the perfection of the mechanism for speedy progression is apparent throughout its structure. As the greyhound hunts by sight rather than by smell, its eyes are placed more conspicuously forward than in other dogs. The head is beautifully shaped, and slender in proportion, its muzzle is long and pointed; the ears droop at the points; the back is broad and muscular; the body being lank, and very much contracted in its lower parts. The legs



Fig. 1201. — GREYHOUND.

are long and muscular, while the chest is capacious and deep, with the tail slender and curved upwards at the end. The Irish greyhound, or *wolf-dog*, is a variety of this animal; it is stronger and larger, but it is not so fit for hunting-purposes, as it lacks the speed and keen eyesight of the true greyhound. The *Italian greyhound* is a much smaller variety than the English, and is a very delicate animal. From its diminutive form and tender constitution, it is more fit for the duties of a lap-dog than for those of the chase.

Grey'lag, *n.* (*Zoöl.*) Same as GRAYLAG, *q. v.*

Grey'stones, a promontory and fishing-village of Ireland, co. of Wicklow, Leinster, abt. 3 m. S.E. of Bray.

Gri'as, *n.* (*Bot.*) See ANCHOVY-PEAR.

Griee, Grise, *n.* [Swed. and Icel. *gris*, a little pig; Gr. *choiros*, a young swine.] A little pig.

Grid'dle, *n.* [W. *griedell*, from *grediaw*, to heat, to scorch, to parch.] A circular plate of iron, or a broad and shallow pan, for baking cakes over a fire. (Sometimes written *girdle.*)

(*Mining.*) A large wire sieve, used instead of a hurdle, for sifting and sorting copper ore as it rises from the mine.

Gride, *v. a.* [A. S. *grūdan*, to cry. See CRY.] To cut with a harsh, grating sound.

"The *griding* sword . . . passed through him." — *Milton.*

—*n.* A cutting or scraping with a harsh, grating sound.

Grid'elin, Griz'elin, *n.* [Fr. *gris de lin*, flax-gray.] A color mixed of white and red; as, "the bloomy *gridelin.*" — *Dryden.*

Gridiron, (*grid'ī-ern,*) *n.* [Swed. & Goth. *grädda*, to bake, and *iron.*] A grated utensil used in kitchens for broiling flesh, fish, &c., over the fire.

(*Naut.*) A frame upon which a ship rests at low water, or in dry-dock, for survey and repairs to her bottom.

Gridiron-pendulum. See PENDULUM.

Grid'ley, in *Illinois*, a post-township of McLean co.; *pop.* abt. 1,200.

Grief, (*grēf,*) *n.* [D. *grief;* Fr. *grief*, from *grever;* It. *gravare*, to oppress, from Lat. *gravis*, heavy. — See GRAVE.] The pain of mind produced by loss, misfortune, injury, or evils of any kind; sorrow; regret; the pain of mind occasioned by our own misconduct; sorrow or lamentation for the loss of friends; sadness.

"In all the silent manliness of *grief.*"—*Goldsmith.*

—Cause of sorrow; that which afflicts; trouble; grievance; affliction.

"The glory dies not, and the *grief* is past."—*Sir Egerton Brydges.*

—Physical pain, hurt, or disease. (R.)

—Misfortune; mishap; calamity; want of success; as, all who engaged in the affair came to *grief.*

Grief'ful, *a.* Full of grief, woe, or sorrow.

Grief'less, *a.* Free from grief.

Grie'go, *n.* Same as GREGO, *q. v.*

Gri'er, in *Indiana*, a township of Warrick co.; *pop.* abt. 735.

Gri'er's Point, in *Pennsylvania*, a P. O. of Perry co.

Gries'bach, JOHANN JAKOB, an eminent German critic, B. in Hesse-Darmstadt, 1745, celebrated for his attainments in theological, biblical, and ecclesiastical literature, especially for his edition of the Greek gospels, with a critical history of the printed text, and examination of the various readings. D., professor of divinity at the university of Jena, 1812.

Grievance, (*grēv'ans,*) *n.* [O. Fr. *grevance.*] That which causes grief or uneasiness; that which burdens, oppresses, or injures — implying a sense of wrong done; hardship; injustice; trouble.

—Grief; affliction; sorrow.

Grieve, (*grēv,*) *v. a.* [D. *grieven;* Fr. *grever*, to oppress; Lat. *gravare*, from *gravis.*] To cause grief to; to give pain of mind to; to afflict; to wound the feelings of; to inflict pain on; to make sorrowful; to excite regret in; to try to hurt.

"*Grieving*, if aught inanimate e'er *grieves*,
Over the unreturning brave."—*Byron.*

—To mourn; to lament; to sorrow over; as, he *grieves* his ill luck.

—*v. n.* To feel grief, or pain of mind and heart; to lament; to sorrow; to mourn; to be in affliction; — often before *at* or *for.*

"Do you not *grieve at* this?"—*Shaks.*

Grieve, (*grēv,*) *n.* [Gael. *graf.*] In Scotland, a land-steward; the bailiff of a manor; a ground-reeve; the factor of an estate.

Griev'er, *n.* The person who, or thing which, grieves.

Griev'ingly, *adv.* In sorrow; sorrowfully.

Griev'ous, *a.* Causing grief; heavy; oppressive; burdensome; afflictive; painful; distressing; hard to be borne; as, a *grievous* misfortune. — Atrocious; offensive: tending to irritate or make angry; flagitious; hurtful; heinous; as, a *grievous* offence.

"It was a *grievous* fault,
And grievously hath Cæsar answer'd it."—*Shaks.*

—Exhibiting sorrow; expressing great grief or affliction.

"He sent *grievous* complaints to the parliament."—*Clarendon.*

Griev'ously, *adv.* In a grievous, calamitous, or heinous manner.

Griev'ousness, *n.* State or quality of being grievous; oppressiveness; pain; affliction; calamity; distress.—Enormity; atrociousness.

Griffin, Grif'fon, Gryph'on, *n.* [Fr. *griffon;* Lat. *gryps, gryphis,* also *gryphus,* from Gr. *grypos,* having a crooked nose or beak.] A fabulous animal, supposed to be generated between a lion and an eagle. It is represented with four legs, wings, and a beak, the upper part resembling an eagle, and the lower having the characteristics of a lion. This imaginary animal was supposed to watch over gold-mines and all hidden treasures, and was consecrated to the sun, whose chariot some of the ancient painters represent as drawn by griffins. Spanheim states that both the chariots of Nemesis and Jupiter were likewise provided with similar steeds. The griffin is found on many old medals; and it seems to have been a principal ornament of Grecian architecture.



Fig. 1202.
GRIFFIN.

(*Her.*) The *G.* is the symbol of strength, swiftness, courage, and vigilance; and it thus finds a place on many escutcheons. It is usually blazoned rampant, although occasionally *regreiant* is thought to be its proper position. The *G.* mentioned sometimes in Scripture was a species of eagle, called by the Latins *ossifraga,* or osprey.

(*Zoöl.*) A name applied by Cuvier to the genus GYPÆTOS, *q. v.,* and by Linnæus to the condor, *Vultur gryphus.* — See CONDOR.

Grif'fin, in *Georgia,* an important city, cap. of Spalding co., on 2 railroads, 43 m. S. of Atlanta. *Pop.* (1897) about 5,190.

Grif'fin, in *Texas,* a post-village of Cherokee co., about 17 m. N. by E. of Rusk.

Grif'fin, GERALD, an Irish novelist, born at Limerick, 1803. The *Collegians,* the most successful of his novels, contains pictures of Irish life unsurpassed in truthfulness. Died 1840.

Grif'fin Cove, a village and harbor of prov. of Quebec, co. of Gaspé, about 7 m. N. N. W. of Cape Razier; Lat. 48° 55′ N., Lon. 64° 23′ W.

Grif'finsburg, in *Virginia,* a village of Culpepper co., about 103 m. N. N. W. of Richmond.

Grif'fin's Corners, in *New York,* a post-office of Delaware co.

Grif'fin's Mills, in *New York,* a post-village of Erie co., on Cazenove creek, about 15 m. S. E. of Buffalo.

Grif'finville, in *Iowa,* a post-office of Appanoose co.

Grif'fithsville, in *W. Virginia,* a P. O. of Lincoln co.

Grig, *n.* [L. Ger. *kricke,* a little duck.] The sand-eel.—Moor-land; heath. (Prov. Eng.)—A merry creature. (Supposed to be a corruption of *Greek,* from the Latin saying, *Græculus festivus*—"as merry as a Greek.")

Grigg's Corners, in *Ohio,* a P. O. of Ashtabula co.

Griggs'town, in *New Jersey,* a post-village of Somerset co., about 9 m. S. of Somerville.

Griggs'ville, in *Illinois,* a city of Pike co., on Wabash R. R., 32 m. W. of Jacksonville. *Pop.* (1897) abt. 1,550.

Grignan, FRANÇOISE MARGUERITE DE SEVIGNÉ, (COUNTESS DE,) (*green'yang,*) an accomplished French lady, B. 1648, was the daughter of the celebrated Madame de Sévigné, and author of a *Résumé* of the system of Fénélon. D. 1705.—The small town of Grignan, of which her husband was the *seigneur,* and where she died, is in the dep. of the Drôme, 16 m. S.W. of Montélimard.

Grijo'ta. See TABASCO.

Grill, *v. a.* [Fr. *griller* — *grille,* a grate, cont. from Lat. *craticula,* dim. of *crates,* a grate.] To broil, as on a grate or gridiron.

"A sumptuous supper of a spatchcock, *grilled* bones, and punch."
Pierce Egan.

—To torment, as if by broiling; to roast, as with batter.

Grillade', *n.* [Fr., from *griller.* See GRILL.] Act or art of grilling; also, anything broiled on the gridiron; as, a *grillade* of chicken.

Grillage, (*gril'lāj,*) *n.* [Fr., from *grille,* a grating.] A framework of timber bulks and cross-beams, used in the construction of piers, &c., on marshy grounds.

Grille, *n.* [Fr.] A grating; a lattice-work opening in a gate, &c.

Grilse, *n.* A salmon of the second year.

Grim, *a.* [A. S. and Dan., grim, ugly, savage; Swed. *grymm,* horrid; It. *grimo,* old, wrinkled.] Fierce; ferocious; of forbidding aspect; furious; frightful; ghastly; hideous; ugly; surly; sour-looking; as, *grim* death.

"The whirlwind . . . hush'd in *grim* repose." — *Gray.*

Grimace, (*gri-mās′,*) *n.* [Fr.; Ger. *grimasse,* distortion of the face, from *grimm.*] A distortion of the countenance, whether proceeding from habit, affectation, or insolence; a smirk.

"Demure looks . . . set off with odd devotional *grimaces.*"—*South.*

—An air of affectation.

"Vice in a vizard, to avoid *grimace.*" — *Granville.*

Grimaced', *a.* Distorted in face; wearing a sour, crabbed look.

Grimaldi, (*gre-mal'dee,*) the name of an illustrious family of Genoa, distinguished as partisans of the Guelphs, the principal members of which were:—RANIERI GRIMALDI, a naval commander, served as admiral of France in 1314. ANTONIO GRIMALDI, also a naval commander and admiral, at length defeated by the combined fleets of Catalonia and Venice, under Pisani, in 1353. GIOVANNI GRIMALDI, renowned for a great victory over the Venetian admiral, Nicolo Trevisani, in May, 1431. DOMENICO GRIMALDI, cardinal-archbishop, and viee-legate of Avignon, distinguished at the battle of Lepanto, 1571; D. 1592. GERONIMO GRIMALDI, papal nuncio to Germany and France, and a distinguished philanthropist, 1597–1685.

Grimal'kin, *n.* [A corruption of *gray malkin,* a gray old witch supposed to resemble an old cat.] An old cat.

"*Grimalkin,* domestic vermin's everlasting foe." — *Philips.*

Grime, *n.* [Icel. *grima;* Swed. *grum,* grounds, dregs.] Foul matter; dirt; sullying blackness not easily cleansed; smut; sootiness.

—*v. a.* To dirt; to ingrain deeply with foul or sooty matter.

Grimes, in *Texas,* an E. central co.; *area,* abt. 750 sq. m. *Rivers.* Brazos and Navasito or Navisota rivers, and Spring Creek. *Surface,* principally rolling prairie; *soil,* very fertile. *Cap.* Anderson.

Grim'ly, *adv.* Fiercely; ferociously; with a look of sternness or grimness; sourly; sullenly.

"The augurs . . . look *grimly.*" — *Shaks.*

Grimm, JACOB LUDWIG, a distinguished German philologist, B. at Hanau, in Hesse-Cassel, 1785. He was educated at the university of Marburg, and in 1805 spent some months at Paris as assistant to Savigny. Three years later he was appointed librarian to Jérome Bonaparte, king of Westphalia, and had leisure for his favorite studies in early German literature. On the overthrow of the new kingdom of Westphalia, in 1813, he was made secretary of legation, under the restored electorate, and in that capacity was present at the Congress of Vienna. He held the office of sub-librarian to the elector from 1816 till 1829, his younger brother, Wilhelm, being also employed in the library. In the latter year he became first librarian to the university of Göttingen, which post, with a professorship, he held till 1837. In that year he was dismissed, as was also his brother from his similar office, for protesting against the violation of the constitution of the king of Hanover. In 1841 they both settled at Berlin, as professors in the university, and members of the Academy of Sciences. Among the principal works of this great scholar are *Deutsche Grammatik, Deutsche Mythologie,* and *Geschichte der Deutschen Sprache.* The great *Deutsches Wörterbuch,* the joint production of the two inseparable brothers, and perhaps their most important work, was left unfinished by them, but is in course of completion on their plan, and from their materials. The well-known *Kinder- und Haus-Märchen* was also their joint work. Jacob D. 1863.

Grimm, FRIEDRICH MELCHIOR, BARON DE, counsellor of state of the Russian empire, and a man of letters, B. in 1723, at Ratisbon. Going to Paris, he became principal secretary to the Duke of Orléans, and acquainted with Rousseau and other Parisian philosophers; an account of whose writings, friendships, disputes, &c., has been preserved in his *Correspondence,* which extraordinary medley, after a lapse of 30 years, was published in 16 vols. A supplement to this is the *Correspondence inédit de Grimm et Diderot,* (Paris, 1829.) It contains a complete history of French literature from 1753 to 1790, and is remarkable for its brilliancy and piquant criticism. In 1776 *G.* was appointed envoy from the Duke of Saxe-Gotha to the French court. On the revolution breaking out, he retired to the court of Gotha, where he found a safe asylum. In 1795, the empress of Russia made him her minister plenipotentiary to the states of Lower Saxony; and he was confirmed in that post by Paul I., and retained it till ill health obliged him to relinquish it. He then returned to Gotha, where he D., 1807.

Grim'ma, a walled town of Prussia, in Saxony, on the Mulde, 18 m. S.E. of Leipsic. *Manuf.* Cloths, woollens, and flannels. *Pop.* 6,500.

Grim'ness, *n.* Quality of being grim; fierceness or sternness of look; crabbedness.

Grims'by, (Great,) a seaport-town of England, in Lincolnshire, on the Humber, 15 m. S.E. of Hull; *pop.* 20,244.

Grims'by, a vill. of prov. of Ontario, co. of Lincoln.

Grim'ville, in *Pennsylvania,* a post-office of Berks co.

Grim'y, *a.* Dirty; foul; smutty; containing grime.

Grin, *v. n.* [A. S. *grinnian;* It. *digrignare,* from Lat. *ringor, rictus.*] To set the teeth together and withdraw the lips; or to open the mouth, and part the lips from the teeth, so as to show them in anger, pain, or mirth. —To fix or set the teeth, as in anguish.

—*n.* Act of closing the teeth, and showing them, or of opening the lips and exposing the teeth.

"All nature wears one universal *grin.*" — *Fielding.*

—*v. a.* To express by grinning.

"*Grinn'd* horribly a ghastly smile." — *Milton.*

Grind, (*grīnd,*) *v. a.* (*imp.* and *pp.* GROUND.) [A.S. *grindan,* to bruise; Goth. *grind,* small; Swed. & Goth. *gryn,* corn slightly bruised; allied to Ger. *trennen,* to separate, to rend.] To break and reduce to fine particles or powder by friction; to triturate; to break and reduce to small pieces by the teeth.

"Though the mills of God *grind* slowly, yet they *grind* exceeding small." — *Longfellow.*

—To sharpen by rubbing or friction; to polish by attrition, as glass; to rub, as one against another; as, to *grind* the teeth.

"Against a stump his tusk the monster *grinds.*" —*Dryden.*

—To harass; to oppress; to cause trouble or affliction to; to make exorbitant or unjust demands upon.

"Laws *grind* the poor, and rich men rule the law."—*Goldsmith.*

—To read up for honors; to prepare for examination; to go through the curriculum of study; as, he is *grinding* for his degree. (Used at the English universities.)

—*v. n.* To perform the operation of grinding; to be moved, or rubbed together, as in a mill.

"Smeary foam works o'er my *grinding* jaws." —*Rowe.*

—To be ground, triturated, or pulverized, by friction; as, this coffee *grinds* fine.—To be polished or made smooth by friction; to be sharpened by grinding; as, this axe *grinds* badly.—To drudge; to perform incessant and distasteful labor.

Grind'ed, old *pp.* of GRIND. Ground.

Grind'er, *n.* One who grinds, or the instrument used in grinding.—A tooth that grinds or chews food; a molar; a double tooth.

"The hack-teeth, which we call the molar teeth, or *grinders.*"
Bacon.

—*pl.* The teeth in general; as, "whetted *grinders.*"
Dryden.

Grind'ery, *n.* In England, the name given to shoemakers' materials generally.

Grindery warehouse, in England, a shop where shoemakers' materials (*grindery*) are kept for sale. (The equivalent American term is *finding-store.*)

Grind'ing-frame, *n.* A frame used in cotton-spinning.

Grind'ingly, *adv.* In a grinding manner.

Grind'ing-slip, *n.* A hone; a sharpening-stone for knives, &c.

Grin'dle Creek, in *N. Carolina,* enters Tar River in Pitt co.

Grind'let, *n.* A small drain or outlet.

Grind'stone, *n.* A flat circular stone, made to revolve upon an axis, and used for grinding steel, glass, other stones, &c. They are made of sandstone, or sandstone grit, of various degrees of coarseness, according to the purpose for which they are to be used. It has been found that a disc of soft iron, revolving with great rapidity, will easily cut the hardest steel. In like manner, silicious minerals, such as agate, onyx, chalcedony, jasper, &c., may be rapidly cut to any shape by means of large grindstones revolving very rapidly.

To hold one's nose to the grindstone, to keep one down, or in a state of durance or servitude.

Grin'nell, in *Iowa,* a fine manuf. city, of Poweshiek co., 55 m. N. E. of Des Moines, at Junction of C., R. I. & P. and Ia. Central R. Rs.; partially destroyed by a tornado in June, 1882. *Pop.* (1895) 3,232.

Grin'nell Land. A mountainous tract of polar land on the west side of Kennedy channel, which separates it from Greenland, and extending from Jones' Sound to Lat. 82° 30′ N. It was discovered by Dr. Hayes, of Kane's expedition, in 1854, and named after Henry Grinnell, of New York, the patron of the expedition. It was thoroughly explored by Greely in 1882. It is covered with ice caps N. and S., between which lie valleys free from snow in summer, and which support herds of musk ox and other Arctic animals.

Grin'ner, *n.* One who grins.

Grin'ningly, *adv.* In a grinning manner; with a grinning laugh.

Grip, or **la grippe,** *n.* (*Path.*) See SECTION II.

Grip, *n* [Dan. *grab.* See GRIPE.] A gripe; a grasp; a holding fast; force or power exerted in grasping; as, a strong *grip.* — A peculiar method of clasping the hand, practised by members of secret societies for the purpose of recognizing brethren; as, the Freemason's *grip.*—A handle; that by which anything is grasped; as, the *grip* of an axe.

—*v. a.* To grasp; to lay hold of firmly; to seize; to gripe; as, to *grip* a person by the arm.

Grip, *n.* [D. *groep.*] A small gulley, ditch, or furrow.

Gripe, *v. a.* [A. S. *gripan;* D. *grijpen;* Ger. *greifen;* Icel. *gripa,* to seize; Sansk. *grabh,* to seize. See GRAPPLE and GRASP.] To seize or grasp with the hand; to catch with the hand, and clasp firmly with the fingers; to hold fast; to grip; to squeeze; to clutch.

"He . . . doth *gripe* the hearer's wrist." — *Shaks.*

—To embrace closely; to seize, or hold fast greedily or covetously; as, a "*griping* hold." *Dryden.*—To pinch; to press; to straiten; to distress; as, *griping* poverty.—To give pain to the bowels, as if by spasms or contraction.

—*v. n.* To seize or catch by pinching; to exact money by harshness or meanness; as, a *griping* usurer.—To feel colicky pains; as, "the *gripings* of a hungry belly."
Locke.

(*Naut.*) To bring up into the wind;—said of a ship.

Gripe, *n.* Grasp; seizure; fast hold with the hand or paw, or with the arms; grip; clutch.

"They put a barren sceptre in my *gripe.*"—*Shaks.*

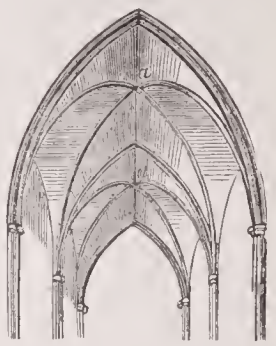
—A handle: that on which the grasp is laid; as, the *gripe* of a cutlass.—Oppression; crushing power; pinching penury or distress; cruel affliction; exaction.

"Canst thou . . . endure the bitter *gripes* of smarting poverty?"
Otway.

—*pl.* (*Med.*) Pinching pain in the bowels; colic; belly-ache.

(*Naut.*) The lower part of the knee of the head that connects with the foremost end of a ship's keel; the forefoot.—The compass of a vessel's stern under water.—(*pl.*) The assemblage of ropes, tackle, &c., fastening a ship's boats to ring-bolts on deck.

Gripe'ful, *a.* Having a tendency to gripe.
Grip'er, *n.* One who gripes; an oppressor; a usurer; an extortioner.
Grip'ingly, *adv.* In a griping manner. — With a colicky pain in the bowels.
Grippe, (*grĭp,*) *n.* [Fr.] The influenza.
Grise, *n.* Same as GRICE, *q. v.*
Griseldis, (*gris'el-dis.*) (*Lit.*) The name of the heroine of a popular tale of the Middle Ages, originally apparently Italian, but which was subsequently adopted by various other nations. She was, originally, a poor charcoal-burner, whom the Marquis Walter de Saluzzo took to wife, and then put her humility and obedience to the hardest tests; but she having victoriously surmounted them, a reconciliation took place. As a tale, said to have an historical foundation, we first meet with it in Boccaccio's *Decameron* (x. 10). It was translated into Latin by Petrarch in 1373, and in the 15th century it was well known in Germany. It was dramatized in Paris in 1393, in England in 1599, and in Germany, by Hans Sachs, in 1546.
Gris'eous, *a.* Of a mottled gray or grizzled color.
Grisette, (*gre-zĕt',*) *n.* [Fr.; Sp. *griseta*, from Fr. *gris*, gray, from young women of the working-classes wearing gowns of gray stuff.] In France, a young woman who earns her own livelihood by daily labor, but who conducts her own household, and lives independently.
Grisi, (*grē'ze,*) GIULIA, the eminent Italian vocalist, upon whom her contemporaries conferred the proud title of "Queen of Song," was born in 1812. Her father (Garcia) was an officer of engineers in the army of Napoleon I., and her aunt the once famous cantatrice Josephine Grassini. Giulia was educated in a convent at Girizia, and it is said that the success on the operatic stage of an elder sister, who died early, induced her to choose the same profession, although at the time her voice gave little promise. She made her *début* at Bologna in a contralto part, appeared in *Romeo e Giuletta* at Florence and at Milan, and made her first appearance in Paris and London in 1834, as Ninetta in *La Gazza Ladra*, where she achieved a decided success. Every part which she assumed afterwards steadily increased her reputation, which may be said to have been established by her impersonation of the Queen in *Semiramide*, and of Donna Anna in *Don Giovanni*. Her fame reached its climax in her rendition of the *rôles* of *Norma* and *Lucrezia Borgia*, in which characters her singing and dramatic acting have never been surpassed. Madame *G.* was twice married; on the second occasion to the unrivalled tenor Signor MARIO (Marquis de Candia) by whom she had a family. This gifted lady D. in 1870.
Gris'kin, *n.* The spine or vertebræ of a pig; as, a roasted *griskin* of pork.
Grisle'a, *n.* (*Bot.*) A genus of plants, order *Lythraceæ*. The flowers of *G. tomentosa* are employed in India, mixed with Morinda, for dyeing, under the name of *Dhace*.
Gris'led, *a.* See GRIZZLED.
Gris'liness, *n.* State or quality of being grisly or frightful.
Gris'ly, *a.* [A. S. *grislic*, from *agrisan*, to dread; Ger. *grässlich*, horrible, ghastly.] Frightful; horrible; ghastly; terrible.
"Thus the *grisly* spectre spoke again."—*Dryden.*
Gris'ly Bear, *n.* See GRIZZLY.
Grisnez, (*gre'nay,*) a headland of France, dep. Pas-de-Calais, situate Lat. 50° 52′ N., Lon. 1° 23′ E. There is a light-house.
Gri'son, *n.* [Fr., from *gris*, gray.] (*Zoöl.*) The Glutton, genus GULO, *q. v.*
Grisons, (*gree'zong.*) [Ger. *Graubünden.*] The most S.E. of the cantons of the Swiss Confederation, bounded on the E. by the Tyrol, N.W. by St. Gall, Glarns, and Uri, S. by Ticino, and S.E. by Lombardy. *Area*, 2,980 sq. m. *Prod.* Fruit, corn, hemp, and flax, but cattle are the prime source of wealth to the majority of the inhabitants. *Manuf.* Cotton and domestic fabrics. The canton is divided into five great valleys, and is mountainous throughout, being intersected by various lofty ranges of the Alps. Iron, lead, and zinc are known to exist, but the mines are not worked. *Pop.* 101,000.
Grist, *n.* [A. S., from *grindan*, to grind.] As much grain as is carried to the mill at one time, or the meal it produces.
"Get *grist* to the mill to have plenty in store." *Tusser's Husbandry.*
—Provision; profit; gain.
"Form must fail if matter brings no *grist*."—*Swift.*
Gristle, (*grĭs'l,*) *n.* [A. S.; allied to Lat. *cartilago*, a cartilage.] (*Anat.*) A cartilage; a smooth, solid, elastic substance in animal bodies.—See CARTILAGE.
Gris'tly, *a.* Cartilaginous; consisting of, or resembling gristle.
Grist'-mill, *n.* A mill for grinding grain; especially, a mill for grinding grists, or portions of grain brought by different customers.
Gris'wold, in *Connecticut*, a post-town of New London co., about 45 m. E. S. E. of Hartford. *Pop.* (1890) 3,113.
Gris'wold, in *Iowa*, a post-town of Cross co., on C., B. & Q. and C., R. I. & P. R. Rs., 97 m. S. W. of Des Moines. *Pop.* (1895) 937.
Gris'wold, in *Michigan*, a P. O. of Kent co.
Gris'wold, in *Missouri*, a post-village of Oregon co.
Gris'wold, in *New York*, a P. O. of Chautauqua co.
Gris'wold, in *North Dakota*, a P. O. of Lamoure co.
Gris'woldville, in *Georgia*, a post-office of Jones co.
Gris'woldville, in *Massachusetts*, a post-village of Franklin co.
Grit, *n.* [A. S. *greot*, sand, dust; Ger. *gries*, gravel; *grütze*, grits, groats. See GRIND.] The coarse part of meal. — Sand or gravel; rough, hard particles.
"Obstructing *grit* and restive marl." — *Philips.*
—A substance or structure suitable for grinding well; as, a hone of good *grit*. — (*pl.*) Oats hulled, husked, or coarsely ground. — Spirit; courage; firmness of mind or resolution; pluck; spunk; as, he's got real *grit* about him. (U. S. Colloq.)
(*Geol.*) A hard, silicious sandstone; as, millstone *grit*. (Sometimes called *gritstone*, and *gritrock*.)
—*v. n.* To give forth a grinding sound, as of sand under the feet.
"The sanded floor that *grits* beneath the tread." —*Goldsmith.*
—*v. a.* To grind; to grate; as, to *grit* the teeth. (Used colloquially.)
Grita (La), (*la gree'ta.*) a town of Venezuela, dep. of Zulia, in the prov., and abt. 65 m. S.W. of the city of Merida.
Grit'rock, Grit'stone, *n.* (*Geol.*) See GRIT.
Grit'tiness, *n.* Quality of containing grit, or consisting of grit, sand, or small, hard, rough particles of stone.
Grit'ty, *a.* Containing or consisting of sand or grit; characterized by hard particles.—Resolute; courageous; steadfast; plucky; as, a *gritty* bet. (U. S. colloq.)
Griz'elin, *a.* Same as GRIDELIN, *q. v.*
Grizon, (*gre'zon,*) one of the Grenadines, West Indies, abt. 8 m. N.E. of Grenada; Lat. 12° 20′ N., Lon. 61° 37′ W.
Grizzle, (*griz'l,*) *n.* [Fr., Span., and Pg. *gris*, gray.] Gray; a mixture of white and black; a gray color.
Griz'zled, *a.* Gray; of a mixed white and black color.
"His hair just *grizzled* as if in green old age."—*Dryden and Lee.*
Griz'zly, *a.* Grayish; somewhat gray.
Grizzly bear. (*Zoöl.*) See BEAR.
Griz'zly Flats, in *California*, a post-office of El Dorado co., abt. 20 m. S.E. of Placerville.
Groan, (*grōn,*) *v. n.* [A. S. *granian, grunan;* W. *grwn*, a rumbling sound, a murmur; *grwnan*, to make a droning noise; formed from the sound.] To utter a mournful voice, as in pain or sorrow; to moan; to sigh heavily; to breathe with a deep murmuring sound; to complain of oppression.
"Repenting and *groaning* for anguish of spirit."—*Wisd.* v. 13.
—To seek after seriously, as with groans.
—*n.* A deep mournful sound, uttered in pain, sorrow, or anguish; any low, rumbling sound; sometimes, a deep-toned cry of derision, — in this sense opposed to *cheer;* as, his speech was interrupted by *groans* from his auditory.
"Where hopeless anguish pour'd his *groan*."—*Dr. Johnson.*
Groat, (*grawt,*) *n.* [D. *groot;* L. Ger. *grot*, great.] Formerly, an English coin of copper or brass, as distinguished from the small copper coin, of which there were five in the groat; — in the modern sense, an English money of account, equal to four pence, or 8 cents; — hence, a proverbial name for a small sum.
"A woman much his inferior, and without a *groat* to her fortune." *Swift.*
Groats, (*grawts,*) *n. pl.* [See GRIT.] Wheat or oats in a hulled state.
Emden groats. (*Com.*) Crushed oaten groats.
Gro'cer, *n.* [O. Fr. *grossier*, from *gros, gross*, great.] Originally, one who sold goods in the gross or by wholesale; in modern acceptation, a merchant or tradesman who deals in tea, coffee, sugar, spices, liquors, fruits, &c.
Gro'cery, *n.* The articles or commodities sold by grocers; applied in the singular in England, in the plural in the U. States. — In the U. States, a grocer's store. (In England, *grocer's shop*, or, colloquially, *the grocer's.*)
Grod'no, a city and port of Europeau Russia, chief town of the govt. of Grodno, in Lithuania, 90 m. S.W. of Wilna, on the right bank of the river Niemen. *Manuf.* Cloth, silk, gold and silver ware. *Pop.* 19,800.
Groes'beck, in *Ohio*, a post-office of Hamilton co.
Groff, *a.* [See GROVEL.] Grovelling; flat on the ground; low; prostrate.
Groff's Store, in *Pennsylvania*, a P.O. of Lancaster co.
Grog, *n.* [The English Admiral Vernon, after the reduction of Porto Bello, 1739, introduced the use of rum and water among his ships' crews. In bad weather he was in the habit of walking the deck in a rough *grogram* cloak, and thence had obtained the nickname of *Old Grog* in the service. This is believed to be the origin of the term *grog*, applied originally to rum and water.] A mixture of spirits and water, taken cold without sugar. (The term *hot grog* is sometimes applied to *rum-punch.*)
Grog'-blossom, *n.* A rubescence found on the noses or faces of men who indulge in ardent liquors to excess.
Grog'gery, *n.* A grog-shop; a tavern where spirits are sold.
Grog'giness, *n.* State or condition of being groggy or obfuscated with liquor.
(*Manege.*) A stiffness in a horse's foot which causes a hobbling motion of the leg.
Grog'gy, *a.* Tipsy; fuddled; intoxicated with liquor. (Vulgar.)
—Blown; tottering with weakness in a fight; as, a *groggy* pugilist.
(*Manege.*) Moving in a jerky, hobbling manner, owing to a tenderness or stiffness in the foot; — said of a horse.
Grog'ram, Grog'rau, *n.* [O. Fr. *grosgrain*, grogram; It. *grossagrana*, coarse grain.] A kind of stuff made of silk and mohair, and having a coarse grain or texture.
"'T was madam in her *grogram* gown."—*Swift.*
Grog'-shop, *n.* A groggery; a store, shop, or tavern where spirituous liquors are sold by retail.
Groin, *n.* [Icel. *grein*, a branch; Swed. & Goth. *gren*, a branch, from *grena*, to divide, to separate.] The part of the human body where there is a division or separation between the belly and thighs in front.
Groin, *v. a.* (*Arch.*) To form into groins; to embellish with groins.
"The hand . . . that *groined* the aisles of Christian Rome."
Emerson.
(*Arch.*) The angle formed by an intersection of vaults (*a a*, Fig. 1203.) Most of the vaulted ceilings of the buildings of the Middle Ages were groined, and therefore called *groined ceilings*. During the early part of the Norman style the groins were left purposely plain, but afterwards they were invariably covered with ribs.


Fig. 1203.—A GROINED VAULT.

(*Coast-Engineering.*) In England, a frame of woodwork, constructed across a beach, between high-and low-water mark, perpendicular to the general line of it, either to retain the shingle already accumulated, to recover it when lost, or to accumulate more at any particular point; also to break and check the action of the waves. The component parts of a *G.* are *piles, planking, land-ties, land-tie bars, blocks, tail-piles, keys*, and *screw-bolts*. The length of a *G.* depends on the extent and the requisite strength of its component parts, and on the nature of the beach on which it is to be constructed. (Sometimes written *groyne.*)
Groined, *a.* (*Arch.*) Having an angular curve made by the intersection of simple vaults crossing each other; as, a *groined* ceiling.
Grom'et, *n.* See GROMMET.
Grom'well, *n.* (*Bot.*) See LITHOSPERMUM.
Grom'met, Grom'et, *n.* (*Naut.*) A ring or loop made at the end of a piece of rope by intersplicing the strands.
(*Ordnance.*) See GRUMMET.
Grö'ningen, a fortified city and sea-port of Holland, cap. of the province of the same name, on the Hunse, 87 m. N.E. of Amsterdam. *Manuf.* Paper, butter; and it has also ship-building docks, and a large trade in cattle. The university, founded in 1614, endowed with the revenues of sundry abbeys, has maintained a very high character for the grade of scholarship imparted. *Pop.* 37,634. — The province of *G.*, situated in the N.E. of Holland, is bounded N. by the German Ocean, E. by Hanover, and S. and W. by Drenthe and Friesland. *Area*, 886 sq. m. Its chief wealth lies in its pastures. *Pop.* 229,018.
Gro'ningenist, *n.* (*Eccl. Hist.*) One of a subdivision of the sect of Anabaptists, formed at Gröningen, Holland.
Groom, *n.* [Belg. *grom*, a boy; Ir. *grúiméir*, a groom; Armor. *grom*, a curb.] A man or boy who has the charge of horses; one who takes care of horses or the stable.
"Many a squire attends, and many a *groom*."—*Fairfax.*
—In England, the term applied to several officers of the royal household, in the Lord Chamberlain's department; as, *Groom* of the Chamber, *Grooms*-in-waiting, *Groom* of the Stole (keeper of the robes), &c. See GROOM-PORTER.
—*v. a.* To tend, feed, and take care of, as a groom does horses.
Groom, *n.* [A.S. and Goth. *guma*, a man; W. *gwr*, a man. The W. *r* seems to have been adopted into the A.S. *guma*, as it does not appear in any other of the Teutonic forms.] A man recently married; or one who is accompanying his intended spouse in order to be married; a bridegroom.
"The brides are waked, their *grooms* are dressed."—*Dryden.*
Groom'-porter, *n.* In England, a former officer of the royal household, in the Lord Steward's department, who succeeded to the place of Master of the Revels, and superintended all sports, &c.
Grooms, in *New York*, a post-office of Saratoga co.; formerly GROOM'S CORNERS.
Grooms'man, *n.* A bridegroom's attendant, or "best-man," at his nuptials; — correlative to *bridesmaid.*
Grooms'port, a fishing-village and coast-guard station of Ireland, co. of Down, Ulster, abt. 3 m. N.W. of Donaghadee; *pop.* abt. 568. Memorable as the landing-place of the Duke of Schomberg's army in 1690.
Grooms'ville, in *Indiana*, a P. O. of Tipton co.
Groop'er, *n.* (*Zoöl.*) See GROUPER.
Groot, *n.* [Ger.] A small coin, current in N. Germany, equal to abt. 1 cent.
Groove, *n.* [A.S. *græf, graf;* D. *graf;* Ger. *grab;* Dan. *grav;* Icel. *gröf*, a grave. The A.S. is from *grafan*, to grave. See GRAVE.] A channel, hollow, or furrow cut by a groove; a channel in the edge of a moulding, stile, or rail; a sunken rectangular channel. — Usually employed to connect two pieces of wood together, the piece not grooved having on its edge a tongue, or projection, whose section corresponds to and fits the groove.
(*Mining.*) In some parts of England, the term given to a shaft or excavation.
(*Mil.*) In rifled fire-arms, two or more furrows, cut in a spiral direction in the interior of the barrel. The parts of the barrel between the grooves are called *lands.*
—*v. a.* To cut a channel with an edged tool; to furrow.
"Of the box every joint was well *grooved*." — *Swift.*
Groov'er, *n.* A miner. (Used in some of the English mining districts.)
Groov'ing, *n.* A groove, or collection of furrowed cuttings.
Groo'ver's, in *Georgia*, a small village of Effingham county.
Grope, *v. n.* [A. S. *gropian, gropan;* closely allied to *gripe* and *grasp.*] To feel along, as with the hands; to

search or attempt to find in the dark, or after the manner of a blind person, by feeling;—hence to seek blindly in intellectual darkness, without a guide or certain means of knowledge.

"O truth divine! enlightened by thy ray,
I *grope* and guess no more, but see my way." — *Arbuthnot.*

—*v. a.* To search by feeling in the dark; as, we were obliged to *grope* our way. — To sound; to scrutinize; to examine insinuatingly.

"Felix *gropeth* him, thinking to have a bribe." — *Acts.* xxiv., (*Genev. Test.*)

Grop'er, *n.* One who gropes, searches, or feels his way in the dark.

Grop'ingly, *adv.* In a groping manner.

Grop'pite, *n.* (*Min.*) A hydrous silicate of alumina, containing small quantities of oxide of iron, magnesia, lime, soda, and potash. Color, red; *sp. gr.* 2·73. Occurs at Gropptorp, Sweden.

Groro'ilite, *n.* [From *groroi*, a French town, and Gr. *lithos*, stone.] (*Min.*) A brownish-black variety of WAD, *q. v.*

Gros, (*grō.*) [Fr.] Thick; heavy; strong;—used in many compound words applying to silken fabrics; as, *Gros de Naples.*

Gros, ANTOINE JEAN, BARON, a distinguished French painter, professor of painting at the École Royale des Beaux Arts, B. at Paris, 1771. His pencil was chiefly devoted to the illustration of subjects from the history of France during the career of Napoleon; and his pictures, though coarse, are conspicuous for vigor and facility of execution. D. 1835.

Gros'beak, *n.* (*Zoöl.*) See GROSSBEAK.

Groschen, (*grosh'n,*) *n.* [Ger.] A silver current coin of Prussia of 30 to the thaler, or equivalent to 2 cents and a fraction American.

Gross, *a.* [Fr. *gros*; It. *grosso*; Sp. *grueso*; Gr. *gross*; L. Lat. *grossus*, corrupted from Lat. *crassus*, dense, flat, thick.] Huge; great; excessively large: — in application to animals.

"The crows and choughs . . . shew scarce so *gross* as beetles." *Shaks.*

—Thick; huge; corpulent; dense; without tenuity; as, a *gross* material.

"A *gross* fat man? — Aye, fat as butter." — *Shaks.*

—Coarse; rough; crude; inelegant; opposed to *delicate*; as, a *gross* sculpture. (*Wotton.*) — Stupid; dull; obtuse; without sensibility or quickness of perception.

"Tell of her of things that no *gross* ear can hear." — *Milton.*

—Vulgar; obscene; indelicate; impure; as, *gross* sensuality, a *gross* expression. — Great; palpable; as, a *gross* mistake, a *gross* breach of decorum. — Whole; total; entire, — as opposed to a sum or quantity consisting of several parts or amounts; as, *gross* proceeds.

Gross adventure. (*Marit. Law.*) The contract of bottomry. See BOTTOMRY. — *Gross average.* (*Mar. Law.*) That kind of average which falls on the gross interests involved, or, in other words, the entire value of ship, freight, and cargo; — in contradistinction to *particular average.* (It is more frequently termed *general average.*)

Gross, *n.* The bulk; the mass; the main body; the major, chief, or principal part; as "the *gross* of the people." — *Burke.*

"In the *gross* and scope of mine opinion." — *Shaks.*

—The number of 12 dozen, or 12 times 12; as, a *gross* of pens.

In gross, in the gross, in the bulk; all parts taken together; the sum-total, or the whole undivided; as, a shipment *in the gross.* — *Advowson in gross.* (*Law.*) A personal advowson, or one not manorial. — *A great gross,* 12 gross, or 144 dozen. — *By the gross,* taken in the lump, or by the quantity. "He hath ribbons . . . . *by the gross.*" (*Shaks.*) — *Gross weight.* (*Com.*) The weight of goods or merchandise with that of the dust or dross, or of the cask, package, &c., in which they may be contained. After deducting an allowance for tare and tret (and, sometimes, draft), the remaining weight is termed *net.*

Grossa'les, *n. pl.* (*Bot.*) An alliance of plants, subclass *Epigynous Exogens.* DIAG. Dichlamydeous polypetalous flowers, numerous minute seeds, and a small embryo lying in a large quantity of albumen. It is divided into 4 orders, viz., GROSSULARIACEÆ, ESCALLONIACEÆ, PHILADELPHACEÆ, and BARRINGTONIACEÆ, *q. v.*

Gross'beak, GROSBEAK, *n.* (*Zoöl.*) A genus of birds, family *Fringillidæ.* There are a great variety of birds belonging to this genus, and their general appearance is very similar to birds of the Finch kind. They are distinguished by a strong and thick bill, by means of which they are enabled to break the stones of cherries and other fruit with the greatest facility. In general they are a shy, solitary race, chiefly residing at a distance from the abodes of man. Their feet have three toes before and one behind; and their food generally consists of fruits and seeds. Among the American species are the Evening *G.*, *Hesperiphona Vespertina*, and the Pine *G.*, *Pinicola Canadensis.* The varieties in the color of this bird are white, yellowish-gray, and gray; the wings and tail are often white, and the plumage generally partakes of that color. The nest which the female builds is one of the prettiest kind, being colored and decorated with all kinds of brilliantly tinted mosses, and lined inside with down and feathers. The eggs are of a bluish-green color, with brown spots. The bird is generally about seven inches long; it has no song worthy of notice.

Grosse Pointe, in *Michigan*, a township of Wayne co.

Grossetete Bayou, in *Louisiana*, a small river of Point Coupee parish.

Gross'-headed, *a.* Obtuse; stupid; chuckle-headed; having a thick skull.

Grossifica'tion, *n.* [Eng. *gross*, and Lat. *facere*, to make.] Act of making gross, solid, or thick.

(*Bot.*) The swelling of the ovary of plants after fertilization.

Gross'ly, *adv.* In a gross manner; coarsely; bulkily; without delicacy; as, *grossly* abused.

Gross'ness, *n.* State or quality of being gross; thickness; coarseness; corpulence; enormity.

Gros'sular, *a.* [From Lat. *grossulus*, a small fig.] Pertaining to, or resembling a gooseberry.

Grossulariaceæ, (*gros-su-lā-re-ai'se-e,*) *n. pl.* [Lat. *grossula*, a gooseberry.] (*Bot.*) An order of plants, alliance *Grossales.* DIAG. Pulpy fruit and parietal placentæ. — They consist of shrubs, natives of the temperate regions of Europe, Asia, and North America. Some of the species have spines and prickles. The leaves are alternate, lobed, and radiate-veined. The flowers are axillary, racemose, perfect, or rarely unisexual; with superior calyx 4-5-lobed; five minute petals inserted on the calyx; five stamens alternate with the petals, and inserted in the same manner; and an inferior 1-celled ovary, with two parietal placentas. The fruit is pulpy, with numerous seeds. There are but two genera and 95 species. Some are showy garden-plants; but they are mostly remarkable for their agreeable acid fruits, known as gooseberries, and red, white, and black currants, belonging to the genus RIBES, *q. v.*

Gros'sularite, *n.* (*Min.*) The *lime-alumina* garnet. It is a silicate of alumina and lime. *Comp.* Silica 40·1, alumina 22·7, lime 37·2. Some lime is often replaced by protoxide of iron. Color white, but varying to brown, yellow, and green, from the presence of iron manganese and rarely chromium. *Sp. gr.* 3·4–3·75. Cinnamon stone (*q. v.*) is included in this variety. The original *G.* included a green variety from Siberia, and was named from *Grossularia*, the botanical name for the gooseberry.

Grosvenor Dale, (*grōv'nor,*) in *Connecticut*, a post-office of Windham co.

Gross'wardin, Gross'wardein, [Magyar, *Nógy-Várad,*] a fortified city of Austria, in Hungary, 135 m. E. of Buda. *Manuf.* Linens, woollens, and cutlery. *Pop.* 24,200.

Grot, *n.* A grotto. See GROTTO.

"Here in cool *grot*." — *Lord Mornington.*

Grote, GEORGE, D.C.L., F.R.S., an eminent English historian and essayist, is the son of a London banker, and was B. in 1794. He was educated at the Charterhouse, and devoted his adolescent years to banking and mercantile pursuits, passing his leisure in unremitting study of classical literature. While contributing important articles to the Reviews on political and poetical subjects, *G.* was busily engaged on his great work *The History of Greece*, the first vol. of which appeared in 1846, and the last in 1856. This work at once placed the author in the first rank of historians, and was followed, in 1865, by his *Plato and the other Companions of Socrates.* D. 1871.

Grotesque, (*gro-tèsk'.*) *a.* [Fr., from *grotte*, a grotto; It. *grottesca*; Sp. *grotesco.*] Wildly formed; whimsical; extravagant; ludicrous; of irregular forms and proportions; odd; antic.

(*Fine Arts.*) A term applied to capricious ornaments, which as a whole have no type in nature; consisting of figures, animals, leaves, flowers, fruits, and the like, all connected together. This light, fantastic, and often very beautiful style was much in favor during the Renaissance. It was so called in the 13th cent., from its having been rediscovered in the excavations made in the Baths of Titus and other ancient Roman buildings, the Italian word *grotto* applying to any subterranean chamber.



Fig. 1204. — GROTESQUE.

Grotesquely, (*gro-tèsk'le,*) *adv.* In a grotesque or fanciful manner.

Grotesque'ness, *n.* State or quality of being grotesque.

Gro'thite, *n.* (*Min.*) A titanite-like mineral from Plauen Grund, near Dresden. — See TITANITE.

Gro'tius, or DE GROOT, (HUGO,) an eminent scholar and statesman, was B. at Delft, in Holland, in 1583. He was descended from a noble family, received an excellent education, and gave early manifestations of surprising talents. In 1599 he commenced his career as advocate; and he was successively appointed historiographer, advocate-general of Holland and Zealand, a member of the states-general, and envoy to England. Hitherto his life had been marked by splendor, but now it began to be clouded by the part which he took in the Arminian controversy. In 1613 he became syndic, or pensionary, of Rotterdam, and declaring himself on the side of Barneveldt, he supported him and the cause of the Arminians by his pen and influence. But he narrowly escaped the fate of Barneveldt, who suffered on the scaffold, and received sentence of imprisonment for life in the fortress of Loewestein. From this, however, at the expiration of 18 months, which he had employed in writing his celebrated *Treatise on the Truth of the Christian Religion*, he succeeded in escaping. This was effected by the management of his wife, who contrived to have him carried out of the castle in a chest that had been used for the conveyance of books and linen. *G.* at first sought an asylum in France; and it was during his residence there that he composed his great work, *De Jure Belli et Pacis.* After an absence of 12 years, he returned to his native country, relying on the favor of Frederic Henry, prince of Orange, who had written him a sympathizing letter. But by the influence of his enemies he was condemned to perpetual banishment. He passed the remnant of his life in the diplomatic service of Sweden, and D. at Rostock, in 1645. With the talents of the most able statesman, *G.* united deep and extensive learning. He was a profound theologian, a distinguished scholar, an acute philosopher, a learned jurist, and an erudite historian. Among his works not mentioned above may be noticed *De Antiquitate Reipublicæ Batavicæ*; a *History of the Goths*, &c.

Gro'ton, in *Connecticut*, a post-township of New London co., on the Thames River and Long Island Sound, opposite New London. There still may be seen Fort Griswold, memorable for the massacre of an American garrison by the British in 1781. The British having captured the fort after a desperate resistance, Col. Ledyard, the American commander, surrendered to the officer of the detachment, and was immediately killed with his own sword, most of his men being also butchered. A granite monument, to commemorate that event, was erected in *G.* in 1830.

Groton, in *Massachusetts*, a post-village and township of Middlesex co., on the Nashua and Squannacook rivers, abt. 35 m. N.N.W. of Boston.

Groton, in *New Hampshire*, a post-township of Grafton co.

Groton, in *New York*, a post-village and township of Tompkins co., about 12 m. N.E. of Ithaca. *Pop.* (1890) 1,280.

Groton, in *Ohio*, a township of Erie co.

Groton, in *South Dakota*, a post-village and township of Brown co., on the C., M. & St. Paul and the C. & N. W. R. Rs., 32 m. E. of Aberdeen. Is in a wheat growing region and has roller flour mills. *Pop.* of village (1895) 601.

Groton, in *Vermont*, a post-township of Caledonia co.

Groton Centre, in *Connecticut*, a village of New London co., on the Thames river, opposite New London.

Groton Junction, in *Massachusetts*, a village of Middlesex co., about 30 m. N.N.W. of Boston.

Grottamare, (*grot-ta-ma'ray,*) a town of the Pontifical States, Italy, 14 m. W. of Fermo. *Manuf.* Licorice, and refined sugar. *Pop.* 4,850.

Grot'to, *n.*; *pl.* GROTTOES. [Fr. *grotte*; It. *grotta*; Sp. *gruta*; A. S. *grut*; probably from Lat. *crypta*, Gr. *kryptē*, a cave, a vault, from Gr. *kryptō*, to conceal.] A concealed or covered passage or cavity; a natural cave or rent in the earth; an artificial or ornamental cave for coolness or delectation. — See CAVE.

Grot'to-work, *n.* Ornamental work or shell-work in a garden, in imitation of a grotto.

Grou'an-lode, *n.* (*Mining.*) In Cornwall, Eng., any tin lode which abounds with rough gravel or sand.

Grouchy, EMMANUEL, (*groo'shé,*) MARQUIS DE, a marshal of France, and a scion of a noble Norman family, B. at Paris, 1766. He is known as a brave and successful soldier in the wars of Napoleon, but chiefly memorable for the fatuity which seemed to rule his conduct at the battle of Waterloo. With 35,000 men and formidable artillery under his orders, he remained immovable, either by the prayers or threats of the other generals, in a position which could only be justified by the strict letter of his instructions. It is not certain that he intended to betray the cause of Napoleon, but his culpable indecision certainly contributed to the disaster which befell the French arms. He was twice afterwards summoned before a council of war, but each time escaped judgment in consequence of the court's declaring itself incompetent. *G.* was included in the special amnesty of 1819, and restored to his military rank on the accession of Louis Philippe. D. 1847.

Ground, *n.* [A. S., Ger., Dan., and Swed. *grund*; D. *grond*; Fris. *grund, grond*; O. Sax. *grund*; Icel. *grunnr*; Gael. *grunnd*; Goth. *grundu*; Esthon. *krund.* Root, Sansk. *gred*, to go.] The earth, considered as superficially extended; the surface of land or upper part of the earth, without reference to the materials.

"Man to till the *ground* none was." — *Milton.*

—Region; territory; land; estate; possession.

"Where'er we tread, 't is haunted, holy *ground*." — *Byron.*

—Basis; foundation; that which supports anything; hence, fundamental cause; primary reason or original principles; first principles; premise; dictum; originating force or agency.

"To the solid *ground*
Of nature trusts the Mind that builds for aye." — *Wordsworth.*

—Field or place of action; as, a battle-*ground*, a cricket-*ground.*

—A viscous preparation spread over the surface of a metal plate previous to etching, in order to prevent the nitric acid from eating except where an opening is punctured by a needle.

(*Mus.*) A composition in which the bass consists of a few measures constantly repeated; — the plain song.

(*Painting.*) The first layer of color on which the figures or other objects are painted; as, blue on a white *ground.* — The term is also applied to the different distances in a picture, as fore-*ground*, middle-*ground*, back-*ground.*

(*Sculp.*) The surface from which the figures rise in *relievi.*

(*Arch.*) The face of the scenery or country round a building.

—*pl.* Pieces of wood fixed to walls and partitions, with their surfaces flush with the plaster, to which the facings or finishings are attached.

—*pl.* The bottom of liquors; dregs; lees; sediment; as, coffee-*grounds.*

To gain ground, to advance; to progress onward; to proceed forward; as, an army *gains ground*, a rumor *gains ground*. (Used in a sense which implies advantage or success.) — *To get ground, to gather ground*, to gain ground. (R.)

"If they *get ground* and 'vantage of the king." — *Shaks.*

To give ground, to recede; to draw back; — hence, to yield opportunity or advantage.

To lose ground, to retire; to withdraw from a position taken and held; to retreat;—hence, to decline in profit, esteem, or credit; to lose advantage.

"At length the left wing of the Arcadians began to *lose ground*." *Sidney.*

To stand ground,(with the reciprocal pronoun,) to hold firmly to a thing, place, or position; not to give way, or withdraw.

"He will *stand his ground* against all attacks." — *Atterbury.*

—*v. a.* To lay, set, or fix on the ground. — To found; to rest or base, as on a foundation, cause, reason, or principle; to fix or establish firmly.

"This is *grounded* upon the principles of nature and common reason." — *Swift.*

—To instruct in elements, rudiments, or first principles; as, he is well *grounded* in the classics.

—*v. n.* To run aground or ashore; to strike the bottom and remain stationary or fixed, as a ship.

"She *grounded* on a spit in bare three fathoms." — *Howard.*

Ground, *imp.* and *pp.* of GRIND.

Ground'age, *n.* Dues paid by a ship for the room it occupies while in port or harbor.

Ground'-ang'ling, *n.* (*Sports.*) The practice of angling for fish with a weight placed over the hook, instead of using a float on the surface of the water.

Ground'-ash, *n.* A shoot or sapling cut from an ash-tree.

"A lance of tough *ground-ash* the Trojan threw." — *Dryden.*

Ground'-bailiff, *n.* (*Mining.*) The overseer or superintendent of a mine.

Ground'-bait, *n.* (*Sports.*) In angling, balls made of greaves, bran, broiled grain, &c., mixed up with clay and thrown into the water, by which the fish are brought together upon those spots which the angler selects for his sport.

Ground'-bass, *n.* (*Mus.*) A bass of a very few bars, continually repeated; — a fundamental or radical bass.

Ground'-cherry, *n.* (*Bot.*) See PHYSALIS.

Ground'edly, *adv.* Upon firm principles; in a grounded or established manner.

Ground'-floor, *n.* The lower story of a house, or that which is on a level, or thereabouts, with the ground outside.

Ground'-form, *n.* (*Gram.*) The basis of a grammatical word to which the adjuncts are added in declension and conjugation.

Ground'-gru, *n.* See GROUND-ICE.

Ground'-hemlock, *n.* (*Bot.*) See TAXUS.

Ground'-hog, *n.* (*Zoöl.*) The Woodchuck. See MARMOT.

Ground'-ice, *n.* Ice formed under peculiar circumstances at the bottom of running water. M. Arago attributes the formation of *G. I.* to three circumstances: 1. In a body of water in motion, the temperature of which is below 39° Fahr. (under which water becomes specifically lighter by a further diminution of temperature), the eddies of the current throw down the coldest parts which in still water would remain at the surface, so that the whole stream from the surface to the bottom acquires the same temperature through this mechanical action; 2. The aptitude for the formation of crystals on the stones and asperities at the bottom; 3. Less impediment to the formation of crystals at the bottom, in consequence of the comparatively greater stillness of the water. (Sometimes termed *ground-gru.*)

Ground'-ivy, *n.* (*Bot.*) See NEPETA.

Ground'-joint, *n.* (*Mach.*) A joint for fitting certain surfaces by rubbing them with fine-grained emery and oil.

Ground'-joist, *n.* (*Building.*) A joist belonging to the basement or ground-floor of a house.

Ground'less, *a.* Wanting ground, basis, or foundation: not authorized or authenticated; false; as, a *groundless* suspicion.

Ground'lessly, *adv.* In a groundless manner.

Ground'lessness, *n.* State or quality of being groundless, or without cause or foundation.

"The notorious falsehood and *groundlessness* of his calumny." *Tillotson.*

Ground'-line, *n.* (*Math.*) In geometry, the line intersecting the horizontal or vertical planes.

Ground'ling, *n.* A spectator placed in the pit of a theatre, which was formerly on the ground, without having even flooring or seats.

Ground'-liverwort, *n.* (*Bot.*) See PELTIGERA.

Ground'-mould, *n.* (*Civil Engineering.*) A mould whereby the surface of the ground is wrought to any desired form.

Ground'-nest, *n.* A nest made in the ground.

Ground'-nut, *n.* (*Bot.*) See ARACHIS.

Ground'-oak, *n.* An oaken shoot or sapling.

Ground'-pine, *n.* (*Bot.*) See LYCOPODIUM.

Ground'-plan, *n.* (*Arch.*) The surface design of the divisions or compartments of a building.

Ground'-plane, *n.* The horizontal plane of projection employed in perspective drawing.

Ground'-plate, *n.* (*Arch.*) See GROUND-SILL.

Ground'-plot, *n.* The ground on which a building is erected or placed.

(*Arch.*) The ichnography or plan representing the horizontal section of the lower story of a building.

Ground'-rent, *n.* (*Law.*) Rent paid for the privilege of building on another man's ground; rent paid for the use of ground.

Ground'-robin, *n.* (*Zoöl.*) See PIPILO.

Ground'-room, *n.* A lower room in a building.

Ground'sel, *n.* [A. S. *grundswelge.*] (*Bot.*) See SENECIO.

Groundsel-tree, *n.* (*Bot.*) See BACCHARIS.

Ground'-sill, *n.* [Eng. *ground*, and A. S. *sylla*, a seat.] (*Arch.*) The piece of timber which forms the lower part of a timber building, into which the upright posts or principal timbers frame; — sometimes termed *ground-plate.*

Ground'-squirrel, *n.* (*Zoöl.*) See STRIPED-SQUIRREL.

Ground'swell, *n.* An undulation of the ocean caused by the continuance of a heavy gale of wind. *G.* are rapidly transmitted through the water, sometimes to great distances, and even in direct opposition to the wind, until they break against a shore, or gradually subside in consequence of the friction of the water. They indicate, by the direction of their movement, the quarter in which a storm has raged; and occasionally they are observed to come from various points of the compass at one and the same time.

Ground'table Stones, *n. pl.* (*Masonry.*) The projecting course of stones in a wall, above the plinth.

Ground'-tackle, (*-tăk'l,*) *n.* (*Naut.*) The name applied on shipboard to all the ropes, &c., connected with anchors, buoys, or other mooring apparatus.

Ground'-tier, (*-tēēr,*) *n.* (*Naut.*) The tier of casks in a ship's hold which lie first above the keel. — The lowest tier or range of boxes in a theatre.

Ground'-ways, *n. pl.* (*Naut.*) Large pieces or balks of timber laid across a ship or dock, and upon which the blocks are placed.

Ground'-work, *n.* The work which serves as the basis, foundation, or support of anything. — The fundamentals; the essential part. — First principle; primary cause; original reason.

(*Painting*) That color part on which the figures or images are drawn. See GROUND.

Group, (*grōōp,*) *n.* [Dan. *gruppe*, a group; Fr. *groupe*, a cluster: It. *groppo*, a knot, a group; W. *grab.* a cluster.] A cluster, crowd, or throng; an assemblage, either of persons or things; a number collected with order, form, or arrangement; as, a *group* of children, a *group* of islands, &c. — An assemblage of figures or objects in a certain form, or order of relation, or connected by some common individuality or characteristic; as, a *group* of animals, a *group* of rocks.

(*Painting.*) An assemblage of objects, whose lighted parts form a luminous mass, and thin-shaded parts a mass of obscurity; the word is also used to denote any adjoining cluster of figures, animals, fruits, flowers, &c. In speaking also of objects of different sorts, it is usual to say that one object *groups* with another. Lights in groups should, as well as shadows, be connected together, or the necessary repose will be wanting.

(*Sculp.*) A design containing two or more figures.

(*Mus.*) A number of notes linked together at the stems.

—*v. a.* [Fr. *grouper.*] To form into a group; to bring or place together in a cluster or knot; to form into an assemblage.

Group'ing, *n.* (*Painting.*) The art or act of combining or joining objects in a picture for the satisfaction of the eye, and also for its repose; and although a picture may consist of different groups, yet these sets of objects, managed by the chiaroscuro, should all tend to unity, and one only should predominate.

Grouse, *n.* (*Zoöl.*) The common name of the *Tetraonidæ*, a family of the order *Rasores*, comprising gallinaceous birds which have the nasal fossæ filled and covered with feathers, tarsi densely feathered, toes usually naked and pectinated along their edges. Some of the *Tetraonidæ* are polygamous, and this is the case with all, or almost all, the species of the genus *Tetrao*, while those of *Lagopus*, so nearly allied to them, pair. — The genus *Tetrao* contains the largest birds of the family, exceeded in this respect by almost no other gallinaceous birds. They have a full figure, with much muscular power; the tail is longer than in most of the family, is composed of broad feathers, and generally rounded. The females differ very considerably in plumage from the males, which are often resplendent in black, brown, green, and blue. The species are natives of the northern and temperate parts of Europe, Asia, and America,— the regions in which the *Tetraonidæ* in general are most abundant, although some of the family are found in warmer and more southern countries. — The largest species of *Tetrao* and of all the Gallinæ is the European Wood *G.*, called also Cock of the Wood, and in Scotland Capercailzie (*Tetrao urogallus*), a magnificent bird, 2 ft. 9 inches in length, nearly 4 feet in extended breadth, and weighing from 8 to 14 pounds. Next to it comes the Black *G.*, Black Game, Heath-cock or Black-cock (*Tetrao tetrix*), another European species. The male is 2 feet in length, and the expansion of his wings 2 feet 9 inches. The prevailing color of its plumage is black, richly glossed with blue on the neck, back, and rump; the rest of the body being dull black. The bill is dark; the eyes deep blue; below each eye is a spot of dirty white, and eyebrows formed of a naked space of bright scarlet. The lesser wing-coverts are dusky brown; the greater white, which extend to the ridge of the wing, forming a spot of that color on the shoulder when the wing is closed; the quills are brown, the lower parts and tips of the secondaries white, forming a bar of white across the wing; the tail is black, changing to deep violet, and when spread out, the feathers form a curve on each side; the under tail-coverts are pure white; the legs and thighs dark brown, mottled with white; the feet brown. Like the former species, these birds are common in Russia, Siberia, and other northern countries, chiefly in wooded and mountainous situations. — The Pinnated *G.*, or Prairie-chicken (*Tetrao cupido*) of our Western prairies, is, in its voice, manners, and peculiarity of plumage, the most singular, and, in its flesh, the most excellent, of all those of its tribe that inhabit the territory of the U. States. Though an inhabitant of different and very distant districts of N. America, this rare bird is extremely particular in selecting his place of residence, pitching only upon those tracts whose features and productions correspond with his modes of life, and avoiding immense intermediate regions that he never visits. Open dry plains, thinly interspersed with trees, or partially overgrown with shrub-oak, are his favorite haunts: their predilection for such situations being, according to the opinion of Wilson, to be best accounted for by considering the following facts and circumstances: — First, their mode of flight is generally direct, and laborious, and ill calculated for the labyrinth of a high and thick forest, crowded and intersected with trunks and arms of trees, that require continual evolution of wing, or sudden turnings, to which they are by no means accustomed. Secondly, their known dislike of ponds, marshes, or watery places, which they avoid on all occasions, drinking but seldom, and it is believed, never from such places. The last, and probably the strongest inducement to their preferring these plains, is the small acorn of the shrub-oak, the strawberries, huckleberries, and partridge-berries with which they abound, and which constitute the principal part of the food of these birds. These bushy thickets also afford them excellent shelter, being almost impenetrable to dogs or birds of prey. The Pinnated *G.* is 19 inches long, 27 inches in extent, and weighs about 3 pounds; the neck is furnished with supplemental wings, each composed of 18 feathers, 5 of which are black, and about 3 inches long; the rest shorter, also black, streaked laterally with brown, and of unequal lengths; the head is slightly crested; over the eye is an elegant semicircular comb of rich orange, which the bird has the power of raising or relaxing; under the neck-wings are two loose, pendulous, and wrinkled skins, extending along the side of the neck for two-thirds of its length, each of which, when inflated with air, resembles, in bulk, color, and surface, a middle-sized orange; chin, cream-colored; under the eye runs a dark streak of brown; whole upper parts mottled transversely with black, reddish-brown, and white; tail short, very much rounded, and of a plain brownish soot color; throat elegantly marked with touches of reddish-brown, white, and black; lower part of the breast and belly, pale brown, marked transversely with white; legs covered to the toes with hairy down of a dirty drab color; feet dull yellow; toes pectinated; vent whitish; bill brownish horn-color; eye reddish-hazel. The female is considerably less; of a lighter color; destitute of the neck-wings, the naked yellow skin on the neck, and the semicircular comb of yellow over the eye. The season for pairing is in March, and the breeding-time is continued through April and May. Then the male *G.* distinguishes himself by a peculiar sound. When he utters it, the parts about the throat are sensibly inflated and swelled. It may be heard on a still morning for three or more miles. This noise is a sort of ventriloquism; it does not strike the ear of a bystander with much force, but impresses him with the idea, though produced within a few rods of him, of a voice a mile or two distant. This note is highly characteristic. Though very peculiar, it is termed *booting*, from its resemblance to the blowing of a conch or horn from a remote quarter. The female makes her nest on the ground, in recesses very rarely discovered by man; and she usually lays from ten to twelve brownish-colored eggs, much resembling those of a guinea-hen. When hatched, the brood is protected by her alone. Surrounded by her young, the mother bird exceedingly resembles a domestic hen with her chickens. When at such times they are surprised, the dam utters a cry of alarm; and while the little ones are hurrying to a place of safety, their anxious parent beguiles the spectator by drooping and fluttering her wings, limping along the path, rolling over in the dirt, and other pretences of inability to walk or fly. — The Ruffled *G.*, or Partridge (*Bonasa umbellus*) of the Eastern U. States and westward, has for its favorite places of resort high mountains, covered with the balsam-pine, hemlock, and such like evergreens. Unlike the pinnated *G.*, it always prefers the woods; is seldom or never found in open plains; but loves the pine-sheltered declivities of mountains near streams of water. The manners of the Ruffled *G.* are solitary; they are seldom found in coveys of more than four or five together, and more usually in pairs, or singly. They leave their sequestered haunts in the woods early in the morning, and seek the path or road to pick up



Fig. 1205. — BLACK GROUSE, (*Tetrao tetrix.*)



Fig. 1206. PINNATED GROUSE, (*Tetrao cupido.*)

gravel, and glean among the droppings of the horses. They generally move along with great stateliness. The *drumming*, as it is usnally called, of Ruffled *G.*, is another singularity of this species. This is performed by the male alone. In walking through solitary woods, frequented by these birds, a stranger is surprised by suddenly hearing a kind of thumping very similar to that produced by striking two full-grown ox-bladders together, but much louder: the strokes at first are slow and distinct, but gradually increase in rapidity, till they run into each other, resembling the rumbling sound of very distant thunder, dying away gradually on the ear. This drumming, repeated after a few minutes' pause, is the call of the cock to his favorite female. It is produced in the following manner: the bird, standing on an old prostrate log, lowers his wings, erects his expanded tail, contracts his throat, elevates the two tufts of feathers on the neck, and inflates his whole body, something in the manner of the turkey-cock, strutting and wheeling about with great stateliness. After a few manœuvres of this kind he begins to strike with his stiffened wings in short and quick strokes, which become more and more rapid until they run into each other, as has been already described. This is most common in the morning and evening, though they have been heard drumming at all hours of the day. By means of this, the gunner is led to the place of his retreat; though, to those unacquainted with the sound, there is great deception in the supposed distance, it generally appearing to be much nearer than it really is. The Ruffled *G.* begins to pair in April, and builds its nest early in May. This is placed on the ground, at the root of a bush, old log, or other sheltered and solitary situation, well surrounded with withered leaves. Unlike that of the quail, it is open above, and is usually composed of dry leaves and grass. The eggs are from nine to fifteen in number, of a brownish-white, without any spots, and nearly as large as those of a pullet. The young leave the nest as soon as hatched, and are directed by the cluck of the mother, very much in the manner of the common hen. On being surprised, she exhibits all the distress and affectionate manœuvres of the quail, and of most other birds, to lead one away from the spot. They have been often taken young, and tamed, so as to associate with the fowls; and their eggs have frequently been hatched under the common hen; but these rarely survive until full grown. They are exceedingly fond of the seeds of grapes; occasionally eat ants, chestnuts, blackberries, and various vegetables. Formerly they were numerous in the immediate vicinity of Philadelphia; but as the woods were cleared and population increased, they retreated into the interior. At present there are very few to be found within several miles of the city, and those only singly, in the most solitary and retired woody recesses. The Ruffled *G.* is in best order for the table in September and October. At this season they feed chiefly on whortleberries, and the little aromatic partridge-berries; the last of which give their flesh a peculiar delicate flavor. With the former our mountains are literally covered from August to November; and these constitute, at that season, the greater part of their food. During the deep snows of winter they have recourse to the buds of alder, and the tender buds of the laurel. — The interesting facts contained in the foregoing account are derived from the inimitable *American Ornithology*, by Alex. Wilson.



Fig. 1207. — THE RUFFLED GROUSE. (*Bonasa umbellus.*)

Grouse, in *Oregon*, a post-village of Union co., about 40 m. S. E. of Walla Walla, Wash.

Grout, *n.* [A. S. *grut*, meal of wheat or barley; Gael. *gruid*, lees, dregs, grounds; D. *greys*, dregs, fragments of stone.] Coarse meal; pollard.

"King Hardicnute, 'midst Danes and Saxons stout,
Carous'd in nut-brown ale, and din'd on *grout*."—*King.*

—Lees; sediments; dregs; grounds. — A kind of thick ale. (*Building.*) Mortar reduced to a state of fluidity by the addition of water; also, a mixture of plaster (or fine stuff), or putty (or coarse stuff), used to finish off the best ceilings, and sometimes for setting walls, when such finish is required.

—*v. a.* To fill up, as the joints or spaces between stones, with coarse mortar.

Grout'ing, *n.* The process of applying grout to walls or ceilings; also, the grout so applied.

Grout's Corners, in *Massachusetts*, the former name of MILLER'S FALLS, a post-village of Franklin co.

Grout'y, *a.* Ill-tempered; cross; irritable; peevish; surly; sulky; sullen. (Used colloquially.)

Grove, *n.* [A. S. *græf*, *graf*. See GRAVE.] A recess or glade in the interior of a thick wood; a small wood or cluster of trees, with a shaded avenue, or a wood impervious to the rays of the sun; a wood of small extent; something resembling a wood, or trees in a wood. — *G.* have, among almost all nations, been associated with religious rites, being chosen as suitable places for them, or even planted in order to this use. The pleasantness of groves may have had something to do with this, but probably far less than the sentiments of awe and solemnity naturally excited by the gloom of deep forests. *G.* became so intimately associated with the idea of sacrifice and other religious rites, that the planting of a *G.* became itself an act of religion, like the erection of an altar or the building of a temple. Thus, "Abraham planted a *grove* in Beer-sheba, and called there on the name of the Lord, the everlasting God." (*Gen.* xxi. 33.) Afterwards, however, the Jews were forbidden to plant groves near the altar of the Lord (*Deut.* xvi. 21, 22), because of their association with idolatry, and with the cruel and abominable rites of the nations of Canaan, and of the neighbors of the Jews.

Grove, in *Iowa*, a township of Adair co.

—A township of Davis co.

—A township of Pottawattomie co.

Grove, in *New York*, a township of Allegany co.

Grove, in *North Carolina*, a post-office of Chatham co.

—A township of Harnett co.

Grove, in *Ohio*, a post-village of Geauga co.

Grove, in *Pennsylvania*, a township of Cameron co.

Grove, in *Washington*, a post-office of Mason co.

Grove, in *West Virginia*, a post-village of Doddridge co.

Grove City, in *Illinois*, a post-village of Christian co.

Grove City, in *Minnesota*, a post-village of Meeker co., on G. N. R. R.

Grove City, in *Ohio*, a post-office of Franklin co.

Grove City, in *Oregon*, a P. O. of Malheur co.

Grove City, in *Pennsylvania*, a post-borough of Mercer co., on P., S. & L. E. R. R. *Pop.* (1890) 1,160.

Grove'dale, in *Missouri*, a P. O. of Maries co.

Grove Hill, in *Alabama*, a post-village, cap. of Clarke co., about 70 m. N. by E. of Mobile.

Grove Hill, in *Iowa*, a post-office of Bremer co.

Grove Hill, in *North Carolina*, a P. O. of Warren co.

Grove Hill, in *Ohio*, a village of Crawford co.

Grove Hill, in *Virginia*, a post-office of Page co.

Grove Lake, in *Minnesota*, a post-township of Pope co.

Grovel, (*grov'l*,) *v. n.* [Icel. *grufa*, a lying flat on the belly, *grufla*, to handle feebly, or with uncertainty; allied to *grope*, q. v.] To lie prone, or move with the body prostrate on the earth; to creep or crawl on the earth, or with the face to the ground.

"Upon thy belly *grovelling* thou shalt go."—*Milton.*

—To act in a prostrate posture; to be low or mean; as, *grovelling* thoughts.

Grove'land, in *Illinois*, a post-village of Tazewell co., abt. 60 m. N. by E. of Springfield.

Grove'land, in *Indiana*, a post-office of Putnam co.

Grove'land, in *Michigan*, a post-township of Oakland co.

Grove'land, in *Massachusetts*, a post-township of Essex co.

Grove'land, in *New York*, a post-village and township of Livingston county, about 6 miles south of Geneseo.

Grove'land Centre, in *New York*, a village of Livingston co., abt. 230 m. W. of Albany.

Grov'eller, *n.* One who grovels; a low, mean person; an abject wretch.

Gro'venor's Corners, in *New York*, a post-office of Schoharie co.

Grove'port, in *Ohio*, a village of Franklin co., abt. 10 m. S.E. of Columbus.

Gro'ver Town, in *Indiana*, a post-village and township of Stark co., abt. 11 m. W.N.W. of Plymouth.

Groves, in *Indiana*, a post-office of Fayette co.

Grove Sta'tion, in *S. Carolina*, a post-office of Greenville dist.

Grove'ton, in *New Hampshire*, a post-office of Coos co.

Grove'ton, in *Virginia*, a village of Prince William co., abt. 30 m. W. of Alexandria.

Grove'ton, (BATTLE OF.) See BULL RUN.

Grove'ville, in *New Jersey*, a village of Mercer co., on Crosswicks Creek, abt. 6 m. S.E. of Trenton.

Grov'y, *a.* Consisting of a grove or groves; resembling, pertaining to, or frequenting a grove or groves. (R.)

Grow, *v. n.* (*imp.* GREW; *pp.* GROWN) [A. S. *growan*, *gegrowan*; L. Ger. *grovén*; D. *grocijen*; Dan. and Swed. *gro*; Icel. *gróa*, to grow. Allied to Sansk. *kri*, to make.] To enlarge in bulk or stature by a natural, imperceptible addition of matter; to vegetate, as plants, or be augmented by natural process, as animals.

—To increase or be augmented in any way; to wax; to advance; to improve by becoming larger and stronger; to extend.

"Winter began to *grow* fast on."—*Knolles.*

—To spring up and arrive at maturity in a natural manner; to produce by vegetation; to flourish; as, the orange *grows* in the tropics.

"In colder regions men compose
Poison with art, but here it *grows*."—*Waller.*

—To become; to reach any state; to be changed from one state to another; to proceed, as from a cause or reason; as, to *grow* rich, tall, pale, poor, &c., a *growing* boy.

"Quit your hooks, or surely you'll *grow* double."—*Wordsworth.*

—To adhere; to become fixed or attached; as, "the chin would *grow* to the breast."—*Wiseman.*

To grow out of, to issue from, as plants from the soil, or as branches from the main trunk or stem; — hence, to result from; as, dissensions *grow out of* a trivial occurrence. — *To grow up*, to arrive at manhood or maturity.

"We *grow up* in vanity and folly."—*Archbishop Wake.*

To grow together, or *up*, to become as one by growth.

"Honour and policy . . . t' th' war do *grow together*."—*Shaks.*

Grown over, covered with a growth.

—*v. a.* To cause to grow; to produce; to raise; as, large crops of cereals are *grown*.

Grow, in *Minnesota*, a thriving township of Anoka co.

Grow'an, *n.* (*Mining.*) Decomposed granite.

Grow'er, *n.* One who grows; that which increases; one who raises, cultivates, or produces; as, a cotton-*grower*.

"It is the quickest *grower* of any kind of elm."—*Mortimer.*

Growl, *v. n.* [D. *grollen*, to cry as a cat; L. Sax. *grolen*; Ger. *grolzen*, *grollen*, to roar, from *rollen*, to roll, to trundle; Flem. *grollen*, to murmur, to roar with anger; probably akin to Gr. *grulizō*, to grunt.] To utter an angry, grumbling sound; to make a harsh murmur or snarl, as a dog.

—*v. a.* To express by growling.

—*n.* The deep snarl or murmur uttered by an angry dog

Growl'er, *n.* A snarling cur; a grumbler.

Growl'ery, *n.* The sanctum of a peevish old bachelor.

Growl'ingly, *adv.* In a growling, grumbling manner.

Grown, (*grōn*,) *pp.* of GROW, *q. v.*

Growth, (*grōth*,) *n.* Act or process of growing; gradual increase of animal or vegetable bodies; increase in number, bulk, or frequency; increase in extent or prevalence; advancement; progress; improvement.

"The common *growth* of Mother Earth suffices me."—*Wadsworth.*

—That which has grown; anything produced; product; produce; consequence; result.

"Man seems the only *growth* that dwindles here."—*Goldsmith.*

Groyne, *n.* (*Coast Engineering.*) See GROIN.

Groz'zer, *n.* [Fr. *groseille*.] A local name given in Scotland to the gooseberry.

Grub, *v. n.* [Goth. *graban*, to dig; allied to *grave*, q. v.] To dig; to be occupied in digging. — To beg; to cadge; to solicit food meanly. (A colloquial vulgarism.)

—*v. a.* To dig up by the roots with an instrument; to root out by digging; — preceding *up*.

"A foolish heir caused his vineyard to be *grubbed up*."—*L'Estrange.*

—*n.* An insect that digs in the ground, devouring roots of corn, grass, &c., or which crows dig up and devour; a worm produced from the eggs of beetles; an insect in the larva state.

"There is a difference between a *grub* and a butterfly, and yet your butterfly was a *grub*."—*Shaks.*

—A short, thick man; a dwarf. — A vulgar term for food or victuals; as, they gave me excellent *grub*.

Grub'-axe, *n.* An instrument used in grubbing up roots, &c.

Grub'ber, *n.* One who grubs. — An instrument used for digging up roots, &c.; a grub-axe.

Grub'-street, *n.* or *a.* Originally the name of a street near Moorfields, London, (now called *Milton Street*,) "much inhabited by writers of small histories, dictionaries, and temporary poems, whence any mean production is called *Grub-street*." (*Johnson.*) — Employed as an adjective to denote any literary production on a par with, or after the manner of, the publications of Grub-street.

"I'd sooner ballads write, and *Grub-street* lays."—*Gay.*

Grudge, (*gruj*,) *v. n.* [Goth. *us-grudja*, slow, langnid; allied to O. Ger. *grâtac*, greedy, to Icel. *graedska*, rooted malice, hatred, and probably to Gr. *gruzō*, to grunt, to grumble.] To be discontented, as at another's enjoyments or advantages; to envy one the possession or happiness which we desire for ourselves; to permit or grant with reluctance; to give or take unwillingly; to covet; to desire to obtain back again.

"He . . . much *grudg'd* the praise, but more the robb'd reward."
Dryden.

—*v. a.* To grumble; to murmur; to repine; to complain; to be unwilling or reluctant; to show envy or covetousness.

"Nor *grudging* give what public needs require."—*Dryden.*

—*n.* Discontent at the possession of something by another; secret enmity; sullen malevolence; hidden dislike; ill-will; spite; pique; unwillingness to benefit.

"I will feed fat the ancient *grudge* I bear him."—*Shaks.*

Grudg'er, *n.* One who grudges; an envier; one who murmurs in discontent.

Grudg'ingly, *adv.* Unwillingly; with reluctance or discontent.

"They drank and eat, and *grudgingly* obey'd."—*Dryden.*

Gru'el, *n.* [Fr. *gruau*, oat-meal, water-gruel; L. Lat. *grutum*, from A. S. *grut*, meal of wheat or barley.] A kind of light food, made by boiling grits or grout, or meal, in water; thin, liquid porridge, usually made of oatmeal.

"Was ever Tartar fierce or cruel
Upon the strength of water-*gruel*?"—*Prior.*

Gruff, *a.* [D. *grof*, coarse; Dan. *grov*; Ger. *grob*, big, coarse; Pol. *gruby*; W. *rhef*, thick. The Ger. is probably from *rauh*, rough, and the English from the same word.] Of a rough, harsh, or stern manner of voice; sour; severe; surly; rugged of demeanor; as, a *gruff* old bachelor, a *gruff* answer, &c.

Gruff'ly, *adv.* Roughly; sternly; ruggedly; harshly.

"Mars . . . *gruffly* look'd the god."—*Dryden.*

Gruff'ness, *n.* Quality of being gruff in voice or manner; roughness; sternness; ruggedness of mien.

Gru'idæ, *n. pl.* (*Zoöl.*) The Cranes, a sub-family of the *Ardeidæ*, comprising very large birds, which have the head more or less bare, the toes connected by a basal membrane, and the hind toe short and much elevated. They inhabit dry plains. The genus *Grus* is the only one represented in N. America. The White, or Whooping Crane, *G. Americanus*, of Florida and Texas, and occasionally in the Mississippi Valley, is 52 inches long, and the wing 24 inches. The Sandhill Crane, or Brown Crane, *G. Canadensis*, of the Mississippi Valley and westward, is 48 inches long, and the wing 22 inches. It is exceedingly wary, and its sight and hearing are acute. When wounded, it is dangerous to approach it, as a single thrust from its bill may inflict a severe wound.

Grum, *a.* [A. S. See GRIM.] Sour in look; surly or morose in mien or manner; glum; grim; as, "Nick looked sour and *grum*."—*Arbuthnot.*

—Deep-toned; guttural; rumbling; as, a *grum* voice.

Grum'ble, *v.n.* [D. *grommen*, to grumble, to growl; A. S. *grymetan*, to cry out, to roar; Fr. *grommeler*, to utter. Formed from the sound, like Gr. *gromphas*, an old sow; and allied to *rumble*, &c.] To make a harsh and heavy sound; to rumble; to roar; to rattle hoarsely.

"Thou *grumbling* thunder join thy voice." —*Motteux.*

—To murmur with discontent; to utter a low voice complainingly.

"L'Avare still *grumbles* that he has no more." —*Prior.*

—To growl; to snarl.

"At night (the lion) *grumbles* o'er his prey." —*Dryden.*

—*v.a.* To express with grumbling.

Grum'bler, *n.* One who grumbles; a murmurer; a discontented person: one who complains or finds fault.

Grum'bling, *n.* A murmuring through discontent; a rumbling, as of thunder.

"I have served without grudge or *grumblings*." — *Shaks.*

Grum'blingly, *adv.* In a grumbling, dissatisfied manner.

Grume, *n.* [Fr. *grumeau*, from Lat. *grumus*.] A thick, viscid consistence of a fluid, like the white of an egg; a clot, as of blood.

Grum'ly, *adv.* In a grum, surly manner.

Grum'met, Grom'met, *n.* (*Ordnance.*) A wad formed of a circle of rope, rather less in diameter than the bore of the gun for which it is intended, with two cross-pieces projecting a little beyond the exterior of the circle. These wads are used in firing cold shot from smooth-bored guns, when the elevation is less than 3°.

Grumose', Gru'mous, *a.* [Lat. *grumus*, a little heap of earth.] Thick; viscid; clotted; concreted; as, *grumous* blood.

(*Bot.*) Contracted at intervals into knots.

Gru'mousness, *n.* State or quality of being grumous or coagulated.

Grump'ily, *adv.* In a morose, surly manner; discontentedly; as, to speak *grumpily*.

Grün'auite, *n.* (*Min.*) Bismuth nickel. Found at Grünau, in Sayn, Altenkirchen. Color light gray to silver-white, often tarnished yellowish or grayish. *Sp. gr.* 5·13. *Comp.* Sulphur 38·46, bismuth 14·11, nickel 40·65, iron 3·48, cobalt 0·28, copper 1·68, lead 1·58.

Grün'berg, a fortified city of Prussian Silesia, 57 m. N.W. of Liegnitz. *Manuf.* Cloth, cotton prints, tobacco, and straw hats. *G.* has a very celebrated establishment for the instruction of deaf mutes. *Pop.* 12,000.

Grun'del, *n.* (*Zoöl.*) See GROUNDLING.

Grund'sel, *n.* (*Bot.*) See GROUNDSEL.

Grun'dy, in *Illinois*, an N. E. co.; *area*, 440 sq. m. *Rivers.* Des Plaines and Kankakee rivers, which unite in this co. to form the Illinois river. *Surface*, generally level; *soil*, fertile. *Cap.* Morris. *Pop.* (1890) 21,024.

Grun'dy, in *Iowa*, a N. E. central co.; *area*, about 500 sq. m. *Rivers.* Hawk creek, and other smaller streams. *Surface*, diversified; *soil*, fertile. *Cap.* Grundy Centre. *Pop.* (1895) 13,418.

Grun'dy, in *Missouri*, a N. co., *area*, about 460 sq. m. *Rivers.* Crooked Fork of Grand river, Weldon river, and Medicine, Indian, and Muddy creeks. *Surface*, level; *soil*, fertile. *Cap.* Trenton. *Pop.* (1890) 17,876.

Grun'dy, in *Tennessee*, a S. central co.; *area*, about 410 sq. m. *Rivers.* Collins river, and several smaller streams. *Surface*, mountainous; *soil*, in some parts fertile. *Cap.* Altamont. *Pop.* (1890) 6,345.

Grun'dy, in *Virginia*, a post-village, cap. of Buchanan co., about 260 m. W. of Richmond.

Grundy Centre, in *Iowa*, a post-town, capital of Grundy co., about 22 m. S. W. of Cedar Rapids. *Pop.* (1895) 1,322.

Grü'nerite, *n.* (*Min.*) Iron amphibole, (*q. v.*) Lustre silky, color brown. *Sp. gr.* 3·713.

Grunt, *v.n.* [Dan. *grynte*; Fr. *grogner*; Sp. *gruñir*; It. *grugnire*; Lat. *grunnio*; formed from the sound.] To make a noise like a hog; to utter a short groan, or deep, guttural sound.

—*n.* A deep, guttural sound, as of a hog.

Grunt'er, *n.* One that grunts; especially, a hog.—An appellation often given to a pig.

"A fine fat *gruuter* in the sty."—*Carleton.*

(*Zoöl.*) See GRUNTS.

Grunt'ingly, *adv.* In a grunting manner.

Grunt'ling, *n.* A young hog.

Grunts, *n.* (*Zoöl.*) See POGONIAS.

Grus, *n.* (*Zoöl.*) See GRUIDÆ.

(*Astron.*) One of Bayer's constellations in the southern hemisphere, between Eridanus and Sagittarius. It has no stars of the first or second magnitude.

Gruyere, (*groo'yare,*) a town of the canton of Freiburg, Switzerland, 15 miles S. of Freiburg. The district abt. *G.* is celebrated for its cheese, of which over 25,000 cwt are produced annually. *Pop.* of town 1,400, and of district 3,800.

Gry, *n.* [Gr.] Anything small, or of little value, as cheese parings.

Gryfon, *n.* See GRIFFIN.

Gryl'lides, Gryl'lidæ, *n. pl.* (*Zoöl.*) See CRICKET.

Gryl'lus, *n.* [Lat., locust.] (*Zoöl.*) See CRICKET.

Grypa'ou, *n.* See GRIFFIN.

Gryphno'sis, *n.* [From Gr. *gryphos*.] (*Surg.*) A disease of the nails, which turn inwards and irritate the soft parts below.

Guacalera, (*gwa-ca-la'ra,*) a town of the Argentine Republic, near the Jujuy River, abt. 95 m. N.W. of Salta.

Guaca'ra, a town of Venezuela, on Lake Tacarigua, about 6 m. E of Valencia.

Guacha'ro-bird, *n.* (*Zoöl.*) The *Steatornis caripensis*, a bird belonging to the family of Goat-suckers, plumage sombre, and about the size of a common fowl. It inhabits South America.

Guachinan'go, a town of Mexico, in the State of Puebla, about 103 m. N. E. of the city of Mexico. Noted for the vanilla raised in the vicinity. *Pop.* (1895) about 6,250.

Guachipe (*gwä-chee'pa*), or GUACHIPAS, an important river of the Argentine Republic, rises on the E. slope of the Andes, in the prov. of Salta, and flows first E.N.E. about 190 m., then S. into the prov. of Tucuman, after which it is called the Salado river. It joins the Parana river in the prov. of Santa Fé, opposite Parana.

Guacuba (*gwä-koo'ba*), or LEON, a river of Colombia, enters the Bay of Choco.

Guad- [Sp., from the Arab. *wady*, a river.] A prefix to the names of many Spanish rivers and towns, as GUADALUPE, GUADALAVIAR, &c.

Guadalajara (*gwäd-ä-lä-hä'-ra*), or GUADALAXARA a prov. of Spain, traversed by the Tagus, and having an area of 1,050 sq. m. It is an elevated plain, productive in cereals, and intersected by mountain ridges. *Pop.* 200,000.—A city of Spain, cap. of the prov. of which it bears the name, 32 m. N. E. of Madrid, on the Henares. *Pop.* (1895) 8,300.

Guadalajara, GUADALAXARA, a considerable city of Mexico, capital of the state of Jalisco or Guadalajara, on the Rio Grande de Santiago, about 275 m. W. N. W. of the city of Mexico, in Lat. 21° 9′ N., Lon. 103° 2′ 15″ W. It is one of the finest cities in Mexico, was founded in 1551, and until recently commanded considerable trade. *Pop.* (1895) about 82,500.

Guadalaviar (*gwäd-ä-lä'-vē-är*), a large river of Spain, rising in the Sierra Albarracin, and falling, after a S. E. course of 130 m., into the Gulf of Valencia, in Lat. 39° 25′ N.

Guad'aloupe, in *California*, a post-village of Santa Barbara co., on Southern Pacific R. R.

Guadalaquivir (*gwäd-ä-lä-quē'-vēr*). [Ar. *Ouad-al-kebir*, the great river.] This river, known to the ancients by the name *Bœtis*, rises in the Sierra de Cazorla, Spain, on the borders of Jaen and Murcia, 15 m. E. S. E. of Ubeda, and passes Andejar, Cordova (whence it becomes navigable), Seville, and San Lucar-de-Barameda. The *G.* receives on the right the Guadalimar, Campana, Guadamelleto, Guadalbarbon, Guadiato, and Biar: on the left, the lesser Guadiana, Guadalentin, Jaen, Guadajoz, Xenil, and Corbones. It falls into the Atlantic at San Lucar, after a winding course of about 250 miles.

Guadalupe (*gwäd-ä-lüp'*), in *Texas*, a river rising among the mountains in Kerr co., flows a general E. and S. E. course through Blanco, Comal, Guada, Gonzales, De Witt, and Victoria cos., and enters Espiritu Santo bay between Calhoun and Refugio cos.

—A S. central co.; *area*, about 710 sq. m. *Rivers.* Guadalupe, San Marcos, and Cholo rivers. *Surface*, undulating; *soil*, fertile. *Products*, cotton, corn, and sweet potatoes; is also a fine grazing section, and much livestock raised. *Cap.* Sequin. *Pop.* (1890) 15,217.

—A village of Victoria co., 6 m. S. E. of Victoria.

Guadalupe, or GUADALUPE HIDALGO, a town of Mexico, in the State of Mexico, and about 3 m. N. of the city of Mexico. In 1848 a treaty of peace was here concluded between the United States and Mexico, by which the latter ceded to the former the territories of Upper California and New Mexico.

Guadalupe, an island in the Pacific Ocean, off the coast of Lower California, Lat. 29° N., Lon. 118° 22′ W.

Guadalupe River, in *California*, enters San Francisco bay between Santa Clara and San Mateo cos.

Guadalupe-y-Calvo, a town of Mexico, about 175 m. S. S. W. of Chihuahua. *Pop.* about (1895) 6,000.

Guadeloupe, (*goo-a-da-loop'*,) an island of the W. Indies, one of the Leeward group, belonging to France, Lat. 15° 47′ N., Lon. 61° 15′ W. It is divided into two distinct parts by a narrow arm of the sea called Rivière Salée. The larger portion, or Guadeloupe proper, has an area of about 305 sq. m., and is of volcanic origin. A ridge of hills traverse it N. and S., the highest points of which are La Soufrière, an active volcano, about 5,108 feet in height, and the extinct volcanoes La Grosse-Montagne, Les Deux Mamelles, and Le Piton-de-Bouillant. The other portion, Grand-terre, has an area of about 300 sq. m., and is generally low, never rising to more than 115 feet above the sea-level. The climate is unhealthy, but the soil is very fertile. Hurricanes are frequent. The principal exports are sugar, coffee, dye, cabinet-woods, tafia, hides, copper, &c. The principal town, St. Louis, or Point-a-Pitre, was destroyed by an earthquake in Feb., 1843. *G.* was discovered by Columbus in 1493, and named by him Santa Maria de la Guadeloupe. In 1635 it was taken by the French, who held it until 1759, when the English gained possession of it, after which it changed owners several times, till the peace of 1814 restored it to the French. *Pop.* abt. 141,231.

Guadiana, (*goo-a-de-a'na.*) [Lat. *Anas*; Arab. *Ouad-Anas.*] A river of Spain and Portugal, which, rising in the former country, in the Sierra of Alcaraz, issues from the marshes of Rindera, disappears in the vicinity of Alcazar, and after flowing subterraneously a distance of 16 m., reappears at the point called Ojos de Guadiana; runs W. between the Lusitanian and Marianic chains, thence S., separating Spain and Portugal, waters Argamasilla, Medellin, Merida, Badajoz, Moura, and Mertola, forming between the last two a cascade called *Salto del Lobo* (the wolf's leap), falling into the Atlantic between Castromarin and Ayamonte, after a course of 400 m., of which but 75 m. are navigable.

Guadix (*goo-ä-deh*). [Lat. *Acci.*] A fortified town of Spain, in Granada, 39 m. N. E. of Granada, on the Guadix, an affluent of the lesser Guadiana. *Manf.* Silks, nails, and canvas. *Pop.* (1895) 11,300.

Gua'duas, a town of the Republic of Colombia, near the Magdalena River, about 45 m. N.W. of Bogota. It has an elevation of about 8,700 feet above the sea-level. *Pop.* about 500.

Gua'fo, or HUAFO, an island in the Pacific Ocean, off the coast of Chili.

Guaiacum, (*gwai'yä-kum,*) *n.* [Fr. *guayac*, its native name.] (*Bot.*) A genus of plants, order *Zygophyllaceæ*. The species *G. officinale* is a fine evergreen tree, from 40 to 60 feet in height, and of a dark, gloomy aspect. It is a native of the West India islands, particularly Cuba, St. Domingo, and the S. side of Jamaica. The wood is remarkable for its hardness, toughness, and durability; qualities which render it particularly valuable for many purposes. It is known in commerce as *lignum vitæ*.



Fig. 1208. — GUAIACUM OFFICINALE.
(*Lignum vitæ.*)

This wood and a resin obtained from it are officinal in our pharmacopœias, and are commonly known in the shops respectively as *guaiacum-wood* and *guaiacum-resin*. The latter is generally procured by heating the wood, either by boiling chips in salt-water, or more commonly by burning hollow billets, and catching the resin as it flows out from them. It also exudes to some extent spontaneously, and especially so when the tree is cut or wounded in any way.

Guaiane'co, a group of islands off the W. coast of Patagonia; Lat. 47° 41′ S., Lon. 74° 55′ W.

Guaien'hi. See VELHAS, (RIO DAS).

Guailas. See HUAYLAS.

Guai'nia, a river of Venezuela, joins the Cassiquiaro to form the Rio Negro.

Guaite'ca. See GUAYTECAS.

Guajaba, or GUAXABA, (*gwa-ha'ba,*) a small island off the N. coast of Cuba, Lat. 21° 50′ N., Lon. 77° 28′ W.

Guala'la, in *California*, a post-village of Mendocino co.

Gualan', a town of Guatemala in Central America, near Montagua; *pop.* abt. 2,000.

Gualatei'ri, a peak of the Andes, in Peru; Lat. 20° 13′ S., Lon. 69° 17′ W.

Gualil'las, a pass of the Andes, in Peru, about 25 m. N.E. of Tacna.

Gu'am, GUAHON, or SAN JUAN, the chief and most S. of the Marianne islands in the Pacific; Lat. 27° N., Lon. 145° E. *Circumf.* 100 m. *Prod.* Guavas, bananas, cocoas, oranges, and limes. The central part of the island is mountainous, and has a small volcano. The natives construct the most rapidly sailing canoes in the world. The Spaniards have a settlement on the island. *Pop.* 8,100, of whom about 1,400 are Europeans.

Gua'ua, a river of Brazil, enters the bay of Guajara near Belem of Para.

Guamo'co, a town of the Republic of Colombia, about 70 m. N. E. of Antioquia. Has now fallen into a state of almost complete decay.

Guamo'te, a village of Ecuador, near Guayaquil, on an island formed by two rivers. In 1803 the Indians arose and massacred a number of the whites.

Gu'an, *n.* (*Zoöl.*) See PENELOPE.

Gua'na, *n.* (*Zoöl.*) See IGUANA.

Gua'na, a name of several small islands in the W. Indies, the most important being off the N. coast of Abaco; *area*, about 35 sq. m.

Guanabaco'a, a town of Cuba, on the E. side of the harbor of Havana; *pop.* abt. 18,000.

Guanacache, a lagoon in the Argentine Republic, between Mendoza and San Juan. It consists of a number of lakes and marshes, interspersed with numerous islands.

Guana'cas, (Paramo De,) a spur of the Andes in the United States of Colombia; Lat. 2° N., Lon. 76° W.

Guana'co, *n.*; *pl.* GUANACOS. [Sp.] (*Zoöl.*) A South-American wool-bearing quadruped; a species of *llama*.

Guanapa'ro, a river of Venezuela, joins the Portuguesa 30 m. N.W of San Fernando de Apure.

Guanari'to, a river of Venezuela, joins the Portuguesa abt. 154 m. S.W. of Caracas.

Guanari'to, a town of Venezuela, on Guanare River, abt. 50 m. E. of the town of Guanare.

Guanaxuato, or GUANAJUATO, (*hwa-na-hwa'to,*) a state of Mexico, abt. 110 m. N.W. of the city of Mexico;

area, about 12,618 sq. m. *Rivers.* Rio Grande, and some smaller streams. *Surface*, mountainous; *soil*, in some parts fertile. *Min.* Gold, silver, lead, tin, iron, antimony, sulphur, cobalt, ochre, salts, and marble; at one time being the richest mineral region in the known world. *Cap.* Guanaxuato. *Pop.* (1895) 968,113.

—A city, cap. of the above dept., about 160 m. N.W. of the city of Mexico; Lat. 21° N., Lon. 101° W. It is in a narrow mountain defile, 6,017 feet above sea level, and consists of several villages built around the mines to which it mainly owes its importance, though there are manufactures of linen and woollen cloth, soap, powder, tobacco, &c. It was founded by the Spaniards in 1545, and about the beginning of the present century contained 70,600. *Pop.* at present about 63,000.

Guaucabam'ba, a village of Ecuador; Lat. 5° 10′ S., Lon. 79° 30′ W. It is built 6,500 ft. above the sea.

Guaucabeli'ca. See HUANCAVELICA.

Guandacol', a village of the Argentine Republic, in a fertile valley of the same name, about Lat. 26° S., Lon. 69° W.

Guanc'ro, a river of Venezuela, joins the Apure abt. 150 m. S.E. of Merida.

Guanif'erous, *a.* [Eng. *guano*, and Lat. *ferre*, to bear.] Producing guano.

Gu'anite, *n.* (*Min.*) Same as STRUVITE, *q. v.*

Guano, (*gwa'no,*) *n.* [From the Peruvian *huano*, dung.] The excrement of sea-birds which has accumulated for ages on certain tropical islands, principally along the coasts of Peru, Bolivia, and Africa. It has been employed as a fertilizer by the inhabitants of Peru from the most remote periods, and by its use they have rendered fertile the otherwise unproductive sandy soils along the coast. While the Incas ruled, the birds were protected by very severe laws. Any one landing on the guano island during the time the birds were breeding, or who killed any of them at any time, was put to death. In 1804 specimens of *G.* were first brought to Europe by Humboldt, who sent them for examination to Fourcroy, Vauquelin, and Klaproth, the best analytical chemists of the day. He described it as deposited in layers 50 or 60 feet thick, upon the granite of many of the islands off the coast of Peru, and stated that during 300 years the coast-birds had deposited *G.* only a few lines in thickness; thus giving an idea what an immense period of time has been required to form the guano beds. The bones and feathers of the birds are found among the recent layers of the *G.*, but the older deposits often exhibit the appearance of the phosphate of lime rocks of the older formations, and are an interesting instance of the conversion of recent accumulations of organic matter into what appears like an ancient rock. In the guano rock all traces of animal life have disappeared, the heat and moisture of the tropics having induced chemical changes that in the lapse of time have changed these organic deposits into crystalline masses. A large portion of the Peruvian *G.* is imported from the Chincha Islands. These islands, three in number, are 5 or 6 miles in circumference, composed of granite and covered with *G.* in some places to a height of nearly 200 feet. The value of their *G.* is due to the dryness of the climate, the ammonia and some of the phosphates of these deposits being readily washed out by rain. This has reduced the value of the Bolivian and some other guanos, and largely ruined those of the West Indies, Africa, and Australia. The best Peruvian *G.*, that of the Chincha Islands, contained about 15 per cent. of moisture, 51 of organic matter, 22 of phosphate of lime, 2 of silica, 3 of phosphoric acid, and 6 of alkaline salts, its value being largely due to its nitrogen, 1 ton of this material being equal in value to 33 tons of farm-yard manure. An active demand has long since depleted the Chincha guanos, whose use ceased in 1874 from lack of supplies.—*Fish Guano* A substitute for *G.* which has come into considerable use consists of fish dried and ground to powder. For this purpose all animal life of the sea, such as mussels, starfish, crustaceans, and the waste material of the fisheries may be profitably employed. The difficulty of using this material, on account of its bulk and unpleasant character, has been obviated by the method, adopted about 1862, of getting rid of its 60 or 80 per cent. of moisture by drying, and subsequently grinding the remnant to a fine powder. Peruvian *G.* comes from fish which have been used as food by sea birds, while fish *G.* contains all the nitrogen and phosphoric acid of the fish, and thus forms an excellent substitute. The heads and backbones of the cod, obtained from the cod-fisheries of Norway, are made into this material, and refuse fish elsewhere are largely used for manure, the annual production being estimated at 75,000 tons. See FERTILIZERS.

Guantajaya, (*hwan-ta-he'a,*) a rich mining district of Peru, prov. Tarapaca.

Guantana'mo, or CUMBERLAND HARBOR, an excellent harbor on the S. coast of Cuba, abt. 45 m. E. of Santiago. Lat. of the E. headland 19° 53′ N., Lon. 75° 15′ W.

Guanu'co. See HUANUCO.

Guapai, or GUAPEY, (*hwa-pe',*) a river of Bolivia, flows into the Mamore.

Guapi-Morim, (*hwa-pee-mo-reeng,*) a village of Brazil, prov. of Rio Janeiro; *pop.* 2,500.

Guapo're, a river of Brazil, prov. of Matto-Grosso, joins the Mamore to form the Madeira.

Guara, *n.* (*Zoöl.*) The Scarlet ibis. See TANTALIDÆ.

Guaraguau, CAÑO, (*kan-yo hwa-ra-whan,*) an embouchure of the Orinoco River, enters the Atlantic 55 m. N.W. of the Naviros.

Guaraumbari', a river of Paraguay, joins the Paraguay River abt. 25 m. N.W. of Concepciou.

Guara'na, *n.* See PAULLINIA.

Guarantee', Guar'anty, *n.* [Fr. *garantié*, from *garantir*, to warrant; A.S. *warian*, to guard.] (*Law.*) A promise, or undertaking, to be responsible for the debts or duties of a third party, in the event of his failing to fulfil his engagement. To make such an obligation binding, there must be some good consideration moving from the party with whom it is made; as the delivery of goods to, or work to be done on credit for, the person on whose behalf the guaranty is given. It must be in respect of a contemporaneous, or future debt or act. If a guaranty be made in respect of a debt already incurred, there must be a new consideration to support it. A consideration, however, need not be expressed; for if it can be fairly implied from the circumstances, or the language used, it will ordinarily be sufficient. It is sufficient if the person for whom it is given receive a benefit, or may receive a detriment. The Statute of Frauds, re-enacted almost in terms in the several States, stipulates that a defendant cannot be charged to answer for the debt, default, or miscarriage of another person upon any special promise, unless the agreement upon which such action shall be brought, or some memorandum or note thereof, shall be in writing, and signed by the party charged therewith, or some other person duly authorized by him. This statute only applies, however, to engagements in which the guarantor is only liable conditionally upon the default of some other person: where he is liable co-extensively with the other party in the first instance, it does not apply.

—*v. a.* To guarantee; to warrant.

Guarantee', *n.* He to whom a guaranty is made; — correlative of *guarantor*.

Guarantee', *v. a.* To undertake or engage that another person shall perform what he has stipulated; to undertake to secure to another, at all events; to indemnify; to warrant; to make good.

Guaranteed', *pp.* Warranted; as, good quality is *guaranteed*.

Guarantor, (*gar-an-tôr',*) *n.* (*Law.*) He who makes a guaranty; a warrantor.

Guaran'ty, *n.* [See GUARANTEE.] (*Law.*) A guarantee, (see NOTE,) *q. v.*

NOTE. (*Guaranty* is the ruling form used in the U. States; and *guarantee* in Great Britain.)

Guarapari', in Brazil, a river which rises in the Cordillera of Aimores, and flows a general E. course to the Atlantic Ocean.—A mountain range, prov. of Espirito-Santo.—A town in the prov. and abt. 30 m. S.W. of the town of Espirito-Santo.

Guarapi'che, a river of Venezuela, enters the Gulf of Paria, abt. 36 miles W. of the most N. mouth of the Orinoco.

Guarapua'va, a town of Brazil, prov. of São Paulo.

Guarati'ba, a village of Brazil, abt. 39 m. W.S.W. of Rio Janeiro. *Pop.* abt. 4,500.

Guaratingueta, (*hwa-ra-teen-ha'ta,*) a town of Brazil, abt. 120 m. N.W. of São Paulo.

Guaratu'ba, in Brazil, a river of the prov. of Minas-Geraes, which joins the Rio Verde, an affluent of the São Francisco.—Another river of the prov. of São Paulo, which enters the Atlantic Ocean Lat. 25° 45′ S.—A town, prov. of São Paulo, abt. 23 m. S.S.W. of Paranagua.

Guard, (*gard,*) *v. a.* [Fr. *garder;* It *guardare*, to defend; Teut. *warden;* A.S. *weardian*, to watch. See WARD.] To keep watch over; to defend; to protect; to shield; to secure against attack, injury, or loss; to keep in safety; to accompany for protection.—To cover the edge of, as with a border;—hence, to bind or ornament with braid, lace, &c.; as, a *guarded* livery, a *guarded* discourse. — *Shaks.*

—*v. n.* To watch in a cautious manner, or defensively; to be cautious or circumspect; to be in a state of safety or security; as, we have *guarded* against failure.

—*n.* [Fr. *garde;* A. S. *weard.*] That which defends, shields, or protects; any defence, shield, or protection.

(*Mil.*) A man, or one of a body of men, occupied in preserving a prison or place from attack or injury; a sentinel; a watch; a sentry; as, to call the *guard*, to relieve the *guard*.

"They . . . had their *guards* and spies, after the practice of tyrants." *Swift.*

—An escort; a body of attendants, accompanying for protection or safe-keeping.—A state of caution or vigilance; care; heed; attention; watchfulness.

"Malice and revenge had put him on his *guard*."—*Dryden.*

—An officer who has charge of a railroad-train, mail-coach, or other public conveyance; a conductor; as, a railway-*guard*. (Used in Eng.) — That which secures against cavil, objections, or censure; careful or limited expression or admission; as, "*guards* and restrictions." *Atterbury.*

—That which secures against injury, defacement, or loss; — whence, the bowl or basket of a sword-hilt, or that which serves as a protection for the hand. — An ornamental hem, lace, edging, seam, or border. — The chain or ribbon which serves to fasten a time-piece, &c., to one's person; as, a watch-*guard*. — A kind of fine wire-grating or network, placed opposite to, or over, a hearth, &c.; as, a fire-*guard*.—A railing placed at the sides of a vessel, to prevent persons from falling overboard.

(*Fencing.*) A posture or attitude of defence; as, the thrust went through his *guard*.

(*Mil.*) *Advanced guard*, or *vanguard*. See ADVANCED. — *Guard-mounting.* Parade of mounting guard. — *To mount guard.* See MOUNT.

Off guard. Incautious; inattentive: in a careless state.

"Temerity puts a man *off* his *guard*."—*L'Estrange.*

(*Mil.*) Relieved from duty; as, an officer *off guard*.

On guard, or *on the guard.* Vigilant; on the alert; in a state of watchfulness.

"It is wisdom to keep ourselves *on the guard*."—*L'Estrange.*

(*Mil.*) Acting or serving on duty as a guard; as, we were detailed *on guard*.

To run the guard. To pass the watch or sentry without answering to challenge. — See GUARDS.

Guar'da. [Lat. *Laucia Oppidana.*] A fortified town of Portugal, in the prov. of Beira, on the Mondego, 39 m. S.E. of Viseu. *G.* is the see of a bishop, possesses a remarkable cathedral, was founded by Don Sancho II., king of Portugal, and received its name from its serving for a long time as a bulwark (*guarda*) against the Moors. *Pop.* 3,200.

Guard'able, *a.* [Fr. *gardable.*] That may be guarded.

Guardafui, (*gwar'da-fwee.*) [Lat. *Aromatum Promontorium.*] The cape forming the most E. part of Africa, at the N.E. extremity of the coast of Adel; Lat. 11° 46′ N., Lon. 49° 38′ E. It is a lofty mountain, and serves as an excellent landmark for navigators.

Guard'ant, *a.* [O. Fr.] (*Her.*) That has the face turned toward the spectator; as, a lion *guardant*, (Fig. 1194.)

Guard'-boat, *n.* (*Naval.*) A boat that goes the rounds of ships of war lying in harbor, to ascertain if their officers of the watch keep a good lookout.

Guard'-chamber, *n.* A guard-room; an apartment in a royal palace devoted to the use of the guards on duty.

Guard'ed, *a.* Cautious; wary; prudent; circumspect; as, he is *guarded* in his actions. — Expressed with circumspection and caution; as, his language to me was *guarded*.

Guard'edly, *adv.* In a guarded or wary manner.

Guard'edness, *n.* State or quality of being guarded; caution.

Guard'er, *n.* A guardian; one who guards.

Guard'ful, *a.* With caution.

Guard'fully, *adv.* In a guardful manner.

Guardia, (*goo-ar'de-a,*) a small town of S. Italy, 12 m. S.S.E. of Chieti; *pop.* 6,740.

Guardian, (*gär'di-an,*) *n.* [Fr. *gardien;* Sp. *guardian.*] One who guards, protects, preserves, or secures; one to whom anything is committed for care or safe-keeping.

"The appointed *guardians* of the Christian faith."—*Waterland.*

(*Law.*) One chosen or appointed, by statute or by will, to take charge of the estate or education of an orphan or ward, or a person who is imbecile or otherwise incompetent to manage his own affairs. A *G.* is not allowed to reap any benefit from his ward's estate, but must account for all profits, which the ward may elect to take or charge interest on the capital used by him. He can invest the money of his ward in real estate only by order of court; nor can he convert real estate into personalty without a similar order. He may lease the land of his ward; but if the lease extends beyond the minority of the ward, the latter may void it on coming of age. He may sell his ward's personalty without order of court, and dispose of and manage it as he pleases. He is required to put the money out at interest, or show that he was unable to do this. If he spends more than the interests and profits of the estate in the maintenance and education of the ward, without permission of the court, he may be held liable for the principal thus consumed. If he erects buildings on his ward's estate out of his own money, without order of court, he will not be allowed any compensation. Contracts between guardian and ward, immediately after the latter has attained his majority, are unfavorably regarded by the courts, and will be set aside where they redound to the profit of the *G.* He is entitled to the care and custody of the person of his ward. If a female ward marry, the guardianship terminates both as to her person and property. It has been thought to continue over her property if she marries a minor. If a male ward marries, the guardianship continues as to his estate, though it has been held otherwise as to his person. If he marries a female minor, his *G.* will also be entitled to her property. A *G.* may change the residence of his ward from one county to another in the same State; but it seems that the new county may appoint another *G.* Whether he has the right to remove his ward into a foreign jurisdiction, has been a disputed question. By the common law, his authority both over the person and property of his ward was strictly local; and this is the view maintained in most of the States.

G. of Spiritualities. (*Eccl. Law.*) The person to whom the spiritual administration of a diocese is intrusted during the vacancy of the see. — *G. of Temporalities.* (*Eccl. Law.*) A person appointed by the sovereign, during the vacancy of a see, to take care of the goods and profits of the same, and render an account thereof to the Exchequer. (Eng.)

G. of the Poor. A person appointed in a parish, or union of parishes, to act in lieu of overseers, and to superintend all matters relative to the relief and management of the poor. (Eng.)

—*a.* Protecting; performing the office of a protector; as, *guardian* care.

"A *guardian* angel o'er his life presiding." — *S. Rogers.*

Guar'dianless, *a.* Having no guardian.

Guar'dianship, *n.* The office of a guardian; protection: custody; care.

"Theseus assigned to himself the *guardianship* of the laws." *Swift.*

Guard'less, *a.* Having no guard; without defence; as, "the *guardless* herd."

Guard'-room, *n.* A room set apart for the accommodation of guards; also, a place of temporary confinement of soldiers.

Guards, *n. pl.* (*Mil.*) The term applied to those troops especially attached to the person of a sovereign, or chief ruler of a state. *Body-guards* have been an inseparable accompaniment of monarchy from the earliest ages; the Assyrian and Persian kings employed them, and the corps of *Argyraspides*, or "silver-shields," were selected

by Alexander out of the bravest men of his army. The Roman emperors had their *Prætorian guard*. Napoleon I. first created a small troop of body-guards, with the title of *Guides*, while he was yet only general, in his first Italian campaign. From this arose by degrees the great institution of the *Imperial Guard*, consolidated in 1804, which ten years later comprised 102,708 men, and after being disbanded by Louis XVIII. in 1815, was restored by Napoleon III. in 1854. It consists of infantry, cavalry, and artillery. In England, the Guards (otherwise called *household troops*) consist of two regiments of *Life-Guards*, the royal regiment of *Horse-Guards*, and 3 regiments of *Foot-Guards*. Many of the European sovereigns before the French revolution had small corps of foreign troops which served in this capacity. Thus the French had, in former times, the *Guard of Scottish Archers*, and at a later period, a body of Swiss guards, called the *Cent Suisses*. The *Cent Gardes* formed by Napoleon III. are founded upon the latter. The Pope still retains his *Swiss guards*. In Prussia there is both infantry and cavalry of the guard, and the Russian imperial guard forms an entire *corps d'armée*, 50,000 strong. See NATIONAL GUARD; YEOMEN OF THE GUARD, &c.

Guard'-ship, *n.* (*Naval.*) In England, a large ship of war on harbor duty, appointed to protect unarmed vessels lying at anchor in the port.

Guards'man, *n.* (*Mil.*) An officer or private in a body of troops whose duty it is to guard the sovereign's person.

—In England, an officer or private of the Horse-, Life-, or Foot-guards.

Guari'co, a river of Venezuela, joins a branch of the Apure, abt. 12 m. E. of San Fernando.

Guari'co, a cape near the E. extremity of the island of Cuba. W. Indies.

Guaricu'ra, an island of Brazil, in the Amazon River, opposite the town of Pará. *Area*, abt. 700 sq. m.

Guarini, GIOVANNI BATTISTA, (*goo-a-re'ne,*) a celebrated Italian poet, B. at Ferrara, 1537. He was secretary to Alphonso, duke of Ferrara; next, to Ferdinand de Medici, grand-duke of Tuscany; and subsequently, to the duke of Urbino. He was well acquainted with polite literature, and wrote several admired poems: but his chief composition is his pastoral drama, entitled *Il Pastor Fido*. In some respects this poem is considered to rival Tasso's *Aminta;* and it has passed through a very great number of editions, besides being translated into almost all European languages. D. 1612.

Guar'inite, *n.* (*Min.*) A yellow transparent mineral found in small cavities in a grayish trachyte on Monte Somma. *Sp. gr.* 3·487. *Comp.* Silica 33·64, titanic acid 33·92, lime 28·01, oxide of iron and manganese a trace.

Guarisamey, (*wha-re-sai-ma',*) a mining-town of Mexico, abt. 55 m. S.S.W. of Durango.

Guarney', a village of Peru, at the mouth of the Guarney, abt. 158 m. N.N.W. of Lima.

Guarna'po, in Venezuela, a river uniting the Apure and Portuguesa rivers.—Another river, which flows into the Orinoco River.

Guasca'ma Point, a promontory on the W. coast of the Republic of Colombia, Lat. 2° 30′ N., Lon. 78° 30′ W.

Guastalla (*goo-as-tal'la*), a fortified town of Italy, on the right bank of the Po, 16 m. N. E. of Parma, and 18 N. of Modena. *Manf.* Silk fabrics and twist. *Pop.* 10,000.

Guastata'ya, a town of Central America, about 35 m. E. N. E. of Guatemala

Guatavi'ta, a village of the Republic of Colombia, abt. 20 m. N.E. of Bogota. Previous to the Spanish conquest it was a town of great importance, and on the banks of the Lake of Guatavita near it are the ruins of many once magnificent and venerated Peruvian temples.

Guatemala, or GUATIMALA, (*hwa-te-ma'la,*) a republic of Central America, extends between Lat. 14° and 17° N., and Lon. 89° and 94° W.; having N. Yucatan and Mexico, E. Honduras and San Salvador, and S. the Pacific Ocean. *Area*, 40,777 sq. m. The physical features of the country are mountainous throughout, and although no very distinct mountain chain traverses *G.*, an elevated plateau occupies the central parts of the country, forming a kind of chain of communication between the Cordilleras of S. America and the mountain-ranges of Mexico. This plateau rises much more precipitously from the side of the Pacific than the Atlantic, the general slope of the country being to the N.E. The table-land averages perhaps 5,000 feet in height above the ocean,—the loftiest summits, which are either active or extinct volcanoes, being in that part of the Confederation. The Water Volcano, near *G.*, so called from its frequently emitting torrents of hot water and stones, but never fire, is 12,620 ft. above the Pacific. There are two large plains—those of Nicaragua and Comayagua, besides many of less size on the banks of the larger rivers, and along the shores; these principally consist of extensive savannas with rich pasturage interspersed with clumps of trees. All the larger rivers flow N.E. or E., the proximity of the high mountain range to the Pacific permitting but a short course to those flowing W. The Montagua is of considerable size, and useful for the conveyance of goods into the interior of *G.* The principal lakes are the Golfo-Dolce, and those of Leon or Managua, Peten, Atitan, and Amatitan. The Golfo-Dolce, 24 m. long by 10 broad, receives several rivers, and discharges itself by the Rio Dolce into the Bay of Honduras. The coast plains are subject to violent tropical heats, and are very unhealthy, especially those on the E. coast, on the Caribbean Sea, where fevers incessantly prevail. These are, chiefly inhabited by the Indian race. The climate of the table-land varies according to its elevation, but an equable, moderate, and agreeable temperature may be obtained there all the year round, with a perfectly healthy climate. The dry season lasts from October to the end of May, during which N. winds prevail; and in the table-land, in Nov. and Dec., water exposed to the open air at night is sometimes, though rarely, covered with a thin pellicle of ice. The rest of the year is entitled the wet season; but the rains, though heavy, last only during the night, and the days are fair and cloudless. Earthquakes are very frequent. The forests yield many valuable kinds of timber, including mahogany, cedar, *palo di maria*, a species of wood well adapted for ship-building, &c. But the logwood-tree is by far the most valuable of the products of the forest. It is found here and in the adjoining peninsula of Yucatan in the greatest perfection, and is a most important article of export; a species of Brazil wood is also exported. Among the other vegetable products may be enumerated the dragon's-blood, mastic, *palma Christi*, and other balsamic, aromatic, and medicinal plants; with the sugar-cane, cocoa, indigo, coffee, tobacco, and cotton, which are extensively cultivated. The crops vary according to the elevation of the surface. Below the level of 3,000 ft., indigo, cotton, sugar, and cocoa are the principal. The last is chiefly grown along the shores of the Pacific. The district is also distinguished for the growth of indigo, to which the agriculturists devote their attention so exclusively as almost wholly to neglect the cultivation of articles of prime necessity. Between the heights of 3,000 and 5,000 ft., the nopal, or cochineal plant, is a favorite object of cultivation, particularly in the neighborhood of Guatemala. Maize is generally grown, but wheat only in the high table-land in the N. Flax and hemp, though they flourish luxuriantly, receive little attention, owing to the superior facilities for growing and manufacturing cotton; and vanilla is suffered to run to waste for want of hands to gather and prepare it. Agriculture, and cattle and sheep-breeding, are the chief occupations of the people; but the manufactures are not quite unimportant. Coarse woollens are manufactured, together with some cotton cloths, caps, and hats. A good many hands are also employed in making earthenware, furniture, wooden articles in cabinet work, &c.; and an inland trade is carried on in mats, woven of different colors by the Indians, and used at *G.* as carpets.—*Min.* Gold is found in most of the river-beds, silver, salt, and saltpetre are mined, and lead, iron, copper, coal, quicksilver, zinc, &c., occur, though little mining is done.—*Gov.* The governing powers are: a president, a council of state, and a house of representatives, elected by universal suffrage. The Roman Catholic is the established religion, but complete religious toleration exists. The monastic orders have been wholly suppressed. The Indians preserve to a great degree their aboriginal language and customs. The chief occupation of the settled tribes is agriculture. They live in great harmony with the whites, but entertain a dislike to the *ladinos*, a mixed breed between the whites and Indian tribes.—*Hist.* The N. E. coast of this region was discovered by Columbus in 1502. Most part of it was conquered by the Spaniards about 1524, and erected into a captain-generalship by the Emperor Charles V. in 1527. *G.*, together with the other States of Central America, became independent in 1821. A confederation, which existed from 1824 to 1839, was overthrown by an uneducated but able Indian named Carrera, who founded the present republic and governed it until his death in 1865. General Barrios was president from 1871 to 1885, and under his iron rule the country made much progress. In 1897 *G.* became a member of a new confederation called the Greater Republic of Central America. *Pop.* estimated in 1897 at 1,550,000.

GUATEMALA (NUEVA), the cap. of the above State, is situated 15 m. from San Salvador; Lat. 14° 37′ N., Lon. 90° 30′ W. It was founded in 1776, after the destruction of the old cap. by an earthquake, and is situated on a high, level, open plain, 4,372 feet above sea, 90 m. from the Pacific Ocean. It is by far the most important city of Central America, is regularly laid out in the style of our cities, and has a flourishing trade with Vera Cruz and Mexico. *Pop.* (1897) 45,660.

Guatemala la Antigua, or OLD GUATEMALA, a city, and the former cap of Guatemala, about 25 m. W.S.W. of Nueva Guatemala. It is situated at the base of the Volcan d'Agua, by an eruption of which it was overwhelmed in 1541. In 1773 it was again almost destroyed by an earthquake. *Pop.* 12,000.

Guatey'cas, or GUAYTECAS, a bay and group of islands, in the Pacific Ocean, off the W. coast of Patagonia, the islands forming a part of Chonos Archipelago.

Guatul'co, a seaport of Mexico, on the Pacific coast, about 105 m. S. E. of Oajaca.

Guaviare (*hwä-ve-ä'ra*), or GUABIARE, a river of the Republic of Colombia, joins the Orinoco near San Fernando, in Venezuela; Lat. 4° 20′ N., Lon. 67° 30′ W. *Length*, about 450 miles.

Guaya'ma, a sea-port town on the S. coast of Porto Rico, W. Indies; *pop.* abt. 5,500.

Guayanilla, (*hwi-a-nel'ya,*) a sea-port town on the S. coast of Porto Rico, West Indies.

Gua'va, *n.* (*Bot.*) A tree of the genus *Psidium*, native of tropical America. There are two species. The Common or White guava, *P. pyriferum*, is a low tree, 17–20 ft. high, with numerous branches, obtuse smooth leaves, and fragrant white flowers on solitary axillary stalks. The fruit is larger than a hen's egg, roundish or oblong, smooth, yellow; the rind thin and brittle; the pulp firm, full of bony seeds, flesh-colored, aromatic, and sweet. The jelly or preserve made from it in the W. Indies, and chiefly at Havana, is highly esteemed. The rind is stewed with milk, and is also made into marmalade. This fruit is rather astringent than laxative. *G.* buds, boiled with barley and liquorice, make a useful astringent drink in diarrhœa.—The Red guava, *P. pomiferum* (Fig. 1209), produces a beautiful fruit, with red flesh, but not nearly so agreeable as the white guava.—It is very acid. See PSIDIUM.



Fig. 1209.—GUAVA, (*Psidium pyriferum.*)

Guayaquil, (*hwi-a-keel',*) a dept. of Ecuador, bordering on the Pacific Ocean; *area*, abt. 14,400 sq. m. *Rivers.* Guayaquil River, and some smaller streams. *Surface*, diversified, the Andes forming its E. boundary. *Soil*, in some parts fertile. *Cap.* Guayaquil. *Pop.* abt. 75,000.

—A city, cap. of the above dept., on the Guayaquil River, about 40 m. above its mouth; Lat. 2° 20′ 28″ S., Lon. 79° 43′ W. It consists mostly of wooden houses, built upon low unhealthy ground, badly supplied with water,



Fig. 1210.—CATHEDRAL OF GUAYAQUIL.

and infested with vermin. There are nevertheless some good edifices, and the Cathedral (Fig. 1210) is a fine specimen of the ecclesiastical architecture which prevails in South America. The exports are chiefly cocoa, timber, hides, tobacco, ceibo-wool, and cattle. Its harbor is one of the best on the Pacific coast. *Pop.* (1897 about 40,000.

Guayaquil, Gulf of, an arm of the Pacific Ocean in Ecuador. It receives the Guayaquil, Daule, and Tumbez Rivers.

Guaymas, (*hwi'mas,*) a sea-port town of Mexico, state Sonora, at the mouth of a considerable river, on the E. shore of the Gulf of California, 230 m. W.N.W. of El Fuerte. Lat. 27° 50′ N., Lon. 112° W. The town owes its origin and rise to its magnificent harbor, the best in Mexico. This inlet is capable of accommodating 200 vessels, and is sheltered from all winds by the lofty hills which surround it, and the island of Paxaros, which forms a natural breakwater before its entrance. Close to the pier there are 5 fathoms water, and deeper soundings, with good anchorage, are found a short distance further off shore. The more modern houses are large and well built; the rest are chiefly of mud and flat-roofed. The climate is healthy, though hot. Water, with provisions, have to be conveyed to the town from a distance of about 3 m., the immediate neighborhood being arid and sterile. But the great commercial advantages of the place countervail these drawbacks, and will probably render it the principal commercial *depôt* on the W. coast of Mexico: it being much superior as a port to either Mazatlan or San Blas, and easier of access than Acapulco to vessels from China to Mexico, which from the prevalence of particular winds in the Pacific, seldom make the Mexican coast S. of Guaymas. At this port and Mazatlan, indeed, all the trade between Mexico and E. Asia is now transacted. *G.* is the Pacific terminus of the A. T. & Santa Fé R.R. *Pop.* abt. 5,000.

Guay'ra, La. See LA GUAYRA.

Guayta'ra, a river of Ecuador, an affluent of the Patia.

Gubbio, (*goob'be-o.*) [Lat. *Eugubium.*] A town of Italy, 21 m. S. of Urbino, at the foot of the Apennines. *Manf.* Woollen and silk stuffs. Rich in antique Roman and Etruscan monuments. *Pop.* (1895) 5,343.

Gu'ben, a city of Bradenburg, Prussia, at the confluence of the Neisse and Lubst, 27 m. S. of Frankfort-on-the-Oder. *Manf.* Cloth, woollen stockings, linens; tanneries and brioweries of importance are in the vicinity. *Pop.* (1895) 23,701.

Gubernato'rial, *a.* [From Lat. *gubernator.* See GOVERNOR.] Relating or pertaining to government, or to a governor. (Used sometimes in the U. States.)

Guchilaque, (*goo-che-la'ka,*) a town of Mexico, abt. 30 m. S. of the city of Mexico. Elevation, 7,000 ft.

Gudgeon, (*gudj'on.*) [Fr. *goujon.*] A small European Malacopterygious fresh-water fish of the genus *Gubio.* (*Cuv.*) It is about six to eight inches long, and half-cylindrical in shape; its back is pale-brown, spotted with black, the belly white, and the tail forked. The gudgeon swims in shoals, and feeds on worms and aquatic insects. They afford great sport to anglers, from their greediness in seizing upon any bait presented to them. A species, 5 inches long, inhabits Niagara River.

—A person easily cheated or bamboozled.—A bait; an allurement.

(*Mach.*) That part of a horizontal shaft or axle which turns in the collar; an iron pin fixed as a bearing in a beam or wooden shaft.

—*pl.* (*Naut.*) Eyes driven into a ship's stern-post, to hang the rudder on. (Sometimes written *googings*, or *goodgeons.*)

—*v. a.* To cheat: to swindle; to insnare. (R.)

Gu'din, THEODORE, a French marine painter, B. in Paris, 1802, became a pupil of Girodet Trioson, and on leaving this artist confined his studies chiefly to marine and landscape painting, which he practised both in oil and water-colors. The picture which secured his fame was the *Sauvetage des Passagers du Columbus*, which was exhibited at the Salon in 1831, and is in the Bordeaux Museum. The *Coup de Vent dans la Rade d'Alger*, in 1835, which was still more admired, is in the Luxembourg. When Louis Philippe resolved to decorate the interior of the palace of Versailles, he selected M. Gudin to paint the principal events in the naval history of France. The artist worked assiduously at this commission from 1838 till 1848, during which period he produced no less than 63 paintings, chiefly naval actions, many of large size. His style was always somewhat affected, and his success probably caused him to be negligent in details, slovenly in touch, and *outré* in composition, examples of which faults may be seen in his pictures of Scottish scenery, *The Banks of the Don, Coast-Scenes near Aberdeen*, &c., and still more in his *L'Incendie du Fauboury du Pera*, &c. His earlier pictures of coast-scenery in France and Holland are considered his best. M. Gudin resided in Scotland after 1861. Died in 1880.

Gueber, Guebre, Glueber, (*ge'ber,*) *n.* [Pers. *ghebr*, an infidel; Turk. *giaour.*] A term applied by the Mohammedan conquerors of Persia to the disciples of Zoroaster in that country. They call themselves "Behendies," *i. e.*, followers of the true faith, and are generally known by Europeans as fire-worshippers. Zoroaster is believed to have flourished in the 6th century, B. C. In course of time the system became very corrupted, and King Ardeshir Babekan (A. D. 226) reformed it, collected the sacred books, and caused them to be translated from the Zend language into the vernacular dialect of Persia, and built temples for the preservation of the sacred fire. Under the Mohammedan invaders in the 7th century, they were much persecuted, and most of them embraced Islamism. A small remnant, who clung to their old faith, were finally allowed to settle in one of the most barren parts of the kingdom. They now number about 100,000 souls, dwelling chiefly in the city of Yezd, and the province of Kerman. They have the character of being industrious and virtuous, in comparison with the other Persians, but they are ignorant and depressed. A body of the Guebres left Persia at the time of the invasion and settled in Hindostan. At present they are numerous in Western India, where they are called Parsees, from the country of their origin. They are honored by Europeans for their estimable qualities, and are the richest and most influential of the native citizens of Bombay. Their worship became corrupted with many Hindoo practices, and in 1852 an association was organized for the restoration of the creed of Zoroaster to its original purity, which has had a considerable effect. They recognize one God, Ormuzd, invisible and omnipotent, the creator, governor, and preserver of all things. He sprang from primeval light, which emanated from a supreme incomprehensible essence, called Zernane Akerene, or the Eternal. Ormuzd created a number of good spirits to act as the medium of his bounty to men, and intrusted them each with the guardianship of a particular person or object, animate or inanimate. The sun is the eye of Ormuzd, and, like all the heavenly bodies, is animated with a soul. The spirit of the stars have a beneficent influence upon the affairs of men, and can reveal the future to those who understand their signs; hence astrology has always been a favorite subject of study with them. The worship of idols is prohibited, but a reverence for fire and the sun inculcated, as emblems of deity. To Ormuzd is opposed Ahriman, the author of evil. The sacred fire which Zoroaster brought from heaven is kept continually burning in holy places, and is fed with choice wood and spices. Their funeral ceremonies are very peculiar. Fasting and celibacy are considered as displeasing to the deity, and polygamy is strictly forbidden. Their priests pass their time in praying, chanting hymns, tending the fires on the altars, burning incense, and performing certain ceremonies. Prayer, obedience, industry, honesty, hospitality, and alms, are enjoined, while anger, revenge, envy, hatred, and quarrelling, are strictly forbidden. The precepts of this religion are contained in the "Zend Avesta," or collection of sacred writings which Zoroaster received from heaven. The original was lost at the time of the invasion, but copies of it were preserved.

Guel'derland, Gel'derland, a province of the Netherlands, bounded by Overyssel, Westphalia, N Brabant, Holland, and Utrecht, on its respective lines of frontier. *Area*, 2,018 sq. m. *Surface.* Generally level. *Rivers, &c.* The Rhine, Meuse, Waal, Yssel, and Leck, and numerous canals. *Prod.* Wheat, rye, buckwheat, potatoes, hops, and tobacco. Cattle-breeding is largely carried on. *Manuf.* Linen, paper, leather, tiles, liquors, beer, &c. *Chief towns.* Arnheu (the cap.), Nymwegen, Thiel and Zutphen. *Pop.* (1895) 520,210.

Guelder-rose (*gel'der-*), *n.* (*Bot.*) See VIBURNUM.

Guelf, or **Guelph** (*gwelf*), [from the It. *Guelfi*, and Ger. *Welfen.*] The name of an illustrious family, which in the 11th century was transplanted from Italy to Germany, where it became the ruling race of several countries. The family still continues in the two lines of Brunswick —the *royal* in England and the *ducal* in Germany.

Guelfs, *n. pl.* (*Hist.*) See GHIBELLINES.

Guelph, a town of prov. of Ontario, cap. of Wellington co., on the river Speed, about 87 m. W. by S. of Goderich. *Pop.* (1895) 9,890.

Guelph, Order of, or **Royal Guelphic Order,** *n.* (*Her.*) The name of a Hanoverian order of knighthood, founded in 1815, by George IV. of England (then Prince Regent). It consists of grand crosses (G. C. H.), commanders and knights, both civil and military.

Guen'oe, in *California*, a village of Lake co.

Gue'non, *n.* (*Zoöl.*) The common name of the genus of monkeys *Cercopithecus* of the *Simiadæ*, characterized by a moderately prominent muzzle, long tail, and the last of the inferior molars with tubercles. The species are very numerous, and of great variety of size. They live in troops, and commit great havoc in gardens and cultivated fields. They are easily tamed. To this genus belongs the Diana monkey, Fig. 813.

Guerci'no, GIOVANNI FRANCESCO BARBIERI, commonly called GUERCINO from a cast in his eye, was born at Cento, near Bologna, in 1590; he was self-taught. He spent some time at Rome, but lived chiefly at Cento, until the death of Guido in 1642, when he settled in Bologna, where he died rich in 1666. *G.* was an imitator of Caravaggio, and is one of the principal so-called *Tenebrosi* masters, from the great depth and blackness of their shadows; but upon his settlement in Bologna he modified his manner, endeavoring to bring it nearer to that of Guido.

Guerdon, (*gér'don,*) *n.* [Fr.; O. Ger. *werd*, *wurd*, price, value.] A reward, recompense, or requital.

"He finds his *guerdon* in his lady's smile."—*Sedley.*

—*v. a.* To reward with a guerdon; to make recompense. (R.)

"We gave a costly bribe to *guerdon* silence."—*Tennyson.*

Guer'donable, *a.* Deserving requital or reward.

Guericke, OTTO, (*ger'ik-e(r,)*) a German philosopher, who was counsellor to the elector of Brandenburg, and burgomaster of Magdeburg. He invented the air-pump and weather-glass, and published some treatises on experimental philosophy. B. 1602; D. 1686.

Gueril'la, *n.* Same as GUERRILLA, *q. v.*

Guér'in, PIERRE NARCISSE, a French painter, B. at Paris in 1774. He was a scholar of Regnault, and became one of the most eminent painters of the classical school. Among his most celebrated works are *Marcus Sextus*, exhibited in 1800; *the Emperor pardoning the Insurgents at Cairo; Clytemnestra, Cephalus, and Aurora, Dido, and Æneas.* *G.* became professor at the school of Fine Arts, baron, and member of the Institute and Legion of Honor. Among his scholars were Gericault, Ary Scheffer, and Eugene Delacroix, who all distinguished themselves as masters in the new Romantic School. D. at Rome, director of the French Academy there, in 1833.

Guer'ite, *n.* [Fr.] (*Fortif.*) A small tower of sand or wood, to hold a sentinel.

Guernsey, (*garn'say,*) a British island, the second in size of the Channel Islands, Lat. 49° 24′ to 49° 30′ N., Lon. 2° 33′ to 2° 41′ W., 69 m. S.E. of Start Point, in the S. of Devonshire, 46 m. S.W. of Cherbourg, France. It has a lofty and abrupt coast, a fertile soil, and, especially in the low-lands, affords very fine pasturage. The inhabitants speak the Norman dialect, and the courts still make use of the French language. *Pop.* 34,000.

Guernsey, in *Ohio*, an E. co.; *area*, about 517 sq. m. *Rivers.* Wills, Seneca and Leatherwood creeks. *Surface*, hilly; *soil*, moderately fertile. *Min.* Coal. *Cap.* Cambridge. *Pop.* (1897) about 30,200.

Guerre'ro, VICENTE, elected President of the Republic of Mexico in 1829; was by birth a Creole. At the very commencement of the revolution in Mexico he took up arms against the Royalists, and never ceased to occupy a prominent position in the affairs of that country. On repeated occasions, from 1819 to 1828, General *G.* became the rallying-point of the liberal or popular party, the *Yorkinos*, and was repeatedly called into active service in his military capacity. Having been successful in various contests of the aristocratical party, he at length, in 1829, was elected to the presidency. The expedition of Barradas soon gave employment to the new government; and the better to enable the president to meet the exigency, he was invested with extraordinary powers; but after the victory over the Spanish troops, and when the invading expedition was destroyed, *G.* evinced an unwillingness to relinquish the dictatorship, which became the pretext of another revolution; and Bustamente, the vice-president, assumed the reins of government. *G.*, however, was not long idle; in September, 1830, he collected a large force at Villadolid, and established a form of government in opposition to that of Bustamente, and the whole country was agitated by troops in arms. But his career was almost run. In February, 1831, he was taken and shot.

Guerrero, (*gher-ra'ro,*), a state of Mexico, bordering on the Pacific Ocean; *area*, abt. 32,000 sq. m. *Rivers.* Balzas and Nasca rivers. *Surface*, mountainous; *soil*, fertile. *Cap.* Tixtla. *Pop.* abt. 270,000.

Guerrilla, Guerilla, (*ger-ril'la.*) *n.* [Sp., dimin. of *guerra*, war.] The name applied in Spain to the armed bands, composed of peasants and shepherds, who, on occasion of foreign invasion or civil wars, carry on an irregular warfare on their own account. From 1808 to 1814 they were regularly organized against the French, and being favored by the character of the country, were successful on many occasions, especially at the commencement of the war, under the Empecinado, the Pastor Merino, Mina, and other leaders. The country itself suffered from the guerrillas, who revenged political treachery, or even the bare suspicion of it, by fearful devastations. In the subsequent war in Spain, the guerrillas, especially those of the Basque provinces, acted a prominent part on the Carlist side.

—*a.* Applying or pertaining to, or engaged in, warfare carried on by independent and partisan companies of soldiers; as, a *guerrilla* force.

Guerrillero, (*ger-reel-yā'ro,*) *n.* [Sp., from *guerra.*] A partisan soldier; a guerrilla; an irregular combatant.

Guess, GEORGE, or SEGUOYAH, a half-breed Cherokee Indian, inventor of the Cherokee alphabet; B. abt. 1770; D. at San Francisco, 1843.

Guess, (*ges.*) *v. a.* [D. *gissen*, to conjecture; Swed. *gissa*, to divine; Ir. *geasaim*, to foretell; Ar. *kiyas*, to guess; Hind. *gyas*, to guess; obs. Heb. *kasam*, to divine.] To conjecture; to divine; to form, as an opinion, without certain principles or means of knowledge; to suppose; to surmise; to think at random; to imagine.

"You cannot *guess* who caused your father's death."—*Shaks.*

—To judge or form, as an opinion from some reasons that render a thing probable.

"One may *guess* from Plato's writings . . . that himself had a right opinion concerning the true God."—*Stillingfleet.*

—To conjecture rightly; to solve by a correct surmise or conclusive opinion; as, I *guessed* the drift of his intentions.—To hit upon by accident.

(NOTE. With regard to the popular misuse of the word in this country, Webster says,—"It is a gross vulgarism to use the word *guess*, not in its true and specific sense, but simply for *think* or *believe*; as, I *guess* the mail has arrived; I *guess* he is at home. It is equally vulgar to use *reckon* in the same way; as, I *reckon* the mail has arrived; I *reckon* he is at home.)

—*v. n.* To conjecture; to judge at random; to surmise;—preceding *at*, *about*, *of*, &c.

—*n.* Conjecture; judgment or opinion without any certain evidence or grounds.

"No man is blest by accident or *guess.*"—*Young.*

Guess'able, *a.* That may be guessed or conjectured.

Guess'er, *n.* One who guesses; one who judges, or expresses an opinion without certain knowledge.

Guess'ingly, *adv.* By way of conjecture. (R.)

Guess'ive, *a.* Conjectural; arrived at by guesses.

Guess'-rope, Guest'-rope, *n.* (*Naut.*) A towrope; also, a painter, or warping line, for a boat.

Guess'-work, *n.* Work performed at hazard, or by mere conjecture.

Guest, (*gest,*) *n.* [A. S. *gest*, *gæst*, *gast*; D., Fris., and O. Ger. *gast*; Goth. *gasts*; Dan. *giest*; Swed *gäst*; Russ. *gosty*; Magy. *gazda*; W. *gwestwr.*] One who is feasted or entertained at the table of another; a visitor; a visitant; a stranger or friend received into the house of another, and treated with hospitality; a lodger, or sojourner, at a hotel or boarding-house.

"Welcome the coming, speed the parting *guest.*"—*Pope.*

Guest'-rite, *n.* Office due a guest.

Guest'-rope, *n.* (*Naut.*) See GUESS-ROPE.

Guest'-wise, *a.* In the manner of a guest; pertaining to a guest.

Guettar'da, *n.* [After Dr. Guettard, a French naturalist.] (*Bot.*) A genus of plants, order *Cinchonaceæ*. *G. speciosa*, a native of the West Indies, is the tree from which the beautiful zebra-wood of the cabinet-makers is obtained.

Guffaw', *n.* A loud, stentorian burst of laughter; a horse-laugh.

Gug'gle, *v. n.* See GURGLE.

Gûhr, (*gûr,*) *n.* [O. Ger.] A name applied in the East Indies to a loose, earthy deposit from water, found in the clefts of rocks, usually white, but sometimes red or yellow from a mixture of clay or ochre.

Guia, (*ghee'a,*) a town of Brazil, abt. 30 m. N.N.E. of Parahiba.

—A town of Brazil, on the Rio Negro, near the N. frontier.

Guiae, Guiacum, (*gī'ak, gī'ā-kum,*) *n.* See GUAIACUM.

Guiana, GUYANA, GUAYANA, (*gē-ā'na,*) an extensive region of S. America, embracing in its widest acceptation all the territory between the rivers Amazon and Orinoco, and extending between Lat. 4° S. and 8° 40′ N., and Lon. 50° and 68° W. By far the greater portion of this region (formerly called *Spanish* and *Portuguese Guayana*) belongs to the Venezuelan and Brazilian territories; and the term *Guiana* is now generally understood to refer only to the country between Lat. 0° 40′ and 8° 40′ N., and Lon. 57° 30′ and 60° W., divided among the English, French, and Dutch.

G., (BRITISH,) the most W. portion of the above territory, and the largest, if we include within its limits the entire territory claimed by the British. The latter extends between Lat. 0° 40′ and 8° 40′ N., and between the 57th and 61st degree of W. Lon.; having E. Dutch Guiana, from which it is separated by the Corentyn; S. Brazil; W. Venezuela; and N. and N.E. the Atlantic. *Area.*

76,000 sq. m. GEN. DESC. An alluvial flat extends inland to the foot of a group of low hills, which cross the Essequibo in Lat. 6° 15′, being continuous with the Sierra Imataca in Venezuela. About Lat. 5° a mountain-chain, an offset of the Orinoco range, runs W. to E., rising in places to the height of 1,000 ft. above sea-level. About a degree farther S. are the Pacaraima Mountains, which also run W. and E. Its highest point, Mount Roraima, near the W. extremity of the territory, is 7,500 ft. high. The Conocou or Canucu chain running S.E. connects the Pacaraima with the Sierra Acarai. The latter is a densely wooded chain of mountains forming the southern boundary of British *G.*, and the watershed between the basins of the Amazon and Essequibo. The latter river and the Corentyn both rise in it. Extensive savannas are found between E. of the Berbice River and S. of the Pacaraima chain, together with swampy tracts of country; but with these exceptions the interior is mostly covered with hill ranges and dense forests. *Rivers.* The chief rivers, all having a N. direction, are the Essequibo, Corentyn, Berbice, and Demerara. From the detritus brought down by these streams and deposited around their mouths, the whole coast is shoaly for 12 or 15 m. seaward.—*Geol., &c.* The chief rocks are granite, porphyry, and various kinds of trap, gneiss, sandstone, and colored ochres. Traces of iron are found, and gold exists and is mined to some exteut.—*Climate.* The mean temperature of the year at Georgetown is 81° 2′ Fahr., the maximum 90°, the minimum 74° on the coast. Two wet and two dry seasons constitute the changes of the year. Hurricanes are unknown, and gales are untrequent. The climate, generally speaking, with the exception of the low and swampy coast-lands, is salubrious.—*Veget. and Prod.* The forests abound with trees of immense size, including the *mora excelsa*, zipari or *green-heart*, and many others, yielding the most valuable timber, and an abundance of medicinal plants, dyewoods, and others excellent for cabinet-making. *Bixa orellana* grows in profusion. That magnificent specimen of the S. American flora, the *Victoria Regia*, was discovered by Sir R. Schomburgk, on the banks of the Berbice.—*Zoöl.* The jaguar, puma, peccary, wild hog, tapir, and many kinds of deer, abound in British *G.* The sea-cow is met with in the larger rivers, which are also inhabited by the cayman, guana, and alligator. There are several kinds of immense, but generally inactive, serpents. Turtles are plentiful, and the rivers teem with fish.—*Agric. &c.* The staples of British *G.* are sugar, coffee, and cotton; among the minor products are rice, maize, Indian millet, cocoa, vanilla, tobacco, and cinnamon. The savannas between the Berbice and the Demerara occupy upwards of 3,000 square m., are clothed with nutritious grasses, plentifully irrigated, interspersed with shady woods, and feed large herds of wild cattle and horses. —*Govt. and Fin.* The executive administration is controlled by an English governor, assisted by a legislative assembly, or "college of electors," appointed by the colonists. The criminal law is the same as that of Great Britain, but civil cases are, in general, ruled by the Roman-Dutch law.—*Religion, &c.* All shades of religious belief are allowed the fullest exercise.—*Chief towns.* Georgetown (the cap.), and New Amsterdam. —*Pop.* 155,026.—*History.* According to some, Columbus discovered Guiana in 1498; others give that honor to Vasco Nuñez in 1504. The Dutch, who were its first European settlers, established themselves in 1580, and the English in 1630. Most of Guiana, however, remained in the hands of the former till 1796, when Demerara and Essequibo surrendered to the English. They were restored to the Bavarian republic in 1802; and retaken by the British in the following year; since which period the territory called British Guiana has belonged to that power; that called Dutch Guiana was given up to Holland at the conclusion of the war. For many years past a dispute has existed between Great Britain and Venezuela concerning the western boundary of British *G.* This relates to the country west of the Essequibo river, Venezuela claiming all the country up to that stream, while Great Britain made a somewhat indefinite claim of territory to the westward. This dispute became more earnest after the discovery of gold within the disputed territory about the year 1876. As a result, Venezuela broke off diplomatic relations with Great Britain, and in 1895 the U. S. took an active part in the settlement of the controversy, President Cleveland appointing a commission to consider the alleged encroachments of Great Britain on Venezuelan territory and vigorously requesting an arbitration to settle the dispute. Great Britain finally assented to this request, and the long-standing controversy was at once placed in a fair way of settlement.

G. (DUTCH.) This territory is intermediate, both in size and position, between British and French Guiana. It extends between N. Lat. 2° and 6°, and W. Lon. 53° and 57°, having E. French *G.*, from which it is separated by the Marony; S. Brazil; W. the Corentyn, which divides it from British Guiana; and N. the Atlantic. Length, N. to S., 250; average breadth, about 155 m. *Area.* About 28,500 sq. m. *Desc.* The physical geography, climate, and productions of Dutch *G.* are pretty much the same as British Guiana. All the rivers have a N. direction; the chief is the Surinam, which runs through the center of the country, and falls into the Atlantic after a course of nearly 300 m. It gives its name to the N. portion of the territory, and is navigable for large ships for about four leagues from the coast.—*Com., &c.* Sugar is the chief staple; 30,000,000 lbs. are produced annually. Of coffee, 5,000,000 lbs. are annually exported, with large quantities of sugar, cabinet woods, gums, &c. Provisions, arms, and manufactured goods are imported from Holland; provisions are also imported from the U. States, to which the exports are syrup and rum. The gold-diggings of Surinam are attracting great attention since 1875, when a rich auriferous district was found among the Marowijne mountains. *Government, &c.* The government is vested in a governor-general and a high-council. *Cap.* Paramaribo. *Pop.* 50,341, exclusive of Indians and Maroons. The latter, living in the interior, are the descendants of runaway negroes, and were very troublesome during the past cent.; they have now, however, adopted comparatively settled habits, and receive annual presents of arms, &c., from the Dutch govt., the territory they occupy forming a kind of military frontier to the colony.

G., (FRENCH.) This, which is the most E. and smallest division of Guiana, lies between 2° and 6° N. Lat., and 51½° and 54½° W. Lon., having E. and S. Brazil, W. Dutch Guiana, and N. and N.E. the Atlantic. Length, N. to S., 250 m.; breadth varying from 100 to 190 miles. *Area*, 27,560 sq. m. DESC. The coast plain (*basses terres*) is an alluvial tract of extreme fertility. The uplands (*terres hautes*) are also very fertile, with a mixed argillaceous and ferruginous soil. The mountain chains run E. and W.; they are almost wholly granite, and in the centre of the colony rise from 1,600 to 2,000 feet above sea-level. Few countries are more abundantly watered. There are upwards of 20 rivers of considerable size, all of which have a N. course, and in the rainy season inundate the low country to a great extent, but are then innavigable from their great rapidity. The coasts are low, and, except at the river mouths, ships cannot approach the shore. There is only one roadstead, that of Cayenne, where vessels can ride in security. Several small rocky or wooded islands fringe the coast, among which is Cayenne, at the month of the Ozapoh, on which the cap. is built. *Clim.* The climate resembles that of British Guiana, but the coast-lands appear to be less unhealthy. *Agric., Prod., &c.* About 50 or 60 m. from the coast, the country begins to be covered with vast forests. The lowlands are in great part uncleared, and covered with underwood. The cultivated lands are chiefly given up to the growth of sugar-cane, coffee, cocoa, and spices. The sugar-cane was introduced by the earliest colonists; it is grown only on the low lands. Cotton, cocoa, annotto, and vanilla are indigenous. Indigo and tobacco (both of inferior quality), manioc, rice, &c., are grown.



Fig. 1211.—VANILLA PLANIFOLIA.

—*Mining.* The first gold "placer" was opened in 1819, but mining did not grow active until after 1876, when the yield of gold became about 58,000 oz. per year. At present the annual gold export is about 60,000 oz.; but probably half as much more is smuggled out of the country. The other exports are cocoa and arnotto, about 750,000 lbs. annually of each.—*Govt.* French *G.* contains two districts—Cayenne and Sinnamary. The administration is vested in a governor, assisted by a privy council and a colonial council. Cayenne, the seat of govt., is the only town worth notice. Slavery was abolished in this colony in 1848, and in 1851 the French govt. made it their chief penal settlement. *Pop.* (1897) abt. 39,500. *Hist.* French *G.* was colonized early in the 17th cent. Some French adventurers first settled at Cayenne in 1604; and with only a few short interruptions from the Dutch and English, the French held that station and the rest of the colony till 1809; it was then taken possession of by the English and Portuguese, and held by the latter till 1815, when, in pursuance of the Treaty of Paris, it was restored to France. See CAYENNE.

Guianeco. (*ghe-a-na′ko,*) a group of islands in the Pacific Ocean, off the coast of Patagonia.

Guibarra. (*ghe-bor′ra,*) a river of Ireland, enters the Atlantic Ocean on the N.W. coast of Donegal.

Guicciardini, FRANCISCO, (*goo-eetch-e-ar-dē′ne,*) an Italian historian, B. at Florence, in 1482. He was bred to the law and appointed professor of jurisprudence in his native city. Politics, however, occupied the rest of his life. In 1512 he was sent ambassador, on the part of the republic, to the Spanish court at Bruges, —for his services in which mission he was received with great honor by his countrymen; and Leo X. constituted him advocate of the Consistory. In 1518 he was made governor of Modena and Reggio, and next of Parma, where he drove out the French, and confirmed the inhabitants in their obedience. He was afterwards reappointed to the government of Modena and the presidency of the Romagna; and in 1530 was made governor of Bologna, where he assisted at the coronation of Charles V. Guicciardini took a leading part in the political changes at Florence, which led to the restoration of the despotism of the Medici; was a member of the commission of Twelve, and secured the appointment of Cosmo I. in 1537. After a life of great activity, he retired to his villa, and began his great work on the *History of Italy during my Own Time*, which he had nearly completed at the time of his death, in 1540. He was a man of great gravity of temper and demeanor, and displayed much political sagacity and love of justice. He is the greatest of the Italian historians, and writes with the immense advantage of having been a principal actor in the scenes he describes.

Guidable, (*gīd′a-bl,*) *a.* Susceptible of being guided.

Guidage, (*gīd′aj,*) *n.* The reward given to a guide for services rendered. (R.) — Guidance; conduct; direction.

Guid′ance, *n.* Act of guiding; direction; government; a leading.

"A prince ought not to be under the *guidance* of faction." *Swift.*

Guide, (*gīd,*) *v. a.* [Fr. *guider;* It. *guidare;* Sp. *guiar,* akin to Ger. *weisen,* to show, to direct, to lead.] To lead or direct in a path or way; to conduct in a course or direction; to pilot; as, to *guide* a traveller.

"Law *guides* the planets in their course." —*S. Rogers.*

—To direct; to order; to influence; to give direction; to instruct and control; to regulate and manage; to superintend.

"Nothing but the interest of this world *guides* men." *Kettlewell.*

—*n.* [Fr.] A person who leads, instructs, or directs another in his way, path, or course; a conductor; a pilot. — One who directs or influences another in his conduct or course in life; a regulator; a director; an adviser.

"Thou wert my *guide*, philosopher, and friend." —*Pope.*

(*Mus.*) The leading part in a canon or fugue.

Guide′-bars, Guide′-blocks, *n.pl.* (*Mach.*) Pieces of metal with parallel sides, fitted on the ends of the cross-head of a steam-engine, to slide in grooves in the side-frames, and keep the motion of the piston-rod in a direct line.

Guide′less, *a.* Without a guide; as, a "*guideless* kingdom."—*Dryden.*

Guide′-post, *n.* A finger-post at the corner-fork of a cross road, to guide travellers on their right way.

Guido d'Arrezzo, (*gē-do-da-ret′zo,*) or **Aretino,** (GUIDO,) was B. abt. 995. He was brought up in a monastery of the Benedictine order, where he applied himself to the study of music, and being dissatisfied with the system of notation then in use, devised a new one. He had the honor of explaining his invention to the pope, John XIX. He introduced the use of the lines and spaces, and of the syllables *ut, re, mi, fa, sol, la, si,* and left several works on his art.

Guidon, (*gē′don,*) *n.* [Fr.] (*Mil.*) The standard borne by regiments of light cavalry; it is broad at one end, nearly pointed at the other, and usually made of silk.

Gui′do Re′ni, usually called **Guido,** a celebrated Italian painter, B. near Bologna, 1575. He was first a pupil of Denis Calvart, afterwards of the Caracci, and accompanied Annibale Caracci to Rome, where he studied the works of Rafaelle and Caravaggio. After 20 years' residence at Rome he settled, about 1622, at Bologna, obtained full employment at high prices, and founded a school. He painted first in the manner of Caravaggio, the bold *naturalist*, but afterwards adopted a style remarkable for its softness and grace, and ultimately its sentimentality. He indulged in gambling, and though he had long a large income, he died in debt. He painted a large number of inferior pictures for dealers for mere bread. His *Phœbus and the Hours preceded by Aurora*, in the Rospiglioso Palace, is by some considered his finest performance. Among his other works are the *Crucifixion of St. Peter*, a magnificent work, in the Vatican; *Coronation of the Virgin*, at Bologna; the *Ecce Homo*, (Fig. 901,) in the Dresden Gallery; *Assumption of the Virgin*, at Munich; and the famous portrait of *Beatrice Cenci*, (Fig. 549,) one of the most interesting paintings in Rome. He painted numerous Magdalens. D. at Bologna, 1642.

Guienne, (*ghē-ĕn′,*) an ancient prov. of France, comprehending the territory now formed by the depts. of Gironde, Lot, Dordogne, Aveyron, and portions of Tarn-et-Garonne, and Lot-et-Garonne, and comprising with Gascony what was originally the country of Aquitaine, of which name *G.* is a corruption. *G.* passed into the possession of the English in 1152. The French seized it in 1294, and it was frequently contested until it came into the possession of France in 1453.

Guijar, or **Guixar,** (*ghē-har′,*) a lake of Central America, in San Salvador, receives the Mitlan, and discharges its surplus waters into the Pacific by the Lempa River. It is abt. 60 m. in circumference, and has a large island in the middle containing the ruins of an ancient town.

Guild, (*gild,*) *n.* [A. S. *geld, gield, gild,* or *gyld,* from

glidan, to pay, because each member was to pay something towards the support and charge of the company.] A society or body of individuals associated together for carrying on commerce, or some particular trade or business. There existed at Rome various fraternities of tradesmen, which bore a considerable resemblance to our modern *G.*, and were permitted to regulate their affairs by their own laws; but it is usual to trace the origin of *G.* to the Middle Ages. Mechanical industry would never have flourished under the feudal system, had it not been for the unions formed among the workmen and merchants themselves. When the advantages of these associations became known and felt, they rapidly increased, and in the struggle between the citizens and nobility, the principal resistance against the latter was made by the *G.* or corporations. As soon as the citizens acquired an influence in the administration, the guilds became the basis of the municipal constitutions, and every one who wished to participate in the municipal government was obliged to become a member of a *G.* Hence we so often find distinguished individuals belonging to a class of mechanics of whose occupation they probably did not know anything. *G.* introduced the democratic element into society, and in their progress became the bulwarks of the citizen's liberty, and the depositaries of much political power. By the close of the 12th cent., merchants' *G.* were general throughout the cities of Europe. The Drapers' Company of Hamburg dates from 1153, and that of the Shoemakers of Magdeburg from 1157. With the increase of their wealth and strength, the *G.* either purchased or extorted from their rulers privileges, which, once obtained, they were careful never to give up. By the 13th cent. they had acquired considerable power, and in two successive ages they counterbalanced the power of the nobles. By degrees, they themselves grew into intolerable aristocracies, especially in Germany, where their exactions had to be curbed by the laws of the empire. *G.* were abolished in Prussia in 1810; but the want of such associations having since been felt, laws were enacted in 1840 to favor their re-establishment. In France, they were suppressed in 1776, but soon re-established, and not finally abolished till 1791. In England and Scotland, the exclusive privileges of the guildry companies have now been abolished.

Guil'der, *n.* [Du. and Ger. *gulden.*] A Dutch silver coin, whose value is a little more than 40 cents; — written also *gilder.*

Guil'derland, in *New York*, a post-town of Albany co. *Pop.* (1897) about 3,750.

Guil'derland, in *New York*, a post-office of Albany co.

Guil'derland Centre, in *New York*, a post-village of Albany co.

Guildford (*gil'ford*), a town of England, cap. of county Surrey, on the Wey (to this point navigable for barges), 18 m. S.W. of London. *Pop.* (1895) 15,650.

Guild'hall, *n.* An important public building of the city of London, the seat of the municipal government, and the place of its civic meetings. Various courts are held here; and here, every 9th of November, the new lord mayor for the coming year gives a grand public dinner, at which her Majesty's ministers and the great law-officers of the Crown are invariably present. This building was commenced in 1411, by contributions of several companies called *guilds*, aided by liberal donations from many private individuals. Of the original *G.* little now remains but the stone and mortar of the walls, it having suffered severely by the great fire of 1666. It was patched up by Wren, and again in the last century by Dance, who, in 1789, erected the present intensely barbarous front.

Guild'hall, in *Vermont*, a post-village and township, cap. of Essex co., on the Connecticut River, abt. 60 m. N.E of Montpelier.

Guild'hall Falls, in *Vermont*, a village of Guildhall township, Essex co.

Guile, (*gīl,*) *n.* [O. Fr. *guille;* allied to *wile*, q. v.] Wile; subtlety; craft; cunning; artifice; deceit; duplicity; — commonly in a bad sense.

"Deep, hollow, treacherous, and full of *guile.*"—*Shaks.*

—*v. a.* To cloak or conceal with craftiness or artifice. — To cajole; to delude; to deceive.

Guile'ful, *a.* Full of guile; cunning; crafty; artful; wily; deceitful; insidious; subtle; fraudulent; treacherous.

"By *guileful* fair words peace may be obtained."—*Shaks.*

Guile'fully, *adv.* Artfully; insidiously; treacherously.

Guile'fulness, *n.* Quality of being guileful; deceit; secret treachery; tricky cunning.

Guile'less, *a.* Free from guile or deceit; frank; sincere; open; honest; as, a *guileless* heart.

Guile'lessly, *adv.* In a guileless manner.

Guile'lessness, *n.* Quality of being guileless; openness; simplicity; freedom from deceit or cunning.

Gui'ley, in *Oklahoma*, a post-office of Kay co.

Guil'ford, in *Connecticut*, a post-town and township of New Haven co., on Long Island Sound, about 16 m. E. by S. of New Haven. It contains the birthplace of Fitz-Greene Halleck, our eminent American poet. *Pop.*(1897) about 2,800.

Guil'ford, in *Florida*, a post-office of Bradford co.

Guil'ford, in *Illinois*, a post-township of Jo Daviess co.

—A township of Winnebago co.

Guil'ford, in *Indiana*, a post-village of Dearborn co., between Indianapolis and Lawrenceburg.

—A township of Hendricks co.

Guil'ford, in *Iowa*, a township of Monroe co.

Guil'ford, in *Kansas*, a post-village of Wilson co., on the Mo. Pac. R. R., 7 m. N.E. of Fredonia.

Guil'ford, in *Maine*, a post-town of Piscataquis co. *Pop.* (1897) about 1,100.

Guil'ford, in *Maryland*, a post-office of Howard co.

Guil'ford, in *Michigan* and *Minnesota.* See GILFORD.

Guil'ford, in *Missouri*, a post-village of Nodaway co., abt. 32 m. N. by E. of St. Joseph.

Guil'ford, in *N. Carolina*, a N.W. central co.; *area*, abt. 600 sq. m. *Rivers.* Deep and Haw rivers, besides numerous smaller streams. *Surface*, undulating; *soil*, fertile. *Cap.* Greensborough.

Guil'ford, in *New York*, a post-village and township of Chenango co., abt. 100 m. W. by S. of Albany; flour, iron, lumber, and carriages.

Guil'ford, in *Ohio*, a village of Columbiana co., abt. 70 m. S.E. of Cleveland.

—A post-township of Medina co.

Guil'ford, in *Pennsylvania*, a township of Franklin co.

Guil'ford, in *Vermont*, a post-village and township of Windham county, about 130 miles south of Montpelier.

Guil'ford, in *Virginia*, a post-office of Accomac co.

Guil'ford Centre, in *New York*, a post-village of Chenango co., abt. 100 m. W. by S. of Albany.

Guil'ford Centre, in *Vermont*, a post-village of Windham co., abt. 120 m. S. of Montpelier.

Guil'ford Court-House, in *N. Carolina*, a village of Guilford co., about 5 m. from Greensborough, memorable for a battle fought, March 15, 1781, between the Americans under Gen. Greene, and the British under Lord Cornwallis. The British were about 2,400 strong, and consisted chiefly of veteran soldiers. The American force numbered about 4,400, of which only about 1,500 were regular troops; the rest, mainly composed of raw militia, fled at the first onset, and Greene, after an heroic resistance, ordered a retreat. The loss of the British was over 600 men, including many officers; that of the Americans, 1,128 killed, wounded, and missing. Though victorious, Cornwallis was so much crippled that he retreated on the 18th, with the Americans in hot pursuit; and Mr. Fox is said to have exclaimed, when the battle was mentioned in the English House of Commons, that "another such victory would ruin the British army."

Guil'ford Station, in *Virginia*, a post-village of Loudon co., abt. 11 m. S.E. of Leesburg.

Guillemet', *n.* [Fr., from the name of the inventor.] (*Typog.*) A term sometimes applied to quotation-marks or points; thus (‘ . . : ’) (“ . . . ”).

Guillemot, (*gil-le-mŏt',*) *n.* (*Zoöl.*) See URINÆ.

Guil'levat, *n.* [From Fr. *guiller*, to ferment.] A vat for fermenting liquors.

Guilloche, (*gil-lōsh',*) *n.* [From the inventor *Guillot.*] (*Arch.*) An ornament composed of two (Fig. 1212) or more carved fillets, which by repetition form a continued series.



Fig. 1212. — GUILLOCHE.

Guillotine, (*gil-lo-teen',*) *n.* An instrument used in France, for infliction of capital punishment by decapitation; so called from Joseph Ignace Guillotin, by whom it was introduced into that country. This person was born at Saintes, and became a physician at Paris, where he obtained a certain celebrity, in the early period of the Revolution, by the strong part which he took in favor of the rights of the Tiers-État. He was in consequence elected a deputy to the National Assembly. When that body was occupied in its long discussions relative to the reform of the penal code, in 1790, Guillotin proposed the adoption of decapitation, up to that time used only for nobles, as the only method of capital punishment. From sentiments of humanity, he recommended the employment of a machine which had been long known in Italy under the name of *mannaja*, and in Scotland under the name of *maiden.* The Assembly approved the idea, and the machine was adopted, to which the Parisians have given the name of *Guillotine*, and of which Guillotin is most erroneously supposed to have been the inventor. It consists of two upright pieces of wood, fixed in a horizontal frame; a sharp blade of steel moves up and down, by means of a pulley in grooves in the two uprights; the edge is oblique, instead of horizontal. The criminal is laid on his face, his neck immediately under the blade, which severs it at a blow from his body. It is equally a vulgar error that Guillotin perished by the instrument which bears his name. He was imprisoned during the Reign of Terror, but released at the revolution of July, 1794, and D. in 1814.

Guillotine', *v. a.* To decapitate by means of the guillotine.

Guilt, *n.* [A. S. *gylt*, from *gyldan*, to pay, to restore.] The fine or mulct paid for an offence; hence also, by implication, the offence itself; as, the *guilt* of an offence, the *guilt* of poverty.

"I know not, I ask not if *guilt* 's in that heart,
I but know that I love thee, whatever thou art." — *Moore.*

—That state of a moral agent which results from his actual commission of a crime or offence, knowing it to be a violation of law; criminality in a civil or political sense.

Guil'tily, *adv.* Without innocence; without clearness of conscience.

"Bloody and guilty, *guiltily* awake." —*Shaks.*

Guilt'less, *a.* Free from crime or offence: innocent.

Guilt'lessly, *adv.* Without guilt; innocently.

Guilt'lessness, *n.* The quality or state of being guiltless.

Guil'ty, *a.* [A. S. *gyltig.*] Justly charged with an offence; not innocent.

(*Crim. Law.*) See VERDICT.

Guimaraens, (*ge-mar-ang',*) an inland town of Portugal, on the Ave, prov. of Minho, 25 m. N.E. of Oporto. *Manuf.* Cutlery, table-linen, and toys. *Pop.* 7,100.

Guimaraens, (*ghē-ma-rā'ens,*) a town of Brazil, on the Bay of Cuma, abt. 45 m. N.W. of Maranhão; *pop.* abt. 2,500. — A village of Brazil, prov. Matto-Grosso, abt. 40 m. N.E. of Cuyaba.

Guinea, (*ghin'ny,*) *n.* [So called from its being struck out of African gold brought from the coast of *Guinea.*] A gold coin of Great Britain, of the value of 21*s.* sterling, or $4.88. It was first coined in the reign of James I., and was superseded by the *sovereign* in 1817. Though the coin has ceased to be current, the name is still used to designate a sum of *twenty-one shillings;* and it is customary to reckon professional fees, voluntary subscriptions, &c., in guineas, which is supposed to raise them above mere pounds, shillings, and pence transactions.

Guin'ea, a name of uncertain origin, applied by European geographers to designate a portion of the W. coast of Africa. The older geographers apply it to the line of coast from the mouth of the Gambia to that of the Quorra; whereas the more modern authors extend its limits from Cape Verga, Lat. 10° 30′ N., to the mouth of Nourse River, Lat. 17° S., and all the district S of Cape Lopez, Lat. 5° S., namely, *Congo*, *Angola*, and *Benguela*, by the name of S. Guinea; while under N. Guinea, or Guinea Proper, are comprehended *Sierra Leone*, the Grain Coast (including *Liberia*), the *Ivory Coast*, the Gold Coast (including *Ashantee*), the Slave Coast (including *Dahomey*), *Benin*, Biafra, &c. The description of this extensive line of coast will be found chiefly under the heads of the countries above printed in italics.

Guin'ea-coru, *n.* (*Bot.*) See HOLCUS.

Guin'ea-fowl, GUINEA-HEN, or PINTADO, *n.* (*Zoöl.*) A genus of gallinaceous birds, the genus *Numida* of Linnæus, family *Phasianidæ*, natives of Africa and its adjacent islands; their manners are similar to those of the domestic poultry, and their food the same. The common *G.-F.*, *Numida meleagris* (Fig. 1213), is bigger than a large cock; the head is bare of feathers, and covered with a naked bluish skin; on the top is a callous conical protuberance; and on each side of the upper mandible, at the base, hangs a loose wattle, which in the female is red, and in the male bluish; the upper part of the neck is almost naked, being very thinly furnished with a few straggling hairy feathers; the skin is of a bluish ash; the lower part of the neck is covered with feathers of a purple hue; but the general color of the plumage is dark bluish-gray, sprinkled with round white spots of different sizes, over the whole of the feathers, the breast only excepted, which is of a uniform gray blue; the greater quills are white; and the rest are similar to the upper parts of the plumage, spotted and longitudinally barred with white. Its wings are short, and the tail pendulous, or pointing downwards. This bird is now common in our poultry yards, but from the circumstance of the young ones being difficult to rear, they are not bred in numbers at all equal to those of the domestic poultry. The female lays many eggs in a season, which she frequently secretes till she has produced her young brood. The egg is smaller than that of the common hen, and of a rounder shape; in color reddish-white, obscurely freckled with a darker color; and is delicious eating. The *G.-F.* is a restless and clamorous bird; its voice, harsh and unpleasant, is compared by Latham to a door turning upon its rusty hinges, or to an ungreased axle-tree. During the night it perches on high places, and if disturbed, alarms everything within hearing by its unceasing cry. It scrapes in the ground like the hen, and delights in rolling in the dust to free itself from insects. In a wild state these birds associate in flocks, giving the preference to marshy places, where they subsist almost wholly on insects, worms, and seeds. They formed a part of the Roman banquets; and they are greatly esteemed by many persons, who consider their flavor to resemble that of the pheasant.



Fig. 1213. — GUINEA-FOWL, or PINTADO.
(*Numida meleagris.*)

Guin'ea, (Gulf of,) formed by the Atlantic on the coast of New Guinea, between Lat. 6° 20′ and 1° S., Lon. 7° 30′ W. and 10° E.

Guinea, (New.) See PAPUA.

Guin'ea-pig, *n.* (*Zoöl.*) The common name of the genus *Cavia*, family *Hystricidæ.* The common *G. P.*, *C. cobaia*, is indigenous to S. America, but is now found domesticated in all parts of the world. This little rodent

animal has ears large and broad, the upper lip divided in two, the hair or fur erect, and somewhat resembling that of a pig (whence its name). The color of this small rodent animal is generally white, with black spots, although this is somewhat variegated by orange blotches on the coat. It has five toes on the fore legs, and three on the hind ones, and is utterly destitute of any caudal appendage. In their habits *G. P.* are extremely neat, as they are constantly seen smoothing and arranging the hair which forms the outer tegument of their coat. Their general voice is a grunt or feeble squeal, which renders them even more analogous to the pig, to which they are so often likened. The *G. P.* in its wild state inhabits dry sandy places, and its flesh is esteemed a great dainty by the natives of S. America.

Guin'ea-worm, *n.* (*Zoöl.*) See FILARIA.

Guines, (*gwēē'nes,*) a town of Cuba, W. Indies, near Broa Bay, abt. 40 m. S.S.E. of Havana.

Guingamp, (*gēēn'gong,*) a town of France, dept. Côtes-du-Nord, on the Trieux; *pop.* 6,748.

Guipure, (*ghē'pure,*) *n.* A kind of gimp.
—An imitation of ancient lace, less expensive, as durable, and equally beautiful with the article which it represents.

Guipuscoa, Guipuzcoa, (*gēē-poos'kō-a,*) the smallest, but the most densely peopled of the BASQUE PROVINCES, *q. v.*

Guiria, (*ghee'rē-a,*) a sea-port town of Venezuela, on the Gulf of Paria, abt. 135 m. E. of Cumana.

Guiscard, ROBERT, (*gēēs'kar,*) duke of Apulia, one of the most celebrated of the Norman adventurers in Italy, joined his brothers there about 1053, and in the following year, with his brother Humphrey, defeated and took prisoner Pope Leo IX. at the battle of Civitella. At the head of a small band he penetrated into Calabria, his aim pillage, his means force or knavery. On the death of Humphrey, in 1057, Robert was accepted as the leader of his countrymen, completed the conquest of Apulia, and obtained from Pope Nicholas II. the title of *duke of Apulia and Calabria.* He was joined in 1060 by his younger brother Roger, with whom he quarrelled, but soon made peace, Calabria being divided between them. He made himself master of Tarentum and Otranto, and took Bari in 1071 after a siege of four years. He assisted Roger at the siege of Palermo, of which he retained the sovereignty, giving the rest of Sicily to his brother. In 1074 he was excommunicated by Pope Gregory VII., and again four years later; but in 1080 he was reconciled, and did homage to the pope for his duchies. In the following year he engaged in war with the emperor of the East, and at the same time his subjects revolted. He returned and quickly suppressed the revolt. In 1084 Gregory VII., then besieged in Sant' Angelo by the Emperor Henry IV., called Robert to his aid. The emperor did not wait to encounter him, but Rome was, nevertheless, pillaged and partly burnt by the army of Normans and Saracens. He was continuing successfully the war with the Greeks, when he D. at Cephalonia in 1085. Robert, by his first wife, was father of Bohemond, prince of Antioch. One of his daughters was married to Constantine Ducas, son of the Emperor Michael; another to a son of Azzo, marquis of Este; and a third to Raymond II., count of Barcelona.

Guise, (*gēēs.*) The name of an illustrious French family, the founder of which was Claude, son of Réné II., duke of Lorraine, who obtained letters of naturalization from Louis XII., in 1506, distinguished himself at the battle of Marignano 1515, was created duke of Guise in Picardie by François I. in 1527, and D. 1550. The duke of Guise having married into the royal family, one of his daughters espoused James V. of Scotland, and became the mother of Mary Stuart. His eldest son, FRANÇOIS, who



Fig. 1214. — FRANÇOIS, DUKE DE GUISE (1550).

succeeded to the dukedom, was one of the most remarkable men of the age, and was king of France in all but the name. He was the chief of the Catholic "League," opposed to Condé and the Huguenots, and was assassinated 1563. The son and successor of the latter, HENRI DUKE OF GUISE, B. 1550, inherited the power and ambition of his father, and was one of the chief actors in the massacre of St. Bartholomew. He was assassinated by order of the king, 1588. The brother of François, and uncle of Henri duke of Guise, generally known as the CARDINAL OF LORRAINE, was the minister of François II. and Charles IX., and like the other members of his family, an implacable persecutor of the Huguenots, flourished 1525–1574. CHARLES, the fourth duke of Guise, eldest son of Henry the third duke, and Catherine of Cléves, became one of the chiefs of the League three years after the death of his father, and was gov. of Provence, 1571–1640. HENRI OF LORRAINE, the fifth duke, who became generalissimo of the Neapolitan insurgents in the revolt against Spain, and afterwards grand-chamberlain of France, was B. 1614, and D. 1664. The sixth duke of Guise, known also as LOUIS JOSEPH OF LORRAINE, and prince de Joinville, a military officer under Louis XIV., flourished 1650–1671. The last of this house was a posthumous son of the latter, who D. about four years afterwards.

Guise, (*gīse,*) *n.* [Fr., allied to A.S. *wisa:* Ger. *weise,* a manner.] External appearance; dress; garb; uniform.—Practice; custom.

"I have drank wine past my usual *guise.*" — *Chapman.*

Guis'er, *n.* A mummer, or person who goes about at Christmas singing the carols appropriate to the season.

Guitar, (*gē-tar',*) *n.* [Sp. *guitarra;* Fr. *guitare;* Lat. *cithara.*] (*Mus.*) A stringed instrument somewhat similar to the lute, formerly much esteemed as an accompaniment to the human voice, and especially used in Spain, where it probably originated. The guitar is of a somewhat oval form, having a neck similar to that of the violin. The strings—six in number—are stretched from the head to the lower end, passing over the sounding-hole and bridge. The three first, E, B, and G, are, like the gut strings of the violin, called the treble; and the other three, which are of gut or silk, and wound with silver wire, constitute the bass. All the strings are tuned by fourths, except the third, which is tuned one-third below the second. The greatest virtuosi of the guitar were Guiliani, Sor, Zoechi, Stoff, and Horetzsky.

Guitivis (*gē-te-vēē'*), or SANTA CRUZ DE MAYO, a sea-port town of the Republic of Mexico, about 120 m. S. E. of Guaymas.

Guit'tard, in *Kansas,* a township of Marshall county.

Guizot, (*gē'zō,*) FRANÇOIS PIERRE GUILLAUME, a distinguished French statesman and historian, B. 1787, is the son of an advocate at Nîmes, who perished on the scaffold during the Revolution. *G.* was educated at Geneva, and at the age of 12 made himself master of the learned languages, German having become to him a second mother-tongue, and English and Italian completely familiar. He left Geneva in 1805, and after a short sojourn in Languedoc, proceeded to Paris, with a view of being called to the bar—an intention which he does not seem to have earnestly prosecuted. In 1809, M. Guizot published his first regular work, an edition of Gerard's *French Synonyms,* with a dissertation on the language. His *Lives of the French Poets,* a translation of Gibbon's "Decline and Fall of the Roman Empire," *The State of the Fine Arts in France, Annals of Education,* and other works followed. In 1812 he was appointed Professor of Modern History in the Sorbonne. After the fall of Napoleon, the exalted idea of the talents of Guizot which prevailed among the old aristocracy of France made it easy for him to obtain important posts under the twofold restoration of the Bourbons. He was successively Secretary-General of the Ministry of the Interior and that of Justice, and Director-General of the Administration for settling claims of indemnity. He belonged to the Liberal school under the restoration, and lost power along with his colleagues, MM. De Cazes, Royer-Collard, and Camille de Jourdan, when the assassination of the Duc de Berri, in 1819, turned the scale in favor of the counter-revolutionary party. The severe measures of M. Villele's administration called forth vigorous protests in the form of political pamphlets from Guizot, which created a great sensation at the time, and their author was suspended in 1825 from his professorship. In his retirement he renewed his studies, and wrote *Memoirs relative to the English Revolution,* followed by a *History of the English Revolution; Memoirs relative to the History of France;* and *Critical Notes and Essays upon Shakspeare;* and at the same time contributed to the "Revue Française" and the "Globe." At this period his house in the Rue St. Dominique was the resort of the most distinguished men of the day, in both politics and literature, and in 1827 he had the misfortune to lose his wife, herself an authoress of reputation. In 1828 the interdict on his lectures was removed by the Martignac ministry, and he delivered the series published since as a *Course of Modern History,* and *The History of Civilization in Europe.* At the age of 42, M. Guizot was elected a member of the Chamber of Deputies, and took his seat in that assembly in the eventful session of 1830, on which occasion he joined in the celebrated address that provoked Charles X. to issue the famous ordinances of July 25th. Upon the accession of Louis Philippe, M. Guizot was named Minister of the Interior, then the most important post in the govt. The first ministry formed by Louis Philippe lasted only three months. In the cabinet of Oct., 1832, presided over by Marshal Soult, M. Guizot was Minister of Public Instruction; and from that period, excepting when filling the London embassy, he was a leading member of every administration to the end of Louis Philippe's reign. After retiring from the English embassy and obtaining power in 1840, M. Guizot's task became exceedingly difficult. Both England and France were startled by the ambitious projects of M. Thiers, and it was no easy matter to calm the excited feelings of the French, and to dissipate the suspicions of the English. But the device of "peace at any price" in a great degree succeeded, till the affairs of Tahiti interrupted the friendly relations of the two countries, and the vexed question of the Spanish marriages again excited considerable alarm and distrust. His rule came to an inglorious end in the revolution of Feb., 1848, after he had held the portfolio of Foreign Affairs for more than six years, and he withdrew from active political life. It is only a matter of justice to add, that, whatever may be thought of M. Guizot as a politician, he earned distinction as an author which must long secure eminence to his name. Nor was he less entitled to praise as the originator of an extensive improvement in the literature of his country. After his retirement he wrote two more volumes of his admirable *History of the English Revolution,* embracing the History of the Commonwealth; as well as *Richard Cromwell, and the Dawn of the Restoration,* and two semi-political pamphlets, *On Democracy in France* (1849), and an *Inquiry into the Causes of the Success of the English Revolution* (1850). The chief of M. Guizot's works that have been translated into English are, *History of the English Revolution of* 1640, in 1826–55; *Life of Monk; Lectures on the History of Civilization* (1846); *Corneille and his Times,* and *Shakspeare and his Times* (1852); *Essay on the Fine Arts,* and *Love in Marriage* (1854); *Mémoires pour servir à l'Histoire de mon Temps,* in 8 vols. 1858–67. His last works are: *Histoire de France depuis les Temps les plus reculés jusqu'en* 1789, *racontée à mes petits-enfants* (1870 *et seq.*); and *Histoire de Quatre Grands Chrétiens Français* (2 vols. 1873–74.) D. 1874. — His wife, Elizabeth Charlotte Pauline de Meulan, who died in 1827, was a woman of great distinction, and the author of novels and works for youth still held in great estimation.

Gujerat, or **Guzerat,** (*gōō-je-rat',*) a large province of Hindostan, comprising several petty states, the N. dists. of the British pres. of Bombay, and a part of the Guicowar's dominions. It is bounded N. by the province of Ajmeer, E. by Malwah and Candeish, S. by Amrungabad and the sea, and W. by a sandy desert, the Gulf of Cutch, and the sea. *Area,* 41,500 square miles. *Desc.* Mountainous in the interior, and elevated along the coast. The chief range is the Western Ghauts, which have an average height of 1,500 feet. *Pro.* Rice, wheat, barley, sugar, tobacco, cotton, maize, opium, castor-oil, fruits, and an extremely varied flora. *Min.* Iron only. *Pop.* estimated at 3,500,000. Lat. between 20° and 24° 45′ N., Lon. between 69° and 74° 26′ E.

Gu'la, *n.* (*Arch.*) Same as GOLA, *q. v.*

Gu'lar, *a.* [Fr. *gulaire;* Lat. *gularis,* pertaining to the throat.] Of or belonging to the throat.

Gulch, *n.* [Sp. *gulcho.*] A dry water-course; a ravine; a gully.

Gule, *v. a.* (*Her.*) To give the red color to.

Gules, *n.* [Fr. *gueules;* probably from the Pers. *guhl,* a rose.] (*Her.*) The term used to denote the red color. In engraving, it is marked by perpendicular lines traced from the top of the shield to the bottom. It is supposed to indicate valor, magnanimity, and the like, and is regarded as the most honorable heraldic color.

Gulf, *n.* [Fr. *golfe;* Gr. *kolpos,* bosom or bay.] (*Geog.*) An arm or portion of the sea extending into the land; a bay; — the latter name being more generally applied to deep indentations of the land whose opening towards the ocean is as wide as any part of the inlet, whereas gulfs have narrow entrances. Of all gulfs, the Gulf of Mexico is the most complete and characteristic. (See MEXICO, GULF OF.) It is the most nearly enclosed, as well as the largest. The Persian gulf is large, and very nearly enclosed, lying between Arabia and Persia, and receiving the waters of the Euphrates. The Gulf of Siam is much more open.
—An abyss; a deep place in the earth. —A whirlpool. — Any thing insatiable. —*Shaks.*

Gulf Mills, in *Pennsylvania,* a post-office of Montgomery co.

Gulf Stream. (*Phys. Geog.*) A remarkable current of the Atlantic Ocean, which comes out of the Gulf of Mexico, between the islands off the coast and the peninsula of Florida, and thence within the Bahama bank, parallel to the American coast, until it meets the St. George's and Nantucket banks, when its course is deflected eastwards. After passing the southern extremity of the great bank of Newfoundland, it runs in the same direction to about 38° W. longitude, within the parallels of 35° and 43° N. At this point the main stream turns to the S.E. and S. as far as the Azores, after which it is lost. But although the main stream is thus deflected, its influence extends much farther. Portions of it reach to Iceland, and wash the shores of the British Islands, where tropical fruits have been sometimes landed; and there can be no doubt that the permanent influence of this current has produced the genial climate of Western Europe, as compared with the climate in corresponding latitudes on the W. coast of the Atlantic, or on either coast of the Pacific. The whole range of the *G. S.* is estimated at about 3,000 m. in ordinary years. It occupies about 78 days in its progress, the average rate of motion per hour being thus a little more than a mile and a half. The velocity, however, varies greatly, being as much as five m. an hour as it issues from the gulf of Florida, and not more than ten m. per day near the Azores. The temperature varies, but the *G. S.* is everywhere warmer than the proper temperature of the ocean at that point. As it comes out into the Atlantic, it is from 86° to 89° Fahr., and is only reduced to 84° when it has travelled ten degrees latitude. After that, as it crosses the At-

lantic, it cools steadily, but always retains a part of its initial heat, and is constantly warmer than the ocean adjacent. The warm moist air over this current of hot water, when it is crossed by cold currents coming from the icy regions of the N., is at once converted into mist, and thus the course of the stream is in some parts marked by clouds and rain. Parts of the *G. S.*, nearer the American coast than the European, are sometimes actually crossed by icebergs, proving that the warm current is comparatively superficial, and that a cold current sets at right angles to the direction of the stream, near enough to the surface to govern the course taken by the larger and deeper icebergs.

Gulf Sum'mit, in *New York*, a P. O. of Broome co.

Gulf-weed, *n.* See SARGASSUM.

Gulfy, *a.* Full of whirlpools or gulfs.

Gu'lich, in *Pennsylvania*, a township of Clearfield co. *Pop.* (1897) about 1,350.

Gull, *v. a.* [O. Fr. *guiller*, to cheat; Dan. *kullen*, to deceive.] To deceive; to cheat; to mislead by deception; to defraud.

"He soothed the goddess, while he *gulled* the god." — *Dryden.*

—*n.* A trick, fraud, or deception. — One easily cheated; a dupe; as, he must be a poor *gull*.

—[Lat *Mergus.*] (*Zoöl.*) See LARIDÆ.

Gul'let, *n.* [Fr. *gueule*; Lat. *gula*, the throat or swallow.] (*Anat.*) The continuation of the pharynx, and the connecting isthmus between the mouth and the stomach: in other words, the first portion of the alimentary canal, or ŒSOPHAGUS, *q. v.*

Gul'lible, *a.* Easily cheated; readily deceived.

Gull Isl'and, in *New York*, an island and light-house, in the Race at the E. entrance to Long Island Sound. It exhibits a fixed light 50 ft. above sea-level, Lat. 41° 12′ 18″ N., Lon. 72° 6′ 45″ W.

Gull Lake, in *Michigan*, a post-office of Barry co.

Gul'ly, *n.* A gulch, channel, or hollow, worn in the earth by a current of water. — A large knife. — A tramplate; an iron rail.

Gul'ly-hole, *n.* The hole at which the gutters empty themselves into the common sewer.

Gu'lo, *n.* [Lat., a glutton, from *gula*, the gullet.] A genus of *carnivora*, family *Mustelidæ*, the type of which, *G. arcticus* or *G. luscus*, exists in the boreal regions of the old and new worlds, and is commonly called Glutton. It is about 3 feet long to the root of the tail, and is very powerful, ferocious, and voracious. Its fur, under the name of *wolverine*, forms an extensive object of commerce to the Hudson's Bay trappers. The Grison (*Gula vittatus*) and the Taïra (*Gula barbatus*) are found in South America.

Gulos'ity, *n.* [Fr. *gulosité*, from Lat. *gulositas*, from *gula*, the throat.] Excessive fondness for the pleasures of the table; greediness; voracity.

Gulp, *v. a.* [Dut. *gulpen*, to suck in, allied to GULF, *q. v.*] To swallow eagerly, greedily, or in large draughts.

—*n.* A swaltow, or as much as is swallowed at once; as, a *gulp* of physic.

Gu'ly, *a.* Red; of or pertaining to gules.

"The horrid standard of those *guly* red dragons." — *Milton.*

Gum, *n.* [A.S. *goma*, palate; Ger. *gaumen.*] (*Anat.*) The cellular and elastic fleshy substance which covers the alveolar portions of the upper and lower jaw, and envelops the neck of the teeth.

—[A.S. *goma*; Fr. *gomme*; Lat. *gummi.*] (*Chem.*) A vegetable product, which forms a slimy solution with water, but is insoluble in alcohol, ether, and oils. There are six varieties of gum — *gum-arabic*, *gum Senegal*, *gum of the cherry* and other stone-fruit trees, *gum tragacanth*, *gum of Bassora*, and the *gum of seeds and roots*. All these gums, except the last, flow spontaneously from the branches and trunks of their trees, and sometimes from the fruits in the form of a mucilage, which dries and hardens in the air; the gum of seeds and roots, however, requires to be extracted by boiling water. A number of very different substances are confounded in commerce under the name of gum. Thus, *gum elemi*, and *gum copal*, which are true resins; *gum ammoniacum*, which is a gum resin; and *gum elastic* (caoutchouc), which differs from both, are all called gums. Gum-arabic is obtained from the *Acacia Arabica*, or *Acacia vera*, which grow upon the banks of the Nile and in Arabia. The commercial gum of this kind consists of a number of small pieces rounded on one side and hollow on the other. It may be bleached by exposure to the atmosphere and sunlight at a temperature of 212°. Its specific gravity is 1·355. It is used in medicine, and also in order to give lustre to crapes and other silk fabrics. Gum Senegal is collected from the *Acacia Senegal* by the negroes during the month of November. Its specific gravity is 1·436, and its chemical properties and uses are similar to those of gum-arabic. It is largely used in calico-printing. Gum tragacanth, called also Cerasine, Cerasinum, and Mucilage, is gathered in Crete and the neighboring islands, from the *Astralagus tragacantha*, about the end of June. It is white or reddish in color, almost opaque, and has the appearance of twisted ribands. It is difficult to pulverize it without heating the mortar. When plunged into water, it partially dissolves, swells, and forms a very thick mucilage. Gum tragacanth has a specific gravity of 1·384, and is used in calico-printing and by shoemakers. Most of the substances called gums are resins or gum-resins. See RESIN.

Gum, *v. a.* To unite by a viscous substance.

—*v. n.* To exude or form gum.

Gumbin'nen, a town of E Prussia, on the Pissa, 63 m. E. of Königsberg. *Manuf.* Cloths, hats, brandies, beer, and leather. *Pop.* 800.

Gum'bo, GOMBO, *n.* A name applied in Louisiana to the plant *Okro*, of the genus HIBISCUS, *q. v.*, and also to a soup of which the pod of that plant is the principal ingredient.

Gum'-boil, *n.* (*Surg.*) A small abscess, which forms in the cellular substance of the gum. At first it is sufficient simply to protect it against cold; but if it continues to advance, the process of ripening may be hastened by hot applications to the cheek next to the swelling. If the pain be excessive, a leech applied to the part will usually afford relief. As soon as the presence of matter can be ascertained, it should be let out by a free incision.

Gum'borough, in *Delaware*, a P. O. of Sussex co.

Gum-cis'tus, *n.* (*Bot.*) A species of rock-rose, *Cistus ladaniferus*.

Gum'ma, *n.* [See GUM.] (*Med.*) A soft tumor, so named from the likeness of its contents to a gum.

Gummif'erous, *a.* [Lat. *gummi*, and *ferre*, to produce.] Producing gum.

Gum'miness, *n.* Viscousness; accumulation of gum.

Gum'mite, *n.* (*Min.*) A mineral of greasy lustre, reddish color, and resembling gum. *Sp. gr.* 3·9–4·20. *Comp.* Oxide of uranium, 72; oxide of manganese, 0·05; lime, 6·00; silica, 4·26; phosphoric acid, 2·30; water, 14·75, and a trace of fluorine and arsenic.

Gummos'ity, *n.* [Fr. *gommosité*; Lat. *gummositas.*] Viscidity; an adhesive quality.

Gum'mous, *a.* [Fr. *gommeux.*] Like gum; pertaining to or composed of gum.

Gum'my, *a.* Consisting of gum; of the nature of gum. Productive of gum. — Overgrown, or covered with gum.

Gump, *n.* [Dan. *gump*, the buttocks.] An imbecile; a dolt; a dunce; a silly person.

Gumption, (*gum'shon,*) *n.* [A.S. *geomian*, to observe.] Capacity; ability; shrewdness; address. (Colloq.)

(*Painting.*) The art of preparing colors.—MAGILP, *q. v.*

Gum'-rash, *n.* (*Med.*) The RED-GUM, *q. v.*

Gum-resin, (*-rez'in.*) *n.* (*Chem.*) See RESIN.

Gum'-tree, *n.* (*Bot.*) See EUCALYPTUS.

Gun, *n.* [W. *gwn*; Ir. *gunn*; Scot. *gyn*, an abbreviation of the Fr. *engin*, a military engine, which word *gyn* became corrupted into *gun.*] An instrument consisting of a barrel or tube, of iron or other metal, from which balls, shot, or other missiles are discharged by the explosive force of gunpowder. The largest species of guns are called *cannon*; the smaller species are called *rifles*, *muskets*, *carbines*, *fowling-pieces*, &c. The manufacture and construction of cannon have been fully described in the articles on ARTILLERY and CANNON, and the rifled cannon will be more especially examined under RIFLED ORDNANCE. We give a description of the fowling-piece, referring to RIFLE, for the latest improvements in the manufacture of smaller military firearms. For sporting purposes smooth-bored shot-guns and grooved rifles are employed. Both are nearly always double-barrelled, and of late years the old muzzle-loaders have been almost entirely supplanted by the many breech-loading systems recently invented, which enables the sportsman to reload with greatly increased rapidity and uniformity, the latter quality being specially important in rifle shooting. Mr. Lefaucheux is entitled to the credit of inventing the modern sporting breech-loader; but the ingenuity of gunmakers has since devised an immense variety of actions, and every day sees progress made in strength and simplicity. The latest guns, however, leave little room for improvement in respect to the action. The hammers are abolished altogether, the striker being a needle in the interior, which is driven against the cap of a central-fire cartridge by a spring when the trigger is pressed; a lever on top is pushed aside by the thumb, liberating the catch which holds the barrels against the false breech; the barrels then drop from the hinge, and are open for loading. On raising the barrels, the action snaps to, and holds them fast; the dropping of the barrels causes an extractor to withdraw the empty cartridge cases. A key at the side regulates the cocking and safety of the lock and striker. The manufacture of sporting rifles does not greatly differ from that of shot-guns. Great strength and weight of barrel are necessary to resist the pressure of the charge, withstand the wedging action of the bullet and deaden the recoil. See Greener's *Gun and its Development* (1885), and *Modern Shot Guns* (1888).

Gun, *v. n.* To practise fowling, or hunting small game; as, to go *gunning*.

Gun'-barrel, *n.* The metallic tube of a gun.

Gun'boat, *n.* (*Naval.*) A term applied to a small vessel carrying not more than four guns, most frequently only one, and of trifling draught of water. Steam gunboats, especially when iron-plated, are most powerful auxiliaries to a fleet; their light draught enables them to approach the shore or ascend rivers; their heavy guns tell with deadly effect from their near positions; while they themselves, from their diminutive size, can scarcely be hit. — Gunboats of a peculiar construction (Fig. 1215) were used on the Mississippi during the late war. *Bomb-vessels* differ from gunboats in being of greater beam, or width, to withstand the vertical recoil of the mortars which they carry. They are rarely propelled by steam. See also SECTION II.

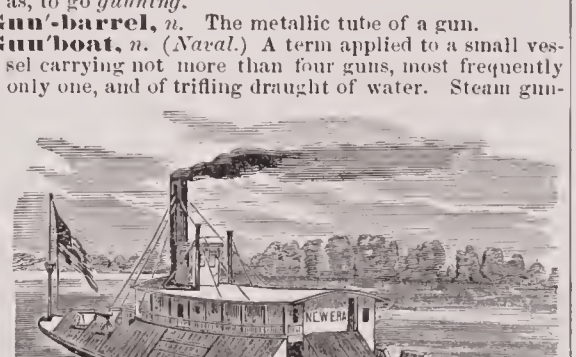


Fig. 1215.—GUNBOAT USED ON THE MISSISSIPPI.

Gun'-carriage, *n.* A wheeled carriage for cannon.

Gun'-cotton, *n.* See EXPLOSIVES; PYROXYLINE.

Gun'-deck, *n.* (*Naut.*) A lower deck on board a man-of-war, where the guns are mounted and exercised.

Gunduck, (*goon-dook'*,) a river of Hindostan, supposed to rise beyond the Himalaya, in Lat. 29° 40′ N., Lon. 83° 14′ E., and which, after a course of abt. 400 m., joins the Ganges opposite Patna.

Gun'fire, *n.* (*Mil.*) The last beat of the reveille or tattoo, at the close of which a gun is fired in all fortresses and other military stations.

Gun Key, a narrow coral reef on the W. edge of the Great Bahama Bank. At a distance of 250 yards from its S. point there is a light-house, exhibiting a light which revolves once a minute. It is 80 ft. above sea-level, in Lat. 25° 34′ 30″ N., Lon. 79° 18′ 24″ W.

Gun Lake, in *Michigan*, a post-office of Allegan co.

Gun Marsh, in *Michigan*, a post-office of Allegan co.

Gun'metal, *n.* (*Metall.*) An alloy of 8 to 10 pounds of tin to 100 pounds of copper.

Gun'nage, *n.* The number of guns of the armament of a vessel.

Gun'nel, *n.* Same as GUNWALE, *q. v.*

(*Zoöl.*) A genus of fishes (*Gunnellus*), family *Gobiidæ*. They are distinguished by a much-compressed body, spinous dorsal rays, and ventrals often reduced to a single spine. The American Butter-fish, *G. mucrossatus* of the Atlantic, is from 4 to 12 inches long, grayish, with a series of dusky oval rings along the sides.

Gun'ner, *n.* (*Mil.*) One who works a gun either on land or at sea; — a term which, in the artillery, corresponds to *private* in the line.

(*Naval.*) A warrant officer, under whose immediate charge are the ordnance and ammunition of the vessel.

Gunnery, (*gun'mur-e.*) the science which treats of the theory of the flight and motion of projectiles discharged from cannon and smaller arms, and teaches the method of employing these weapons in the most effectual manner, for the purpose of attack and defence. The earliest treatise on the path described by a projectile during its flight, seems to be one written by a mathematician named Sartalea, about the middle of the 16th century. Galileo demonstrated that a shot fired from a gun would trace a parabolic curve in its passage through the air, if the resistance of the air had no influence, as it has, in materially altering the form of the path it describes. It will be readily understood, that if the resistance of the air and the attraction of gravitation could be removed, or, in other words, if a shot could be fired *in vacuo*, it would go on forever in a line corresponding to that of the axis of the piece, produced indefinitely, with the same initial velocity, or the velocity which it possessed when it left the cannon's mouth. But supposing the effect produced by the influence of the air to be neglected, and gravity alone to act on the ball, it is found that the action of gravitation constantly acting on the projectile at every point of its flight, in a line which may be considered as perpendicular to the horizon, tends to draw it out of the straight line, which it would have described if the force of gravity did not exist, and eventually brings it to the ground, after describing a parabolic curve. It was generally considered by mathematicians, from the time of Galileo, that the path of a projectile was that of a parabola, and that the resistance of the air had but little, if any influence, in altering its form; but it was reserved for Newton to show that its true path, under the combined influence of the resistance of the air and the attraction of gravitation, was that of an hyperbola while passing through a medium offering a uniform resistance. He also showed that the resistance offered by the air to a projectile during its flight is proportional to the square of the velocity of the projectile, the resistance to spherical bodies also varying as the square of their diameters and the density of the medium through which they pass. To determine and calculate the time of flight, the horizontal range, and the greatest height to which a shot will rise during its flight, requires a knowledge of trigonometry. It may, however, be said, that the range and time of flight depend entirely on the charge and the elevation of the gun. The greater the charge, the greater will be the range and the velocity imparted to the shot up to a certain point; and the same holds good with regard to elevation, provided that the same charge be used in firing each shot, at the different elevations. A knowledge of the time in which a projectile will describe its flight is most necessary, especially in firing shells, that the gunner may know how to regulate the length of the fuse, to insure the bursting of the shell at the time of reaching the object at which it is discharged. This is taught by the study of gunnery, which also makes the military engineer acquainted with the effect produced by shot when discharged in masses, and for a long time against wood, stone, and other materials, under various circumstances; and gives him data for the construction of walls, bomb-proof roofs, and vessels of sufficient strength to offer effectual resistance to the weight of the projectiles that may be directed against them. The effect of the resistance of the atmosphere to the motion of a projectile is one of the most important sections of the science of gunnery. It has engaged the attention of some of the most eminent philosophers, both in

ancient and modern times, on account principally of the great difficulty of determining, by experiment, the correctness of any particular hypothesis. Much difference of opinion is entertained as to the absolute effect of this retarding force (which is, in fact, the science of *aërodynamics*) upon bodies moving in the atmosphere with great velocities; and, although sufficient is known to guide the practical gunner, still, as a scientific question, it is one of considerable interest from the fact of its solution being so difficult, rather than its practical importance. Dr. Hutton, in his *Mathematical Tracts*, draws the best hypothesis on the subject; and, although some of his results have been disproved by experimentalists who have inquired into the theory and tested its results since the time of Dr. Hutton, yet his deductions being generally found correct, are by far the most trustworthy to follow by any one who wishes thoroughly to investigate the science of aëro-dynamics. With regard to the velocity of the body, it is evident that a plane moving through a fluid in a direction perpendicular to its surface must impart to the particles of the fluid with which it comes in contact a velocity equal to its own; and from this cause alone the resistance should be in the proportion of the velocity; but the number of particles struck by the moving body in a certain time being also as the velocity, it follows, from these two causes combined, that the resistance of a fluid to a body in motion, which arises from the inertia of the particles of the fluid, will be in the due proportion of the square of the velocity imparted to the moving body. If the body can be moved so rapidly that the fluid cannot instantly rush in behind it, as is found to be the case in the atmosphere, the resisting power of the medium must be considerably increased; for the projectile, being deprived of the pressure of the liquid on its hind part, must support on its fore part the whole weight of a column of the fluid, over and above the force employed in moving the portion of the fluid in contact with it, which force is the sole source of resistance in the discontinued fluid. The recoil of a gun must necessarily diminish the velocity of its projectile; and this has been carefully borne in mind by men who have made gunnery a special study. It must be also remembered that the increased extent of range and the greater certainty of hitting the object against which the firing is directed, is due to the method of rifling or grooving the interior of the bore of the piece, which imparts rotation to the missile after it has left the muzzle of the gun. The use of elongated shot and shell also contributes greatly to this result, as they do not present a greater amount of surface to be acted on by the air than spherical shot; but in consequence of their greater weight, they possess a far greater power of maintaining their initial velocity.—*Jump.* The *angle of departure* in gunnery, a term signifying the initial direction of the projectile with reference to a horizontal plane, is always greater than the angle of elevation, given to the gun in aiming, by a small angle known as the "jump," which is due to the fact that at the instant of firing and before the projectile has left the bore there is a slight upward lift of the muzzle, sufficient to cause the ball to pass over the target unless this movement has been provided for by taking a slightly lower aim. This is due to the great and suddenly-applied pressure upon the bottom of the gun chamber, which has the effect of a powerful blow, acting to depress the breech and thus momentarily increase the angle of elevation of the muzzle. This effect takes place before the projectile has moved far in the bore. In every case the jump of a gun needs to be determined experimentally, by employing means to estimate accurately the direction of flight of the projectile. In some experiments made at Fortress Monroe in 1890, the jump of the 8-inch converted rifle was found to vary from 15 to 30 minutes of arc, it increasing with the angle of elevation.—*Drift.* Another variation in the direction taken by a projectile is that known as "drift." The oblong ball fired from a rifled cannon is caused to rotate rapidly by the spiral grooves of the bore—the 12-inch projectile, for instance, which leaves the gun with a velocity of 2,100 foot seconds, has a rotation of 84 turns per second, which is probably kept up throughout its flight. This rotation aids in giving the projectile a stable direction of flight, enabling it partly to overcome the density and movement of the air and to keep its point foremost, so that it penetrates the air more easily and does more damage on striking. Yet a secondary result as a movement of the ball out of the plane of fire toward the side which corresponds to the direction of rotation. This movement is known as "drift." As nearly all rifled guns have a right-hand twist—or are grooved in such a way as to cause the projectile to rotate from left to right, or in the direction of motion of the hands of a watch—the drift is usually to the right. If the range be short, this effect is slight; but in long ranges it becomes considerable. Thus, the service projectile fired from the 8-inch converted rifle is found to drift 1 yard in a 1,500-yard range; 4·4 yards in a 3,000 range, and 15·1 yards in a 4,500 range. As the drift is constant for the same gun and range, its effects are easily allowed for, by aiming at a point at the requisite distance to the left of the target.—*Wind effects.* The most troublesome deviations of projectiles are due to the wind, whose varying and uncertain character, and its effect in modifying the drift, cannot be fully estimated. In the case of a moderate wind, however, the deviation is slight, on account of the great mass and rapid motion of the projectile. As regards the laws which govern the penetration of projectiles, they are at present very obscure. Experiment has given some formulas for use, but the principles involved remain to be discovered.

Gun'ning, *n.* Act of shooting or hunting with a gun.

Gun'nison, in *Utah*, a post-village of San Pete co., about 15 m. S. by W. of Manti.

Gun'nison River, in *Colorado*. This stream rises in the Rocky Mountains and flowing N.W. unites with the Bunkara or Blue river to form the Grand river.

Gun'ny, *n.* (*Com.*) A coarse sackcloth made in Bengal of the fibres of two species of *corchorus*. Rice, saltpeter, pepper and other articles exported from the East are packed in bags or sacks made of this material; they also form a considerable article of exportation.

Gun Plains, in *Michigan*, a township of Allegan co.

Gun'port, *n.* (*Naut.*) A port-hole; an opening in a warship's side for the cannon.

Gun'powder. An intimate mixture of niter, charcoal and sulphur, in proportions which vary slightly in different countries, and according to the uses to which it is applied, the powder made by the American and French governments being 75 parts saltpeter, to 12·5 sulphur and 12·5 charcoal, while in England the government use, 10 parts sulphur and 15¼ parts charcoal. The action of *G.* is dependent on the rapid oxidation of the charcoal by the nitre and the sudden evolution thereby of heated gas. Many other chemical detonating compounds have been proposed, but none of them are equal to *G.* as at present manufactured; the principal objections to their use being the comparative danger attendant on their manufacture and transport, and the too sudden evolutions of gas at the time of their ignition. This substance, known to the Chinese at an early period, is described in an Arabic MS. of the year 1249, and also in the works of Roger Bacon (1214–1292), who is regarded by some as the author of the invention, though other authorities ascribe it to the German monk, Berthold Schwartz, in 1320. Experiments, with a view to rendering *G.* non-explosive, were made by Piobert in France in 1835, and by Fadéieff, professor of chemistry at St. Petersburg, between 1840 and 1844. Gale completed, at Westminster, 1865, a series of public demonstrations of his process for securing the same result by mixing the *G.* with finely powdered glass, from which it is sifted before use.

Smokeless Gunpowder.—Within late years a number of gunpowders have been invented which, while greatly surpassing the old form of powder in explosive force, have also the property of producing little or no smoke, a result likely to be advantageous in some of the exigencies of battle, though it may be disadvantageous in others. The first general information obtained in regard to these powders was in connection with the Lebel rifle, the small-caliber repeating arm of the French, whose adoption caused a very general reconstruction of small arms throughout Europe. The powder adopted for this arm was largely noiseless and practically smokeless, and since its adoption numerous experiments have been made with new explosives, so that a varied list of smokeless powders now exists. These may be divided into three classes, of which the first is composed of cellulose nitrate (either the soluble or insoluble variety); the second class adds to the above nitroglycerine or other organic nitrates; and the third adds nitro derivatives of hydrocarbons, such as picric acid and the picrates. With each of these some oxidizing agent may be employed, such as potassium nitrate, and such retarding agents as tannin and lycopodium. Of these powders, Indurite, the one in use in the U. S. Navy, belongs to the first class: Ballistite, used by the Italians, and Cordite, by the British, to the second class; and Peyton powder to the third class. The smokeless character of these explosives is due to the fact that the products of their combustion are wholly gaseous while ordinary *G.* yields 55 per cent. of finely-divided solids. The object in using these powders was not originally to do away with smoke, but to obtain greater explosive power, it being a debated question whether the presence of smoke on the battlefield may not be in many cases an advantage. In rapid-fire cannon, however, as in magazine small-arms, the value of smokeless powder is obvious, since a cloud of smoke would greatly impair the efficiency of these weapons. In regard to explosive power, these powders are found to impart much higher velocities to projectiles than ordinary *G.* The best of them are those that give maximum velocity with minimum pressure within the gun chamber, and which undergo no change affecting their power of service under the exposures incident to war. In the trials of Indurite at the Indian Head proving grounds, it was found that a 26 lb. charge of this material, fired from a 6-inch gun, gave to a 100 lb. ball an initial velocity of of 2,469 feet per second and exerted on the chamber a pressure of only 13·96 tons. So far as explosive force in blasting is concerned, a series of experiments made before the Board of Fortification and Ordnance gave rank to the following explosives as follows: Permnite B, 17·57; Permnite C, 15·61; Permnite D, 13·66; Explosive Gelatine, 10; Rackarock, 9·36; Emmensite, 5·49; Guncotton, 3·16; U. S. rifle powder, 1·72. These results, however, do not fully indicate the value of these explosives for military purposes, in which other qualities of value may take precedence of explosive power. Of the various advantages which are claimed for smokeless powders in war, the greatest is that of the clear vision of the field which they give to commanding officers, who thus are enabled to see exigencies as they arise, and may often prevent disasters by more timely preparation for them.

Gun'powder Plot. (*Eng. Hist.*) A celebrated conspiracy of some Roman Catholics, or, according to Lingard (vol. vii. ch. 1, 4 *et seq.*), of Catesby alone, to destroy the king, James I., and the two houses of Parliament, by gunpowder, which was detected on the 5th of Nov., 1605. This plot was in itself mysterious, and for purposes of state policy and Protestant zeal, a greater mystery was thrown over it. See Fawkes (Guy).

Gun'powder River, in *Maryland*, enters the Chesapeake Bay between Harford and Baltimore cos.

Gun'reach, *n.* Same as Gunshot, *q. v.*

Gun'-room, *n.* (*Naval.*) In the British service, the room of the gun-deck of a vessel of war, occupied by the lieutenants as a mess-room.—In the American service, the term *ward-room* is exclusively applied to this room.

Guns, (*gōōns.*) [Hung. *Kæszeg.*] A town of Hungary, on the Güns, 20 m. S. of Oedenberg. *Manuf.* Silks and woollens. This town was the first that successfully resisted Solyman the Magnificent, when in 1532 that monarch threatened to conquer all Europe. *Pop.* 8,600.

Gun'shot, *n.* (*Mil.*) The reach or range of a gun; the space to which an effective shot can be thrown.

—*a.* Made by the shot of a gun; as, a *gunshot* wound.

Gunshot Wounds. (*Mil. Surg.*) A term applied to denote wounds produced by cannon-balls, bullets, &c., striking against the body. They differ in many respects from ordinary wounds, and constitute a distinct branch of science of themselves. Frequently, on a person being struck, he is not conscious of any pain, and he is first made aware of his wound by inability to use the part, or by feeling the blood trickling down. Generally, if the wound be at all severe, the patient becomes deadly pale, trembles, and seems about to die; but usually, with the aid of stimulants, these appearances pass off in a few hours. If they continue unabated, they give reason to fear the worst. It was long a generally received opinion that a person might be injured by the "wind of a shot," without being struck by it at all; but this idea is now exploded, for persons have had portions of their clothes carried off by large shot, and even their ears or noses shot off without at all suffering from the wind of the shot.

Gun's Island, an island of Ireland, off the coast of co. Down, Ulster, abt. 3 m. N.E. of Ardglass.

Gun'smith, *n.* One whose business is to make and repair small arms.

Gun'stock, *n.* The wood in which the barrel of a gun is fixed.

Gun'-tackle, *n.* (*Naut.*) A system of pulleys, consisting of two single blocks, one movable, the other fixed, the standing end of the fall being made fast to the movable block. It increases the power threefold. They are used on board ships, to run the guns out of the ports.

Gunter's Chain, *n.* [From the inventor *Edmund Gunter*, an English mathematician, who lived 1581–1626.] The chain commonly used for measuring land. It is 66 feet, or 4 poles, in length, and consists of 100 links, each of which is joined to the adjacent one by 3 rings. The length of each link, including the connecting rings, is 7·92 inches. The advantage of this measure consists in the facility which it affords for numerical calculations. The English acre contains 4,840 sq. yds.; and Gunter's chain being 22 yds. in length, the square of which is 484, it follows that a square chain is exactly the tenth part of an acre. A square chain, again, contains 10,000 square links, so that 100,000 square links are equal to an acre; consequently, the area of a field being estimated in square links, it is only necessary to divide the result by 100,000, or to cut off the last five figures, to obtain the area expressed in acres.

G.'s Line. (*Math.*) A logarithmic line engraved on scales, sectors, &c., serving to perform the multiplication and division of numbers instrumentally, as a table of logarithms does arithmetically. The numbers are usually drawn on two separate rulers sliding against each other. In rough calculations this line affords considerable facilities.—*G.'s Quadrant.* A quadrant of a peculiar kind, adapted to the problems of finding the hour of the day, the sun's azimuth, and other common problems of the sphere.—A large plane scale, having various lines of numbers engraved on it, by means of which questions in navigation are resolved with the aid of a pair of compasses. It is usually called the *Gunter* by seamen. On one side of the scale the natural lines (as the line of chords, the line of sines, tangents, rhombs, &c.) are placed; on the other the corresponding logarithmic ones.

Gun'tersville, formerly **Gunter's Lauding,** in *Alabama*, a post-village, cap. of Marshall co., on the Tennessee River, abt. 35 m. S.E. of Huntsville.

Guntoor, (*goom-toor'.*) a district of British India, W. of the Bay of Bengal, often called the Northern Circars; *area*, 4,950 sq. m. *Prod.* Grain, cotton, sugar, and paddy. *Pop.* 627,000.—Its capital, of same name, is situated in Lat. 16° 20′ N., Lon. 80° 30′ E.; *pop.* 25,700.

Gun Town, a locality in *Georgia*, on the line of the Mobile and Ohio Railroad. Here, June 10, 1864, a National force of 12,000 men, commanded by Gen. Sturgis, was utterly routed by the Confederates, under Gen. Forrest, losing about 3,500 men, and everything except arms.

Gunwale, Gunnel, (*gun'nel.*) *n.* [From *gun*, and *wale*, because the guns of the spar-deck are pointed thence.] (*Naut.*) The lower portion of any gun-port of a ship; the upper portion of the side of a vessel; the uppermost wale of a ship.

Gurge, *n.* [Lat. *gurges.*] A whirlpool; a gulf; abyss. (R.)

Gur'ges, or **Gor'ges,** *n.* (*Her.*) A charge meant to represent a whirlpool. It takes up the whole field; and when borne properly, is azure and argent.

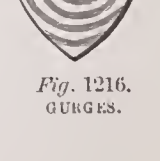


Fig. 1216.
GURGES.

Gur'gle, *v. n.* [It. *gorgogliare*, from *gorga*, the throat; Lat. *gurgus*, a whirlpool.] To fall or gush with noise, as water from a bottle; to run or flow in a noisy, broken, and irregular current.

—*n.* A gush or flow of liquid, or the sound produced by it.
Gur'glet, *n.* An earthen jar for cooling water by evaporation.
Gur'gling, *p. a.* Flowing with a purling sound; as, *gurgling* waters, *gurgling* rills.
—*n.* A running with a broken or noisy current.
Gur'gliugly, *adv.* In a gurgling manner.
Gur'goyle, *n.* (*Arch.*) Same as GARGOYLE, *q. v.*
Gur'hofite, Gurho'fian, *n.* (*Min.*) A compact, porcellanous, snow-white variety of DOLOMITE, *q. v.*
Gur'juu, *n.* An oil obtained from a forest-tree of the E. Indies, used both as a medicine and as a substitute for linseed-oil in painting.
Gur'ley, in *Ohio*, a post-office of Marion co.
Gur'ley, in *Alabama*, a P. O. of Madison co.
Gur'leyville, in *Connecticut*, a post-village of Tolland co., abt. 25 m. E. by N. of Hartford.
Gur, (Lough,) a lake of Ireland, abt. 10 m. E.S.E. of Limerick, Munster. It is noted as having upon its shores some of the most remarkable Druidical remains in Great Britain.
Gur'my, *n.* (*Mining.*) A level or working.
Gur'nard, Gur'net, *n.* (*Zoöl.*) See TRIGLIDÆ.
Gur'net Point, in *Massachusetts*, a promontory on the N. side of the entrance to Plymouth Harbor. It exhibits two fixed lights, 11½ ft. apart, and 86 ft. above sea-level; Lat. 42° 0′ 6″ N., Lon. 70° 36′ 48″ W.
Gur'ney, JOSEPH JOHN, an English philanthropist, the brother of Elizabeth Fry (*q.v.*), and her companion in her memorable visits to the prisons of Great Britain and the Continent of Europe, B. at Earlham Hall, Norfolk, 1788. When four years of age he lost his mother; and his early education was intrusted to his three eldest sisters. At a later period he went to Oxford, where he enjoyed many advantages at the university, without becoming a member or subscribing to the Thirty-Nine Articles. His preference ultimately became settled in favor of the views and profession of the Quakers, among whom he was born; and consistently with them he lived and died, by no means finding in them any barrier to the fullest and freest association with any other body of Christians, or to a personal friendship with the ecclesiastical dignitaries of the Norwich diocese. *G.* was the author of numerous works, which gained him a highly respectable rank in the republic of letters. Among these may be mentioned his *Notes on Prisons and Prison Discipline*; *Essays on the Evidences, Doctrines, and Practical Operations of Christianity*; *A Winter in the West Indies*, &c., &c., besides numerous minor tracts on religious and philanthropical subjects. D. 1847. *Memoirs* of this truly excellent man were published by J. B. Braithwaite, in 1854.
Gur'ralu, *n.* [Hind.] A sort of plain, coarse Indian muslin.
Gur'ry, *n.* A small fortress. (E. Indies.)
Gurupa', a town of Brazil, on the Amazon River, abt. 200 m. W. of Para.
Gurupatu'ba, a river of Brazil, entering the Amazon at Montalegre.
Gurupi', a river of Brazil, prov. of Para, flows N.E. into the Atlantic Ocean. Its mouth is called Gurupi Bay.—A town, situate at the month of the above river, abt. 55 m. E. of Braganza.
Gurwhal, or **Gurhwal,** (*gōōr-wal′*,) a state of India, lies between the Dehra-Doon and S.W. Thibet, extending in N. Lat. from 30° 2′ to 31° 20′, and in E. Lon. from 77° 55′ to 79° 20′; *area*, 4,500 sq. m. Being on the S. slope of the Himalayas, *G.* is little more than a mass of stupendous mountains, whose elevation above the sea sometimes reaches 23,000 feet. It may be regarded as the cradle of both the Jumna and the Ganges, attracting, in spite of the length and ruggedness of the way, crowds of pilgrims to the peculiarly sacred localities of Jumnotri, Devaprayaga, and Gangotri. *Pop.* abt. 100,000.
Gush, *v. n.* [Ger. *guss*, a pouring, *giessen*, to pour.] To flow copiously; to stream; to issue with violence and rapidity, as a fluid; to rush forth, as a fluid, from confinement.
—*v. a.* To emit in copious effusion.
—*n.* A sudden and violent issue of a fluid from an enclosed place; the fluid thus emitted.
Gush'er, *n.* One who is effuse in writing or speech, especially a sentimental person. (Colloq.)
Gush'ing, *p. a.* Rushing forth with violence, as a fluid; flowing copiously; emitting profusely.
—*n.* A rushing forth with violence; effusion.
Gush'ingly, *adv.* In a gushing manner.
Gus'set, *n.* [Fr. *gousset*, a fob or small pocket, from *gousse*; It. *guscio*, a pod, husk, or shell.] The piece of cloth that covers the armpit in a shirt.

"Seam, *gusset*, and band.
Band, *gusset*, and seam." — *Hood.*

—A small piece of cloth inserted in a garment for the purpose of enlarging or strengthening some part of it.
Gust, *n.* [Lat. *gustus*, from Gr. *geneïn*, to give one a taste.] Taste, or the sense of tasting; the pleasure of deglutition; relish.

"Destroy all creatures for thy sport or *gust*." — *Pope.*

—Turn of fancy; intellectual taste.

"According to the *gust* and manner of the ancients." — *Dryden.*

—Love; liking; appreciation.

"The *gust* and relish of true happiness." — *Tillotson.*

—Gratification of any kind, especially that which is highly relished; enjoyment; as, to allay an appetite with *gust*.
—[Icel. *gusir*, a cold blast.] A sudden squall; a violent burst of wind; a gale.—A sudden and violent outbreak of passion.

"Pardon a weak distempered soul, that swells
In sudden *gusts*, and sinks as soon in calms." — *Addison.*

Gusta'tion, *n.* [Fr., from Lat. *gustatio*.] The act of tasting.
Gus'tatory, *a.* Pertaining to gust or taste.
Gustavia, (*goos-tā′vc-a*,) a town, cap. of the Swedish island of St. Bartholomew, West Indies, on the S.W. coast; *pop.* about 12,000.
Gusta'vus I., KING OF SWEDEN, known by the name of GUSTAVUS VASA, B. at Ockestadt, near Stockholm, 1490, was the son of Eric Vasa, duke of Gripsholm, who was descended from the ancient kings of Sweden, and beheaded by the Danish tyrant Christian II. This sovereign also got Gustavus into his hands, and, in the war in which he reduced Sweden, kept him several years a prisoner at Copenhagen. At length he made his escape, and having prevailed on the Dalecarlians to throw off the Danish yoke, in May, 1521, he found himself at the head of 15,000 men. After various fortunes, he recovered the whole of Sweden from the tyranny of Christian. In 1523 he was crowned king of Sweden, and the crown made hereditary in his family. Lutheranism was established as the national religion of Sweden in his reign. D. 1559. His name is still revered by every Swede.
GUSTAVUS ADOLPHUS, king of Sweden, B. 1594, was the grandson of Gustavus Vasa. He succeeded his father, Charles IX., in 1611, and continued the war with Denmark, Russia, and Poland. He selected Axel Oxenstiern for his chief minister, and by his counsel restored the nobles to the rights and privileges of which they had been deprived, and thus attached them to his interests. He concluded peace with Denmark in 1613 on advantageous terms; was crowned in 1617; married in 1620 Eleanor, daughter of the Elector of Brandenburg, who became the mother of the celebrated Christina, his successor on the throne; acquired subsequently great part of Livonia, and successfully fought against Sigismund, king of Poland, who claimed the crown of Sweden. Invited by the Protestants of Germany, and urged by France,—prompted, too, by his own earnest regard for the Protestant faith,—he marched, in 1630, to the aid of the Protestants with a small force of 8,000 men, which was afterwards augmented by a body of English troops under the Duke of Hamilton. From the isle of Rügen, of which he first made himself master, he advanced

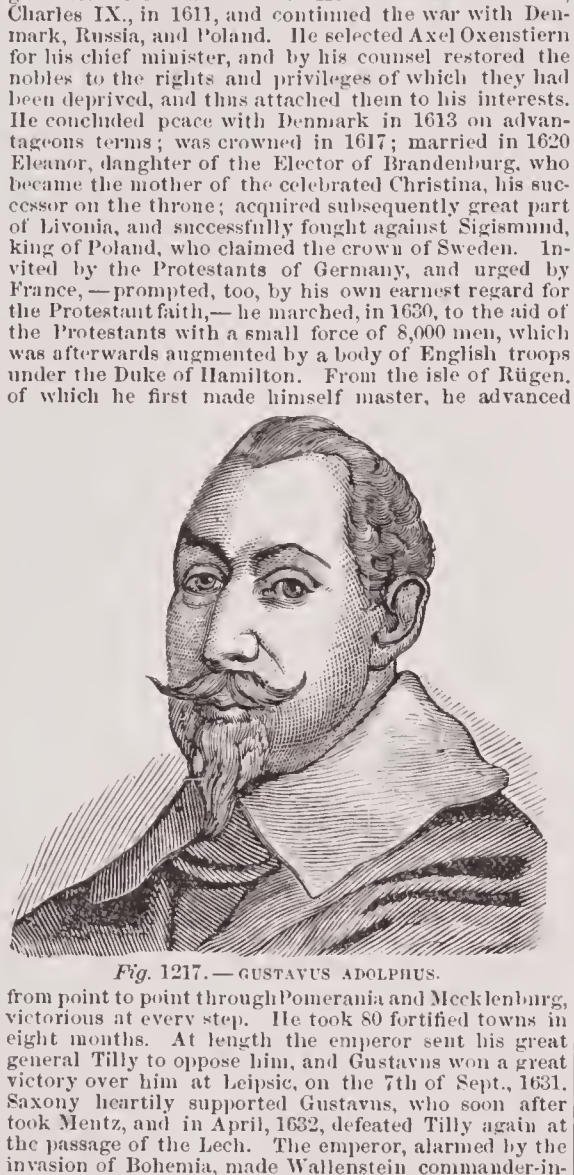


Fig. 1217.—GUSTAVUS ADOLPHUS.

from point to point through Pomerania and Mecklenburg, victorious at every step. He took 80 fortified towns in eight months. At length the emperor sent his great general Tilly to oppose him, and Gustavus won a great victory over him at Leipsic, on the 7th of Sept., 1631. Saxony heartily supported Gustavus, who soon after took Mentz, and in April, 1632, defeated Tilly again at the passage of the Lech. The emperor, alarmed by the invasion of Bohemia, made Wallenstein commander-in-chief; who recovered Bohemia, and after holding a strong position near Nuremberg for many weeks, met Gustavus on the field of Lützen, on Nov. 5th, 1632. Victory was with the Swedes, but their heroic leader fell in the fight, not without suspicion of assassination. *G. A.* was one of the noblest men, and one of the greatest military commanders of modern times. He was great also as a ruler and administrator, and did not allow war to exclude commerce and the internal regulation of his states from his earnest attention.
GUSTAVUS III., king of Sweden, was the son of Adolphus Frederick and Louisa Ulrica, sister of Frederick II., king of Prussia. He was B. in 1746, and succeeded his father in 1771. The kingdom was in a state of distraction and anarchy, and the nobles had monopolized the chief power, and were themselves divided into two hostile parties. Gustavus immediately applied himself to the suppression of these disorders, and by a bloodless revolution completely succeeded. A new constitution was introduced and accepted, and the king became supreme. The amendment of the laws next engaged his attention. He abolished the practice of torture, and introduced other good regulations in the administration of justice. He also formed a college of commerce, and reformed his army and navy. In 1788 he was involved in a war with Russia and Denmark. Gustavus headed his army himself, and stormed the defences of Frederickshall, where he took and destroyed a great number of vessels. In 1789, the king, harassed by the opposition of some of the nobles, arrested the leading men, and compelled their acceptance of a measure which extended his authority considerably. On the breaking out of the French revolution, a coalition was formed between the northern powers and Spain, by which it was agreed that Gustavus should march against France at the head of a considerable army; but while preparations were making, he was shot at a masquerade by Ankarström, a disbanded officer of the army, March 15th, 1792, and D. on the 29th.
GUSTAVUS IV., king of Sweden, son of Gustavus III., was B. in 1778, and ascended the throne when his father fell by the hand of an assassin, March 29, 1792. When the Duke d'Enghien was seized, and, after a mock trial, shot by the orders of Napoleon, Gustavus vowed eternal hostility to the French emperor. He ordered his ambassador to leave Paris, dismissed the French ambassador from Sweden, and returned to the king of Prussia the order of the Black Eagle, with which Napoleon had also been invested, nobly saying, "that he never could, according to the laws of knighthood, consent to be brother companion to an assassin." His hostile proceedings, however, became at last so pregnant with danger to his country, that a council of state entreated him to make peace. This he refused to do; a revolution in Sweden was the consequence; Gustavus was imprisoned, and he afterwards signed his abdication. His uncle, the duke of Sudermania, was then raised to the throne under the title of Charles XIII., and Christian Augustus, of Holstein-Angustenburg, was invested with the title of Prince Royal of Sweden, or heir-apparent. This prince dying soon after, the succession was transferred to Marshal Bernadotte, who in 1816 ascended the Swedish throne as Charles John XIV. After his abdication, Gustavus was a mere wanderer upon the face of Europe, sometimes bearing the designation of *Count Gottorp*, sometimes that of the *Duke of Holstein*, and again the more humble one of *Gustavson*. He was in England, at Hartwell, with Louis XVIII. His later years were spent in poverty. D. at St. Gall, 1837.
Gusta'vus, in *Ohio*, a post-township of Trumbull co.
Gusta'vus, in *Tennessee*, a village of Greene co., about 60 m. E. by N. of Knoxville.
Gus'to, *n.* [It., taste.] The relish of anything; the power by which anything excites sensations on the palate.—Intellectual taste or liking; nice appreciation.
Gusto'so, [It.] (*Mus.*) With taste.
Güstrow, (*gus′troo*,) a town of Prussia, on the left bank of the Nebel, 27 m. S. of Rostock. *Manuf.* Distillation and beer-brewing. *Pop.* 12,423.
Gus'ty, *a.* Stormy; tempestuous; as, a *gusty* day, the *gusty* wind.
Gut, *n.* [L. Ger. *kuttel*, probably allied to A. S. *geotan*, to pour out.] That through which anything flows or pours forth; a passage or strait: as, the *Gut* of Canso.—The intestinal canal of an animal; the entire mass formed by the convolutions of the intestines.

"This lord wears his wits in his belly, and his *guts* in his head." *Shaks.*

—The stomach; the receptacle of food.—The substance made by pulling asunder a silk-worm when about to spin its cocoon, and drawing the latter into a thread, which, after being dried, is very strong and is much used for fish-lines.
—*v. a.* To eviscerate; as, to *gut* fish.—To plunder of contents: as, the mob *gutted* the house.
Gut Manufacture. See CATGUT.
Guth'rie, in *Indiana*, a post-village of Lawrence co., abt. 10 m. N. of Bedford.
Guth'rie, in *Iowa*, a S.W. central co.; *area*, abt. 576 sq. m. *Rivers.* Middle River, or Middle Fork of Racoon River, and numerous smaller streams. *Surface*, generally level; *soil*, fertile. *Cap.* Guthrie Center. *Pop.* (1895) 17,958.
Guth'rie, in *Missouri*, a post-township of Callaway co.
Guth'rie Centre, in *Iowa*, a post-town, cap. of Guthrie co. *Pop.* (1895) 1,141.
Guth'rie's Creek, in *Indiana*, enters the E. Fork of White River near Bedford, in Lawrence co.
Guth'riesville, in *Pennsylvania*, a post-village of Chester co., abt. 63 m. E.S.E. of Harrisburg.
Guth'riesville, in *S. Carolina*, a P. O. of York dist.
Gut'ta, *n*; *pl.* GUTTÆ. [Lat., a drop.] (*Arch.*) Small ornaments resembling drops, used in the Doric entablature on the under sides of the mutules of the cornice, and beneath the tænia of the architraves, under the triglyphs.

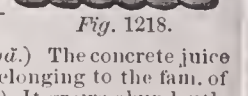


Fig. 1218.

Gutta-percha, (*gut′-tă-pert′shă*.) The concrete juice of the *Isonandra Gutta*, a tree belonging to the fam. of the *Sapotaceæ*. (See ISONANDRA.) It grows abundantly in Singapore, Borneo, and other islands of the Eastern Archipelago. The tree, which is called *percha*, grows to the diameter of five or six feet, and, on being notched, yields a milky juice, which solidifies after exposure to the air, forming the gutta-percha of commerce. It is a tough, inelastic substance, becoming soft and plastic at 212°, at which temperature it may be moulded into shape, which it retains without change until it is cool. Its plastic properties render it extremely useful in the arts, and it is much employed for copying casts and impressions. Beautiful mouldings, picture-frames, and a number of ornamental articles, are made from it. It also possesses the valuable property of welding together at the temperature of boiling water. It is a powerful insulator, and is consequently much used for coating the wires for telegraphic purposes. Being impervious to moisture, and resisting the actions of acids and alkalies to a great extent, it is of much use to the chemist as a material for making bottles, carboys, baths, &c. It was at one time much used for lathe-bands; but it has been superseded in a great measure by those made of vulcanized rubber. It is insoluble in water, but dissolves in benzole, chloroform, bisulphide of carbon, turpentine, and the essential oils in general. Payen states

that the purified *G.-P.* of commerce consists of 75 to 80 per cent. of chemically pure gutta-percha, which is insoluble in ether and alcohol, and a white and yellow resin, soluble in boiling alcohol. The crude lumps are imported in the forms of fish, animals, and blocks, which are softened by boiling water, and passed through a series of kneading, rolling, and cutting machines, by means of which all the stones and other solid matters are extracted. It is then submitted to the action of masticators, and rolled or fashioned into the desired shape. It may be rolled into thin transparent sheets, which are much used for surgical purposes, being perfectly impervious to moisture. In its purified condition it is useful for a thousand different purposes.

Gut'ta-sere'na, *n.* [Lat., clear drop.] (*Med.*) See AMAUROSIS.

Gut'tate, *a.* [Lat. *gutta*, a drop.] (*Bot.*) Sprinkled with colored dots or small spots.

Gut'tenberg, or **Gu'tenberg,** JOHN, B. at Sulgeloch, near Mentz, in Germany, 1400. He is supposed to have made his first experiments in the art of printing with movable types between 1434 and 1439, but it was in 1443 that he turned his invention to account, and brought upon himself the persecution of the priests and writers. There are some points not cleared up in the history of this invention, but it is now generally agreed that the honor belongs to John Guttenberg. Centurial jubilees are held in his honor in many places of Germany, and many statues have been erected to his memory. D. 1468.



Fig. 1219.
STATUE OF GUTTENBERG (MAYENCE).

Gut'tenburg, in *Iowa*, a post-town of Clayton co., on the Mississippi river, about 40 miles above Dubuque. There are rich lead mines in the vicinity. *Pop.* (1895) 1,424.

Gut'ter, *n.* [Fr. *gouttière*, from Lat. *gutta*, a drop.] A channel for collecting and conveying off the water which collects on the roof of a building, and from which the water drops or runs. — A channel or passage for water; a hollow in the earth for conveying water.

—*v. a.* To cut or convey into small channels or hollows; as, to *gutter* out an escape for water.

—*v. n.* To be hollowed or channelled; to run in drops or hollows, as a candle.

Gut'tering, *n.* The channels made for carrying off water. — The act of making channels to carry off superfluous water.

Guttiferæ, *n. pl.* (*Bot.*) Same as CLUSIACEÆ, *q. v.*

Guttifera'les, *n. pl.* (*Bot.*) An alliance of plants, sub-class *Hypogynous Exogens.* DIAG. Monodichlamydeous flowers, axile placentæ, an imbricated calyx, an imbricated or twisted corolla, stamens indefinite, and an embryo with little or no albumen. The alliance is divided into 7 orders, viz., DIPTERACEÆ, TERNSTROMIACEÆ, RHIZOBOLACEÆ, CLUSIACEÆ, MARCGROVIACEÆ, HYPERICACEÆ, and REAUMURIACEÆ, *q. v.*

Guttiferous, *a.* Yielding gum or resin.

Gut'tler, *n.* A person who eats greedily and voraciously.

Gut'tural, *a.* [Lat. *gutturalis*, from *guttur*, the throat.] Belonging to the throat: formed in or by the throat; as, a *guttural* pronunciation.

—*n.* (*Gram.*) A sound formed in the throat or back part of the mouth. In English there are, properly speaking, no gutturals; but the palatals *g* and *k* are nearly allied to them. In the Spanish language alone, of those derived from the Latin, are gutturals common In German, the guttural *ch* is very common, as it was also in Greek; and it occurs in Scotch in such words as *Loch*. The Arabian language is full of gutturals.

Guttural'ity, *n.* The quality of being guttural.

Gut'turalize, *v. a.* To speak from the throat; to pronounce deeply and from the depth of the lungs.

Gut'turally, *adv.* In a guttural manner.

Gut'turalness, *n.* The quality of being guttural.

Gut'turize, *v. a.* To make in the throat; as, the Germans *gutturize* a sound.

Gut'ty, *a.* (*Her.*) Charged or sprinkled with guts.

Gut'wort, *n.* (*Med.*) The wild senna. See GLOBULARIA.

Guy, (*ghī.*) *n.* [Sp. *guia*, a guide.] (*Naut.*) A rope used to swing any weight, or to keep steady any heavy body and prevent it from swinging while being hoisted or lowered; also, the tackle by which any fore-and-aft sail is held forward to prevent it gybing.

—*n.* A person ridiculously dressed. (Colloq.)

Guyan, (*ghī'an,*) in *Ohio*, a township of Gallia county.

Guya'na. See GUIANA.

Guyandotte, (*ghī'an-dott.*) or GUYAN, GHIAN, in *W. Virginia*, a river, rises in Wyoming co., and flows a general N.W. course to the Ohio River, which it joins a few miles below Barboursville.

—A post-village of Cabell co., on the Ohio River, at the mouth of the Guyandotte, abt. 228 m. below Wheeling.

Guy'aquillite, *n.* (*Min.*) A fossil oxygenated hydrocarbon from Guyaquil, S. America. It is of a pale-yellow color, slightly soluble in water, but largely in alcohol, giving an intensely bitter, yellow solution. *Sp. gr.* 1·092. *Comp.* Carbon 76·665, hydrogen 8·174, oxygen 15·161.

Guy'mard, in *New York*, a post-village of Orange co.

Guy'on, MADAME JEANNE MARIA ROUVIERS DE LA MOTTE — a French lady of good family, B. at Montargis, 1642, where she was married at the age of 15. On being left a widow 13 years afterwards, she sequestered the greater part of her fortune as a provision for the education of her children, and completely abandoned herself to the life of mystic piety, or "perfect contemplation," generally known as QUIETISM, (*q. v.*) Her experiences are related with extraordinary candor and graphic simplicity in her *Autobiography*, and are further illustrated in the *Torrents*, written at Annecy, and contained in the 2 vols. of her *Opuscules*. She was at Grenoble, on her way to Paris, when she found herself "suddenly invested," as she expressed herself, "with the apostolic state," and able to discern the condition of those who spake with her, so that, one sending another, she was occupied from six in the morning till eight at night speaking of divine things. "There came," she says, "great numbers from all parts, far and near, friars, priests, men of all sorts, young women, married women, and widows; they all came one after the other, and God gave me that which satisfied them in a wonderful manner, without my thinking or caring at all about it. Nothing was hidden from me of their inward state and condition. . . . I perceived and felt that what I spake came from the fountain-head, and that I was only the instrument of Him who made me speak." On reaching Paris she was thrown into prison, loaded with the vilest calumnies, by the connivance of some members of the clergy, and endured altogether not less than 20 years of persecution, confinement, and exile. The great enemy of Madame *G.* and the system of Quietism was Bossuet, while for her champion she had the noble-hearted, eloquent, and illustrious Fénélon. She was liberated from her last confinement, in the Bastile, in 1702, and passed the remainder of her life at Blois, where she died 1717. Her complete works were published by Poiret in 39 vols. 8vo., and they comprise, besides those mentioned above, *The Song of Songs, interpreted According to its Mystical Sense*, and several volumes of hymns remarkable for their graceful composition and exquisite sensibility. Some of these were translated by Cowper. — The life of Madame *G.* is not only a religious study, but a psychological one of very considerable interest. It is the history of a soul, humbled and pointed in its own sight, journeying through the gates of the mystic world, hating its own freedom and its own intelligence, struggling through the unclean places through which it is forced to pass, and at last arriving in the presence of its Divine lover — stripped of all, even its virtues — as serene, as motionless as the eye of eternity. Though the system of Quietism is a protest against visions, revelations, ecstasies, and transports of all kinds, whether sensual or spiritual, yet the experiences of Madame *G.* are really a love story, and one which she pursues in her writings with a fearlessness as remarkable in such a woman as the purity of her imagination.

Guys'borough, in Nova Scotia, an extreme E. co., bordering on the Atlantic. *Area*, abt. 1,500 sq. m. *Rivers.* Middle and St. Mary's rivers, besides numerous bays and inlets. *Surface*, broken; *soil*, in some places fertile. *Cap.* Guysborough. *Pop.* abt. 16,600. Its cap., of same name, is a seaport-town on Chedabucto Bay, opposite Manchester.

Guy's Mills, in *Pennsylvania*, a P. O. of Crawford co.

Guys'ville, in *Ohio*, a post-village of Athens co., on the Hocking River, abt. 82 m. S.E. of Columbus.

Gu'zes, *n. pl.* (*Her.*) Roundlets of a sanguine color, supposed to represent wounds.

Guz'zle, *v. n.* [It. *gozzovigliare*, from *gozzo*, the throat.] To swallow liquor greedily; to drink much or frequently.

"Who, while she *guzzles*, cheats the doctor's praise."
Roscommon.

—*v. a.* To swallow with immoderate gust.

"Still *guzzling* must of wine." —*Dryden.*

Guz'zle, *n.* Any thing or person that is insatiable.

Guz'zler, *n.* An immoderate eater or driuker.

Gvosdevi, (*g'vos-da'vē̄.*) a group of islands in Behring's Strait, between N. America and Asia, Lat. 65° 40′ N., Lon. 173° 50′ E. Imaglin, the largest, is 25 m. in length. They are low and destitute of vegetation.

Gwal'ior Territories, a district of Central Hindostan, in the dominions of Scindia, bounded by Bundelcund, Chumbal, Dhar, Rajpoor, and Kotah. *Area*, 33,100 sq. m. *Prod.* Rice, wheat, maize, sugar, opium, cotton, and castor-oil. Silk is largely manufactured. *Pop.* 3,580,000. This state is under the protection of the British. Its capital, of the same name, on a tributary of the Chumbal, Lat. 26° 13′ N., Lon. 78° 15′ E., stands on an isolated rock, 300 ft. high, perpendicular on all sides, 1½ m. long by 300 yds. wide, capable of accommodating a garrison of 15,000 men. *Pop.* 9,500.

Gwinett', in *Georgia*, a N. central co.; *area*, about 550 sq. m. *Rivers.* Chattahoochee, and the head-waters of the Appalachee, Yellow, and Ulcofauhachee or Alcovy rivers. *Surface*, hilly; *soil*, generally fertile. *Min.* Gold, iron, and antimony. *Cap.* Lawrenceville.

Gwynedd, (*gwin'eth.*) (*Geog.*) The ancient name of North Wales.

Gwynedd, in *Pennsylvania*, a post-township of Montgomery co.

Gwynne, NELL, (*gwin,*) an English actress, who was raised from the lowest situation to the favor of Charles II. In the early part of her life she entertained companies at taverns by singing; and, previous to her winning the affections of the King she had formed various questionable connections. She founded Chelsea Hospital. D. 1667.

Gybe, *n.* A sneer. See GIBE.

Gyb'ing, *n.* (*Naut.*) In sailing, the act of going about when the wind is astern or abaft the beam. It consists in bringing the ship's head across the wind, when the wind exercises its force on the opposite side of the sail to that which it previously affected.

Gyges, (*jī'jees,*) (*Myth.,*) a son of Cœlus and Terra, represented as having a hundred hands. He, with his brothers, made war against the gods, and was afterwards punished in Tartarus. — A shepherd, who possessed a ring which rendered him invisible when he turned the stone towards his body. — A Syrian (probably the same as the preceding), to whom Candaules, king of the country, showed his wife naked. The queen was so incensed at this instance of imprudence in her husband, that she ordered Gyges either to prepare for death himself, or to murder Candaules. He chose the latter, married the queen, and ascended the vacant throne, about 718 years before the Christian æra. He was the first of the Mermnadæ who reigned in Lydia. He reigned 38 years, and distinguished himself by the immense presents which he made to the oracle of Delphi.

Gymnasiarch, *n.* [Gr. *gymnasion*, a school, and *archein*, to govern.] (*Gr. Antiq.*) The officer among the Athenians who had charge of the schools, and provided for their management.

Gymnasium, (*jim-nā'ze-um,*) *n.* [Lat., from Gr. *gymnasion*, a school, from *gymnazein*, to practise, from *gymnos*, naked.] The name given by the Greeks to those places in which their youth exercised themselves naked. The gymnasia of the Greeks and Romans were looked upon as an important part of their educational systems. The Greeks, indeed, devoted more time to the gymnastic training of their youths than on all the other departments of education. There were three public gymnasia in Athens, — the Academia, Lyceum, and Cynosarges, besides several smaller private ones. The administration of these institutions was given to a gymnasiarch, whose duty it was to place the youths under proper teachers, to conduct the games, and pay the athletæ. In these gymnasia there appear to have been ten gymnasiarchs; next in rank came ten other officers, called the *Sophronistæ*, or "teachers of wisdom," who seem to have looked after the moral development of the pupils at the gymnasium. The *Gymnastæ* and *Pædotriba* assigned to the youth the different kinds of exercise adapted to the capabilities of each. The *Aliptæ*, or "anointers," prepared the youths for the day's exercise, by anointing them with oil, and then sprinkling them with dust. In the gymnasium the principal exercises were foot-racing, wrestling, boxing, leaping, quoit-throwing, dancing, &c.; and the younger pupils played a variety of games with balls, tops, &c. The gymnasium of the ancients was not one building, but rather a group of edifices, which could contain a vast number of people. It generally consisted of twelve parts:—The exterior *porticus feminimos*, where the philosophers, rhetoricians, mathematicians, and others, disputed or lectured publicly. Secondly, a place where the pupils assembled early to learn their exercise privately. The next, a sort of antechamber, called the *caryceum apodyterion*, or *gymnasterion*, where they stripped either for the purpose of bathing or exercise. The fourth division was used for anointing purposes, and was called the *elathesium*, *aliptерion*, or *unctuarium*. The fifth and sixth portions were the *consisterium*, where they covered themselves with sand or dust: and the *palæstra*, the place where they practised boxing, wrestling, &e. A seventh portion of the gymnasium was reserved for ball-exercise, and was called the *sphæristerion*. The *xysti* were porticas where the wrestlers contended during inclement weather; and there were other *xysti*, or open alleys, for fine weather, some of which were ornamented with trees. Between the porticas and the outer walls there were also large unpaved alleys used for various purposes. Lastly, there was the *stadium*, a large semicircular space covered with sand, and surrounded by seats for spectators; and the baths, which consisted of several apartments. In Rome, during the republic, there were no buildings which could be compared with the Greek gymnasia. Under the Cæsars, the public baths bore some resemblance to them, but the gymnasia may be said to have disappeared with the thermæ. — The name is employed, in the present day, to designate the higher class of schools in Germany, — those that are intended to be immediately preparatory to the university. The gymnasia differ from the real schools (*realschulen*), which are intended to give a suitable education for such as are destined for business or trade, in having as their object the bestowing of a mental and scientific education on such as are intended for the universities. The course of study usually extends over six or seven years, and includes Latin and Greek, history, geography, mathematics, religion and Bible knowledge, natural and mental philosophy, natural history, German, French, English, and singing. The scholars leave about the age of 18 or 20, to enter the university; but on leaving they are required (in Prussia at least) to undergo a very strict examination before they can enter the university; and, indeed, they cannot pass from one class to a higher without giving satisfactory evidence that they have profited by their instructions. Not a few, in this way, are forced to spend 2 years in one class. A committee is appointed by govt. for the examination of such as intend entering the university without passing through a gymnasium. See GYMNASTICS.

Gym'nast, *n.* [Fr. *gymnaste;* Gr. *gymnastes.*] One who practises, or is skilled in athletic exercises or sports.

Gymnas'tic, Gymnas'tical, *a.* Pertaining to athletic exercises or sports; as, a *gymnastic* entertainment.

—Of or belonging to intellectual, or disciplinary exercises of the mental powers.

Gymnas'tic, *n.* Disciplinary exercise, whether of body or mind.

Gymnas'tically, *adv.* In the manner of a gymnast.

Gymnas'tics. A term applied to those exercises of the body and limbs which tend to invigorate and develop their power. Gymnastic games are of very ancient origin. They are mentioned in the second book of the *Iliad*, where playing at quoits and javelin-hurling are mentioned; and in the 23d book, where Achilles is represented as instituting games in honor of Patroclus, in which the sports were chariot-racing, boxing, wrestling, quoit-throwing, &c. Later on, games of this kind were dedicated to the gods, and the rewards being called *athla*, gave origin to the name *athletics*, applied to those who contended for them. Shortly before the time of Hippocrates, gymnastics were made a part of medicine, and gradually they were reduced into a complete system. Public buildings, called *gymnasia*, were erected for the purpose, and officers for their superintendence were appointed by the state. The Romans erected gymnasia on a magnificent scale; and on account of the extensive baths which were attached to them, they were latterly called *thermæ*. Among the exercises practised in these gymnasia, were dancing, wrestling, boxing, running, leaping, quoit-throwing, and hurling. Besides these, which formed the regular business of the gymnasium, were riding, driving, swimming, rowing, climbing ropes, swinging, mock fights of various kinds, &c. Various causes in later times have combined to cause *G.* to go out of use as a part of education and a method of maintaining health. Modern warfare depends so much on military science and a knowledge of gunnery, and so little on physical strength, that military *G.* has been much overlooked. It is only since the commencement of the present century that gymnastic exercises have been revived as a science. In 1806, the revival began in Prussia, where gymnasia were opened, and the science became so popular that it rapidly attracted attention. Sweden imitated Prussia; and from that time the practice of *G.* has formed a leading feature in the course of education in both countries. As the gymnasia in Prussia began to be the scenes of political meetings of a kind offensive to the government, they were abolished in 1818. The practice of *G.* was, however, kept up by the troops, and with such evident success that a similar course of training was adopted in the French army in 1844. The gymnastic exercises adopted by the pugilists and wrestlers of the present day in their course of training are not able to produce on the mind or body any desirable effect; and the same was observed in the condition of the athletæ of old. But gymnastic exercises, practised under proper control, must act beneficially, both mentally and physically. As Montaigne observes, "It is a soul, not a body only, which we educate; it is a man, of whom we must not make two; we must not train the one without the other, but must guide and lead them like a pair of horses harnessed to one shaft." *G.* act upon the courage, and produce independence and presence of mind. Besides being a suitable interruption to mental labor, and the best recreation after it, they produce cheerfulness, and restrict the fancy and imagination to reasonable limits. "If you wish to develop the mind of a pupil," says Rousseau, "develop the power which that mind has to govern; exercise his body; make him healthy and strong, that you may make him prudent and reasonable." In ordinary gymnasia, the principal apparatus employed consists of the *horizontal pole*, the *parallel bars*, the *masts* or *poles*, the *ropes*, the *triangle* and *trapeze*, the *ladder*, the *wooden horse*, the *inclined plane*, and the *flying-course*, or *giant's stride*. The horizontal pole is used in order to develop the strength of the hands and arms, though many other exercises are performed on it. The parallel bars are mostly about 8 feet long, and fixed about 2 feet apart, at a height of 3 or 4 feet from the ground. The exercises upon them, which are of great variety, tend to strengthen the arms and chest, and to render the body pliant. The masts and poles, which vary in their inclination, are used for climbing purposes. The triangle and trapeze afford more amusement than any other instrument used in modern gymnasia, as the lightness of their construction, and their being constantly in motion, make the evolutions performed on them appear easy and graceful. The wooden ladder and the rope-ladder are used generally to render the body supple. The wooden horse, which can be lowered or raised on its stand when required, is for exercise in vaulting and leaping. The inclined plane, usually a deal plank between 20 and 30 feet in length and 2 feet in breadth, is used for a variety of exercises, tending to strengthen the hands, arms, chest, abdomen, legs, and feet. The flying-course, or giant's stride, is an amusing exercise, but is not superior to any of the others in its effects. In all cases, gymnastic exercises of every kind should be practised with caution and moderation. Although the dangers connected with the practice of *G.* are often exaggerated, nevertheless muscles may become strained through excess, and ruptures and other serious accidents occur.

Gymne'ma, *n.* [Gr. *gymnos*, naked; *nema*, filament.] (*Bot.*) A genus of plants, order *Asclepiadaceæ*. The species *G. lactifera*, a native of Ceylon, yields a nutritious milk which is used as human food. It is called, on this account, the Cow-plant.

Gym'nite, *n.* [Gr. *gymnos*, naked, in allusion to the locality Bare Hills, Md.] An amorphous mineral somewhat resembling gum-arabic, or a brownish or yellow resin, of a greasy lustre and whitish, yellowish, greenish, or reddish color. Translucent and brittle. *Sp. gr.* 2·246. *Comp.* Silica 40·2, magnesia 35·7, water 24·1. Called also Deweylite. It occurs with serpentine.

Gymnocar'pous, *a.* [Gr. *gymnos*, naked, and *karpos*, fruit.] (*Bot.*) Naked-fruited, as the cherry-tree.

Gymnoc'ladus, *n.* [Gr. *gymnos*, and *klados*, a shoot.] (*Bot.*) A genus of leguminous plants, sub-order *Cæsalpiniæ*. The Coffee-tree, *G. Canadensis*, which grows in Canada, and in our northern States on the border of lakes and rivers, is a tree 50 feet high, with a slender trunk 15 inches in diameter, straight and single to the height of 25 feet, covered with rough, scaly bark, and supporting a rather small but regular head; flowers large and white, succeeded by large curving pods containing several hard, gray seeds. The branches have almost always an upright direction; and the appearance of the head, in the winter season, is remarkable, from being fastigiate, and from the points of the branches being few, and thick and blunt, as compared with those of almost every other tree. They are also wholly without the appearance of buds; and this latter circumstance, connected with the former, gives the tree, during winter, the appearance of being dead; and hence the Canadian name of *chicot*, or stump-tree. The leaves, or young thriving trees, are 3 feet long, and 20 inches wide; but on trees nearly full-grown they are not half that size. The leaflets are of a dull bluish-green, and the branches of the petioles are somewhat of a violet color. The wood is hard, compact, strong, tough, and of a fine rose-color; it is used both in cabinet-making and carpentry, and, like the wood of the robinia, it has the remarkable property of rapidly converting its sap-wood into heart-wood, so that a trunk 6 inches in diameter has not more than 6 lines of sap-wood, and may, consequently, be almost entirely employed for useful purposes. The seeds were, at one time, roasted and ground, as a substitute for coffee, in Kentucky and Tennessee; but their use in this way has been long ago discontinued. The pods, when preserved like those of the tamarind (to which this genus is nearly allied), are said to be wholesome, and slightly aperient.



Fig. 1220. — THE COFFEE-TREE.
(*Gymnocladus Canadensis.*)

Gym'nogens, *n.* [Gr. *gymnos*, naked, and *gennaein*, to produce.] (*Bot.*) A class of plants, including those which are distinguished by having the seeds naked or uninclosed by seed-vessels. The plants grouped in this class have nearly an equal relation to flowering and flowerless plants. They agree with the former in habit, in the presence of sexes, and in their vascular tissue being complete; among the latter, some accord in habit with the ferns and club-mosses. So great is the resemblance between some club-mosses and certain conifers, that they can be distinguished by no other external character except their size. Gymnogens are known from most other vasculares by the vessels of their wood having large apparent perforations or discs; they do not, however, differ in growth from other exogens, but are essentially the same, deviating in no respect from the plan upon which exogenous plants increase. In the gymnogens there is an unmistakable transition from the highest form of organization to the lowest. They are essentially exogens in all that appertains to their organs of vegetation, but they are analogous to reptiles in the animal kingdom, inasmuch as their ova are fertilized by direct contact with the male principle. The Conifers and Cycads are the most remarkable orders. That of the Conifers is connected with club-mosses by means of the extinct genus *Lepipodendron*, and their branches sometimes so closely resemble those of certain lycopods that no doubt can be left of their relation. Some cycads have the gyrate vernation of the leaves of true ferns along with the inflorescence of conifers. The natural orders of the gymnogens are, — the *Cycadaceæ*, the *Pinaceæ*, the *Taxaceæ*, and the *Gnetaceæ*.

Gymnosoph'itæ, GYMNOSOPHISTS, or NAKED SAGES, *n. pl.* [Gr. *gymnos*, naked, and *sophistēs*, a philosopher.] The name given by the Greeks to a sect of Hindoo philosophers who were remarkable for the asceticism of their manners and doctrines. They wore no clothing, believed in the transmigration of the soul, and exhibited the most surprising contempt of death. Calanus burned himself to death, in the presence of Alexander the Great, about B. C. 325.

Gymnos'ophy, *n.* The doctrine or practice of the gymnosophitæ.

Gymnosper'mous, *a.* (*Bot.*) Belonging to the ord. of plants consisting of gymnosperms.

Gym'nosperms, *n. pl.* [Gr. *gymnos*, naked, and *sperma*, seed.] (*Bot.*) Flowering plants with naked seeds, that is, with ovules not inclosed in an ovary. They are so called in contradistinction to the *Angiosperms*, which have their seeds inclosed. In the arrangement followed in this work, the *G.* constitute a distinct class called GYMNOGENS (*q. v.*), while in other systems they constitute a division of the class *Dicotyledones*.

Gym'note, Gymno'tus, *n.* [Fr. *gymnote*; Gr. *gymnos*, naked, and *nōtōs*, the back.] (*Zoöl.*) See EEL.

Gymnu'ra, *n.* [Gr. *gymnos*, and *oura*, a tail.] (*Zoöl.*) The Bulan, an insectivorous animal of Sumatra. In its dentition and spring covering it closely resembles the Hedgehog; but it has the long, naked, scaly tail and pointed muzzle of the Shrews.

Gyn, (*jin,*) *n.* (*Mil.*) A machine for mounting and dismounting ordnance from their carriages, &c. See DERRICK.

Gynæ'ceum, *n.* [Gr. *gunaikeion*.] (*Greek Arch.*) The portion of a dwelling or a public building that was set apart for the occupation, or for the exclusive use, of the female sex.

Gynæcoc'racy, *n.* [Gr. *gunaikokratia*.] A term sometimes used to indicate that state in which women are legally permitted to assume the reins of government. —It is used by way of contradistinction to the *Salic law*, which precludes them from the privileges of sovereignty. There are only five states in Europe to which the operation of the Salic law does not extend — England, Russia, Spain, Portugal, and Denmark.

Gynan'dria, *n.* [Gr. *gunē*, a female, and *aner*, a male.] (*Bot.*) In the system of Linnæus, a class of plants characterized by having the stamens, style, and stigma consolidated into a body, called a *column*. This class is now chiefly represented by the order *Orchidaceæ*.



Fig. 1221.
1, a sterile stamen; 2, stigma; 3, 3, anthers.

Gynan'drian, or **Gynan'drous,** *a.* [Gr. *gunandros*, of doubtful sex.] (*Bot.*) Belonging to the class called *Gynandria*, i. e., having the stamens, style, and stigma consolidated into a body called a column as in the *Cypripedium*, (Fig. 1221.)

Gyne'cian, *a.* Relating to women.

Gynecol'ogy, *n.* [Gr. *gunē*, a woman, and *logos*, a discourse.] (*Med.*) The doctrine of the nature and diseases of women.

Gynecoc'racy, *n.* [Gr. *gunē*, a woman, and *katrōs*, power.] Female sway or rule; gynæcocracy.

Gy'nobase, *n.* [Gr. *gunē*, and *basis*, a support.] (*Bot.*) The base of a style, or summit of a receptacle, on or around which two or more carpels are inserted, as in Rue, Sage, Geranium, &c.

Gynoba'sic, *a.* (*Bot.*) Pertaining to, or having a gynobase.

Gyne'cium, *n.* (*Bot.*) The united pistules of a flower, when taken together.

Gynophore, (*jin'o-fōr,*) *n.* [Fr., from Gr. *gunē*, and *phoros*, bearing, from *pherein*, to bear.] The pedicle which in some flowers raises the pistil above the stamens, as in the *Passion-flower*.

Gyöngyös, (*je'on-je-os,*) a town of Hungary, in the co. of Heves, situated at the S. base of the Matra Mountains, 50 m. N.E. of Pesth. In this vicinity, the fine Vissontaer wine is raised. *Manuf.* Wine and fruits. *Pop.* 16,500.

Gyp, (*jip,*) *n.* [Supposed to have been originally a jocose application of the Gr. *gups*, a vulture.] One who, as *famulus*, or body-servant, waits upon a student at the university of Cambridge, England.

Gyp'ætos, *n.* [Gr. *gups*, a vulture, and *ætos*, an eagle.] (*Zoöl.*) See LAMMERGEIER.

Gypoger'anus, *n.* [Gr. *gups*, a vulture, and *geranos*, a crane.] (*Zoöl.*) See SECRETARY.

Gyp'seous, *a.* [Fr. *gypseux*, from Lat. *gypsum*.] Having, or partaking of the qualities of, gypsum.

Gypsy, Gipsy, Gipsey, (*jip'see,*) *n.*; *pl.* GYPSIES. (*Hist.*) A term derived from a corruption of the word Egyptians, and applied to a wandering race of people who are found distributed over many countries of Europe and Asia. They seem to have migrated into Europe from the East at the beginning of the 15th cent.; and first appeared in Paris in 1427, representing themselves as Christian penitents, driven out of Egypt by the Saracens. They were more than a hundred and twenty in number, and, according to a French writer, "They had their ears pierced, from which depended a ring of silver; their hair was black and crispy, and their women filthy to a degree, and were sorceresses who told fortunes." They and their people, who arrived in great numbers, obtained permission to remain in the kingdom; but after a short while, on account of their idleness and depredations, terrible orders were enacted in order to suppress them and drive them from the country. The name of *Bohemians* was given to them by the French, probably because large numbers of them had come into France through Bohemia. Many, in consequence of the severity shown towards them, were driven back into the woods and forests of the same country; others passed into Germany and Hungary; while bands of others swarmed over the Pyrenees, and poured down on the plains of Spain. The names by which the gypsies are known, differ with the country in which they are found, although, with one or two exceptions, not materially. In Russia they are styled *Zigani*; in Turkey and Persia, *Zingarri*; and in Germany, *Zigeuner*; all which words apparently sprung from the same root, probably *Zincali*, a term by which these people, and especially those of Spain, sometimes designate themselves, and the meaning of which is supposed to be "the black men of Zend, or Ind." The Zigani are found in all parts of Russia, except in the government of St. Petersburg, from which they have

been banished. Their principal employment is trafficking in horses and curing the diseases of cattle. In Moscow, however, they have given up their wandering habits, inhabit stately houses, and go abroad in elegant carriages, being behind the higher orders of the Russians neither in appearance nor mental acquirements. The females are celebrated for their vocal powers. The *Czigamy*, or Hungarian gypsies, live in rags and filth, but are merry and fond of music. They are addicted to horse-dealing, and are tinkers and smiths in a small way; the women tell fortunes, and both sexes are incorrigible thieves. In Wallachia and Moldavia they call themselves *Roumouni*, and in all countries the gypsies style themselves, and the language which they speak, Romany. In the gypsy language, *Rom* means a husband, and *Romany* the sect of the husbands. Although no country appears less adapted to this wandering life, which seems so natural to these people, than England, it is nevertheless true that they do exist there, and the covered cart and little tent of the Romany seldom remain more than a day or two in one place. When the gypsies first arrived in England, they were much persecuted. After a time their persecutors got weary of pursuing them, and at present they are considered in some degree as a privileged people. Although their way of life is unlawful, it is connived at, the law of England having discovered, by experience, that its utmost force is inefficient to restrain them from their habits. The male gypsies in England are all dealers in horses, and sometimes employ their idle time in mending the tin and copper utensils of the peasantry; the females tell fortunes. In all countries the gypsies are very handsome when young, but hideously ugly when they grow old. The climate of England is favorable to beauty, and in no land is the appearance of the gypsy so prepossessing as in that country. The dialect of the Romany which they speak is tolerably pure, but mixed with English words. Dabbling in sorcery has always been a profession of the gypsies in all times and countries, and is especially the province of the females. They are divided into classes and tribes in England, and the principal gypsy tribes now in existence are the *Stanleys*, whose haunt is the New Forest: the *Lovells*, who are fond of London and its vicinity; the *Coopers*, who live round about Windsor; the *Smiths*, who have taken up their abode in the eastern counties; and the *Hernes*, who have appropriated the north of England, and Yorkshire especially. Much interesting information respecting the *G.* may be found in Geo. Borrow's *Romany Rye*, and *The G. of India*, by D. MacRitchie, (Lond. 1886.)

Gypsiferous, *a.* [Lat. *gypsum*, and *ferre*, to bear.] Producing or containing gypsum.

Gypsog'raphy, *n.* [Lat. *gypsum*, and Gr. *graphē*, a writing.] The act or art of writing or inscribing on gypsum.

Gypsum, (*jip'sum,*) *n.* [Gr. *gupsos*, especially the calcined mineral, perhaps from *gē*, earth, and *hepsō*, to cook.] (*Min.*) A hydrous sulphate of lime, which crystallizes usually in right rhomboidal crystals with levelled sides. It occurs also in laminated masses, in fibrous masses with a satin lustre, and in radiating forms consisting of narrow laminæ, also granular and compact. Color usually white, but sometimes gray, reddish, brownish, yellow, blue, and even black. *Sp. gr.*, when pure, 2·314–2·328. *Comp.* Sulphuric acid 46·5, lime 32·6, water 20·9. *G.* occurs in extensive beds in several of the U. States, particularly in N. York, Ohio, Illinois, Virginia, Tennessee, and Arkansas, and is usually associated with salt springs. It occurs especially in connection with limestones and marlytes or clay beds. It is a product of volcanoes found where sulphur gases are escaping, being formed from the sulphuric acid generated and the lime of decomposing lavas. When lime is present it is formed by the decomposition of pyrite. It occurs about sulphur springs where sulphuretted hydrogen is emitted, and is found in sea-water. In the Mammoth Cave *G.* occurs in the form of rosettes or flowers, vines or shrubbery. When burned and ground, it is called PLASTER OF PARIS, (*q. v.*) The transparent foliated *G.* is called SELENITE, (*q. v.*) The white and delicately fibrous variety is described under the head of SATIN SPAR (*q. v.*); and the fine-grained, white or light colored varieties, under the head of ALABASTER (*q. v.*). *G.* is ground up and applied to soils as a fertilizer. When destitute of water it is called ANHYDRITE (*q. v.*).

Gyp'sum, in *Ohio*, a post-office of Ottawa co.

Gypsum Creek, in *Michigan*, enters Grand River abt. 3 m. below Grand Rapids.

Gyp'syism, *n.* The arts or practices of gypsies; cheatery; deception; cheating; flattery.—The condition, state, or habits of a gypsy.

Gyracan'thus, *n.* [Gr. *guros*, round, and *akanthē*, spine.] (*Paleont.*) A genus of fossil placoid fishes of the carboniferous system.

Gy'ral, *a.* Whirling: moving circularly; gyratory.

Gy'rate, *a.* [Lat. *giratus*, wound around.] (*Bot.*) Curled inwards like a crozier, as the young undeveloped fronds of Ferns.

—*v. n.* To revolve around a central point, as a tornado.

Gyration, (*jī-rā'shun,*) *n.* [Lat. *gyratio.*] A circular motion; motion about an axis; rotation; rotary motion.

(*Mech.*) A *centre of gyration* is a point within a body such that if the whole mass were concentrated therein, the moment of inertia with respect to the corresponding *axis of gyration* would remain unaltered. The circle described by such a point is called a *circle of gyration*, its radius the *radius of gyration.*

Gy'ratory, *a.* Moving circularly.

Gyre, *n.* [Fr., from Lat. *gyrus*; Gr. *guros*, a ring.] A circular motion; a circle described by a moving body; a turn.

Gyr'falcon, *n.* (*Zoöl.*) See GERFALCON.

Gyriu'idæ, *n. pl.* (*Zoöl.*) A family of aquatic Beetles, the type of which is known under the name of *Whirligig*, or *Water-flea*, from its peculiar motions. They are in general of small or moderate size: and are to be seen, from the first fine days of spring till the end of autumn, on the surface of quiet waters, and even upon that of the sea, often appearing in great numbers, and appearing like brilliant points.

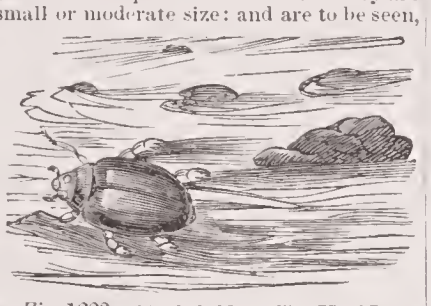


Fig. 1222.—WHIRLIGIG, OR WATER-FLEA.

They are active swimmers, and curvet about in every direction. Sometimes they remain stationary without the slightest motion; but no sooner are they approached, than they escape by darting under the surface of the water, and swimming off with the greatest agility. The four hind legs are used as oars, and the anterior ones for seizing the prey: when they dart beneath the surface, a bubble of air like a silvery ball remains attached to the hind part of the body. When seized, they discharge a milky fluid, which spreads over the body, and probably produces the disagreeable odor which they then emit. There are several species found in this country, but it is not necessary to describe them separately. These beetles are almost the only water-insects which exhibit a brilliant metallic lustre,—a peculiarity dependent upon the habits of the insects which generally swim upon the surface of the water.

Gyrog'onites, *n. pl.* [Gr. *guros*, a circle, and *genein*, to bring forth.] (*Pal.*) Bodies found in fresh-water deposits: originally mistaken for small shells, but afterwards ascertained to be the sea-vessels of plants of the genus *Chara.*

Gyroid'al, *a.* [Gr. *guros*, and *eidos*, a form.] Spiral in arrangement, or form.

Gyrol'epis, *n.* [Gr. *guros*, and *lepis*, the scale of a fish.] (*Pal.*) A genus of fossil ganoid fishes found in the new red sandstone, and in the bone-beds of the lias formation.

Gy'rolite, *n.* (*Min.*) A mineral occurring in concretions, of a white color, vitreous to pearly lustre, and composed of silica 50·70, alumina 1·48, magnesia 0·18, lime 33·24, water 14·18. Found in the Isle of Skye and in Nova Scotia.

Gyro'ma, *n.* [Gr., from *guros*, round.] A circular turn; a turning round.

Gy'romancy, *n.* [Gr. *guros*, a circle, and *manteia*, a prophecy.] A kind of divination performed by a soothsayer by means of a circle. The soothsayer usually describes a circle variously marked with letters, and then walks around it with various ceremonies, saying magic words and making mysterious motions, the more effectually to deceive the uninitiated.

Gy'ron, *n.* [Sp. *giron*; It. *gherone*, a lap or bosom.] (*Her.*) An ordinary consisting of two straight lines drawn from any given part of the field, and meeting in an acute angle in the fesse point.

Gy'rony, *a.* (*Her.*) Covered with gyrons, or formed of several gyrons, usually said of an escutcheon.

Gyrophora, (*jī-rof'ō-rā,*) *n.* (*Bot.*) A genus of lichens, several species of which possess nutritive properties, and are used as food in the arctic regions. They have been denominated *tripe de roche* (rock-tripe).

Gy'roscope, *n.* [Gr. *guros*, a circle or rotation; *skopeo*, I perceive.] (*Astron.*) An instrument which for a time attracted attention on account of its supposed capability of rendering visible the rotation of the earth on its axis. The apparatus was originally suggested by M. Foucault, but has since been materially modified. The principle on which its action depends was discovered about 1750, by Frisi, and enunciated by him as the Composition of Rotary Motion; and the object of the instrument is to exhibit the real composition of rotations about different axes impressed at the same time on the same body. Thus, when a body is rotating about an axis, if any force tends to make it rotate about another axis, it will not rotate about either the old or the new axis, but about an intermediate one. In 1851, Signor Antinori, director of the museum at Florence, first brought the subject of the *apparent* displacement of the plane of vibration of the pendulum before the Academicians del Cimento; and on the 3d of February, in the same year, M. Foucault communicated his discovery to the Academy of Sciences at Paris, and experimentally proved the rotation of the earth by his well-known pendulum experiment and his *G.* In the first case, if a pendulum is supposed to be suspended over either pole of the earth, and set in oscillation, it is evident that a spectator carried round by the rotation of the earth would so pass alternately under the two ends of the arc of the vibrating pendulum, that its plane of oscillation would appear to him to make a revolution from east to west in the same time as the earth revolves from west to east. If, then, the pendulum be supposed to be similarly suspended over the equator, it is evident that no change in the plane of oscillation can take place. But if the pendulum is suspended at any intermediate latitude, the rotation of the earth round the polar axis may be considered as the resultant of two rotations, one round an axis passing through the place of observation, and another round a perpendicular axis. The rotation about the latter axis cannot, however, affect the apparent motion of a pendulum suspended at the equator of that axis which is the great circle through the place of observation. The pendulum will, therefore, only be affected by a motion around the axis through the place, and this motion will vary as the sine of the latitude. The *G.*, as an instrument, is an application of the principle in dynamics, that if a mass be set in motion freely in space, it will preserve its original plane of rotation, unless it be disturbed. M. Foucault presented his account of the *G.* to the Academy of Sciences in 1852; and in his apparatus there is a fixed plane below which the earth turns, and as the spectator is carried with it, causes it to appear to him as if the plane of the disc actually revolved. The experiments which can be performed with the *G.* illustrate the following principles: First, that matter in motion, as well as matter at rest, possesses inertia. Secondly, that the power possessed by the shots from rifled guns to resist the force of gravity, is due to the gyratory motion given to the ball. Thirdly, the orbital and axial motions are connected intimately, and mutually affect each other's speed. Fourthly, that the apparent stable equilibrium of bodies not stable, as of a spinning-top asleep, is due to their rotation.

Gyrose, (*jī'rōs,*) *a.* Bent like a crook.

—*v. a.* To shackle; to chain; to fetter.

Gyrostemo'neæ, *n. pl.* [Gr. *guros*, round, and *stemon*, filament.] (*Bot.*) A small order of plants, closely allied to the *Euphorbiaceæ.* It is distinguished from that order by having unisexual flowers, the carpels arranged round a central column, two suspended seeds in each carpel, and a hooked embryo. The uses of these plants are not known.

Gyu'lai, a town of Hungary, in the co. of Bekes, 16 m. N.W. of Zarand. *Manuf.* Oil and wine. *Pop.* 18,000.

Gyve, (*jīv,*) *n.* [W. *gefyn*, a fetter.] A shackle for the leg; (mostly used in the plural.)

G.—SECTION II.

GADS

G., in *Oklahoma*, a N. W. co.; is intersected by the Canadian and Washita rivers. *Surface*, undulating; *soil*, fertile, red sandy loam. *Products*, corn, wheat, cotton and potatoes. Stock raising is the chief occupation. *Cap.* Arapahoe. *Pop.* (1897) about 6,000.

Ga'belentz, von der, Hans Conon, philologist, born at Altenburg, Germany, Oct. 13, 1807; studied at Leipzig and Göttingen, making a specialty of the Chinese, Arabic, and Finuo-Tartaric languages. He was familiar with eighty languages, and published: *Elements de la Grammaire Mandschoue; Die Melaneischen Sprachen;* and a Manchou translation of the Chinese works, *Sse-chu, Shu-king* and *Shi-king*, besides other works. Died in Sept., 1874.

Ga'belsberger, Franz Xaver, inventor of the shorthand system largely nsed in German-speaking countries; born at Munich, Feb. 9, 1789; acted as ministerial secretary in the statistical office of the finance department of the Bavarian Civil Service from 1826 to 1849; published *Anleitung zur Deutschen Redezeichenkunst oder Stenographie*, an account of his system. D. Jan. 4, 1849.

Gab'lentz, Ludwig Karl Wilhelm, Baron von, an Austrian field-marshal, born at Jena, in 1814. After serving in the Saxon army for some years, he joined the Austrian service, distinguished himself at Custozza, took a brilliant part in the Hungarian war, gaining distinction at Magenta, and, by covering the retreat of the Austrian army from the field of Solferino, preserved it from annihilation. He next served in the Schleswig-Holstein campaign; and in the war with Prussia (1866) had command of the 8th and 10th corps in the disastrous defeat at Königgrätz. In July, 1869, he was appointed commander-in-chief in Hungary. He retired in 1871, and, having lost seriously in stock speculations, shot himself, Jan. 28, 1874.

Gaboon' or **French Congo.** (*Geog.*) A French colony in western Africa, between the Atlantic and the Middle Congo, and embracing the region of the Gaboon river, a stream or estuary which extends 40 m. inland with a width of from 6 to 12 m. *G.* exteuds along the coast from Lat. 5° S. to about 2° N.; is bounded inland by the Congo and Mobangi rivers, and touches the German colony of Cameroons on the north. The area, estimated at over 200,000 sq. m., is uncertain, the northeastern boundary not being defined. The climate is extremely unhealthy near the coast, but is better on the inland plateau, which is covered with extensive forests, the abode of the gorilla. The coastal and parts of the interior regions are fertile and rich in products, including gum, gutta-percha, palm-oil, timber, ivory, &c. Coffee, vanilla, sugar-cane, and cotton are cultivated. Sheep and goats are numerous, but the former yield no wool. The population, mainly of the Bantu stock, is estimated at 7,000,000. The French gained rights on the estuary of the Gaboon in 1839; made a settlement in 1845, and 20 years afterward extended their control to the Ogowé. The interior region was first explored by De Brazza in 1876–78, and through his energy and enterprise the country became known, and the French claim was extended. There are now numerous stations in the coast region, the principal being that of Libreville, on the Gaboon.

Gaborian', Emile, novelist, born at Sanfon, France, in 1835. He began his literary career by writing stories of military and fashionable life for journals; afterward was successful in humorous sketches, and later acquired fame by his detective stories. His works include: *L' Affaire Leronge; Le Dossier; Le Crime d'Orcival*, &c. Died Sept. 28, 1873.

Gachard', Louis Prosper, born at Paris, March 12, 1800; keeper of the archives at Brussels for the most of his life; edited from the national archives of Spain and Belgium the correspondence of William the Silent, Philip II., Margaret of Austria, and Alba. Author of: *Les Troubles de Gand Sous Charles V.; Retraite et Mort de Charles V.*, &c. Died Dec. 24, 1885.

Gade, Niels Wilhelm, musician and composer, born at Copenhagen, on Feb. 22, 1817; performer in the royal chapel; studied at Leipzig producing his first symphony (in C minor) there. In 1844, in the absence of Mendelssohn, by whose invitation he first came to Leipzig, he took charge of concerts in that city; afterwards became first director of the Conservatory in Copenhagen. He composed eight symphonies, five overtures, four cantatas, and several sonatas; a lyrical drama, *Comala;* an opera, *Mariotta*, etc. Died Dec. 22, 1890.

Gads'den, James, soldier and statesman; born at Charleston, S. C., May 15, 1788; graduated from Yale College; entered the army as lieutenant (1812), serving in Canada, in the Seminole campaign of 1818, and as an aide to Gen. Jackson; was appointed minister to Mexico (1853), and negotiated the Gadsden Purchase for the U. S., by which was acquired, for $10,000,000, a large tract now included in Arizona and New Mexico. Died Dec. 26, 1858.

Gaff'ney City, or **Gaff'ney,** in *South Carolina*, a post-town of Spartanburg co., 28 m. N.W. of Yorkville, on the Southern R. R.; has manufactures of canned goods. *Pop.* (1890) 1,631.

Gag, *n.* (*Surg.*) An instrument for keeping the jaws apart during an operation.

(*Stage Slang.*) A word, phrase or speech interpolated into his part by an actor, usually having some local or personal application.

Gage, Lyman J., banker and philanthropist, born in De Ruyter, N.Y., June 28, 1836; educated at an academy at Rome, N. Y. Began his career at fourteen as assistant in the Rome post-office; subsequently was mail agent on the Rome, Watertown & Ogdensburg Railroad, and (1854) clerk in the Oneida Central Bank. After many vicissitudes he became connected with the Merchants Saving, Loan and Trust Company of Chicago; and in 1868 with the First National Bank of Chicago, of which in 1891 he became president. The success of the World's Columbian Exposition was largely due to his enterprise, he being one of three men who pledged to it $10,000,000 on behalf of the city of Chicago. He also served as president of the Banker's Section of the World's Congress. Reforms for the improvement of the condition of the laboring classes have found in him a sympathizer and worker, and he has taken an active part in the improvement of the city of Chicago. In 1897 he was appointed Secretary of the Treasury by President McKinley. He received the honorary degree of LL.D. from Beloit College, June 22, 1897.

Gage, Matilda Joslyn, born in Cicero, N. Y., March 24, 1826; educated at Hamilton Seminary, De Ruyter Academy, and Clinton Liberal Institute; advocate of the woman suffrage movement; corresponding secretary of the New York State Woman Suffrage Society (1869–70), and president for a term of nine years; also president of the National Woman Suffrage Association, and of the Woman's National Liberal Union; was one of the editors of the *History of Woman Suffrage;* edited and published *The National Citizen;* author of *Woman's Rights Catechism; Woman as an Inventor*, &c.

Gage, Simon Henry, B. S., physiologist, born in Maryland, N. Y., May 20, 1851; educated at Cornell University; became instructor there, and later (1889) was made associate professor of Physiology. In connection with Prof. B. G. Wilder, he has published *Anatomical Technology;* also contributed to scientific periodicals, and is the author of *The Microscope and Histology;* was collaborator on *Foster's Encyclopædia, Medical Dictionary*, &c.

Gag'-law, *n.* Anything intended to close a debate before the proper time, prevent free discussion, or hinder the right of petition.

Gag'-rein, *n.* (*Sadd.*) A rein passing over runners attached to the throat-latch, for pulling the bit up into the corners of the horse's mouth.

Gaillar'dia, *n.* [*Gaillard*, French botanist.] (*Bot.*) A genus of composite plants, of the Aster family, producing large and fragrant yellow or reddish-purple flowers.

Gaines, Myra Clark, a celebrated heiress and litigant, was born in New Orleans in 1805. She was the daughter of Daniel Clark, an Irishman who emigrated to New Orleans, about 1799, and inherited a vast estate from an uncle residing there. Clark died in 1813, leaving a will which gave all his property to his mother. He was known to be the father of two daughters, one of whom was Myra, but they were supposed to be of illegitimate birth. In 1830 letters were found giving the details of his marriage to Myra's mother, a handsome French woman, and in 1832 other letters were discovered that gave an account of a will which recognized Myra as his legitimate heir, and bequeathed her all the property, then valued at several millions. From that time to the day of her death Myra was continuously "in court." Her legitimacy and legal rights of heirship were established in the Supreme Court of Louisiana in 1856, which decision was subsequently approved by the U. S. Supreme Court, the fact of her father's secret marriage in Philadelphia having been substantiated. The struggle to secure possession of the estate was begun by filing a bill in equity in the U. S. Supreme Court in 1856, a favorable decision being rendered in 1867. Owing to the law's delays, the filing of cross-suits, etc., the claimant received up to the time of her death only about one sixth of the $35,000,000 to $40,000,000, which the estate was thought to be worth, and this was practically swallowed up by the costs of suit. She married W. W. Whitney, in 1832, and after his death married (1839) Gen. Edmund Pendleton *G.* (1777–1849), a hero of Fort Erie and the Seminole War. Mrs. *G.* died in January, 1885.

GALL

Gaines, in *Texas*, a N. W. co.; *area*, 1,500 sq. m. Unorganized. *Pop.* (1897) about 150.

Galate'a, *n.* [*Lat.*, name of a sea-nymph.] A cotton fabric with blue and white stripes.

Gale'na, in *Kansas*, a city of Cherokee co., 19 m. S. E. of Columbus, on St. L. & S. F. and K. C., Ft. S. & M. R. Rs. Large quantities of lead and zinc are mined here, and stamping and smelting works are in operation. *Pop.* (1895) 2,882.

Gal'latin, *n.* (*Chem.*) A heavy oil of coal-tar used in the process of preserving timber; also called *dead-oil.*

Gallein (*gāl'lē-in*), *n.* (*Chem.*) A substance obtained from coal-tar, used as a dye. It forms small crystals, which are red-brown by reflected, and metallic green by transparent light. It is nearly insoluble in cold water, slightly soluble in ether, very soluble in alcohol; with ammonia it yields a violet color. It dissolves in caustic potash with a red color, which is turned blue by excess of alkali.

Gal'let, *n.* A bit of stone struck from the block by a mason's chisel.

—*v. a.* To fill the joints (of a wall) with small pieces of stone.

Galliffet, Gaston Alexandre Auguste, Marquis de; soldier; born in Paris, June 23, 1831; served in the army and was made general of brigade, Aug. 30, 1870; subdued the revolting tribes in Africa (1872–73) and on the reorganization of the army became commander of the third brigade of infantry of the Eighteenth Army Corps, and of the subdivision of the Department of the Cher; was later made general of division. As a cavalry officer he ranks among the foremost in the service.

Gal'linm, *n.* [From *Gallia*, in honor of France.] (*Chem.*) A metallic element (symbol Ga., atomic weight 70), discovered in 1875 by a French chemist, Lecoq de Boisbaudran, though predicted as ekaluminum by Mendelejeff when, in announcing his Periodic Law, he showed that an element must exist having intermediate properties between aluminum and indium. It is a triad element. It is obtained by dissolving zinc blende in sulphuric acid and placing in the solution plates of zinc till the disengagement of hydrogen becomes slow, but is still perceptible, by which means the greater portion of the various metals contained in the ore is precipitated; the clear filtered liquid is then heated with a large excess of zinc; the resulting gelatinous precipitate, consisting chiefly of alumina, basic salts of zinc, and gallium, is redissolved in hydrochloric acid and again heated with zinc, which gives a precipitate in which the *G.* is more concentrated. This precipitate is redissolved in hydrochloric acid, the solution is treated with hydrogen sulphide, and the filtered liquid, after the expulsion of the H_2S., is fractionally precipitated with ammonium carbonate, till the solution of the resulting precipitate in hydrochloric acid no longer gives any indication of the presence of *G.* when examined by the spectroscope. The precipitates are collected and dissolved in sulphuric acid, and cautiously evaporated till the free sulphuric acid is expelled; the residue, when cold, is digested with water till it is dissolved, the nearly neutral solution is boiled, the basic gallium sulphate is precipitated and filtered while hot, and then dissolved in a small quantity of sulphuric acid, treated with excess of potash, till the precipitate is redissolved and then precipitated by a stream of CO_2. Finally the *G.* oxide is redissolved in the smallest quantity of sulphuric acid, the solution mixed with excess of slightly acid ammonium acetate, then H_2S gas is passed through the liquid; the filtered acetic solution is diluted with water, and heated to boiling, whereby the greater part of the *G.* is precipitated as oxide; this precipitate is filtered off hot, washed with boiling water and redissolved in sulphuric acid, and the solution mixed with a slight excess of potash and filtered, whereby a pure alkaline solution of *G.* is obtained. Metallic *G.* is gotten by the electrolysis of this alkaline solution, platinum electrodes being used, and the positive electrode being larger than the nega-

tive on which the metallic *G.* is precipitated, which is detached by dipping the platinum plate in warm water and bending it backward and forward. *G.* is a silver-white metal, which melts at 86° F. It is hard, very slightly malleable, and leaves a bluish-gray trace on paper. When melted it adheres to glass. It does not tarnish in the air. Its specific gravity is 5·95. It gives a brilliant violet line in the spectrum. When heated in the air it oxidizes on the surface and does not volatilize. It dissolves in hydrochloric acid with disengagement of hydrogen. It is scarcely attacked by nitric acid in the cold; but when heated it dissolves slowly, with evolution of nitrous fumes. It forms salts.

Gallivaut', *v. n.* (Perhaps a corruption of *gallant.*) To roam about for pleasure, especially with or after one of the opposite sex; to flirt.—To run after trivial matters.

Gallocy'anin, *n.* (*Chem.*) A coal-tar product used for dyeing cotton, silk or wool a violet color; called the "new fast-violet."

Gal'loway, Charles Betts, clergyman, born in Koscinsko, Miss., Sept. 1, 1849, and educated at the University of Mississippi. He held various positions, including a professorship in Madison College, Mississippi, was pastor in the Methodist Episcopal church, and elected bishop in 1886; delegate to the Centennial Conference in Baltimore (1884), and to the Ecumenical Conference in Washington, D. C. (1891). Author of *Methodism, a Child of Providence; Handbook of Prohibition,* &c.

Galoot', *n.* (*U. S. Slang.*) A noisy, awkward or uncouth fellow; a rowdy.

Galt, John, novelist, born at Irvine, Scotland, in 1779. His most esteemed works comprise the *Ayrshire Legatee; Annals of the Parish; The Provost; The Entail; Laurie Todd;* and a *Life of Lord Byron.* Died in 1839.

Galt, in *Missouri,* a post-town of Grundy co., 12 m. N.E. of Trenton, on Q., O. & K. C. and C., M. & St. P. R.Rs.; has saw and grist mills and axe handle factory. *Pop.* (1890) 653.

Gal'ton, Francis, an explorer and author, born at Birmingham, England, in 1822; for his explorations in the western regions of South Africa, received the gold medal of the Royal Geographical Society. His *Art of Travel, or Shifts and Contrivances in Savage Countries* has been warmly appreciated by explorers, pioneers, and emigrants. In 1879 he published a remarkable work entitled *Hereditary Genius, its Laws and Consequences,* and has since published several books, including two on *Finger Prints* (1892–93).

Gambet'ta, Léon, statesman, born at Cahors, France, of Genoese ancestry, October 30, 1838. He became a member of the Paris bar in 1859, and soon acquired fame as a forensic orator, being much employed in political causes both in the capital and the provinces, while he grew into great popularity among certain classes of the Parisians on account of his radical and extreme Republican opinions. In March, 1869, on the occasion of the government prosecution of the journal "Emancipation" at Toulouse, *G.* received quite an



Fig. 2904.—Léon Gambetta.

ovation in the south of France. At the general election held in the same year, he, as a representative of the "irreconcilable opposition," was returned by the constituencies of both Paris and Marseilles, and elected to take his seat for the latter. In Jan., 1870, he distinguished himself by violently attacking the Ollivier ministry, declaring that the day would come when the majority of the people would, without appealing to force, succeed in establishing a republic. On the fall of the empire and the consequent formation of the government of the National Defence in Sept., 1870, he was nominated Minister of the Interior, and soon showed that he possessed administrative abilities of a high order. When a serious misunderstanding took place between the Delegate Government at Tours and the National Defence Committee in Paris, regarding the contemplated election of deputies, *G.* was selected by his colleagues to proceed to the former city and explain the position of affairs in the capital. Accordingly he left Paris on October 7 in a balloon named the "Armand-Barbès," accompanied by a secretary and an aëronaut, passed safely over the Prussian lines, and reached Rouen in the evening. Proceeding without delay to Tours, he there assumed the direction of affairs, and for some months was virtual dictator of all those provinces of France which were free from the German invaders. He urged the people to continued resistance, raised the Army of the Loire, and after the enforced removal of the Delegate Government to Bordeaux, he issued a proclamation advocating *war à outrance,* and resistance even to absolute exhaustion. It is scarcely necessary to add that his dream of ridding the French soil of the German hosts was not realized, and that his volunteer armies were completely crushed by the well-trained forces of the enemy. On Feb. 6, 1871, MM. Arago, Garnier Pagès, and Eugène Pelletan, members of the Paris government, arrived at Bordeaux, bringing with them a decree signed by all the members of the government, which annulled that of *G.*, by which certain classes of electors were disqualified as candidates for the Assembly. In consequence of this censure, *G.* at once resigned his functions and proceeded to Spain, where he resided for some time in seclusion. He returned to France in 1872, and obtained a seat in the Assembly, and at once become the leader of the Extreme Left. In 1879 *G.* was elected President of the Chamber of Deputies, and became Prime Minister in Nov., 1881, which office he resigned in Jan., 1882. He remained, however, the idol of a very large part of the Republican element, but in the height of his fame and power was shot, whether by accident or design is not yet publicly known, on Nov. 27, 1882, and died Dec. 31, of the same year.

Game Preserves' in the U. S. Within recent years much attention has been given to the preservation of the larger game animals of the U. S., numerous private parks for this purpose having been established, several extensive government preserves formed, and much more attention given to the enforcement of the game laws than in former years. Attempts have from time to time been made to obtain State action looking toward the preservation and breeding of game animals and birds, but with no effect except in New York, and there only in a limited degree. The general government, however, as above said, has made some important movements in this direction, so far as the national parks of the Yellowstone and the Yosemite are concerned. Here an earnest effort has been made to preserve the rapidly disappearing large animals, such as the buffalo, the elk and the moose. [See Buffalo.] Unfortunately it has so far proved impossible to prevent the depredations of lawless poachers upon the herds in these parks, and it looks as if the efforts of individuals will have to be trusted to for the preservation of these noble animals. Many private parks have been established in different parts of the country for this purpose, particularly within recent years, and with very encouraging results. Deer parks have existed on the estates of wealthy proprietors in this country through most of its history; but it was not until about 1860 that a systematic attempt was made, by Judge J. D. Caton, an enthusiastic sportsman, to bring together in a park at Ottawa, Ill., nearly all the varieties of our native game, except the moose and caribou, which need a wider range and wilder country. Others imitated this praiseworthy effort, but it was not until the establishment of Austin Corbin's preserve near Newport, N. H., that game preservation was undertaken on a large scale. This preserve, known as Blue Mountain Forest, is the largest private establishment of the kind in the U. S. It consists of 36,000 acres, inclosed by a woven wire fence 8 feet high, and forms an oblong tract, 12 by 5 miles, through which passes a mountain range 3,000 feet in height. There is no finer game preserve in the world, and none better adapted for all kinds of animals. The more timid game find excellent coverts in the wooded slopes and the forest growth of the lowlands, while the buffalo and elk graze contentedly in the extensive meadows, all the animals living as in their native wilds, even the moose, one of the shyest of wild animals, which finds places of seclusion amid the obscure thickets of the mountain acclivities. The animals find abundant food and need no shelter, except in the case of the young buffaloes. The result of the judicious management of this preserve has been a rapid increase in its wild animals of all kinds. It was enclosed in 1889, and all its large animals show a healthy increase except the antelopes and caribous, which for some unexplained reason failed to thrive. This successful experiment has been followed by others. Litchfield Park, established in 1893, is an enclosure of 9,000 acres in the Adirondacks, which contains now some 200 wild animals. Dr. W. Seward Webb has also a 9,000-acre preserve in the Adirondacks, while the Adirondack Timber and Mineral Company has there a park of 30,000 acres, well stocked with many varieties of wild animals. Numerous smaller game parks in many parts of the country might be named, nearly all of them of recent establishment, and highly promising in their results. Not only quadrupeds, but game birds as well, are cared for in these preserves, the English and Mongolian pheasants, the black cock, the capercailzie, the prairie chicken and wild turkey having been introduced, with others of less distant origin. These efforts have yielded results of such encouragement that the preservation of our game animals now seems assured.

Gam'ma, *n.* The third letter of the Greek language, having the sound of our *g,* hard.

Gan'nett, Henry, geographer; born in Bath, Me., Aug. 24, 1846; studied at Lawrence Scientific School, Hooper Mining School, and Harvard; was geographer of the tenth and eleventh censuses, and since 1882 has been chief topographer of the U. S. Geological Survey. As an author he has made extensive contributions to the publications of the Hayden and U. S. Geological Surveys, census publications, &c., has also published a *Dictionary of Altitudes* and a *Manual of Topographic Surveying.*

Garay, Janos, Hungarian poet; born at Szegszárd, in 1812; he was a student of the masterpieces of German literature, and has contributed to Hungarian literature a number of dramas, mostly of a historical character. They include: *Csáb; Arbócz; Országh,* &c. He also published *Arpádok,* a poetical version of the historical legends of Hungary; and *Csatár,* an epic poem. He was a resident of Pesth, where he was engaged in the University library. Died Nov. 15, 1853.

Gar'bage, Utiliza'tion of. Among recent subjects of interest to the public, that of the disposal of garbage, or kitchen refuse, is not the least. It can be very easily managed in rural districts and small towns, by feeding to swine; this method has been largely practiced in cities, notwithstanding its inconveniences, but has now generally been discarded in the larger cities in favor of more acceptable methods. In some cases, as in that of Philadelphia, the difficulty is overcome by burning the garbage in suitably constructed furnaces. This, however, presents the disadvantages of the waste of a useful material and the voiding into the air of an odor from which the best constructed furnaces are not free, and which certainly does not remind one of "Araby, the blest." In other cities the garbage is utilized in various methods. In St. Louis, for example, the water is removed by the aid of superheated steam, and the oil and grease (about 15 per cent. of the remainder) is taken out by the use of naphtha. This material is utilized in soap making, for which it proves

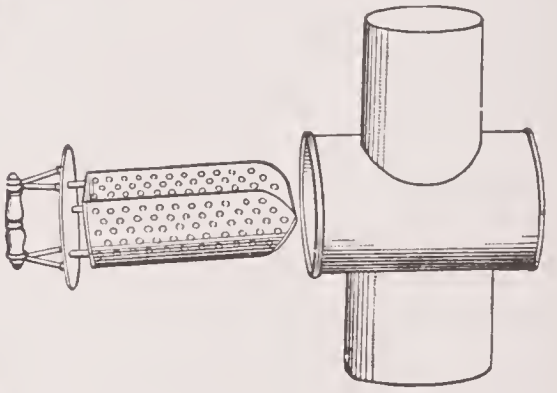


Fig. 2905.—Kitchen Garbage Incinerator.

very well adapted. The remaining substance, containing practically all the nitrogen, phosphates and alkalies of the garbage is coarsely ground and sold to farmers at a good price as an excellent fertilizer. This and other methods render this material a source of profit instead of waste. It is estimated, for example, that New York and Brooklyn yield daily about a thousand tons of garbage, from which a large quantity of oils and fertilizing material might be derived.—An economical method of disposing of the garbage in the kitchen itself has been devised. It consists of a perforated scoop which fits and closes a cylinder inserted into the course of the stovepipe. The garbage, as fast as made, is placed in this scoop, which is thrust into the cylinder, and is thoroughly dried and carbonized by the heat and smoke of the fire, all odors passing up the chimney. The charcoal produced will then serve as a useful fuel. Many of these are in use in Boston and its vicinity.

Gar'cia, Calixto, Cuban soldier and patriot, was born at Bayamo, Cuba, Aug. 4, 1832. In the revolution of 1868 he was a generous contributor to the funds and took command of a body of volunteers, displaying marked military ability, and rising to the rank of major-general; had command of the Eastern Department, and under him the Maceos and other leaders learned the art of war. In 1873, being surprised, with only a body-guard, by a column of Spanish troops, *G.* fought desperately until all hope of escape vanished; he then placed the muzzle of his revolver beneath his chin, and discharged its last chamber. The bullet came out between the eyebrows, inflicting an all but fatal wound. After lingering between life and death for months, *G.* was sent to Spain as a prisoner of war, returning to America after the peace of 1879. In the same year he took a small expedition to Cuba in the hope of renewing the struggle. This failed, and he was again banished to Spain. Near the end of 1895 he eluded the authorities, made his way to New York and thence to Cuba, where, as a major-general, he has coöperated with Gomez in the Department of the East.

Gar'den City, in *Kansas,* a city, cap. of Finney co., on A., T. & S. Fé R. R.; has manufactures of plows and wind-mills. Here are extensive irrigating works, this being the center of the irrigation system of southeastern Kansas. *Pop.* (1897) about 1,500.

Gar'diner, Samuel Rawson, historian, born at Ropley, Hampshire, England, March 4, 1829; educated at Winchester and Christ Church, Oxford, taking a first-class degree; held the chair of Modern History at King's College, London, which he resigned to complete the great historical work he had commenced, covering the period of the first two Stuart kings of England. This work, which had been given to the world in installments, was collected and republished in

ten volumes (1883–84) as a continuous history of England from 1603 to 1642. Other works are: *The Thirty Years' War* (1874), and *The First Two Stuarts and The Puritan Revolution* (1875), in *Epochs of Modern History*.

Gard'ner, George, botanist and traveller, born in Glasgow, Scotland, in May, 1812; educated at University of Glasgow. Member of the Linnæan Society and publisher of monographs on Brazilian botany; superintendent of the botanical garden of Ceylon. Afterward travelled in India, and edited the Calcutta *Journal of Natural History*. Published *Travels in the Interior of Brazil*, also numerous botanical papers. Died in Ceylon, March 10, 1849.

Gardner, in *Illinois*, a post-village of Grundy co., 65 miles S.S.W. of Chicago, on C. & A., and C., C., C. & St.L. R. Rs. Has some local manufacturing. Coal is mined here. *Pop.* (1890) 1,094.

Gardner, in *Kansas*, a post-village of Johnson co., 30 miles S.W. of Kansas City, on A., T. & S. Fé R. R. *Pop.* (1890) 515.

Gardner, in *Massachusetts*, a post-town of Worcester co., 15 miles W. of Fitchburg, on Fitchburg R. R.; has extensive manufactures of chairs, pails, and tubs. *Pop.* (1895) 9,182.

Gar'field, in *Colorado*, a N. W. co.; *area*, 3,250 sq. m.; is intersected by the Grand River. *Surface*, mountainous, with fertile valleys. *Min.* Gold, silver, and coal. Coal mining, stock raising, and farming are carried on extensively. *Cap.* Glenwood Springs. *Pop.* (1890) 4,478.

Garfield, in *Nebraska*, a N. cen. co.; *area*, 576 sq. m. Watered by North Loup river and Cedar creek. *Surface*, undulating prairie; *soil*, fertile. *Cap.* Burwell. *Pop.* (1890) 1,659.

Garfield, in *North Dakota*, a W. co.; *area*, 918 sq. m. Unorganized. *Pop.* (1897) about 200.

Garfield, in *Oklahoma*, a N. co.; drained by Red, Rock, Ephraim, and Turkey creeks. *Surface*, rolling; *soil*, dark, with reddish subsoil; large belt of timber in the northwest. *Cap.* Enid. *Pop.* (1897) about 16,400.

Garfield, in *Utah*, a S. co.; *area*, 1,364 sq. m.; drained by Escalante river and smaller streams. *Surface*, mountainous with rich, fertile valleys. Has coal and plenty of good timber. *Prod.* Wheat, oats, and barley; much cheese is made. *Cap.* Panguitch. *Pop.* (1895) 2,888.

Garfield, in *Washington*, a S. E. co.; *area*, 672 sq. m.; bounded on the north by Snake river and watered by its tributaries. *Surface*, hilly; *soil*, fertile. *Cap.* Pomeroy. *Pop.* (1890) 3,897.

Gar'land, Augustus Hill, statesman, born near Covington, Tenn., June 11, 1835; graduate of St. Joseph's College, Bardstown, Ky.; studied and practiced law; member of the Confederate Congress, and at the close of the war was a Confederate Senator; was elected governor of Arkansas (1874); U. S. Senator (1876); re-elected in 1883; and in 1885 was appointed U. S. Attorney-General by President Cleveland. He afterward resumed law practice in Washington.

Garland, Landon Cabell, mathematician, born in Lovingston, Va., Mar. 21, 1810; educated at Hampden-Sidney College, Virginia. He was president of the Randolph-Macon College, Virginia, and of the University of Alabama; also held a number of professorships, including that of English Literature and Mathematics in the last named university; of Chemistry at Washington College, Virginia; Physics and Astronomy at the University of Mississippi, &c. Author of papers on plain and spherical trigonometry, and a liberal contributor to the various periodicals of the Methodist Episcopal Church, South.

Gar'land, in *Arkansas*, a W. central county; *area*, 622 sq. m.; intersected by Washita river. *Surface*, hilly; *soil*, fertile. Famous for its medicinal springs. *Cap.* Hot Springs. *Pop.* (1890) 15,328.

Garneau (*gär-nō'*), Pierre, merchant, born at Cape Sante, Province of Quebec, May 8, 1823, and educated there; engaged in business and became the head of the firm P. Garneau, Son & Co., Quebec. His services for promoting Belgian industries in the Province of Quebec were most important, and the King of the Belgians bestowed upon him the order of the cross of Leopold II. He held various official positions, including those of president of the Quebec Board of Trade, mayor of Quebec, member of the Provincial Legislature, &c.

Gar'ner, in *Iowa*, a post-town of Hancock co., 21 m. W. of Mason City, on C., M. & St. P. and B., C. R. & N. R. Rs. Is the trade center of an agricultural region. Here is a Normal School. *Pop.* (1895) 1,118.

Gar'net, Henry Highland, preacher, born in Kent co., Md., Dec. 23, 1815; graduate of the Oneida Institute, Whitesboro, N. Y.; licensed to preach in 1842. During his pastorate of a church in Troy, he edited, in the interests of his (colored) race, a paper called *The Clarion;* afterward became an anti-slavery orator and temperance lecturer; delegate to the Peace Congress at Frankfort, Germany, and, during the Civil War, chaplain of a camp of colored soldiers. He was the first of his people to speak in the House of Representatives at Washington. Was appointed by President Garfield minister-resident and consul-general at Monrovia, Liberia, where he died Feb. 14, 1882.

Garnier, Francis, traveller and explorer; born at St. Etienne, France, July 25, 1839; entered the navy and fought in the Chinese war (1860–62); was the promoter of an exploring expedition, of which he afterward assumed the command, and which travelled from the coast of Cambodia to Shanghai by way of Yunan. He was engaged in the defence of Paris (1870–71) and captured Hanoi in the Tonquin war. Author of *Voyage d'Exploration en Indo-Chine*, &c. Died Dec. 2, 1873.

Gar'rard, Kenner, soldier, born in Kentucky, 1828; graduate of the U. S. Military Academy; entered the army and through successive promotions became major (1863); served in the Civil War and in 1863 was placed in charge of the cavalry bureau at Washington; afterward took part in various engagements, and led the party which stormed and captured Blakely, in the operations against Mobile. He was breveted colonel, brigadier-general, and major-general, U. S. A., for gallant conduct in the field during the war. Died May 15, 1879.

Gar'retson, James Edmund, physician and author, born at Wilmington, Del., Oct. 4, 1828; graduated in medicine from the University of Pennsylvania, where he became a specialist in oral surgery. He filled the chair of oral surgery in the University of Pennsylvania; was dean of the Philadelphia Dental College, and wrote *A System of Oral Surgery*. Under the pen-name of John Darby he wrote *Odd Hours of a Physician; Thinkers and Thinking*, and other works. Died Oct. 26, 1895.

Gar'rett, John Wark, railroad president; born at Baltimore, Md., July 31, 1820, entered Lafayette College in 1834, but left the following year to enter the counting house of his father, Robert Garrett, an enterprising and prosperous merchant of Baltimore. In 1839 he became a member of the firm of R. Garrett & Sons. He took a strong interest in the development of the Baltimore & Ohio Railroad, becoming a director in the company (1857), and its president (1858), retaining this position until his death. He found the company financially embarrassed, but in his first year the road showed a net profit of $725,385, and paid its first dividend, continuing to pay dividends until his death. In his second year the floating debt was paid. During the Civil War the road suffered much from Confederate raiders, but made up the loss by the large business of its Washington branch; and after the war it became much expanded and highly prosperous under Mr. *G.*'s careful management. He was also interested in establishing steamship lines from Baltimore to Liverpool and Bremen, and shortly before his death started the B. & O. Express and B. & O. District Telegraph Companies. Was an active trustee of the Johns Hopkins University. Died at Deer Park, Garrett co., Md., Sept. 26, 1884.

Garrett, Robert, son of John W. *G.*, was born in Baltimore, Md., April 9, 1847; graduated from Princeton (1867) and entered his father's banking house; became president of the Valley R.R. of Virginia in 1871, but four years later entered the service of the B. & O. Railroad Co.; was third vice-president (1879), first vice-president (1881) and finally president, on the death of his father in 1884. He inaugurated great extensions of the company's field of operation, in opposition to other vast railroad interests, with the result that the B. & O. Railroad Co. became seriously embarrassed and *G.* resigned Oct. 12, 1887, broken in health and somewhat reduced in fortune. Thereafter he took no part in public affairs, owing to delicate health, and died July 29, 1896.

Gar'rett, in *Indiana*, a post-town of De Kalb co., 20 m. N. of Fort Wayne, on B. & O. R. R. Has railroad repair shops. *Pop.* (1890) 2,767.

Gar'rett, in *Maryland*, an extreme N.W. county; *area*, 680 sq. m. *Rivers*, Potomac and Youghiogheny. *Surface*, mountainous; has large forests. *Min.* Soft coal, iron ore, fire-clay, limestone. The broad, fertile valleys known as "The Glades" are famed for their superior butter and mutton. *Cap.* Oakland. *Pop.* (1890) 14,213.

Gar'rod, Sir Alfred Baring, M.D., physician and author; born in Ipswich, Eng., May 13, 1819; graduated from the University of London. Began his career as assistant physician to the University College Hospital; afterwards held several important professorships. He was the discoverer (1847) of the presence of uric acid in the blood of those afflicted with gout, and contributed numerous works to medical science.

Garrod, Alfred Henry, M.A., F.R.S., anatomist; born in London, Eng., May 18, 1846; studied at King's College, London, and St. John's College, Cambridge; held several professorships in King's College and the Royal Institution. His papers on the anatomy and classification of birds are of great value to ornithologists. Died Oct. 17, 1879.

Ga'ry, James A., was born in Connecticut, 1833; educated at Ellicott City, Md.; became junior partner of James S. Gary & Son, manufacturers of cotton duck, etc., in 1860, and succeeded his father as head of the firm in 1890; has been deeply interested in the business and financial affairs of Baltimore; was president of the Manufacturers Association for seven years, and director of several financial and other corporations. Was candidate for Congress on the Republican ticket in 1870, and for governor in 1879; from 1880 to 1892 represented his State in the Republican National Committee; has been a delegate to every national convention of his party since 1872. His long service, unrequited by the ballot, was at length rewarded in March, 1897, when he was given the Postmaster-General's portfolio by President McKinley.

Gar'za, in *Texas*, a N.W. central co.; *area*, 900 sq. m.; intersected by the Brazos river. Unorganized.

Gas, *v. n.* (*Colloq.*) To make use of empty talk; to froth; to babble noisily.

Gas En'gine. (*Engineering.*) This name is given to a class of engines of small power which are worked by the ignition of coal-gas mixed with air. There are several varieties in common use; the main features, however, are the same in all. The construction of the *G. E.* is usually the same as a horizontal steam-engine in all respects, excepting in the parts for conveying (alternately to the right and left of the piston) gas instead of steam. The gas is not usually led from the main directly into the cylinder, but is admitted in measured quantities into a kind of vessel, from which it passes first into a small mixing chamber, where it is mixed with the required quantity of air, and then into the cylinder, its admission being governed by a slide valve. In some engines, of which the Lenoir gas engine may be taken as the type, the gas is ignited by an electric spark, which is caused to pass at the proper instant within the cylinder. In the Hugon engine the ignition is effected by two small gas-jets carried in the recesses of the slide valve, one for each end of the cylinders. These jets are supplied with gas by short flexible tubes, which accommodate themselves to the movement of the valve. Each jet, as it in turn effects the ignition of the explosive mixture, is extinguished; but at each stroke the recesses containing the gas-jets are brought outside the respective ends of the faces between which the valve works, where the movable jets are re-lit by fixed jets which are kept permanently burning. A spray of water is admitted into the cylinder at each stroke, and being converted by the heat of the cylinder into steam, adds to the power of the engine, and acts as a lubricator. The idea embraced in these engines was first developed by Le Bon, a French artisan, in 1799, his engine using

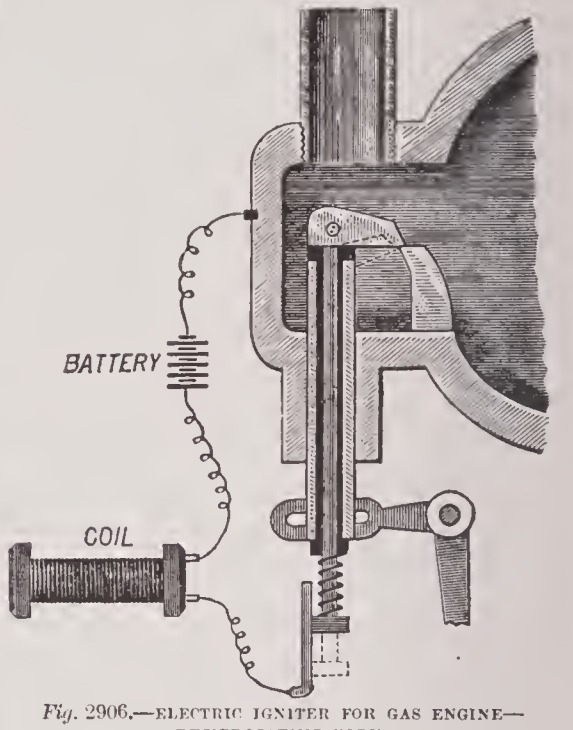


Fig. 2906.—ELECTRIC IGNITER FOR GAS ENGINE—RECIPROCATING FORM.

the electric spark from a static charge, but failing on account of the cost of materials and apparatus at that period. Lenoir's engine (1860) was practically the same. Since 1860 many other forms of gas engines have been devised, some using the gas under compression (as in the Otto engine, 1876), some at ordinary pressure and employing the principle of explosion in various ways, but none presenting any radically new feature or method. Recent improvements have greatly reduced the cost of these engines, which can now be run at a cost of two cents per hour per horse-power. This is not as economical as steam-power, but the *G. E.* presents advantages of compactness, ease of management, &c., which make its use desirable for various purposes, such as that of the propulsion of motor carriages. The *oil engine*, using petroleum for fuel, is operated on the same principle as the *G. E.*, the oil being vaporized, and the gas exploded along with air. In Priestman's engine the oil is injected as a spray into a hot chamber, where it becomes completely vaporized, the gas being then treated as in an Otto engine.

Gas, Nat'ural. The earliest mention of a natural inflammable gas, proceeding from the earth, is doubtless that by Marco Polo (14th century) and succeeding Asiatic travellers, who described the fire wells and burning springs of Asia Minor, Persia and India. In his *Travels in China* the Abbé Huc tells of fire wells, and the methods of drilling them and using their product for fuel. The perpetual fires of Baku, and other shrines of fire-worshipping peoples, were doubtless fed from time immemorial from these same natural sources. Early in the history of our own country the "burning springs" and occasional explosive conflagrations that occurred along the Appalachian range gave evidence of the natural gas existing in that region, though its presence was not generally understood. About 1825 attempts were made to utilize this natural product as fuel. Wells were bored at Fredonia, N. Y., through the rock strata, which eventually resulted in securing an ample supply of gas. At other points, notably along the Kanawha and Muskingum rivers, wells bored for salt water yielded a supply of natural gas, which was sometimes utilized in evaporating the brine. With the development of the coal-oil industry, the use of gas encountered in boring was often extended to furnishing power for operating the drills and refineries. It was found, also, that there were large deposits of gas in certain regions where petroleum could not be obtained in paying quantities. Occasionally the gas existed under a pressure so high as to blow out the tubing and machinery as soon as the vein was struck, generally at a depth of from 600 to 1,500 feet. Up to about 1880, however, most of the gas developed was not utilized,

but was regarded as a waste product and an annoyance. By that date it had come to be economically employed as a fuel at various points in western Pennsylvania, eastern Ohio, and West Virginia, and in a short time thereafter it became the favorite fuel in the great centers of iron and glass manufacturing. In Pittsburg, gas practically supplanted coal, not only in shop and foundry, but in private dwellings, almost the entire western part of the State being apparently underlaid with a seemingly inexhaustible supply of this cheap and effective fuel. At first, large quantities of gas were wasted by being consumed at the well, and all up and down the Ohio river, and among the hills and valleys of Westmoreland, Allegheny and Washington counties, could be seen the flaring lights of a thousand natural jets, uselessly consumed for want of adequate provision for repression, storage, or conveyance of the gas. In time, however, pipe lines were multiplied, and, more significant, the supply decreased; and now the furnaces and foundries of that region are chiefly fed by coal, and a pall of smoke again hangs heavy over the hills of western Pennsylvania, as of yore. During the decade of 1880–90 immense deposits of natural gas were found in western Ohio, at Lima, Findlay, &c., and in Indiana, at numerous points adjoining. From these wells the gas has been conveyed in pipes to Chicago, Detroit and other cities; but these facilities for distribution had hardly been completed before it became evident that the supply was uncertain and gradually diminishing. This natural fuel played an important part in industrial development throughout the "gas belt" for several years, but it is now fully conceded that it must occupy a place of minor importance hereafter, because of its rapid exhaustion. The immense quantities used during the height of its popularity may be in some measure understood from the authenticated fact, that at one time Pittsburg alone consumed 500,000,000 cubic feet daily in 28,000 domestic and 900 manufacturing establishments, while the product of the wells at Findlay, Ohio, was estimated at 30,000,000 feet a day, nearly all of which was used locally. These two products alone would do the work of nearly 10,000,000 tons of coal annually.—*Distribution.* Roughly speaking, the profitable natural gas region is confined to the Ohio valley, and chiefly to the localities already named; but it exists in small quantities throughout a very wide area, extending from the Hudson river to the Pacific ocean. Paying quantities have been found in the vicinity of Buffalo, N. Y.; West Virginia and eastern Kentucky have furnished large quantities of this fuel, and it occurs throughout the entire State of California, but not generally in volume sufficient to give it economic importance if we except the Sacramento and Stockton regions.—*Derivation.* The natural gas of Pennsylvania is closely associated with petroleum, and consists largely of marsh-gas (CH_4), although it varies considerably in different localities. Gas from the Trenton limestones, on the contrary, presents great uniformity of constitution, and the presence therein of hydrogen sulphide is indicative of the bituminous of that formation. This gas is distributed over a very wide area. The variations of the Pennsylvania gas may be seen by the following analyses of two specimens from Westmoreland county, viz.: (No. 1) Marsh-gas, 49·58 parts; hydrogen, 35·92; ethyl hydride, 12·30; ethylene, 0·60; oxygen, 0·40; carbonic oxide, 0·40. (No. 2) Marsh-gas, 75·16 parts; hydrogen, 14·45; ethyl hydride, 4·80; ethylene, 0·60; oxygen, 1·20; carbonic oxide, 0·30; carbonic acid, 0·30; nitrogen, 2·89. It is believed that the variations observed in the Pennsylvania gas are due to its association with coal-oil in varying quantities, rendering it difficult to secure the gas free from the lighter products of that oil which assume the gaseous form and dissolve each other under certain conditions of pressure and temperature. As before stated, natural gas is no longer regarded as of very great economic importance, owing to the uncertainty of supply, although still largely used in some localities where the wells continue to yield paying quantities. One good effect of its use, however, has been to teach the value of gas as a fuel, with the result that manufactured gas is now very largely and economically employed.

Gas Stoves. The employment of inflammable gas as a means of cooking and heating has grown rapidly within recent years, it having proved economical and useful for summer cooking, its principal advantage over coal being the ease of cutting off the heat supply, a very desirable condition in hot weather. Sheet-iron stoves of various patterns are used for this purpose, some adapted simply for heating, others utilizing the heat for cookery. The *G. S.* is of special utility in heating rooms and chambers not sufficiently warmed by stoves or furnaces. These stoves frequently take the form of a hearth of blazing logs, the logs being terra cotta imitations, pierced with holes through which the gas flows when the stop-cock is turned, and which, when lighted, bear a close resemblance to a hearth of blazing wood. The gas makes no soot or smoke, is easily lighted and controlled, and adds greatly to the comfort and convenience of modern household economy. In the use of natural gas, however, an oily vapor has been detected when employed in a closed room. Stoves for burning petroleum are largely used for similar purposes, and the recently-introduced electric stove may eventually replace both gas and oil stoves for household use.

Gas'coyne. William, an English inventor, born in 1621. His micrometer is employed in determining the magnitude or distance of terrestrial objects in certain astronomical observations. He fell in the field of Marston Moor, as a Royalist, in 1644.

Gas'es, Dynam'ic The'ory of. (*Physics.*) The phenomena of expansion and diffusion of gases have given rise to a theory of the internal organization and activities of matter in the gaseous state which is widely accepted by scientists. It is now held by physicists that every mass of matter is made up of isolated particles, each maintaining its isolation by active motion. Each of these particles is known as a molecule, and may be made up of two or more, perhaps a large number of atoms, which cohere closely together, the molecules not being divisible into their constituent atoms without changing the chemical character of the substance. The molecules of each substance are supposed to be alike, and to be distinct from those of any different substance. The arrangement and organization of the molecules differ in accordance with the physical state of the body. In the solid and liquid states they are closely crowded together, while free to move, being held by the attractive energy of the others, and their field of motion greatly limited. In the gas the molecules are free to move outward. Their motion is so vigorous that the force of attraction is overcome, and the only limit to their motion is one of external pressure, internal attraction being insufficient to restrain them. A volume of gas, therefore, is not a body, properly so called, but an aggregation of independent molecules, each darting rapidly through space, coming very frequently into contact with other molecules, and instantly darting off in another direction. Myriads of such impacts take place every second within the gas itself, but the molecules also beat vigorously upon surrounding substance, forcing it back in accordance with their energy and its resistance. Expansion arises from this molecular activity, the gas expanding if the external resistance be less than the energy of the molecules, remaining fixed in volume if these energies be equal, and contracting if the external energy be the stronger. *Diffusion* is due to the fact that the outstriking molecules frequently meet with open spaces in the external gas, into which they dart and become separated from their original mass. This process, in the case of two gases, continues on both sides until their mutual diffusion is complete, and their molecules are thoroughly mingled. A gas may also diffuse into a solid or liquid if these present pores into which its molecules can enter without collision. In every case the molecules of a gas are independent, yield no allegiance to their fellow molecules, but act like so many grains of sand in a sand blast, or other moving solid mass, their chief relation to their fellows being that of collision.—*Energy of Molecules.* Comparatively to their size, the molecules of a gas are widely separated, each having a free path of its own. But this free path is limited by collision with other molecules of the same or an external gas, or with the walls of a containing vessel. The molecules, being perfectly elastic, lose no energy through a collision, except through imparting energy to other molecules. Though some may gain and others lose energy through collision, the sum of energy will remain the same. The measure of this mean energy is the temperature of the gas. A portion of it may be lost outwardly, this loss being indicated by a fall in temperature. In other words, heat is not a thing in itself, but simply an effect of molecular impact, and the imparting of heat by one substance to another is equivalent to a loss of moving energy by the one, a gain of moving energy by the other. Solids as well as gases feel the energy of expansion of a gas, the molecules beating like a rain of small shot against the sides of a containing vessel, their energy reinforced by collision from within, so that a constant pressure is exerted on the containing walls. This may become considerable if the gas be compressed, and cause a yielding in the walls if not sufficiently strong, or if flexible, as in the case of a vessel or tube of india-rubber.—*Mariotte's Law.* From the facts given the principle known as Mariotte's Law follows as a necessary deduction. If we consider an interval of sufficient length, each molecule must on an average, strike the sides of the vessel the same number of times with the same average energy, each thus contributing an equal share to the result. Therefore the pressure will be proportional to the number of molecules in the vessel, or to the quantity (or weight) of the contained gas; thus agreeing with Marriotte's Law, which states that for every mass of gas at an invariable temperature the product of the tension and the volume is a constant quantity. According to this law the pressure of a gas will be directly in proportion to its density. If more gas be forced into the vessel the pressure will increase proportionately, the number of molecules being increased in proportion to the compression. And it does not matter if the molecules be those of more than one gas, the energy of impact of all molecules being the same at the same temperature; or, in other words, equal temperature signifying equal energy of impact in the molecules concerned. If the molecules thus mixed differ in weight, this will not effect the general result, their force of momentum becoming equalized through successive impacts, the light molecules making up for deficiency of weight by increase of motion. From this fact it follows that equal volumes of different gases at the same temperature and pressure will contain equal numbers of molecules; since each molecule, whatever its size and weight, has a momentum at any fixed temperature equal to that of any other molecule. Hence the comparative weight of the molecules of any two substances may be easily found if these substances can be vaporized and equal volumes of their vapors weighed; a fact that permits the easy determination of the combining weight of vaporizable elements. The rapidity of expansion or diffusion of a gas depends on the conditions surrounding it. If an opening be made into a vacuum, the molecules rush in with very great velocity; but when they rush into the empty spaces between the molecules of another gas, they are met with colliding particles in multitudes, and make very slow progress.—There is another subject of interest connected with the dynamics of molecules which is worthy of mention at this point. In the sudden conversion of a solid into a gas, by rapid chemical change, the gas produced, occupying at first the space of the preceding solid, is in the condition of a very highly compressed vapor, and instantly expands with a rending force which few substances can resist. Nothing could show more fully the vast energy of motion possessed by the molecules of a gas than the power of explosives, which act simply as highly compressed gases, the momentum of whose molecules, for the instant, acts wholly outwardly, unchecked by any collisions.—*Velocity of Molecules.* By aid of the dynamical theory we are enabled to estimate the velocity of molecules, not relatively to each other, but absolutely. Thus a cubic centimeter of hydrogen, at normal temperature and atmospheric pressure, weighs $\frac{895}{100000000}$ of a gramme, while its pressure is equal to 1,033 grammes on each face of the containing cubical vessel. We can easily calculate the velocity with which a mass of such weight must move to produce such a pressure. The result is 1,843 meters in a second, which indicates both the speed of the mass if it moved as a whole, and of each of its molecules. In the case of the molecules of gases of greater weight, the velocity would be proportionately reduced; but calculation shows that in all cases the speed is very great as compared with that of a rifle ball—a fact which aids in comprehending the energy of explosives. More abstruse calculations have led to results less accurate than the above, but probably approximately true, covering the length of the mean path of molecules, the number of collisions in a second, and from these the number of molecules in a given volume of gas, and the resultant diameter and mass of molecules of different kinds. As a result of these calculations Clerk Maxwell tells us that it would take 2,000,000 hydrogen molecules in a row to occupy the length of a millimeter. Results of this kind may be some approach to the truth, but are vitiated by a very large margin of uncertainty.

Gas'es, Liquefac'tion of. The problem of the conversion of what had become known as the "permanent" gases has attracted much attention during the past century, the first marked success in this direction having been made by Faraday, who succeeded in liquefying several of the previously obdurate gases, but failed in the cases of carbon monoxide (CO), menthane (CH_4), and the rarer elementary gases, oxygen, nitrogen and hydrogen. His method was to reduce carbon dioxide to a solid state, mix ether with it, and cause a rapid evaporation of the resulting liquid by exhausting the air from the receiver containing them. The result was a fall of temperature to the very low degree of —110°F.; but this proved insufficient for his purpose. Natterer, in 1854, repeated Faraday's experiment with the addition of the employment of very high pressure, but without the desired result. Continued experiment rendered it evident that each gas had a critical limit of temperature above which no degree of pressure could liquefy it, and that liquefaction could in no case be affected until the temperature of the gas was brought below that limit. Thus, carbon dioxide at any temperature above 30·92° C. is a true gas, which no amount of pressure can reduce to a liquid. At 30·92° it can be liquefied by a pressure of 77 atmospheres, and at lower temperatures by progressively smaller pressures; it has passed from the state of a permanent gas to one that has been designated as a vapor. In the same way steam cannot be liquefied at temperatures above 720·6° C. It was not until 1878 that oxygen and nitrogen were liquefied, this result being attained simultaneously by Cailletat, of Paris, and Pictet, of Geneva. Cailletat's method was the simpler. He subjected oxygen to a pressure of about 300 atmospheres, in a glass tube with heavy walls, then suddenly removed the pressure by the opening of a stop-cock. The sudden evaporation, with the consequent fall in temperature, that followed seemingly produced the desired result, the tube being filled with a dense fog of probably particles of liquid, with possibly frozen oxygen. Pictet's process was more complex and more satisfactory in its results. He employed a bath of liquid sulphur dioxide, within which was a second bath of compressed carbon dioxide. The compression of these substances was maintained by pumping in new material to replace that lost by evaporation into a vacuum produced in the general chamber by an air pump. The result was that the sulphur dioxide fell by its own evaporation to —65° C., chilling the carbon dioxide, whose evaporation reduced it to —140° C. The gas to be liquefied was compressed to 300 atmospheres in a glass tube and chilled by contact with the carbon dioxide. When the pressure was released, liquid oxygen was produced, which flowed from the tube in a jet. By similar processes nitrogen, air and other gases were reduced to a liquid state, and the same result was claimed for hydrogen, but this is now doubted; there is no satisfactory evidence that hydrogen has ever been liquefied. The other gases named, on the contrary, have been frozen, or reduced to the solid state. Since the date of these experiments there have been important developments in the processes employed, one of these being the use of ethylene, a gas which boils in the open air at —105° C. By these new processes it has been made possible to produce liquid OH and air in large quantities, and suggestions of the commercial use of these liquids have

been made. Prof. Dewar, physicist at the Royal Institution, in London has had marvellous success in these experiments, and has employed the liquids named to cool other gases for the same purpose. His observations have shown that the critical temperature of oxygen is —184° C., and that of nitrogen —193° C. In addition to these facts he has been enabled to study the physical properties of the liquids and solids produced, one of the most interesting being the fact that oxygen in this state displays magnetic powers. Liquid oxygen does not evaporate rapidly; and by placing it in a vessel with strongly reflecting and poorly radiating walls he was able to send nearly a pint of liquid oxygen from London to Cambridge with little loss by evaporation on the way. —*Hydrogen.* The one gas that persistently resists liquefaction is hydrogen. Experiment shows that the critical temperature of this gas is about —240° C., a temperature considerably below any yet reached. It has been learned by mathematical deductions that the lowest possible degree of temperature, that in which presumably all the heat would be withdrawn from a gas, is —274° C. (—461° F.); so that the critical point of hydrogen is not far above that of the minimum point of temperature. The lowest temperature yet produced, obtained by the evaporation of liquid nitrogen in a vacuum, is —210° C. The practical working limit in this experiment is, however, only —200°, leaving 40° to be obtained for the liquefaction of hydrogen and 74° for the zero of temperature. Prof. Dewar thinks it possible that by the use of a gas composed of hydrogen mixed with 10 per cent. of nitrogen, the desired condension of hydrogen might be produced; but the difficulty in such an experiment is the very small proportion of the liquefied material that could be collected. For the minutest results the liquefaction and expansion of 7 cubic yards of hydrogen would be necessary. The result of this experiment was the production of a paste or jelly of solid nitrogen, which gave off a gas whose active burning proved it to be hydrogen. Even when hydrogen containing 2 to 5 per cent. of air was similarly treated, the result was a white, solid material (solid air) along with a clear liquid of low density, so very volatile that no means of collecting it have been devised. Prof. Dewar deems it possible that this substance may be liquid hydrogen, though he is far from ready to declare this is a fact, since it is difficult to avoid the presence of impurities.—*Liquid Air in Commerce.* Hitherto the production of liquid air has been a laboratory experiment, but methods have been devised for its production in quantities that may render it practically useful as a refrigerating agent. The necessary reduction of temperature has been, as above said, obtained by successive employment of liquefied gases boiling at lower and lower points on the scale, concluding with the rapid evaporation of the final product. A new apparatus for its production has recently been devised which dispenses with intermediate cooling agents, and relies on initial compression of the air by powerful engines and a subsequent partial expansion of the compressed air under regulated conditions. If, while the compression is maintained, the cylinder and its air be cooled to the original temperature—the heat caused by compression being removed—and the expansion to the original volume be then permitted, a marked fall in temperature will result. By now using this air to cool another body of compressed air, and then permitting the latter to expand, a second marked fall in temperature must result. By continuing this process, extremely low temperatures may be produced. If this cumulative cooling process be carried sufficiently far, the air will be brought to the point of liquefaction, so that a continued production of liquid air is a mere question of engine power. The liquid air thus produced is a powerful refrigerant, from the great amount of heat necessary for its evaporation. It is also found to be rich in oxygen, which is present in the proportion of about 70 per cent., so that may be made serviceable as a producer of this useful gas.—*—Properties at Low Temperature.* Among the properties manifested by substances at very low temperature, may be mentioned the fluorescence of oxygen, as observed by Prof. Dewar. He discovered also a marked increase in elasticity of soft metals when greatly cooled. Photographic action appears at the lowest temperature yet produced, but considerable modification appears in the electric and magnetic action of various substances when brought to the temperature of liquid air.

Gas'kell, Elizabeth C. (Stevenson), novelist; born at Cheyne Row, Chelsea, England, Sept. 29, 1810. Her early life was spent at Knutsford, a place which is described in her *Crawford.* She received an excellent education, and in 1832 was married to William Gaskell, a Unitarian minister in Manchester. Here she obtained the life studies which have been so ably represented in her works, none of which attracted more attention than her novel of *Mary Barton,* which was published anonymously. Other publications were *The Moorland Cottage; Ruth; North and South; Round the Sofa; Right at Last; Sylvia's Lovers; Cousin Phillis; Wives and Daughters.* She also wrote *The Life of Charlotte Bronte,* which, like her novels, is a masterpiece of its kind. Died November 12, 1865.

Gaskell, Walter Holbrook, physiologist; born in Naples, Nov. 1, 1847; educated at Trinity College, Cambridge; entered the University Hospital; studied with Professor Ludwig, at Leipzig and (1878) took his degree in University Hospital; was made a University lecturer on Physiology, and fellow of the Royal Society; received the gold medal of the Royal Society for researches into the innervation of the heart and the nature of the sympathetic nervous system; was also awarded the Marshall Hall prize of the Royal Medical and Chirurgical Society for the same.

Gas'oline, *n.* A highly volatile, inflammable compound of fluid hydro-carbons obtained by the distillation of crude petroleum or coal. It is used in carbonizing water-gas, and as fuel in vapor stoves, though a dangerous substance.

Gasoline Engine. See Gas Engine.

Gasparin, Agénor Etienne, Comte de, a French publicist, born at Orange, 1810. After serving as secretary to M. Guizot, Comte de *G.* became, in 1844, a member of the Chamber of Deputies, where he distinguished himself by the broad liberalism of his political and religious views. Among other works from his pen, are those entitled *The Uprising of a Great Nation* and *America in the Presence of Europe* (1861–2), both having reference to the civil struggle in the U. S. Died May 14, 1871.

Gasparin, Valérie Boissier, Comtesse de, born at Geneva, 1813; was married to Count Agénor de Gasparin, a strong advocate of liberty in religion. She was noted as the defender of the Reformed Communion and for her opposition to the religious and social extravagance of certain sects. Author of *Le Mariage au point de vue Chrétien,* and other works that have attracted considerable attention.

Gas'sy, *a.* Full of gas; impregnated with gas. (*Slang.*) Full of boastful or pretentious talk.

Gasto'nia, in *North Carolina,* a post-village of Gaston co., 22 m. W. of Charlotte, on C. & L. and Southern R.Rs. Does a large shipping business in cotton; cotton mills in vicinity. *Pop.* (1890) 1,033.

Gastrula, *n.* (*Biol.*) See Embryology.

Gates, Merrill Edwards, educator, born at Warsaw, N. Y., April 6, 1848; graduated from Rochester University with the degree of A. B.; president of Rutgers College, New Brunswick, N. J. (1882–90), and president of Amherst College (1890); also chairman of the U. S. Board of Indian Commissioners. He has written numerous papers upon educational, social and religious themes, some of which are: *Athens and the Greeks of To-day; Sidney Lanier; The Debt the School Owes the State,* &c.

Gat'ling, Richard Jordan, inventor, born near Murfreesborough, N. C., Sept. 12, 1818; studied medicine at Laporte, Ind., and in Cincinnati, but never practiced; has made a number of inventions, such as machines for sowing cotton and rice, a steam plough, &c., but his fame rests principally on the Gatling gun, which is the most important product of his inventive genius.

Gatling Gun. See Gun, Machine- and Rapid-fire.

Gaunt, Percival, composer, born at Philadelphia in 1852; best known as composer of the music of Hoyt's *A Trip to Chinatown,* which includes the popular songs: *The Bowery; Push Dem Clouds Away; Love Me Little, Love Me Long,* and *Cynthia and Reuben.* Died September 5, 1896.

Gaun'try, *n.* [Prov. Eng. *gaun,* a cask, and tree.] A frame in which casks stand in a cellar.—The frame of a travelling crane, or the frame and crane together, as used in a dock, or at a railway station.

Gautama (*gaw'-ta-ma*), or **Go'tama.** The founder of Buddhism. The date of his birth is unknown, being stated by various authorities from as early as 1027 B.C. to as late as 492 B.C. He was the son of Suddhodhana, King of Kapilavastu, in Northern India, about 100 m. N.W. of Benares. This was not the first appearance on earth of *G.,* if we may believe the Buddhistic annals, which record 550 forms of pre-existence. His birth and early life are enshrouded in supernatural events told by legend. The study of the problem of life, with its sorrow and death, led him into asceticism, he leaving home at the age of twenty-nine, assuming the garb of a beggar, and entering on a deep study of the Brahmanical tenets, none of which satisfied him. For six years more he subjected himself to a course of the severest fasting and privation, when, satisfied that his self-mortification was useless, he refreshed himself with food, and for 40 days and nights remained in deep thought under the shade of a pipal tree. By the end of that time he had conceived the leading doctrines of Buddhism (*q. v.*), and set out to teach them to the world. In a brief time he had gained a small body of believers, who afterward organized into a monastic brotherhood, pledged to celibacy and simplicity of life, and living solely on unsolicited alms. The remaining 45 years of his life were spent in wanderings through India and the propagation of his doctrines, many converts being made, among them the father and wife whom he had long since left. He died in his eightieth year and was cremated. The accounts given of his life in the Buddhistic books are highly imaginative, and no trustworthy record of his life exists. Among the latest works on the subject are, Bishop Bigandet's *Life or Legend of Gaudama* (1880), and Rockhill's *The Life of the Buddha* (1884).

Gay, Sydney Howard, journalist, born at Hingham, Mass., May 22, 1814; graduated at Harvard; began his career as an anti-slavery lecturer, and editor of the *Anti-Slavery Standard.* He became a member of the staff of the *New York Tribune,* and was its managing editor from 1862 to 1865. He had editorial charge of other papers also, and published a *Life of James Madison,* and Bryant and Gay's illustrated *History of the United States,* of which the text was mainly contributed by him. Died in 1888.

Gayarre', Charles E. Arthur, author and historian, born at New Orleans, Jan. 3, 1805; educated at the College of New Orleans, studied law and was admitted to the bar; became a member of the Louisiana legislature, deputy Attorney-General, and presiding judge of the city of New Orleans. He was Secretary of State of Louisiana from 1846 to 1853, and published several works on the history of that State, viz: *Spanish Domination in Louisiana; French Domination; American Domination;* also, *The School of Politics; Philip II. of Spain,* &c. Died Feb. 11, 1895.

Gay'lord, in *Michigan,* a post-village, cap. of Otsego co., 47 m. S. of Cheboygan, on M. C. R. R. Has lumber mills and other manuf. *Pop.* (1894) 912.

Gear'y, John White, soldier and statesman, born at Mount Pleasant, Westmoreland co., Pa., Dec. 30, 1819; studied at Jefferson College, Canonsburg; became a civil engineer; served in the Mexican War. In 1850 he was elected the first mayor of San Francisco; was appointed, by President Pierce, governor of Kansas in 1856; entered the Civil War and was made brigadier-general (1862); retired from the army at the close of the war, and was governor of Pennsylvania from 1867 to 1873. Died Feb. 9, 1873.

Gear'y, in *Kansas,* an E. cen. co.; *area,* 407 sq. m.; intersected by the Kansas river. *Surface,* undulating, chiefly prairie; *soil,* fertile; building stone abundant. *Cap.* Junction City. *Pop.* (1895) 9,395.

Geb'hardt, von, Oskar, born at Wesenberg, in Esthonia, June 22, 1844; studied theology; has been librarian at Strasburg, Leipzig, Halle, Göttingen and Berlin; edited, with Harnack and Lahn, *Apostolicorum Opera;* and with Harnack, *Evangeliorum Codex Rossanensis.* Has also re-edited Tischendorf's text of the New Testament.

Geddes, William, LL.D., educator, born in Glass, Aberdeenshire, Scotland, Nov. 21, 1828; completed his education at King's College, Aberdeen. He held several professorships and afterward became principal and vice-chancellor of the United University, Aberdeen, also vice-president of the Society for Hellenic Studies; is author of: *A Greek Grammar; Problem of the Homeric Poems; Flosculi Græci Borealis.*

Geffrard', Fabre, a Haytian soldier and statesman, was born Sept. 19, 1806; son of Gen. Nicholas *G.,* who served in the war for independence and was one of the framers of the Haytian constitution. He entered the army at 15, and became general of division in 1845; instigated the revolution of 1858, which resulted in the overthrow of Soulouque, from whom *G.* had received the title of duke. *G.* became president in Jan., 1859, and instituted several reforms giving less power to the executive. The defeated faction formed a conspiracy to assassinate the new president (Sept. 3, 1859), but only succeeded in killing his daughter; 16 conspirators were executed for this crime. *G.'s* popularity waned in 1861, when he allowed Great Britain to take the Dominican Republic without resistance, and successive outbreaks occurred, three of which, led by Solnave, were subdued in 1864–66; but at last (Mar. 13, 1867) the latter captured the capital and *G.* fled to Jamaica, where he died in February, 1879.

Ge'genbaner, Karl, anatomist, born at Würzburg, Germany, Aug. 21, 1826; educated there, teaching till 1855, when he accepted a medical professorship at Jena; afterward removed to Heidelberg, and gave lectures on the subject of anatomy. His best known work is: *Grundriss der vergleichen den Anatomie.* He edited the *Morphologisches Jahrbuch* after 1875.

Ge'genschein, *n.* [Ger., counterglow.] (*Astron.*) An exceedingly faint and evenly illumined circle of light, some 15° to 20° in diameter, whose center is on the ecliptic, and always seen exactly 180° from the sun. The cause of this phenomenon has elicited much discussion, and may be classed among the unsolved problems of celestial physics. The most plausible theory is, that it is identical with that causing the moon to be visible even when completely immersed in the earth's shadow. The earth, being opaque, casts opposite the sun a long, black, tapering shadow into space, through which the moon often passes. Around the earth, however, is a transparent, refracting medium—the atmosphere—which refracts the sun's light down on the moon, rendering it faintly visible by reflection. Now, if it be assumed (which is probably the case) that space is filled with cosmical dust, that affords a reflecting material of sufficient density to reflect the refracted sunlight to us, as observed. The sun's corona and the zodiacal light afford strong presumptive evidence that space is thus filled with dust—probably the diffused *debris* of comets' tails. The *G.* can be seen only with the naked eye, and best about midnight, when on or near the meridian. The sky must be perfectly clear, the exact place to look for it known, and the moon and every kind of artificial atmospheric illumination absent.

Gei'bel, Emmanuel von, poet, born at Lübeck, Germany, Oct. 15, 1815; studied at Bonn; was professor of Æsthetics in the University of Munich; made a special study of Greek, Italian and Spanish literature, and produced some of the finest poems in the German language. His principal dramatic poems are: *Brunhild* (1857), and *Sophonisbe* (1868). Died April 6, 1884.

Gei'fer, Eric Gustaf, historian, born at Ransäter, Vermland, Sweden, Jan. 12, 1783; educated at the University of Upsala; professor of history at Upsala; one of the founders of the Gothic Society, and author of: *Svea Rikes Häfder; Svenska Folkets Historia; The Condition of Sweden from the Death of Charles XII. to the Accession of Gustavus III.,* &c. Died April 23, 1847.

Gei'ger, Abraham, Jewish scholar, born at Frankfort-on-the-Main, May 24, 1810; studied at Heidelberg and Bonn, making a specialty of philosophy and the Oriental languages. Died Oct. 23, 1874.

Gei'kie, Sir Archibald, geologist; born at Edinburgh, Scotland, in 1835; educated at the High School and University of Edinburgh, and in 1870 was appointed professor of mineralogy and geology in that institu-

tion. Author of *Phenomena of the Glacial Drift of Scotland; Field Geology; Class Book of Geology*, &c. Has also contributed largely to scientific and literary periodicals; became director of the Geological Survey of Scotland (1867), and director-general of the Geological Survey of the United Kingdom (1881).

Gei'kie, JAMES, geologist; born in Edinburgh, Scotland, Aug. 23, 1839; educated at the Edinburgh High School and University; was assistant geologist in the national survey of Scotland, advanced to geologist, and finally was made a district surveyor. Has published papers on scientific subjects, and is the author of *The Great Ice Age; Prehistoric Europe; Outlines of Geology*, and other works.

Geiss'ler, HEINRICH, physicist, born in Germany, 1814. Besides the tubes named below, *G.* invented other important aids to scientific investigation. In his early life he was known simply as a skilled and ingenious mechanician, who travelled about from city to city, finally settling in Bonn, where his great reputation was made. In later life he acquired a very comprehensive knowledge of natural sciences, and was made Ph.D. by the University of Bonn. Died in 1879.

Geissler's Tube. [So named from the original maker.] (*Physics.*) When gases are highly rarefied they conduct electricity of high tension, and the minute residue of each particular gas remaining in a so-called vacuum, when traversed by an electric discharge, gives very characteristic colors and spectrum phenomena. A *G. T.* consists of a hard glass tube containing what are technically known as an oxygen vacuum, a nitrogen vacuum, a hydrogen vacuum, a carbonic acid vacuum, &c., and furnished at each end with a platinum wire passing through the glass. The inner extremities of the

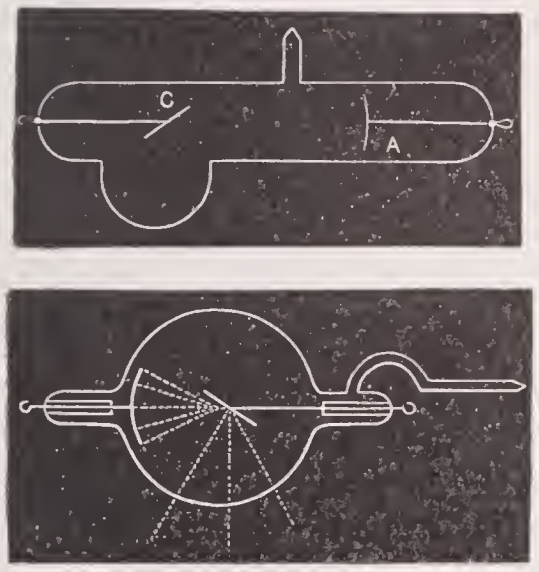


Fig. 2907.—FORMS OF GEISSLER'S (CROOKES) TUBES.

platinum are generally connected with aluminum wire. If a *G. T.* is contracted in any portion, the luminous appearance is greatly intensified; and if glass of different composition is employed for different portions of the tube (Uranium glass, for instance), the phenomena of fluorescence and consequent change of tint are very striking. For exhibition these tubes are made of a considerable variety of shapes, embracing spirals, crosses, globes, vases and other devices. The current is supplied from an induction coil, and when of appropriate strength, and the vacuum tube suitable, very beautiful stratifications are seen to cross the tube. The light from a carbonic acid vacuum, enclosed in a narrow spiral tube, is sufficiently powerful to be used as an illuminating agent under special circumstances where other sources of light would be inapplicable and was, therefore, applied to medical purposes several years ago. A long capillary tube was soldered to two bulbs provided with platinum wires; this tube was bent in the middle, so that the two branches touched and their extremities were twisted, as shown at *a* (Fig. 2908).



Fig. 2908.

This tube contained a very rarefied gas, and when the discharge was passed a light was produced at *a*, bright enough to illuminate any cavity of the body into which the tube was introduced. In the *G. T.* the region surrounding the terminals is especially brilliant, with a decided difference at the two poles. As the exhaustion of air grows more marked, the discharge becomes modified in character; and when the vacuum approaches near completeness, the power of conduction ceases and the tube becomes dark. Yet the inner surface of the tube continues to glow with a phosphorescent light, and a remarkable series of phenomena succeed, which are known as the "Crookes effects," from their study by Sir William Crookes. In these, substances placed within the tube, including various crystals and chemical salts, grow brilliantly luminous. The *G. T.*, or its various modifications known as the Crookes tubes, are employed in producing the striking phenomena of the Roentgen rays (*q. v.*).

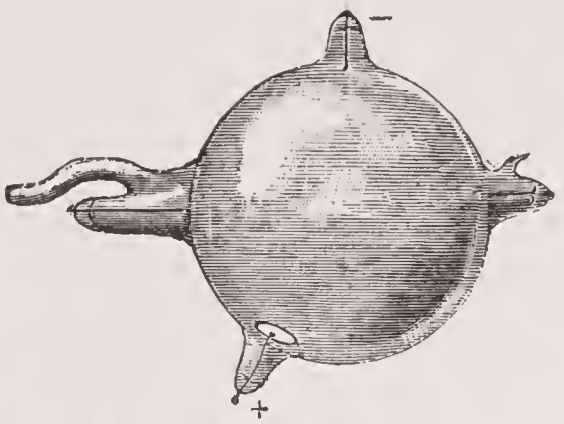


Fig. 2909.—A RECENT FORM OF CROOKES TUBE.

Gel'atine Pro'cess. See ENGRAVING, PHOTO-.

Gene'va, in *Alabama*, a S.E. co.; *area*, 640 sq. m.; intersected by Choctawhatchee and Pea rivers. *Surface*, nearly level; *soil*, sandy and inferior. *Products*, corn, cotton and pork. *Cap.* Geneva. *Pop.* (1890) 10,690.

Geneva, in *Nebraska*, a city, cap. of Fillmore co.; 60 m. W.S.W. of Lincoln, on B. & M. and F., E. & M. V. R.Rs.; has creamery, foundry and machine shops. *Pop.* (1890) 1,580.

Geodet'ic Triangula'tion. The coast lines and interior surface of the U. S. have long been under process of measurement by the U. S. Coast and Geodetic Survey; the coast lines have been very largely charted, while a train of triangles is being carried across the continent by the survey, from the Atlantic to the Pacific oceans. Geodesy depends on triangulation as its fundamental principle of operation. It is based on the simple geometrical problem that, with the base and angles of a triangle given, it is easy to determine the remaining sides. In triangulation the first and most important process is to lay down a base-line with the utmost exactitude. Such a line, in an extended survey, must be several miles in length. It may be made in any part of the region to be covered, the portion most approaching a level being chosen, if prominent distant points can be seen from both ends of the line. The measurement is made with bars of the greatest attainable precision, and in which allowance is made for variations in length due to changes of temperature. So correct is the modern art of measuring that a 6-mile base-line can be laid without an error of more than an inch. This precision is essential, since any error in a 6-mile line will yield 100 times that error in a 600-mile triangulation. The line laid, the angle formed by this line at each of its ends with the distant point chosen must be measured with equal care, when an easy calculation will indicate the distance of that point from each end. Such a line, geometrically determined, can be used as the base line for a new triangle, and in this way triangle can be built upon triangle over a wide space of country without further use of the measuring rod. The length of the lines of sight depends on the nature of the country. These lines are usually from 25 to 40 m. long, but 100 m. may be obtained in a mountainous country. Any greater length is not likely to be accurate. Direction is as necessary as distance, and the angle which the base line makes with a meridian needs to be carefully determined. By continued use of this process the whole surface area of the U. S. is being measured with great accuracy, and large areas in Europe and Asia have been similarly determined. See COAST AND GEODETIC SURVEY; GEODESY.

Geograph'ical Discov'ery. (*Geog.*) The discoveries made by travellers of recent years have greatly added to our knowledge of the earth, and left comparatively few problems of geography yet to be solved. At the beginning of the 19th century almost nothing was known of interior Africa; Asia was imperfectly known; America was full of unsolved problems; only the coast of Australia had been visited and little had been accomplished in the way of Arctic discovery. At the end of the century few of these problems remain, and civilized man is rapidly taking possession of the previously unknown regions of the earth. Of the work done within the 19th century, the most striking results have been those gained in Africa, through the indefatigable efforts of Livingstone, Speke, Grant, Burton, Stanley, Schweinfurth, Barth, Cameron, Thompson, Emin Pasha, Wissmann, and a host of later travellers, the result being that the continent is now fairly well known in all its general features, its lakes and rivers discovered and traced, its mountains climbed and measured, and only the minor details of its geography remaining to be elucidated. Geographical exploration here has given a new continent to mankind, unknown to the civilized world (beyond a narrow distance from its coast) through the earlier centuries, and which the nations of Europe are now dividing up among themselves with an eagerness far surpassing that shown toward America several centuries before, but fortunately with a treatment of the native inhabitants far more humane than that shown in America. The sentiment of human brotherhood has had a marked development since the age of the American colonists.—*Asia.* The geography of Asia has been partly made known by active travellers and naturalists, and still more by the Russian armies, which have conquered all northern and central Asia, and cleared up many of the ancient problems of the continent. The repellent attitude of China and Japan have been overcome, the sealed kingdoms of Corea and Thibet traversed, the icy regions of Siberia and the broad deserts of Mongolia investigated by indomitable travelers; Central Asia, once ventured into only in the deepest disguise, laid open to railroad tourists, the recesses of Southern Asia and the Himalaya region explored, Arabia widely traversed, and the buried cities of Mesopotamia, with their marvels of ancient art and literature, laid bare. Asia at the beginning of the century was, beyond the general features of its geography, little better known than Africa at the beginning of the century. At its end little of special importance remains to be learned.—*Australia*, whose desert interior offers few attractions and endless hardships to travellers, has found its series of hardy and persistent adventurers, and its geography is to-day fairly well known. Sturt, Eyre, Leichhardt, and the Gregorys laid bare many of its interior secrets; Burke and Wills in 1860 crossed the desert continent from Melbourne to Carpentaria; in 1872 a telegraph line was laid across the continent from south to north; Giles, Warburton and Forrest forced their way to the west coast, and later travellers have traced other secrets of the interior, leaving little importance yet to be learned. The principal result of their perilous journeys has been to show that much of the interior of this continental island is not available for colonization, and that civilized settlements cannot well be extended far back from the coast.—*America.* The American continent had been largely taken possession of before the 19th century, but in great measure remained unknown. The United States occupied a narrow belt, and the knowledge of its vast western region is due to the explorations of Lewis and Clark, Fremont, and numerous others, ending with the thorough work of the U. S. Surveys. Canada, of which little was known beyond the vicinity of the St. Lawrence and the Great Lakes, has been traversed to its utmost frozen boundary to the north and settled to the Pacific in the west. Southward, Humboldt and his many successors have discovered South and Central America, of which their Spanish possessors had given little knowledge to the world. The strange ruins of many ancient cities have been found hidden in the forests of Yucatan, the remains of important civilizations in Mexico and Peru, while a host of treasures of nature have been discovered in the forests of Brazil and on the great plains and in the mountain woodlands of the broad continent of the south.—*Arctic Discovery.* Polar exploration, for years largely discontinued, has been actively resumed by intrepid travellers. Baron Nordenskjöld in 1879–80 made the first voyage ever accomplished across the seas north of Europe and Asia. Within the past decade Nansen has journeyed across southern and Peary across northern Greenland, Jackson has spent several winters in the bleak northern regions of Franz Joseph Land, and Nansen has made a strikingly near approach to the pole, and chronicled the important discovery that a deep ocean surrounds this desideratum of geographical research. While new adventurers are devising plans for solving the secret of the pole, the Antarctic problem, long set aside as beyond the powers of human research, has been taken up again, and new plans are being broached, new voyages projected, for the exploration of this broad region of unknown and inhospitable land or sea. Such are, very briefly, the results of geographical exploration during the 19th century. As will be perceived, the discoveries have been immense in volume and importance and the great sum of geographical problems have been solved. See AFRICAN EXPLORATIONS, RECENT; ARCTIC EXPLORATIONS; PEARY, &c.

Geograph'ical Distribu'tion. (*Nat. History.*) This phrase refers to the distribution of animals and plants over the earth, and covers alike the facts of distribution, the division of the earth into zoölogical and botanical regions, the causes which have led to the wide dispersion of related forms, and the affinities to each other of widely separated genera and species. The promulgation of the Darwinian theory has given a new significance to this topic, and started difficult questions where no problem had been suspected. While the doctrine of special creation prevailed, it was easy enough to explain the presence of a species in a situation remote from its nearest relatives. But when the belief that all species have arisen by descent, and have a common origin, spread among scientists, this easy explanation ceased to be satisfactory, and an earnest endeavor to solve the many mysteries of distribution began. When, for instance, we find that all the mammals of the West Indies, with a single exception, are allied to those of the continent, it is easy to conjecture that they descended from continental ancestors, making their way by easy methods to the islands; but this theory will not apply to that single exception, which belongs to an order (Insectivora) which has no representatives in South America, and to a family whose other species are only found in Madagascar, removed by half the width of the earth. Again, the species of the tapirs are confined to South America and the Malayan region, the camels to Asia and South America; while many other examples of wide separation of animal and plant relatives might be adduced. Some of these anomalies of distribution have been explained, others have not; some seem almost incapable of explanation. In the effort at explanation many interesting studies into

the methods of dispersal have been made. The seeds of plants are carried by winds—many of them being winged for that purpose—on the feet of birds, and by marine currents and sea-drift, while many possess special clinging powers which aid effectually in their distribution by animals. Insects are often blown immense distances from their native habitats, and the same may be said of birds. American birds reach the Bermudas annually, and insects have been caught in ships more than 300 miles from land. The eggs and young of fish and other water animals have been carried long distances by storms, and in this way may have been transported from one river system to another. Marine currents often carry natural rafts on which small animals and plants may be transported. The parasitic habits of many animals and plants enable them to be carried for long distances, when possessed of no powers of locomotion of their own. Finally, man has had much to do with the recent distribution of organic forms, carrying numerous plants and animals from one continent to another. This is but a brief summary of the methods of distribution, of which much more might be said but for lack of space.—*Checks to Distribution.* On the other hand there are many barriers in the way of distribution. For land plants and animals an ocean is a very effective barrier, impassable where very wide, except by human aid. For land mammals, it is an effectual check, and these are never found in oceanic islands—those that have always remained disconnected with the continents. Serpents and amphibians also very rarely reach such islands though lizards by some means have made their way thither. Some mammals, indeed, have considerable powers of swimming. The jaguar, bear, and bison can, in this way, cross wide rivers; pigs have been known to swim several miles, and a boa-constrictor swam 200 miles—from the South American coast to St. Vincent Island. Mountains again act as barriers to emigration, especially if high. Deserts check the spread of most plants and animals; forests hinder the emigration of the inhabitants of open plains, such as the camel and giraffe; plains, that of wild sheep and goats; and treeless regions, that of the tribes of apes and lemurs. Climate often acts as a barrier, distribution being far more easy East and West than North and South. There are various other barriers of less importance; and one very important one is the occupation of a region by a native fauna and flora which crowds all available space and leaves no room for new-comers.—*Isolation.* The various barriers mentioned, and others which might be named, have stood decidedly in the way of a wide distribution of many species, and kept them confined within limited localities. The most striking case of the isolation of organic forms is that presented by the Australian region, whose fauna and flora extend to a deep sea channel between the islands of Bali and Lombok and there find an effectual barrier. The mammals of this region are almost wholly marsupial, a form which has no counterpart except in the widely remote region of America. Yet we do not need to look to Australia for the origin of the opossums of America, since marsupials once occupied the whole earth, and may well have left descendants in America, as in Australia. Had the barriers to migration which now exist been always the same, it would be impossible to explain the existing distribution on the theory of a common origin. But these barriers have greatly varied with time. What are now islands were once parts of the mainland. Parts of the continents have sunk; parts of the ocean have risen. High roads of migration may once have existed where now is unbroken sea. It is not impossible that even distant continents may have been thus united. It is suggested, for instance, that Africa and South America may have once reached much farther south and been bridged together by Antarctic land. The descent of ice in the glacial period seems to have carried Arctic plants far south, and left them stranded on the Alpine and other cold peaks. The ice bridge which now forms across the Bering strait may in that period, and perhaps earlier ones, have reached much farther south and made an easy path between America and Asia. And it is not impossible that Europe and America were once joined together by a northern bridge of land. Certainly, if one accept the Darwinian theory, we must demand such past mutations of level and climate, yielding conditions which would render easy what would now be impossible.—*Organic Regions.* On the basis of distribution, the earth has been divided into various regions or provinces, of which several schemes have been made, within each of which a more or less distinct flora or fauna is found. Alfred Russell Wallace divides the habitat of the animal kingdom into six regions, with numerous sub-regions. The Palæarctic Region includes the Siberian, Manchurian, European and Mediterranean; the Ethiopian Region includes the East, West, and South African and the Malagasy; the Oriental Region includes the Indian, Ceylonese, Indo-Chinese, and Indo-Malay and sub-regions; the Australian Region includes the Austro-Malayan, Australian, Polynesian and New Zealand; the Neotropical Region includes the Chilean, Brazilian, Mexican and Antillean; and the Nearctic Region, the Californian, Rocky Mountain, Alleghanian and Canadian. Each of these has, in a measure, a peculiar group of animals, though with considerable mingling at their borders, sufficient to have caused several somewhat different schemes to be formulated by other writers. The vegetable kingdom has been similarly divided up, the most important recent works on the subject being those of Engler and Drude. Drude makes 14 divisions, the Northern, Inner Asiatic, Mediterranean, Eastern Asiatic, Central North American, Tropical African, East African Islands, Indian, Tropical American, South African, Australian, New Zealand, Andine, Antarctic. Engler seeks to trace the history of plants from the Tertiary age, and finds in that age four "floral elements:" the Arctitertiary, the Palæotropical, the Neotropical or South American, and the old Oceanic. He brings within these great divisions the existing sub-divisions of the vegetable kingdom. Various other divisions of the geographical distribution of living forms have been made, but the above indicate with sufficient closeness the existing state of affairs.

Geolog'ical Sur'veys. There have been active efforts made by the States of this country and by the general government to arrive at a definite conception of their geological conditions, the first movement in this direction being made by North Carolina in 1823, followed by Massachusetts in 1830, while in the succeeding decade eleven more States instituted geological surveys, and before 1895 nearly all the States of the country had made provision for the systematic investigation of their rocks and minerals. The completeness with which the work was done differed largely in the different States, Pennsylvania, New York, New Jersey and some others of the eastern States having done the work with a large degree of completeness. The early work done by the U. S. government in this direction consisted in the attachment of geologists to expeditions sent out for other purposes, while parties having geological exploration for their primary object were sent out in 1834, 1839, 1845, 1847, and 1848. In 1867 Ferdinand V. Hayden was authorized to make a geological survey of Nebraska, his work being afterward continued in other territories. In 1871 John W. Powell was authorized to begin the geological survey of a tract bordering the Colorado river, and in the same year George W. Wheeler began geological work in the West. The U. S. Geological Survey was organized in 1879 to replace the Hayden, Powell and Wheeler surveys, and two years afterward its field of labor was extended from the territories to embrace the entire country, while its corps has been gradually enlarged until it has grown to be the most important of all governmental organizations engaged in work of this character. Of European countries, Great Britain was the first to institute a governmental geological survey, work being begun in 1832. Austria and Spain followed in 1849, and nearly all the countries of Europe, and also the colonies of Great Britain, have since then engaged in similar explorations. Newfoundland and New Brunswick published their first reports of surveys in 1839, and the governmental survey of Canada began in 1842. In most of the countries of Europe topographical map-making preceded the surveys, but this was not done by the State surveys of this country, the maps used being usually inaccurate. The U. S. governmental survey accompanies its work by maps of its own making, prepared by a corps of engineers employed for that purpose.

Geon'omy, *n.* [Gr. *gē*, earth, *nomos*, law.] The science of the physical laws relating to the earth, as geology and physical geography.

George, Henry, economist, was born in Philadelphia, on Sept. 2, 1839; entered the Philadelphia High School (1853), but soon left to begin work in a counting-house; in 1854 went to sea, and three years later reached California, where he remained for several years, first as a printer and then (1867) as an editor of several prominent journals, acquiring a great reputation as a writer and public speaker. In 1879 he published, at San Francisco, his *Progress and Poverty*, an inquiry into the causes of industrial depression and the unequal distribution of wealth, which was republished in New York in 1880 and in London in 1881. This work has been translated into several languages, and has had a sale hardly equalled by any other book on the subject of economy. *G.* removed to New York in 1880, and published, the following year, the treatise now reprinted as *The Land Question.* This was followed in 1883 by *Social Problems*, *G.* having, in the meantime, travelled and lectured in Ireland and England, writing letters from there to the *Irish World.* In Dec., 1883, he returned to England, upon invitation from the English Land Reform Union, and delivered a series of lectures which attracted wide attention. A similar visit to Scotland followed, and *G.* returned to the U. S. early in 1885, and prepared a work on the tariff. He was the Labor candidate for mayor of New York in 1886, receiving some 67,000 votes, but was defeated. Has contributed largely to magazines on both sides of the Atlantic, and his controversy with the Duke of Argyll, printed in the *Nineteenth Century*, was republished under the title *Property in Land;* was editor of *The Standard*, a weekly newspaper established by him in New York in 1887. In the 1897 mayoralty campaign in New York, *G.* was the candidate of the "Jeffersonian Democrats," but died of apoplexy, Oct. 29, four days before the election.

George, James Z., statesman; born in Monroe co., Ga., Oct. 20, 1826; educated in the public schools of his State; served as a private soldier in the Mexican war, and on his return studied law. From 1854 to 1864 he served as reporter of the High Court of Errors and Appeals of Mississippi; voted for the ordinance of secession in that State, and served in the Confederate Army as colonel and brigadier-general. He became in 1879 Chief Justice of the Supreme Court of Mississippi, and was in 1880 elected U. S. Senator from that State, which office he held until 1897. Died Aug. 14, 1897.

Geor'gium Si'dus. [Lat., The Georgian Star.] (*Astron.*) The name given, in honor of George III., by Sir Wm. Herschel to the planet which he discovered March 13, 1781. Laplace, disliking the innovation of elevating one's sovereign to the skies, substituted for King George the name of the discoverer, Herschel. This appellation is still widely accepted; but the more common name is Uranus, suggested by Bode, to correspond with the names of the other planets, which were derived from those of classic gods. See Uranus.

Ger'hardt, Charles Frederic, chemist; born at Strasburg, Aug. 18, 1816; studied chemistry; professor at Montpelier; afterward pursued his chemical investigations in Paris for some years; subsequently filled the chair of chemistry and pharmacy at Strasburg; was the author of a valuable work, *Traite de Chimie Organique*, and inaugurated a reform in chemical notation known by his name. Died Aug. 19, 1856.

Germ The'ory of Disease'. (*Path.*) The germ theory is, that the exciting cause of each contagious or infectious disease is some specific living micro-organism, and that these diseases are communicated only by the transference to and development of the specific parasite or germ within or upon the animal infected. Varro pronounced the essence of the theory in regard to certain diseases 2,000 years ago, in the time of Cicero and Cæsar, and after the discovery of the bacteria by Anthony van Leeuwenhoek, Plenciz in 1762 again formulated it virtually as it is held to-day. But, though Henle again labored for it as early as 1821, it has only been since the remarkable development of the science of bacteriology within the last twenty years, and the convincing work of such scientists as Koch and Pasteur, that it has been accepted generally by the medical profession throughout the world. The bacteria are unicellular, vegetal micro-organisms, and of these there are quite a large number of classes and species. Some of these species have been found, when introduced into suitable culture media, such as the living tissues of the animal body, to be capable of producing, either directly or by their action as ferments upon the tissues, certain virulent poisons called toxines, which poisons are capable of producing the characteristic symptoms of the respective infectious maladies, it being remembered that each pathogenic organism or disease-germ elaborates its own peculiar toxine and that the symptoms produced by the toxine are practically constant and characteristic of a single specific disease. Even before the scientific establishment of the above knowledge, there was abundant *a priori* reason for belief in the germ theory, viz.: the fact that contagious matter increases enormously in the body of the patient and, therefore, must have life and the power of reproduction; that it is destroyed or retarded in its action by substances that have the same effect upon other low forms of life; that it withstands dilution, oxidation, &c., that would destroy the power of inert dead matter; and that in disease there is more or less direct analogy to the phenomena of fermentation, which latter we already know to be due to organic life. However, Koch has laid down the following postulates as being necessary to prove scientifically that any germ is the cause of a given disease: (1) The micro-organism must be found in the blood, lymph, or diseased tissues of a person or animal sick or dead of the disease. (2) The micro-organism must be isolated from the blood, lymph, or tissues and cultivated in suitable media outside of the body until an absolutely pure culture is obtained. This is done by carrying the cultivation through several generations until all possibility of any extraneous or contaminating matter is eliminated. (3) The pure culture thus obtained must, when introduced into a healthy, susceptible animal, produce the disease in question. (4) The same organism must be found in the inoculated animal. While it is undoubtedly necessary that each one of these postulates should be fulfilled to establish this theory, on the other hand it must be admitted that if they are fulfilled with regard to any organism or disease, that organism must be a cause of that disease. Such fulfillment has been made as to many maladies of this nature, especially as to those to which both men and animals, or animals alone, are susceptible; and, though it is not practicable to carry out the third postulate in the case of those diseases to which human beings alone are susceptible, enough has been determined experimentally to make it almost absolutely certain that the germ theory is true for every contagious or infectious disease or malady. From what has been said, however, it should not be inferred that all such diseases are due to bacteria or vegetal micro-organisms. In some cases it seems to be more probable that the exciting cause is of an animal nature, and in others experimental research has failed to devise suitable methods for positively isolating the specific germs, though belief in their existence is still unshaken. In fact, as advances are made in bacteriology and its kindred sciences, we may reasonably expect and hope that not only will the exact cause of each communicable malady be determined, but that means of destroying or limiting the virulence and power of these foes to health and life will also be discovered and made available. See Bacteriology; Bubonic Plague; Antiseptic Surgery, &c.

Ger'man, *n.* A fancy cotillion, or an entertainment embracing such a dance.

German Bap'tists. See Tunkers.

German East Af'rica. The largest colonial possession of Germany; established in consequence of territorial rights obtained in 1884 for the German Colonization Society, by treaties with native African chiefs in the highland regions back of the Zanzibar coast. Germany soon after declared a protectorate over this region, the rights secured passing in March, 1885, to the German East Africa Company, which, since that date, has greatly extended its territory. By a treaty in 1890 with the Sultan of Zanzibar, it secured, by a money

payment, the narrow coast strip claimed by Zanzibar; and by treaties with England defined the boundaries of the protectorate. As thus defined, the seacoast of the colony extends from the mouth of the Rovuma river on the S., to Wenga on the N. From the latter it extends inward N.W. to the Victoria Nyanza at 1° S. Lat., then W. to the Congo Free State. On the W. the boundary follows that of the Congo Free State to the north end of Lake Tanganyika; the east coast of that lake; thence S.E. to Lake Nyassa. The S. boundary follows the Msinje from Nyassa to the Rovuma, and along that river to its mouth. The area thus embraced is estimated at 380,000 sq. m. In addition to its seacoast, it has 1,200 m. of coast line on the three large lakes westward. Population estimated (1897) at 1,900,000.—*Geographical Features.* On the ocean side extends a low, malarial strip from 60 to more than 100 m. wide West of this lies a mountain area of another 100 m. in breadth, and of salubrious and fertile character. Back of the mountains lie semi-arid steppes comprising nearly a fourth of the whole territory; beyond which an extensive region of elevated and fertile soil extends to the lakes. The climate seems poorly adapted for European colonization, but the natives, of Bantu stock, show a willingness to work for hire on the plantations.—*Control.* The East Africa Company, which manages this territory, depends on imperial grants for support, and is responsible for its actions to the government, which appoints the governor of the colony. Experiments have been made with various plants, excellent coffee and cotton being grown, while tobacco culture has been introduced. The caravan routes from the sea to the lakes are protected by fortified military stations, in consequence of the hostility of the Arab slave-dealers; and a railroad was begun in 1892 from Tanga to the Usambara plantations, to be carried eventually to Karagwe, west of Victoria Nyanza.

Ger'man Em'pire. The empire here alluded to is that established in 1871, after the successful war with France; the older empire being dealt with under GERMANY (*q. v.*). The *G. E.*, as at present constituted, lies between 47° 16′ and 55° 53′ N. Lat., and 5° 25′ and 22° 25′ E. Lon., its extent, diagonally from S. W. to N. E., being 862 miles, its area 208,738 sq. miles, its population (1891) over 52,000,000. It is bounded N. by the North Sea, Denmark, and the Baltic Sea; E. by Russian Poland and Galicia; S. by Austria and Switzerland; W. by France, Belgium, and the Netherlands. A description of this empire in its physical, political and industrial aspects has already been given under the head of Germany, and we may confine ourselves here to its history.—*History.* In the spring of 1867 a war between France and Germany seemed imminent, in consequence of the German occupation of Luxemburg. This was averted by the good offices of Great Britain, Luxemburg remained attached to Holland. But the feeling of hostility was not quelled, extensive military preparations were made, a new dispute arose through the appointment of a German prince to the vacant throne of Spain; and on July 19, 1870, Napoleon III. declared war against Germany, inspired possibly by the hope that animated the French people, that the experiences of the wars of Napoleon I. would be repeated and Germany speedily overrun and occupied. But the Emperor of France showed none of the ability of his great uncle; the French army proved to be very poorly prepared for war, fatal delays were made, the German army proved to be splendidly organized and much superior in numbers, and the French, instead of marching to Berlin as they enthusiastically proposed, never crossed the Rhine, but found themselves attacked in Alsace and Lorraine. Germany had united for the war, against the expectation of the French, the southern States supporting Prussia and the northern States, and placing their armies at the disposal of King William of Prussia. The war was fought with remarkable celerity, and was a rapid succession of German victories, the first engagement taking place on Aug. 2, while on Sept. 2, one month afterward, the French Emperor surrendered with his whole army at Sedan, and was sent as a prisoner into Germany. One stronghold after another was besieged and surrendered, Paris yielding on Jan. 29, 1871. Peace was declared May 10, 1871. France being condemned to pay a war indemnity equal to $1,000,000,000, and to yield to Germany the province of Alsace and the German part of Lorraine.—*The Empire Re-established.* One important result of the war was the establishment of the unity of Germany. In Nov., 1870, all the southern States became members of the German Confederation, and during the following month it was resolved, almost unanimously, to re-establish the German Empire, with the King of Prussia as hereditary monarch. A deputation of the German Reichstag proceeded to Versailles, and the imperial dignity was offered to and accepted by King William, who on Jan. 17, 1871, was proclaimed German Emperor (*Deutscher Kaiser*). The new empire embraced 26 States, including the whole of the ancient empire with the important omission of Austria, which took no part in the war or the subsequent steps toward German unity. Since the war with France the *G. E.* has had no hostile relations with foreign powers, and its treaties of alliance with Austria-Hungary (1879) and Italy (1883) are excellent guarantees for peace. Under the skillful statesmanship of Prince Bismarck, rapid progress in organization was made, the first internal contest being one with the Catholic Church, which brought about the expulsion of the Jesuits (1872) and years of difficulties with the papal authorities, and which ended in 1887 in Bismarck being obliged to grant certain concessions to the Church. The dispute will probably never be fully settled until an absolute separation of Church and State is brought about. In 1878 the growth of socialism alarmed the authorities; and, in consequence of two attempts upon the life of the emperor, a repressive socialist law was passed. It failed to produce the desired result, and subsequent attempts were made to render futile the socialistic movement by the state taking steps to improve the condition of the working class, laws being passed to compel employers to insure their workmen in case of sickness and accident and (1889) to establish compulsory insurance for workmen against death and old age—measures which have been called "State Socialism." A strongly protective commercial policy was inaugurated and a colonial policy begun. On March 9, 1888, the Emperor William I. died. He was succeeded by his son as Frederick III., who died on June 15 of the same year, and was succeeded by his son, William II. The new monarch had decided views of his own, which quickly led to a rupture with Prince Bismarck, his dismissal from the premiership in 1890, and his replacement by Count von Caprivi. Since that period the policy of the emperor has been largely devoted to the increase of the army and navy, a policy which has brought him into frequent conflicts with the Reichstag, which, containing a socialistic membership of growing strength, has objected to voting the funds requisite for these military and naval extensions, and has several times been brought into a state of conflict with the autocratic demands of the emperor. This state of affairs led to the retirement of Caprivi from the chancellorship, and his replacement (Oct. 26, 1894) by Prince Cloves von Hohenlohe-Schillingfürst, the present chancellor.

Ger'man Paste, *n.* A composition of pea-meal, boiled eggs, &c., given as a food to singing birds.

German Prot'estant, *n.* One of a body of German free-thinkers having no affiliation with the German churches.

German Text. (*Printing.*) Black letter similar to Old English and modern German type, much used for headings of legal documents, &c.

Germa'nium. A chemical element discovered in 1886 in a mineral named argyrodite, occurring near Freiburg, Germany. It has since been found in the mineral euxenite, and has an atomic weight of 72·3; symbol, Ge. Sixteen years before its discovery the existence of such an element was predicted by Mendelejeff, as needed to fill a blank in the lists of his Periodic Law. Its discovery, with the predicted characteristics, has gone far to confirm that law. *G.* is of the same family as carbon and silicon, its compounds resembling those formed by these elements.

Ger'mantown, in *Illinois*, a village of Vermilion co. *Pop.* (1890) 1,178. The post-office is DANVILLE.

Germ'icide, *n.* An agent capable of killing germs; particularly one used in destroying the bacteria that cause infectious diseases.

Germ'iculture, *n.* The artificial cultivation of bacteria, or disease-germs, in the interest of science or for remedial purposes.

Gerome (*zharōm'*), JEAN LEON, a distinguished painter of the modern French school, born at Vesont, 1824; studied under Paul Delaroche and at the École des Beaux-Arts, Paris, in which institution he was appointed professor of Painting, in Dec., 1863. His more prominent productions embrace: *The Virgin, the Infant Jesus, and St. John; Bacchus and Cupid; A Greek Interior; The Age of Augustus, and the Birth of Jesus Christ; Rembrandt; The Plague of Marseilles; The Death of St. Jerome;* and *A Lioness Meeting a Jaguar.* Several of his leading works are in American galleries, and many of them have attained a world-wide fame.

Ger'rymander, *n.* [From Elbridge *Gerry*, the supposed originator of the practice.] (*Polit.*) The unnatural or unfair rearrangement of the political divisions of a State or district so as to give a political party or faction an undue advantage.

Ger'ster, ETELKA, a popular contralto singer; born in Kaschau, Hungary, June 16, 1857; studied under Madame Marchesi; made her début in Venice in the opera of *Rigoletto*, in which she achieved a brilliant success, which has continued throughout her after career. She subsequently sang in Berlin, Buda-Pesth, St. Petersburg, Moscow and London, and has had several very successful seasons in the U. S. where she is a prime favorite. Was married to Dr. Gardini in 1877.

Gese'nius, FRIEDRICH HEINRICH WILHELM, orientalist and biblical scholar; born at Nordhausen, Germany, Feb. 3, 1786; studied at Helmstedt, Göttingen, and Halle; was made professor of Theology at Halle, filling that chair for over thirty years. His translations have greatly increased our knowledge of the Hebrew language. His great work was *Thesaurus Philologico-Criticus Linguæ Hebraicæ et Chaldaicæ Veteris Testamenti.* Died Oct. 23, 1842.

Get'ty, GEORGE WASHINGTON, soldier, born at Georgetown, D. C., Oct. 2, 1819; graduated at West Point; was assigned to the artillery, and served in Canada, in the Mexican War, in Florida against the Seminoles, and with the Army of the Potomac during the Civil War. In 1862 he was made brigadier-general of volunteers, and afterward brevet major-general. At the close of the war he returned to the command of his regiment, the 3d Artillery; was transferred to the 4th Artillery in 1882, and retired in 1883 with the rank of brevet major-general.

Gherar'di, BANCROFT, U. S. N., was born at Jackson, La., Nov. 10, 1832; entered the navy as midshipman from Massachusetts in 1846, and entered the Naval Academy in 1852. At the outbreak of the Civil War he was lieutenant on the *Lancaster*, of the Pacific squadron; in 1862 was made lieutenant-commander, and took part in the engagement at Fort Macon. During the next two years he commanded the *Chocorua* and the *Port Royal*, of the Gulf squadron; displayed great coolness and gallantry at the battle of Mobile Bay on board the latter vessel. His subsequent promotions were: commander (1866), captain (1874), commodore (1884), rear-admiral (1887); was commandant of Brooklyn Navy Yard in 1886; in command of the North Atlantic Squadron, and directed the Columbian naval review in New York harbor in 1893. Retired in 1894.

Ghika (*gē'ka*), HELENA, Princess Klotzoff-Massalsky; born at Bucharest, Jan. 22, 1829. She wrote for French Italian, Belgian and Swedish journals; was made an honorary citizen of the Greek kingdom, and a member of several learned societies. Under the name of DORA D' ISTRIA she wrote: *La Suisse Allemande; Les Femmes en Orient; Gli Albanesi in Rumenia; Storia dei Principi Ghika*, &c. After her marriage to Prince Klotzoff-Massalsky, she went to St. Petersburg, residing at the court; afterward spent much of her time in Florence, where she died, Nov. 22, 1888.

Ghost Dance. (*Anthrop.*) About 1889 a religious movement began among the Piute Indians in Nevada, which quickly spread to other tribes, and was attended by a peculiar ceremony known as the *G. D.* It maintained that a Messiah was about to appear, who would restore the Indians to all their lost rights and banish the white invaders of the land. The doctrine thus enunciated was not a new one, but has appeared from time to time among the Indians. In the present instance the Indian who claimed the Messianic dignity was a Piute named Wivoka (called Jack Wilson by the whites), who seemed to have unusual hypnotic powers and gained great influence over the wilder tribes, some of which sent delegates 2,000 miles to hear his teachings. He promised a reunion with dead friends, a future state of happiness removed from the whites, and advocated peace and the discarding of everything relating to war. The *G. D.* takes place at night, men and women joining hands in a circle and moving round from right to left while singing the ghost songs, some being chants in the form of messages from their spirit friends, others old songs on all subjects but that of war. During the dance certain leaders seek to hypnotize the most excited of the participants, throwing them into a state of trance, during which they are supposed to commune with their departed friends and to receive messages and visions from the world of spirits. No musical instrument is used in the dance. The Sioux outbreak of 1890–91 arose indirectly from the *G. D.* ceremonies, but no other disturbance has arisen, although the *G. D.* is still widely practised. It represents a new religious movement, distinctly superior in its moral significance to the former religious conceptions of the Indians.

Gi'ant-pow'der, *n.* A form of dynamite, consisting of infusorial earth saturated with nitro-glycerine. It is a brown powder somewhat like fine sawdust.

Giant's Ket'tles. (*Geol.*) In Norway this name is given to pot-shaped, smooth-sided hollows excavated in rocks, and usually filled with boulders, cobble-stones, gravel, &c. They are ascribed to the work of water during the glacial period, this water descending through *moulins* or glacial chimneys to the bottom of the ice, and setting the stones there in rapid rotation, gradually wearing holes in the underlying rock. They are comparable to the pot-holes of streams, excavated by stones set in gyratory motion by the eddying waters of a stream. *G. K.* occur in many other countries than Norway.

Gibb, CHARLES, horticulturist, born in Montreal, Canada, in 1845; made a journey to Russia (1882) to obtain fruits that would grow on the cold prairies of the U. S. and Canada; subsequently travelled in China, Mongolia, and Japan, for the purpose of studying the fruits of those countries. Died at Cairo, Egypt, March 8, 1890.

Gib'bon, JOHN, soldier, born in Pennsylvania in 1826; graduate of West Point. Entered the army in 1847, and served in Mexico; was assistant instructor of artillery at West Point (1854–57) and quartermaster (1856–59); captain in 4th Artillery, U. S. A. (1859); chief of artillery under McDowell (1861); was made brigadier-general (1862), and major-general (1864) of volunteers, serving with the Army of the Potomac in its principal engagements; after the war was colonel of the 36th Infantry, U. S. A. (1866–69) and of the 7th Infantry (1869–86); promoted brigadier-general in 1886, and was retired April 20, 1891; resided in Baltimore, where he died Feb. 6, 1896. Was author of *The Artillerist's Manual*, and a frequent contributor to various periodicals.

Gibbon, in *Nebraska*, a post-village of Buffalo co., 13 m. E. of Kearney, on Un. Pac. R. R.; has a cheese factory, creamery, rolling mill, and flour mills. *Pop.* (1897) about 1,250.

Gib'bons, ABIGAIL (HOPPER), philanthropist, daughter of Isaac T. Hopper, was born in Philadelphia, Dec. 7, 1801; became the wife of James Sloan Gibbons of Wilmington, Del.; subsequently removed to New York; became an active assistant to her father in the forming of the Woman's Prison Association, and in founding the Isaac T. Hopper Home for discharged prisoners. During the Civil War Mrs. Gibbons' services in hospital and camp were most valuable. She was active in the establishing of the New York Infant Asylum and of the New York diet kitchen. Died Jan. 10, 1893.

Gibbons, JAMES, cardinal, was born in Baltimore, July 23, 1834, and educated at St. Charles College in that city; was assistant priest at St. Patrick's, then pastor of St. Bridget's, and later chancellor of the archdiocese. In 1868 he was made vicar apostolic of North Carolina, with the title of Bishop; in 1872 was transferred to the see of Richmond, Va.; succeeded Arch-

bishop Bayley, of the archdiocese of Baltimore, in 1877, having been his coadjutor for a few months prior to the latter's death; became a cardinal in 1886, being the second American to receive this honor.

Gib'bons, James Sloan, philanthropist; born in Wilmington, Del., July 1, 1810; engaged in banking in New York; was a prominent abolitionist and an active worker in the anti-slavery cause and in the movement against the destruction of forests; was the author of the well-known war song. *We are Coming, Father Abraham.* Died Oct. 16, 1892.

Gibbs, Alfred, soldier, born at Astoria, N. Y., April 22, 1823; graduated from West Point, and began his career as brevet second-lieutenant in the mounted rifles; served in the Mexican and Civil Wars, and was made brigadier-general of volunteers (1864). He received, for distinguished conduct, the various brevets from major to major-general, U. S. A. Died Dec. 26, 1868.

Gibbs, Oliver Wolcott, chemist, born in New York Feb. 21, 1822; graduated at Columbia College; studied chemistry in Philadelphia, and medicine in the New York College of Physicians and Surgeons, and in Europe under Liebig; subsequently became professor of Chemistry and Physics in the New York Free Academy, and, in 1863, of Chemistry in Harvard College. European societies have bestowed honors upon him, and he has published numerous articles in the *American Journal of Science*, &c. He was appointed Scientific Commissioner of the U. S. to the Vienna Exhibition of 1873.

Gib'son, William Hamilton, artist and author, born at Sandy Hook, Conn., Oct. 5, 1850. He early developed talent for drawing and keen interest in plant and insect life; studied at the Brooklyn Polytechnic Institute, where his taste for drawing was systematically developed. Thrown upon his own resources by the death of his father, *G.* entered commercial life in the employ of an insurance company; but this proving uncongenial, he gave it up and devoted himself to the particular art which interested him most—the drawing of flowers and insects. His first public work, a short illustrated article on the interior structure of a butternut, appeared in 1870; this was followed by many similar contributions to the leading juvenile and other periodicals, and later by more pretentious work in the principal magazines. Although not a scientist, in the usual sense of the term, *G.* did much by his ingenuity and analytical methods to stimulate the development of certain branches of popular science, his close familiarity with nature, as expressed in his pictures and the accompanying texts, acting as an inspiration as well as a source of practical information. His books include: *Camp Life in the Woods and the Tricks of Trapping and Trap-making; Pastoral Days, or Memories of a New England Year;* and *Highways and Byways.* Among his latest illustrated magazine articles was *Our Edible Toadstools and Mushrooms* (1895). Died July 16, 1896.

Gib'sonburg, in *Ohio*, a post-village of Sandusky co., 13 m. W. of Fremont, on T., W. V. & O. R. R. *Pop.* (1897) about 650.

Gid'dings, Franklin Henry, sociologist, born at Sherman, Conn., March 23, 1855; graduated at Union College; was employed on the Springfield (Mass.) *Daily Union* and *Republican*, contributing at the same time economic studies to various publications; was called to the chair of political sciences at Bryn Mawr College (1888); lecturer on sociology at Columbia College (1891). In connection with Prof. J. B. Clark he is the author of *The Modern Distributive Process;* editor of the monographs of the American Economic Association, and, for a time, was associate editor of the *Annals* of the American Academy of Political Science.

Giddings, Joshua Reed, statesman, born in Athens, Pa., Oct. 6, 1795; studied law and was admitted to the bar; afterward was a member of the legislature of Ohio, having removed to that State in 1806; was member of Congress (1838–59), where he became prominent as an anti-slavery leader; in 1861 was appointed consul-general in Canada. Author of *The Exiles of Florida; The Rebellion, its Authors and Causes.* Died at Montreal, May 27, 1864.

Giddings, in *Texas*, a post-town, cap. of Lee co., 59 m. E. of Austin, on H. & T. C. and S. A. & A. P. R. Rs. Has soda-water factory, brick works and manufactories of dentist's supplies. *Pop.* (1890) 1,203.

Gif'ford, Robert Swain, painter, born in Massachusetts, Dec. 23, 1840; studied painting with Albert Van Beest in New York. His travels, which were extensive, enabled him to give a wide variety of scene to his works. His paintings include: *Boats on the Nile; Egyptian Caravan; Border of the Desert*, &c.; was president of the New York Etching Club.

Gifford, Sanford Rogers, painter, born at Greenfield, N. Y., July 10, 1823; studied at Brown University; left college to study art in New York. He became a member of the National Association, made several visits to Europe. Among his works are: *San Giorgio; Venice; The Coming Storm; The Golden Horn*, &c.; served in the Civil War with the 7th New York Regiment. Died Aug. 29, 1880.

Gifford, in *Arkansas*, a post-town of Hot Springs co., 39 m. S. W. of Little Rock, on St. L., Iron Mt. & S. R. R. *Pop.* (1890) 516.

Gig'man, *n.* A man who keeps a gig; hence, applied to a narrow-minded man who considers himself better than his neighbors because he lives in a little better style.

Gignoux, Francois Regis, painter; born at Lyons, France, in 1816; studied in Paris; pupil of Delaroche and others. In 1840 he removed to the U. S., settled in New York, and gave his attention to landscape painting; became a member of the Academy of Design, and was the first president of the Brooklyn Art Academy; subsequently returned to France (1870). His works include: *Virginia in Indian Summer; The Four Seasons in America; Niagara in Winter*, &c.

Gila (*hē'lä*), in *Arizona*, a S.E. cen. co.; *area*, 3,212 sq. m. *Surface*, mountainous, with rolling uplands covered with grass. It is drained by tributaries of Salt river. This is essentially a mining and grazing country, but embraces much farming land. *Cap.* Globe City. *Pop.* (1897) about 3,150.

Gila Mon'ster, (*Zoöl.*) The common name of a large lizard of S.W. United States, known scientifically as *Heloderma suspectum*, and possessed of poisonous powers. It is one of the largest of North American lizards, is covered with scales of brilliant orange and jet-black hues, and frequents the sandy deserts of New Mexico, Texas, and Arizona, its common name being derived from the Gila river. Its bite is said to be quickly fatal to birds and small mammals, and very injurious, though rarely fatal, to man. Like poisonous snakes, it has grooved teeth with highly developed salivary glands at their bases. Another species, *Heloderma horridum*, of Mexico, is similarly poisonous. The heloderms are the only lizards known to be venomous.

Gil'bert, Charles Henry, ichthyologist, born at Rockford, Ill., Dec. 5, 1859; student of Butler and Indiana Universities; has held successively the chair of Zoölogy in the University of Cincinnati, Indiana University, and Leland Stanford University; is considered an authority on the fishes of North America, and jointly with Dr. D. S. Jordan was the author of *Synopsis of the Fishes of North America;* has also published various ichthyological papers.

Gilbert, Grove Karl, geologist, born at Rochester, N. Y., May 6, 1843; graduated from the University of Rochester; has held various positions as geologist, and successively the office of president of the American Society of Naturalists, of the Geological Society of America, and of the Philosophical Society of Washington. Author of *Geology of the Henry Mountains; Lake Bonneville*, &c.

Gilbert, Sir John, a historical painter, was born in England in 1817; became (1871) president of the Society of Painters in Water-Colors. Among his most notable pictures are the following: *Don Quixote giving Advice to Sancho Panza; The Education of Gil Blas; Othello before the Senate; Tristram Shandy; The Murder of Thomas à Becket; Charge of Cavaliers at Naseby; The Studio of Rembrandt;* and *The Entry of Joan of Arc into Orleans.*

Gilbert, John Gibbs, actor, born in Boston, Mass., Feb. 27, 1810; acted for some years in the U. S.; went to London and first appeared there in the character of *Sir Robert Bramble*, in *The Poor Gentleman;* visited Paris; returned to the U. S. (1848), playing in Philadelphia and Boston; finally joined the company at Wallack's Theater in New York (1862). Some of the characters in which he was famous were *Sir Peter Teazle, Sir Anthony Absolute*, and *Old Dornton.* Died June 17, 1889.

Gilbert, Joseph Henry, agricultural chemist, born at Hull, England, Aug. 1, 1817; educated at the University of Glasgow and University College, London; studied under Liebig at Geissen; became director of the Rothamsted Laboratory and professor of Rural Economy in the University of Oxford. His investigations at Rothamsted made him famous in the field of agricultural experimentation. Died June 17, 1889.

Gilbert, William Schwenk, humorist and dramatist; born in London, Nov. 18, 1836; educated at Great Ealing School, and received the degree of B.A. from the London University; admitted to the bar in 1864. Author of the humorous *Bab Ballads.* He wrote for the stage burlesques, comedies and farces which were very popular, but he is best known by his comic operas, in producing which he was associated with Arthur Sullivan. They include *Trial by Jury; The Sorcerer; H. M. S. Pinafore; The Pirates of Penzance; Patience; Iolanthe; The Mikado; Ruddygore; The Gondoliers; Utopia* (Limited), &c.

Gil'berton, in *Pennsylvania*, a post-borough of Schuylkill co., 4 m. from Mahanoy City, on Penna. and P. & R. R. Rs.; in a coal mining region. *Pop.* (1890) 3,687.

Gil'christ, Alexander, art critic; born at Newington Green, England, 1828; educated at University College, London; was admitted to the bar, though he never practiced. Author of a *Life of Etty*, and a *Life of Blake* which was left unfinished. Died Nov. 30, 1861.—Anne Gilchrist, his wife, was born in London, 1828; contributor to *All the Year Round, MacMillan's* and *Blackwood's Magazines.* Published a *Life of Mary Lamb*, and completed her husband's *Life of Blake*, referred to above. Died in 1885.

Gil'der, Richard Watson, editor and poet; born at Bordentown, N. J., Feb. 8, 1844; editor of *Hours at Home*, which magazine was merged into *Scribner's Monthly, G.* being made associate editor, and editor-in-chief when the name was changed to *Century Magazine.* Is the author of several volumes of poems, including *The New Day; The Poet and His Master*, &c.

Gilder, William Henry, traveller and journalist; born in Philadelphia, Aug. 16, 1838; entered the Civil War as a private, was promoted to a captaincy, and later was made brevet major-general. He accompanied the expedition in the search for the Sir John Franklin relics (1878–80) as the New York *Herald's* correspondent; also formed one of the company in the search for the bodies of DeLong and his companions in the Lena delta; author of *Schwatka's Search* (1881), and *Ice-Pack and Tundra* (1883); served as correspondent of the *Herald* during the Franco-Chinese war in Tonquin.

Gilfil'lan, George, author, born at Comrie, Perthshire, 1819; student of the University of Glasgow, and of the Divinity Hall of the Secession body; licensed (1835) to preach the gospel; subsequently ordained to School Wynd Church, Dundee, where he remained until his death. His literary industry was great, and he acquired a reputation as a lecturer. His works include: *The Bards of the Bible; The Martyrs of the Scottish Covenant; Alpha and Omega; Sketches, Literary and Theological; Lives* of Scott, Burns, &c. Died in 1878.

Gill, David, astronomer; born in Aberdeenshire, Scotland, June 12, 1843; educated at Marischal College, Aberdeen. He became the coadjutor of Lord Lindsay and went to Mauritius (1874) to observe the transit of Venus under his auspices; commanded an expedition (1877) to the island of Ascension, in the South Pacific Ocean, to determine the solar parallax by observation of Mars; appointed by the government (1879), director of the observatory at the Cape of Good Hope, which, under his able management, has become one of the leading observatories of the world. In cooperation with William L. Elkin he published his determinations of stellar parallaxes, &c; is the author of other valuable works and monographs, and a member of the permanent committee of the International Astrophotographic Congress.

Gill, Theodore Nicholas, naturalist, born in New York city, March 21, 1837; educated in private schools; awarded the honorary degrees of M.A., Ph.D. and M.D. He has made a special study of mammals, reptiles, and mollusks, and has been employed in the service of the Smithsonian Institution. Other countries have recognized his abilities as a scientist, and he is widely known for his valuable work in and contributions to ichthyology.

Gil'lam, Bernard, cartoonist, born in Banbury, England, in October, 1856; came to the U. S. with his parents in 1866; was educated at Williamsburg, N. Y.; became a clerk in a lawyer's office; and in 1876 began making drawings for illustrated periodicals, including *Frank Leslie's Illustrated Newspaper, Harper's Weekly* and the *New York Graphic.* He subsequently engaged in portrait painting, his first subject being Henry Ward Beecher. For several years afterward he was employed as cartoonist on *Puck*, and on the establishment of *Judge* joined its art staff, supplying cartoons on political subjects. He became part owner of the paper, and remained connected with it until his death, Jan. 19, 1896.

Gil'lem, Alvan C., soldier, born in Tennessee in 1830; graduated at West Point and was assigned to the artillery; served in the Seminole War and in the Civil War, reaching the rank of brevet major-general. In Sept., 1866, he was mustered out of the volunteer service. For gallant conduct in the field he received successive brevets in the regular army from major to major-general. He was conspicuous in the conflict with the Modoc Indians (1873). Died Dec. 2, 1875.

Gillett', Ezra Hall, author, born at Colchester, Conn., July 15, 1823; graduate of Yale College and the Union Theological Seminary; ordained to the Presbyterian ministry; appointed (1868) professor of political economy, ethics and history in the University of New York. Author of: *Life and Times of John Huss; History of the Presbyterian Church in the United States; Ancient Cities; England Two Hundred Years Ago*, &c.

Gil'liam, in *Oregon*, a N. co.; *area*, 1,700 sq. m. *Rivers.* John Day river, Rock, Butter, and 30-Mile creeks. *Surface.* Rolling prairie; *soil*, productive, dark, rich loam. *Industries.* Farming and stock raising. *Cap.* Condon. *Pop.* 3,600.

Gill'more, Quincy Adams, soldier and engineer, was born in Ohio, Feb. 28, 1825, graduated at West Point and commissioned in corps of engineers in 1849; was appointed brigadier-general of volunteers in 1862, and major-general in 1863; commanded the U. S. forces at the siege and capture of Fort Pulaski, Ga., in 1862, and at the battle of Somerset, Ky., in 1863; and, while in command of the Department of the South, conducted several other military operations, including the siege of Charleston. After the war he was placed in command of the Department of South Carolina, and received brevets from lieutenant-colonel to major-general in the regular army for gallant conduct during the war. He was superintending engineer (1865–72) of various fortifications and river and harbor improvements on the Atlantic coast, and published a treatise on *Limes, Hydraulic Cements, and Mortars*, and other works. Died April 7, 1888.

Gill'-net, *n.* A net suspended in a stream, having meshes which allow the heads of the fish to pass and in which they become entangled by their gills.

Gil'ly, *n.* (*Slang.*) A simpleton, or one easily imposed upon.

Gil'man, Arthur, educator; born at Alton, Ill., June 22, 1837; engaged as a banker in New York; subsequently removed to Lenox, Mass., where he gave his attention and labors to literary pursuits, education and religious instruction; was appointed to the charge of the Harvard Annex (1876); and had editorial connection with the publications of the American Tract Society, Boston. He has edited the *Story of the Nations* series and an edition of *Chaucer.* Published *First Steps in English Literature;* and *History of the American People.*

Gilman, Daniel Coit, educator, born at Norwich, Conn., July 6, 1831; graduated from Yale (1852); superintendent of New Haven schools (1856–60); State Superintendent of Schools, Conn. (1865–66); librarian of Yale (1856–65) and professor of physical and political geography in Sheffield Scientific School (1863–72); president of the University of California (1872–75); in the latter year became president of Johns Hopkins University

Baltimore, which position he still holds (1897). He received the honorary degree of LL.D. from Harvard in 1876 and from Columbia in 1887; has written profusely on educational, political and economic subjects, and is the author of a biography of James Monroe.

Gil'man, N. P., clergyman, and writer on economics; born at Quincy, Ill., Dec. 21, 1849; graduate of Harvard Divinity School; appointed professor in Antioch College; secretary of the Association for the Promotion of Profit-sharing; editor of *The Literary World*, Boston, and later *The New World* in the same city. His works include: *Profit-Sharing between Employer and Employé*; *The Laws of Daily Conduct*, &c.

Gil'more, John R., author; born at Boston, Mass., 1823. After a period spent in business, he gave his attention to literature, and, under the pen-name of Edmund Kirke, wrote: *Among the Pines; My Southern Friends; Down in Tennessee*, &c. He has contributed to various periodicals and is the author of a *Life of Jesus*.

Gilmore, Patrick Sarsfield, musical conductor; born near Dublin, Ireland, Dec. 25, 1829; organized Gilmore's Band (1858); entered the Civil War and served for two years under Burnside. He was the organizer of the Peace Jubilee (1869) and the World's Jubilee (1872) which were held in Boston; also of the New York Twenty-second Regiment Band of 100 pieces. Author of an anthem, *Columbia*. Died at St. Louis, Mo., Sept. 24, 1892.

Gin'ger-ale, *n.* A non-alcoholic beverage, made by dissolving sugar in water, flavoring with ginger and coloring with a solution of caramel. Each bottle is aerated with carbonic-acid gas and securely corked.

Gingerol', *n.* (*Chem.*) The active principle of ginger.

Ging'ko, or **Gin'ko,** *n.* (*Bot.*) A large tree, *Salisburia adiantifolia*, order *Taxaceæ* (Yews, &c.), with erect trunk and wide, flat leaves, a character possessed by few trees of the order. Its fruit has a kernel resembling the almond, for which it is largely grown in China, its native country. Its wood is easily worked and takes a fine polish. It has been introduced into the U. S.

Gin'-mill, *n.* (*Slang.*) A low drinking saloon.

Gin-pal'ace, *n.* A drinking saloon gorgeously fitted up or illuminated.

Girard', in *Illinois*, a city of Macoupin co., 25 m. S. W. of Springfield, on C. & A. and J., L. & St. L. R. Rs. Coal is extensively mined here. *Pop.* (1890) 1,524.

Girard, in *Kansas*, a city, cap. of Crawford co., 20 m. S. by W. of Fort Scott, on the K. C., Fort S. & M., the A., T. & S. Fé, and the St. L. & S. F. R. Rs.; has foundry and machine shops. Coal is mined here. *Pop.* (1895) 2,703.

Girard'ville, in *Pennsylvania*, a post-borough of Schuylkill co., 13 m. N. W. of Pottsville, on P. & R. and L. Val. R. Rs. Here are large anthracite coal mines, and coal is largely shipped. *Pop.* (1890) 3,584.

Gis'borne, Francis Newton, telegraphist, born at Broughton, Lancashire, England, March 8, 1824; removed to Canada and became superintendent of the Nova Scotia government telegraph lines at Halifax; laid the first ocean cable on the American side of the Atlantic, connecting Prince Edward Island with New Brunswick; was a charter member, and became (1856) the chief engineer of the New York, Newfoundland and London Telegraph Company; was made superintendent (1879) of the Dominion Government Telegraph Signal Service. Died Aug. 29, 1892.

Glad'brook, in *Iowa*, a post-town of Tama co., 16 m. N.W. of Toledo, at the junction of C. & N.W. and C. & Gt. W. R. Rs. Has some local manufactures and is a shipping point for cattle, hogs and grain. *Pop.* (1897) about 800.

Glad'den, Washington, D.D., LL.D., clergyman and author, born at Pottsgrove, Pa., Feb. 11, 1836; graduated from Williams College (1859); was one of the staff of the *Independent*, also editor of *Sunday Afternoon*; successively engaged as pastor of Congregational churches in Brooklyn and Morrisania, N. Y., North Adams and Springfield, Mass., and (1883) Columbus, O. He has won a reputation both as preacher and author. His works include: *Tools and the Man; Property and Industry under the Christian Law; Who Wrote the Bible; The Cosmopolis City Club*, &c.

Glad'stone, in *Michigan*, a city of Delta co., 9 m. N. of Escanaba, on M., St. P. & S. Ste. M. R. R.; has flour and coal docks, a grain elevator and machine shops. *Pop.* (1894) 2,130.

Glad'win, in *Michigan*, a post-village, cap. of Gladwin co., 28 m. W.N.W. of Pinconning, on M. C. R. R. *Pop.* (1894) 882.

Glaish'er, James, an English aëronaut, born in 1809, who acquired considerable fame as a meteorologist, and for the manner in which he turned to scientific account the results of his experiments above the clouds in his balloon voyages. He was made a member of the Royal Society in 1849. In 1865 he succeeded Admiral Fitzroy as chief of the Meteorological Department of the English Board of Trade. In 1870 he published *Travels in the Air: a Popular Account of Balloon Voyages and Ventures, with Recent Attempts to Accomplish the Navigation of the Air*, and has published numerous other works on astronomy, meteorology, and mathematics. In 1863 he ascended to an unprecedented height in the atmosphere, claimed to be 37,000 above the earth's surface.

Glen'dorf, in *Ohio*, a post-village of Putnam co., 3 m. W. of Ottawa, on F., Ft. W. & W. R. R. *Pop.* (1890) 571.

Glas'cow, or **Glas'gow,** in *Tennessee*, a post-village of Rhea co. *Pop.* (1890) 959.

Glass, Spun. (*Manuf.*) Glass of certain kinds, when in the plastic state, is capable of being drawn out into threads of great tenacity, and of much flexibility and elasticity, while they possess much brilliancy and beauty of color, and are soft and smooth to the touch, like fine wool. The threads produced in this way have been woven into textiles for upholstery and wearing purposes, and are especially useful in millinery from their richness of color and their being unaffected by the weather.

Glass'cock, in *Texas*, a W. co.; *area*, 900 sq. m.; intersected by the Concho River. *Cap.* Garden City. *Pop.* (1890) 208.

Glass-sponge, *n.* (*Zoöl.*) A sponge belonging to a number of genera, of the family *Hexactinellidæ*, which form a firm silicious skeleton of hyaline, six-rayed spicules, which, when the fleshy parts are washed away, remain as a netted frame-work resembling the finest spun glass. In some cases the sponge is anchored to the bottom by a cable of long silicious spicules descending into the soil. They are all tenants of deep water. The handsome Venus flower-basket of the dealers is *Euplectella aspergillum*; while the most common glass-rope sponge is the Japanese species, *Hyalonema sieboldii*.

Gleason, Frederick Grant, musician; born at Middletown, Conn., Dec. 17, 1848. He wrote an oratorio, *The Captivity*, and a Christmas oratorio before he was sixteen; studied at Hartford, Conn., pupil of Dudley Buck; afterward continued his studies in Leipzig, Berlin, and London. On his return to America he accepted a position as an organist in Hartford, Conn.; has resided in Chicago since 1876, engaged in teaching, composing, and as musical critic for the *Tribune* of that city. His works comprise two operas, *Otho Visconte* and *Montezuma*; three cantatas, *God our Deliverer*; *The Culprit Fay*, and *Praise of Harmony*; besides sonatas, songs, and numerous minor compositions for the organ.

Glen Rich'ey, in *Pennsylvania*, a post-village of Clearfield co., 1 m. N.W. of O'Shanter. *Pop.* (1890) 527.

Glen Rock, in *Pennsylvania*, a post-borough of York co., 15 m. S. of York, on N. C. R.R.; has manufactures of furniture, sash, doors, carpets, felts and cordage; also a foundry and machine shops. *Pop.* (1890) 687.

Glen'dive, in *Montana*, a post-village, cap. of Dawson co. 7 m. E. of Dawson City, on Nor. Pac. R.R.; the shipping point of a large farming and stock raising region. *Pop.* (1897) about 1,200.

Glenly'on, in *Pennsylvania*, a post-village of Luzerne co., on Penna. R.R., in an anthracite mining region. *Pop.* (1890) 2,255.

Glen'wood Springs, in *Colorado*, a post-village, cap. of Garfield co., 86 m. W. of Leadville on D. & Rio G. and Colo. Midland R.Rs. Here are large thermal springs much resorted to by invalids. *Pop.* (1897) 1,250.

Glis'son, Oliver S., U. S. N., born in Ohio, in 1809; entered the navy (1826), and served with distinction, especially during the Civil War; reached the rank of rear-admiral in 1870, and died Nov. 20, 1890.

Globe or **Globe City,** in *Arizona*, a post-town, cap. of Gila co., in the Pinal Mountain, 75 m. N. E. of Florence. Here are rich ores of silver and copper. Mining is the principal industry. *Pop.* (1897) about 1,500.

Globegeri'na, *n.* (*Conch.*) A genus of *Foraminifera* (*q. v.*), whose name is derived from its roughly globular shape. The various species are found on the ocean surface far from land, and as they die their calcareous shells sink to the bottom, where they form a deposit known as *G. ooze*. This is supposed to be gradually hardening into a bed of chalk.

Glock'enspiel, *n.* A musical instrument having a series of small bells or metal bars that are struck with a small hammer or acted on by means of keys; a carillon.

Glo'ria-cloth. See Gloriosa.

Glorio'sa, *n.* [Lat. *adj*, full of glory.] (*Bot.*) A genus of tuberous-rooted, tendril-climbing plants of the *Liliaceæ*, or lily family, natives of tropical Asia or Africa; cultivated in hot-houses for their splendid large red or yellow flowers.

(*Fabrics.*) A cloth composed of wool and silk, closely resembling the latter, used for umbrellas, &c.

Glos'sic, *n.* [Gr. *glossa*, tongue.] "A fonetic sistem ov speling, uzing noa noo karakterz, but employing eech leter or deigraf ov dhe komon alfabet with dhair moast uzual soundz." The foregoing is a combined definition, example and warning.

Glos'sop, a manufacturing town of England, county Derby, 17 miles W.N.W. of Sheffield. *Pop.* (1895) 22,416.

Glu'cose, *n.* (*Chem.*) A liquid material produced from corn-starch, though it may be obtained from other sources, such as the grape, its solid form being known as grape sugar, or sometimes as starch sugar. The term *G.*, in its commercial use, is confined to the thick syrup made from corn starch. In its manufacture the corn is soaked for several days in warm water, and then ground on stones over which flows a stream of water. The material thus produced is passed through a bolting cloth, and the starch separated by suitable methods from the gluten. The starch thus obtained is beaten up with water until of a creamy consistency, conducted to the converting tubes and treated with dilute sulphuric acid. During the process, about two hours long, steam is made to bubble into the liquid. Marble dust and animal charcoal are next used to neutralize the acid, and the liquor evaporated till sufficiently concentrated. This is the most common of several methods of producing *G.*, which is a thick tenacious syrup, almost colorless, its degree of sweetness being due to the extent of chemical action in the conversion of starch into sugar. If stopped as soon as the starch disappears it has its maximum sweetness. Grape sugar was made from wood fibre as early as 1819, and sawdust and wood clippings are used to some extent in the manufacture of *G.*, yielding an inferior, but not necessarily an unwholesome article. In a report made by a committee of the National Academy of Sciences on *G.* in 1884, it was declared that grape sugar had two-thirds the sweetening power of corn sugar, that it had no deleterious effect, and that "the starch sugar thus made (from maize) and sent into commerce is of exceptional purity and uniformity of composition, and contains no injurious substances." *G.* is used chiefly in the manufacture of table syrups and confectionery, the brewing of ale and beer, and to some extent as food for bees and the making of artificial honey. When fed to bees, the resulting honey is almost pure glucose. *G.* is largely used in candy making, diminishing the sweetness, though not the wholesomeness of the product. For table syrup it is mixed with a small proportion of cane sugar syrup. It is also converted into grape sugar and used to adulterate table sugar.

Glu'coside, *n.* (*Chem.*) A substance which, when treated with dilute acids or certain ferments, yields glucose, or a sugar of similar composition. Among these are *arbutin*, derived from the leaves of arbutus and wintergreen; *salicin*, from willow bark; *æsculin* from horse-chestnut bark; *amygdalin* from oil of bitter almonds, and various others.

Glyn, Isabella, a celebrated actress; born in Edinburgh in 1823; made her first appearance in 1847, and speedily became very popular, particularly in such characters as *Lady Macbeth*, *Queen Katherine*, *Belvidera*, and *Hermione*. In 1870 she gave very successful dramatic readings in the United States.

Glyptosaurus (*glĭp'tō-sau'rŭs*), *n.* [Gr. *glyptos*, carved, and *sauros*, a lizard.] (*Palæon.*) A genus of fossil land lizards, discovered in 1871 by Dr. Marsh, of Yale College, in the tertiary deposits of Wyoming, and so named in allusion to the fact that the head and parts of the body were covered with highly ornamented bony plates. Four species have been described, which are readily distinguished by the form and ornamentation of the shields on the head. The largest of these, *G. sylvestris*, was about 4 feet in length; the smallest, *G. anceps*, apparently about 2 feet.

Gna'denhutten, in *Ohio*, a post-village of Clay township, Tuscarawas co.

Gnathodon (*nath'o-dŏn*), *n.* (*Ornith.*) A genus of birds nearly allied to the *Columbidæ* or pigeon tribe. The only known species (*G. strigirostris*) is rather larger than a partridge, and has the head, neck, breast, and belly of a glossy green-black; the back, wings, tail, and under tail-coverts, of a deep chestnut-red; the beak and naked part round the eye of a yellowish color. It is believed to be a native of one of the South Sea islands.

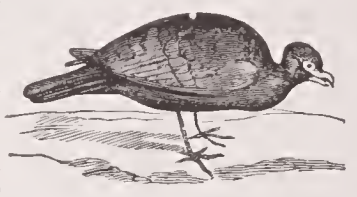


Fig. 2910.—GNATHODON.

Gneist, Heinrich Rudolf Hermann Friedrich, jurist; born in Berlin, Aug. 13, 1816; began his official career as assessor in the Superior Court and rose to be Assistant Judge of the Supreme Tribunal; subsequently devoted himself to teaching; was a member of the Imperial Parliament, and sat in the Prussian lower house as a National Liberal. In 1844 he was appointed to the chair of Jurisprudence in Berlin University. His writings deal principally with the constitutional laws of Germany and England, and in current questions of practical politics in the former country.

Gobang', *n.* A game played on a checkered board, usually having 256 squares, with 50 colored counters.

Gobineau', de, Joseph Arthur, Comte, diplomatist and author; born at Bordeaux, France, 1816; was secretary of legation at Berne (1851), and at successive periods Ambassador to Persia, Greece, Brazil and Sweden, retiring at his own request (1877). His contributions to literature include: *Trois ans en Asie*; *Histoire des Perses*; *La Renaissance*; *Les Cousins d'Isis*; and an epic poem. He made a special study of anthropology and philosophy. Died in 1882.

Goblet (*gō-blā'*), René, politician; born at Aire-sur-la-Lys, France, Nov. 26, 1828; studied law, and was one of the founders of a liberal newspaper under the empire, and was made *procureur-général* in the Court of Appeal in Amiens (1870). In the following year he resigned and was elected to the National Assembly, where he distinguished himself as an orator; was Under Secretary of State for Justice (1879); Minister of the Interior (1882). On the downfall of M. de Freycinet's ministry (Dec. 1886), *G.* formed a cabinet and became premier; the question of the budget (May 17, 1887) was the cause of his overthrow. He was elected to the Senate in 1891.

God'dard, Arabella, pianist, born of English parents at St. Mâlo, France, in 1836. At four years of age she performed a fantasia on themes from Mozart's *Don Juan*, and, after studying at Paris under Kalkbrenner, played before Queen Victoria at the age of eight. She finished her musical education under Thalberg, and made her first public appearance in 1850 at Her Majesty's Theater, London. Thereafter her career was one of uninterrupted brilliancy, she having performed with *eclât* in all the principal cities of Europe and America.

Go'devil, *n.* (*Local.*) A scraper in a pipe-line.—A dynamite cartridge-exploder used in an oil-well to start a flow.—A kind of rude flow used in clearing.—A rough wagon used in the woods, or a sledge for transporting logs.

Godi'va, Lady. See Coventry.

God'kin, Eugene Lawrence, journalist; born at Moyne, county Wicklow, Ireland, Oct. 2, 1831; graduate of Queen's College, Belfast; contributor to the London press as correspondent of the London *Daily News* during the Crimean war; subsequently went to the U. S. and was admitted to the bar in New York. He became editor of *The Nation* in 1865, and its proprietor in the following year. He has given much attention to civil service and revenue reform, and is a leader of the so-called "mugwumps."

God'win, Mary Wollstonecroft, author; born at Hoxton, near London, England, April 27, 1759. Her works include the famous *Vindication of the Rights of Woman* and *Moral and Historical View of the French Revolution.* Died Sept. 10, 1797.

God'win, Parke, journalist and author, born in New Jersey in 1816; from 1837 to 1853 he was editorially connected with the New York *Evening Post*, except for one year, a connection which he resumed in 1865; also edited the *Weekly Pathfinder* (1843), and *Putnam's Monthly*, beside contributing largely to the *Democratic Review.* Wrote several books on political and social topics; *Vala: a Mythological Tale; History of France*; *Out of the Past;* and edited an edition of Bryant's writings, with a biography (1883–84).

Goebel (*gā'bĕl*), Julius, Ph.D., philologist, born in Frankfort-on-the-Main, Germany, May 23, 1875; educated at the University of Leipsic and the University of Tübigen. Held the chairs of German Literature and Philology at Johns Hopkins University; was afterwards professor of the same subjects at Leland Stanford University; has contributed essays and reviews to periodicals, and published *Ueber die Tukunft unseres Volkes in Amerika; Turdeutschen Frage in Amerika,* &c.

Goess'man, Charles Anthony, chemist; born at Naumburg, Hesse-Cassel, Germany, June 13, 1827; graduate of University of Göttingen. Has resided since 1857 in the U. S. and has been for many years professor of Chemistry in the Massachusetts Agricultural College, at Amherst; appointed chemist to the State Board of Agriculture (1873), and later elected director of the Massachusetts State Agricultural Experiment Station, at Amherst, Mass. Has published valuable papers upon chemical subjects.

Goetz, Hermann, composer; born in Königsberg, Prussia, Dec. 17, 1840; studied music in Berlin. His operas include: *The Taming of the Shrew*, which was produced most successfully at Mannheim in 1894, and *Francesca da Rimini*, which was not performed until after his death. Died in 1876.

Goff, Nathan, soldier and jurist, born at Clarksburg, W. Va., Feb. 9, 1842; entered the Union army in 1861, as a private, and served through the Civil War, reaching the rank of major and brevet brigadier-general; began public life as a member of the West Virginia Legislature; was appointed U. S. District Attorney in 1868, and served until 1881, when he became Secretary of the Navy, succeeding R. W. Thompson. He was a member of Congress from 1882 to 1888, and in the latter year ran for Governor of West Virginia, but was beaten on a contest after apparently having won. Was appointed a judge of the U. S. Circuit Court of Appeals, in 1892, and in 1897 declined the position of Attorney-General in President McKinley's cabinet.

Gogebic (*gō'-jē-bic*), in *Michigan*, ex. N.W. co.; *area*, 1,115 sq. m. *Surface*, somewhat rough and broken; *soil*, excellent. Drained by Montreal river and other small streams. Contains the largest known deposits of Bessemer iron ore in the world. Manganese, granite, gold and silver have also been discovered. *Cap.* Bessemer. *Pop.* (1894) 14,083.

Gold, Extrac'tion of. New methods of extracting gold from its ores have been devised which render it profitable to work materials which formerly were rejected as unavailable. The operation, as ordinarily pursued, consists in crushing the quartz to a fine powder, so as to detach every particle of gold, and subsequently washing away the quartz, leaving the heavier gold behind. To retain the fine particles of gold, quicksilver is used, with which they became amalgamated. The crushing is effected in stamp mills, the larger masses having first been broken into small pieces in a rock breaker. The quicksilver is used in the stamp mills so as to catch the coarser particles of gold, and prevent their being reduced in size; and also in broad amalgamated plates outside, over which all the gold escaping from the batteries must pass. The amalgam produced within the mortars is retained by amalgamated copper plates, on which it collects to a thickness of half an inch, it having to be removed with chisels. It is then dissolved in quicksilver to separate impurities, the excess of quicksilver is strained out and the residue expelled by heat, leaving spongy gold, which is subsequently fused and cast into ingots. The sulphurets, which enclose a percentage of gold, are saved by mechanical processes, the concentrated sand produced being then usually worked by a process known as *chloriuation.* The gold is dissolved out by chlorine, after the sulphur, arsenic, &c., have been expelled by a preliminary roasting; it is afterward recovered from the solution by chemical methods. The more recent methods employ electricity as an agent, with effective results. In this new system of gold extraction the stamp mills are replaced by crushing machinery, which yields a very fine product. The Jordan machine consists of an inclined plane over whose surface heavy bars or mullers roll continuously. The ore is fed automatically to this plane, on which it is crushed by the mullers to any desired fineness. The crushed material is then washed over screens with meshes of the requisite smallness, the fine material passing through, the coarser particles being automatically returned to pass again under the mullers.—The *chromic process* of saving the gold, as now practiced, employs an electric current as an important aid in inducing amalgamation. Among the various methods employed we may describe the Haycroft. In this the finely crushed ore is mixed with water in a caldron in which revolves an upright shaft with protruding arms, the effect being to keep the liquid in constant motion. On the arms are carbon shoes which serve as the anodes of the battery. From these the electric current passes to the bottom of the caldron, and in particular to a dish of mercury in its centre which serves as the cathode. Common salt or some other compound of chlorine is added. The current decomposes the salt, whose sodium goes to the mercury while the freed chlorine rises and dissolves the fine gold, contact being aided by the constant rotation of the thick liquid. A secondary action now takes place, the chloride of gold being decomposed by the current. The gold goes to the mercury and is amalgamated. The freed chlorine takes up more gold from the rotating liquid and repeats the process.—Chlorine is not the only substance used in this electrical method, cyanogen being also employed. In one *cyanide process* a mixture of potassium cyanide and cyanogen bromide is used as the solvent with remarkable results.—*Artificial deposition.* It was discovered some years ago that gold could be made to deposit from its mineral salt in its metallic state on any suitable base, such as iron sulphide; and Mr. J. C. F. Johnson, of Adelaide, Australia, has succeeded in producing such deposits on quartz, yielding a striking resemblance to ordinary auriferous quartz. The gold not only appears on the surface, but thoroughly penetrates the stone, assuming the natural forms, and opening an opportunity for the fraudulent production of seeming gold-bearing rock. This discovery suggests that gold was originally deposited in its quartz matrix in this manner, and may possibly lead to some suggestion for its economical extraction therefrom.

Gold'en City, in *Missouri*, a post-village of Barton co., 12 m. E. of Lamar, on K. C., Ft. S. & M. R. R. Has broom, brick and tile factories. *Pop.* (1890) 773.

Gold'en Text. A text accompanying, and intended to epitomize, a Scripture lesson.

Gold'en Trum'peter. *n.* (*Ornith.*) A South American bird, the Agami (*Psophia crepitans*), which emits a deep, rough sound, suggestive of a trumpet.

Gold'en Val'ley, in *Minnesota*, a village of Hennepin co., about 3 m. S.W. of Minneapolis. *Pop.* (1897) about 509.

Gold'en Wed'ding. The fiftieth anniversary of a marriage, usually observed with more than ordinary festivity, by a grand assemblage of the relatives and friends, and presents of gold to the venerable couple.

Gold'endale, in *Washington*, a post-village, cap. of Klickitat co., 12 m. N. of Grant, Ore. Has flour mills and other manufactures. *Pop.* (1897) about 850.

Gold'ilocks, *n.* (*Bot.*) Various plants, or genera: specifically (1) *Linosyris vulgaris*, a European herb of the aster family; (2) *Helicrysum stœchas; Ranunculus auricomus*, a buttercup; (4) *Hymenophyllum tumbridgense*, a filmy fern.

Gold'mark, Karl, musician, was born of Jewish parents in Hungary, May 18, 1832. His operas, *The Queen of Sheba* and *Merlin*, are well known in America, and his *Country Wedding* suite is very popular. Other effective compositions are the overtures *Penthesilea* and *Sakuntula.* His style is original and rather picturesque, and his orchestration skillful; there is, however, some deficiency in the matter of melodic invention.

Golds'borough, Louis Malasherbes, U.S.N., born at Washington, D. C., Feb. 18, 1805; entered the navy when seven years old and was a lieutenant at 20; won fame and the thanks of the English government by rescuing the British brig *Comet* from a large force of Greek pirates (1827); commanded a company of cavalry in the Seminole War, and was executive officer of the frigate *Ohio*, at the bombardment of Vera Cruz (1847); explored California and Oregon (1849–51); was commander of the Naval Academy (1853–57); in 1861 had reached the rank of commodore with command of the North Atlantic squadron. He coöperated with Burnside in the capture of Roanoke Island, and by many is given credit for the success of that expedition; rendered other excellent service during the Civil War; was made rear-admiral in 1862, and given command of the European squadron in 1873; retired in 1873, and died Feb. 20, 1877.

Gold'schmidt, Hermann, astronomer; born of Jewish parents at Frankfort, Germany, June 17, 1802; pupil of Cornelius, and practiced painting for a number of years at Paris, but finally gave his attention to astronomy. He discovered fourteen asteroids (1852–61); detected thousands of stars which were not marked on atlases before his time, and discovered several new companion stars revolving around Sirius. Died Sept. 11, 1866.

Goldschmidt, Meyer Aaron, novelist, born at Verdingborg, Denmark, October 26, 1819; was carefully educated at the University of Copenhagen; founded two weekly journals, *The Corsair* and *North and South.* He ranks high among Danish novelists, and his works include: *The Homeless One; The Heir; The Raven,* &c. Died Aug. 6, 1887.

Go'marites, or **Go'marists,** *n. pl.* The followers of Francis Gomar, a theologian, who was born at Benges, Jan. 30, 1563, died at Grönigen in 1641. In 1594 he was appointed professor of divinity at Leyden. In 1603 the celebrated Arminius became his colleague. Gomar, being strongly Calvinistic, opposed the views of his associate with much zeal. When Arminius, about a year before his death, presented a remonstrance to the States-General, Gomar and his followers came out so strongly on the other side that they were called Anti- or Contra-Remonstrants. In a disputation at The Hague in 1608, and at the Synod of Dort in 1618, Gomar was so conspicuously the leader of the Calvinistic opponents of Arminius that they were called Gomarites.

Go'mez, Maximo, Cuban patriot and soldier, was born of Spanish parents, about 1832; entered the Spanish military service and reached the rank of major, but resigned in 1868 and cast his fortunes with the Cuban revolutionary party in the ten years' war; was elected commander-in-chief of the Cuban forces in 1895, and has had direct command of the army of the East. In common with many other Cuban patriots, *G.* has spent much time in exile. He is a commander and strategist of high efficiency.

Goncourt (*gŏng-coor'*), **de,** Edmond and Jules, French novelists; the former born at Nancy, May 26, 1822, the latter at Paris, Dec. 17, 1830. Their earliest works were historical studies of the latter part of the 18th century, representing the habits of life, manners and customs of the people of that period. Of their novels, *Madame Gervaisais* is the greatest. After the death of Jules, June 20, 1870, Edmond continued writing, and issued, among other works, the popular *La Fille Elias.* Edmond died July 16, 1896.

Goniophle'bium, *n.* (*Bot.*) A genus of polypodineous ferns, having the naked globose sori of *Polypodium*, and forming one of the genera of the polypodineous group with netted veins. The peculiar characteristic of *Goniophlebium* among these is, that the veins are forked or pinnate from a central costa, the lower anterior branches being usually free and fertile at the apex, and the rest angularly or arcuately anastomosing, and producing from their angles free excurrent veinlets, which are often fertile, the marginal veinlets being free. There are often several series of anastomosing veinlets, but sometimes only one. The free (and in mature specimens usually fertile) veinlet produced within the basal areole distinguishes this group specially from its allies. There are a considerable number of species, found abundantly in South America and the West Indies and in India and the Eastern and Pacific Islands.



Fig. 2911.—GONIOPHLEBIUM.

Gonza'lez, Manuel, soldier and statesman; born near Matamoras, Mexico, about 1820; entered the army and fought as a guerrilla leader on the side of the reactionists in the civil wars when the country was invaded by the French (1861). He offered his sword to Juarez; continued to serve in the army; was made brigadier-general, and appointed governor of the palace by Juarez; afterward joined Diaz, and was made secretary of war when Diaz became president, succeeding the latter in 1880. *G.* resigned the presidency in 1884, retired to private life, and died May 8, 1893.

Goode, George Brown, naturalist, was born at New Albany, Ind., Feb. 13, 1851; graduated from Wesleyan University (1870), and studied at the Museum of Comparative Zoölogy, Harvard, making a specialty of ichthyology. After 1871 was identified with the Smithsonian Institution, the National Museum, and the U. S. Fish Commission; represented the U. S. at the Fisheries Expositions in Berlin (1880) and London (1883); had charge of the fisheries division of the tenth census; was U. S. Commissioner of Fisheries (1887–88); after 1887 was assistant secretary of the Smithsonian Institution, and superintendent of the National Museum. Died Sept. 6, 1896.

Good'land, in *Kansas*, a city, cap. of Sherman co., 36 m. W. of Colby, on C., R. I. & P. R. R. *Pop.* (1895) 988.

Good'water, in *Alabama*, a post-village of Coosa co., 18 m. N.E. of Rockford, on Central R.R. of Ga.; has some local manuf. *Pop.* (1890) 589.

Good'y, *a.* (*Colloq.*) Mawkishly or weakly good; namby-pamby; having a semblance of piety, with silliness. Often used double; as, a *goody-goody* sort of person.

Gor'don, A. J., Baptist clergyman, was born in 1838; graduated from Brown University (1860) and Newton Theological Seminary (1863); was pastor of the Clarendon St. Baptist Church, in Boston, from 1869 until his death in 1895. Dr. *G.* was a man of intense spirituality, whose influence was great. He wrote: *In Christ; The Ministry of the Spirit,* &c.

Gordon, Charles George, an English general, born 1833. After leaving Woolwich Academy, he entered the army as lieutenant of Engineers, served in the Crimean War (1854), and in 1856 was sent as assistant Commissioner to Bassarabia, to settle the disputed boundary between Russia and Turkey. In 1860 he went to China and took a prominent part in the Tai-Ping rebellion, gaining there his sobriquet of "Chinese Gordon." He succeeded in subduing the rebels, was made a Man-

darin in 1863, and left China overwhelmed with testimonials and honors. From 1865 to 1871 he remained at Gravesend with the Engineer Corps. In 1873 he entered the service of the Khedive of Egypt. In 1876 he was made governor of the Soudan, resigning and returning to England in 1879. In 1884 he was sent by England to the Soudan to propitiate the revolting Arabs, and was killed at the taking of Khartoum, Jan. 27, 1885, being overcome by treachery after a determined resistance.

Gor'don, GEORGE HENRY, soldier and politician, born at Charlestown, Mass., July 19, 1824; graduated from West Point, served in Mexico, on the frontier, and with the Coast Survey; resigned from the army and studied law. Upon the outbreak of the Civil War he joined the volunteer service, reaching the rank of brigadier-general and the brevet of major-general; after the war was collector of internal revenue in Massachusetts. Died Aug. 30, 1886.

Gordon, JOHN B., soldier and statesman, was born in Upson co., Georgia, Feb. 6, 1832; graduated from the University of Georgia, and studied law; entered the Confederate service in 1861, and rose to the rank of lieutenant-general after a brilliant career in the field, during which he was eight times wounded. *G.* was a Democratic Presidential elector in 1868 and 1872; was sent to the U. S. Senate in the latter year, resigned in 1880, and was governor of Georgia from 1886 to 1890, when he again became U. S. Senator, holding that position until 1897. General *G.* has lectured extensively on war topics, and has been commander-in-chief of the United Confederate Veterans.

Gor'man, ARTHUR PUE, politician, was born in Howard co., Maryland, March 11, 1839, and was educated in the public schools; entered the service of the U. S. Senate as page, in 1852, and rose to the position of postmaster of that body in 1866, in which year he was appointed collector of internal revenue in the 5th Maryland district; elected a member of the Maryland legislature (1869), speaker of that house (1871), State senator (1879); succeeded William Pinckney Whyte in the U. S. Senate on March 4, 1881, and was re-elected in 1886 and 1892. He became a director of the Chesapeake & Ohio Canal Co., in 1869, and its president in 1872.

Gor'ringe, HENRY HONEYCHURCH, U.S.N.; born at Barbados, West Indies, Aug. 11, 1841, and educated there; went to the U.S. in his youth; entered the navy and rose to the rank of commander. In 1878 leave of absence was given him for the purpose of conveying the obelisk known as "Cleopatra's Needle" from Egypt to New York, which difficult task he safely performed. He afterward resigned from the navy and engaged in shipbuilding. Author of a *History of Egyptian Obelisks.* Died July 7, 1885.

Gort'schakoff. PRINCE ALEXANDER, statesman and diplomatist, born in Russia about 1800, represented Russia at various European courts, and in 1855 negotiated the peace between Russia and the western powers. In 1856 was appointed Minister of Foreign Affairs, and greatly distinguished himself in 1863, during the Polish insurrection, by preventing foreign intervention; in 1862 appointed Vice-Chancellor, and 1863 Chancellor of the empire. In 1870–71 was instrumental in terminating the treaty of Paris in relation to the Black Sea. He was influential in the settlement of most of the great European questions of the quarter of a century before his death, though his influence declined after the outbreak of the Russo-Turkish war of 1877, and he was thwarted at the Congress of Berlin by Bismarck and Beaconsfield. He was superseded as minister by M. de Giers in 1882, and died at Baden-Baden, March 1, 1883.

Gos'pel-wag'on, *n.* A large covered vehicle, usually opening on one side; carrying a musical instrument and a number of people who go from one locality to another singing and preaching to the people that gather on the street.

Gos'per, in *Nebraska*, a S. co.; *area*, 486 sq. m. The Platte river touches its N.E. border. *Surface*, nearly level. *Cap.* Elwood. *Pop.* (1890) 4,816.

Gosse, PHILIP HENRY, naturalist, born at Worcester, England, April 6, 1810; engaged in mercantile business in Newfoundland, but devoted his leisure to collecting and making drawings of insects. In his researches he journeyed through the U. S., where he gave special attention to butterflies; also travelled in Jamaica, and spent some time on the English seacoast in zoölogical study. His works include: *The Canadian Naturalist; Birds of Jamaica, and Atlas of Illustrations; History of the British Sea Anemones and Corals*, &c. Died Aug. 23, 1888.

Got, FRANÇOIS JULES EDMOND, comedian, born at Lincrolles, France, in 1822; studied at the Conservatoire, Paris, became a member of the Comédie Française in 1844, and soon made his way to a leading position on the French stage. His best characters were: *Giboyer* in Augier's *Effrontés and Fils de Giboyer, Bernard* in *Les Fourchambault, Jean* in *Rantzau*, and *Fermier* in *Vinceuette.* He formed a travelling company of actors in 1867 and gave representations of *La Contagion* throughout France. In 1881 he was created a Knight of the Legion of Honor, being the first French actor to attain this distinction. He has no tragic roles, but in comedy is considered the foremost actor in France.

Goth'enburg, in *Nebraska*, a post-village of Dawson co., 60 miles W. of Kearney, on Un. Pac. R. R. *Pop.* (1890) 535.

Goth'enburg Sys'tem. (*Law.*) A system of state licensing of liquor selling, originated in Gothenburg, Sweden, in 1865, in which the exclusive control of the business was given to a company licensed by the municipality, and paying all the profits of the business beyond 5 per cent. into the town treasury. The effect of this system has been an improvement in the quality of liquor sold, and a decrease in the quantity consumed; the use of the saloons as places of lounging resort having been broken up. A somewhat similar system has recently been inaugurated in South Carolina, where the business has been brought, by law, under State control, it being managed by agents appointed by the authorities.

Gottschalk (*göt'-shawlk*), LOUIS MOREAU, pianist and composer; born in New Orleans, 1829. At the age of twelve he was sent to Paris, where he later formed the acquaintance of Hector Berlioz, and made his first appearance as a pianist. He gave his first concert in America on Feb. 11, 1853, and at once attained great celebrity. His best compositions are *Le Bananier; La Savane; Ricordati; La Marche de Nuit; O ma Charmante; Le Mancenillier; Réponds moi*, and *Ojos Criollos. G.* was, however, preëminently a pianist, and the delicacy and force of his touch placed him in the highest rank of great performers. He travelled extensively in Mexico, the West Indies, and South America, dying at Rio Janeiro, Dec. 18, 1869.

Gould, AUGUSTUS ADDISON, naturalist; born in New Hampshire in 1805, graduated at Harvard in 1825, and commenced the practice of medicine in Boston, in 1830. His writings comprise: *A System of Natural History* (1833); *The Mollusca and Shells of the United States Exploring Expedition under Wilkes, with an Atlas of Plates* (1852), and *The Mollusca of the North Pacific Expedition under Ringgold and Rodgers* (1860). In 1848 he produced, in conjunction with Professor Agassiz, *Principles of Zoölogy.* Died Sept. 15, 1866.

Gould, BENJAMIN APTHORP, astronomer, born at Boston, Mass., Sept. 27, 1824; graduated at Harvard; afterward took a degree in mathematics and astronomy at Göttingen under Gauss; visited the chief observatories of Europe, and on his return to the U. S. settled in Cambridge, Mass., where he founded and edited the *Astronomical Journal.* He held the position of director of the Dudley Observatory at Albany from 1855 to 1859. In 1863 he was appointed to the charge of the statistics collected by the U. S. Sanitary Commission during the war, and from 1870 to 1885 produced his great life work, *Uranometry of the Southern Heavens*, while engaged by the government of the Argentine Republic to direct the building and organization of a national observatory at Cordoba. The later years of his life were largely devoted to his *Astronomical Journal*, the publication of which, having been suspended in 1861, was resumed upon his triumphant return from Cordoba to Cambridge in 1885. He was also the author of numerous charts and astronomical papers. Died Nov. 26, 1896.

Gould, JAY, financier, born at Roxbury, N. Y., May 27, 1836; attended Hobart College; acquired a fancy for engineering and mathematics, and conducted surveys of Ulster, Albany and Delaware counties, N. Y., making county maps, which he sold locally. He then engaged briefly in the lumber business; in 1857 acquired a controlling interest in a bank at Stroudsburg, Pa., began to buy up railroad stocks, and in 1859 established himself in New York as a broker. In association with James Fisk, Jr., he acquired control of the Erie railroad and was its president until 1872. He then invested heavily in the Pacific railroads and in the shares of other lines, eventually forming what was known as the "Gould system" of railroads, aggregating some 13,000 miles of road—about one-tenth of the entire mileage in the U. S. at that time. He also dealt largely in telegraph stocks and the shares of the New York elevated railroads, amassing a fortune that was estimated at $73,000,000 as early as 1882, and which was probably much larger at the time of his death, Dec. 2, 1892.

Goupil (*goo-pēl'*), JULES ADOLPHE, *genre* and portrait painter; born in Paris, May 7, 1839; studied with Ary Scheffer; was awarded a first class medal at the Salon of 1875; second-class, at the Paris Exposition of 1878; was also a member of Legion of Honor. His technique and coloring are remarkable. His notable *Last Days of Madame Roland* is in the Luxembourg Gallery, Paris. Died April 30, 1883.

Gour'ko, JOSEPH VLADIMIROVITSCH, COUNT, Russian general; born Nov. 15, 1828; entered the Crimean war as captain of infantry; returned to the Life-Guards, of which he had formerly been a member, in 1857, and was advanced to the rank of colonel, brigade commander, and finally division commander. In the war with Turkey (1877) he rendered gallant service, and at its close was appointed general of cavalry, made one of the Czar's staff, and later became governor-general of St. Petersburg. Proving unable to suppress the attempts to assassinate the Czar, he was deprived of his command, but was recalled by Alexander III. and made military governor of Warsaw (1883).

Gove, in *Kansas*, a W. co.; *area*, 1,020 sq. m. It is intersected by Smoky Hill river and the N. Fork of that river. *Surface*, rolling prairie; *soil*, fertile. *Cap.* Gove City. *Pop.* (1895) 2,126.

Gov'ernance, *n.* [Fr.] Government, rule, management, direction, regulation.—Control, restraint.—Behavior, manners.

Gow'rie, in *Iowa*, a post-village of Webster co., 21 m. S. of Ft. Dodge, on C., R. I. & P. and C. & N.W. R.Rs. *Pop.* (1895) 628.

Grab'-bag, *n.* (*Colloq.*) A bag containing various articles, one of which may be drawn at random on the payment of a certain sum; used to raise money at fairs, &c. Hence, any uncertain or questionable scheme for profit.

Grab'-game, *n.* (*Slang.*) A theft or swindle suddenly effected.

Gra'dy, HENRY WOODFIN, journalist; born in Athens, Ga., 1851; educated in the universities of Georgia and Virginia. After the close of the Civil War he entered journalism and became joint proprietor and editor of the *Constitution* of Atlanta (1880). In his editorial management of this paper he gained great celebrity and took rank among the ablest of American editors. His addresses on *The New South* and on *The Future of the Negro* were widely read both in the South and North. Atlanta has erected a monument and a public hospital to his memory. Died Dec. 23, 1889.

Graf, KARL HEINRICH, a disciple of Reuss. It is to Reuss' formulation of the Pentateuch that Graf's name is commonly attached. General attention was called to the theory already independently set forth by Leopold George and Wilhelm Vatke, by Graf's *Die Geschichtlichen Bücher des Alten Testaments.* This work maintained that the middle books of the Pentateuch bore in themselves the clearest traces of their post-exilic authorship. He also wrote: *De Templo Silonensi; Der Segen Moses Erklärt*, &c.

Graffiti, *n. pl.* [Ital. scratches, from *graffiare*, to scratch.] (*Archæol.*) Rude inscriptions found on stones and buildings of ancient date, chiefly in Italy. The antiquity of these is proved from their being in the Latin, old Italian, and Greek languages. In character they are nearly all worthless, being usually the work of rude scribblers, their antiquity giving them their chief interest, except in the case of those in the catacombs. *G.* have been found in the substructures of Nero's Golden House, the Palace of the Cæsars, &c., and in still greater numbers in Pompeii and in the catacombs. These scratches and scraws, rude as they are, sometimes give significant indications of ancient customs and modes of thought. In one instance, found in a chamber of the palace of the Cæsars, there was a caricature of a man worshipping an ass that hung on a cross, with the explanation appended that this referred to the Christian worship. The term *graffito decoration* is given to deeply engraved lines and patterns on walls, intended for ornament.

Grafting, Skin. See RHINOPLASTER.

Graf'ton, in *North Dakota*, a city, cap. of Walsh co., 40 m. N. of Grand Forks, on Gt. Nor. and Nor. Pac. R.Rs.; the trade center of a large wheat raising district; has flour mills and other industries. *Pop.* (1860) 1,594.

Gra'ham, CHARLES KINNAIRD, U.S.N.; born in N. Y., June 3, 1824; was liberally educated; became a midshipman in the U. S. Navy; gave his attention to the study of engineering-science, and was appointed constructing engineer of Brooklyn Navy Yard, in 1857. He served as a soldier throughout the Civil War; was made brigadier-general and brevetted major-general of volunteers. After the war he became chief engineer of the department of docks (1873); surveyor of the port of New York (1878), and naval officer from 1883 to 1885. Died April 15, 1889.

Graham, JAMES DUNCAN, U.S.A., born in Prince William co., Va., April 4, 1799; graduated from the U. S. Military Academy. He began his army life as third lieutenant of artillery, July, 1817, finally attaining the rank of colonel of engineers. Among the commissions held by him was that of chief of the scientific corps and principal astronomer to determine the boundary between the U. S. and the British provinces. He also had charge of harbors on the North Atlantic coast. Died Dec. 28, 1865.

Graham, WILLIAM ALEXANDER, statesman, born in Lincoln county, N. C., Sept. 5, 1804; graduated at the University of North Carolina; studied law; was U. S. Senator from North Carolina (1841–43); governor of that State (1845–49); Secretary of the Navy under President Fillmore; Whig candidate for Vice-President (1852); member of the Confederate Senate (1864), &c. Died Aug. 11, 1875.

Graham, in *Arizona*, a S.E. county; *area*, 6,152 sq. m.; is intersected by Gila river. *Surface*, mountainous, with mesas and valleys. *Min.* Gold, silver, copper and coal. *Cap.* Solomonville. *Pop.* (1897) about 7,500.

Graham, in *Kansas*, a N.W. county; *area*, 900 sq. m.; is intersected by the S. fork of Solomon river. *Surface*, undulating, nearly all prairie; *soil*, fertile. Farming and stock raising are the chief occupations. *Cap.* Hill City. *Pop.* (1895) 3,825.

Graham, in *North Carolina*, a S.W. county; *area*, 250 sq. m.; drained by Little Tennessee river. *Surface*, mountainous; *soil*, fertile in the valleys. *Cap.* Robbinsville. *Pop.* (1890) 3,313.

Graham Bread. Bread made from unbolted wheat flour; so called from Sylvester Graham, an American vegetarian (1794–1851).

Graham Flour. Unbolted wheat flour as originally prepared by Sylvester Graham.

Grail, Holy. The name given to a legendary cup or drinking vessel, the story of which appears in the old Celtic romances, and forms an important part of the legends relating to King Arthur and the Knights of the Round Table. In the story we are told how Sir Perceval comes to the castle of the Fisher King, sees the Grail, but, in punishment for not asking about it, is condemned to wander for many years, during which he twice more comes to the castle, slays an enemy of the king, whom he releases from a life supernaturally prolonged in suffering, and succeeds in his kingship. Two others of Arthur's knights, Bors and Galahad, see the Grail, which is stated by some of the legends to be the cup used by Christ at the Last Supper, or one used by Joseph of Arimathea to collect the blood from the wounds of Christ upon the cross, and subsequently brought to England. Many of the romances are concerned with the quest of the Grail, the starting out of

Arthur's knights, after a life spent in war and wassail, on the holy task of finding this holy cup, which is achieved only by those who had lived a life of purity and chastity. In the oldest legends the Grail is simply a miraculous, food-producing vessel, an ancient Celtic talisman, one of three, of which the others are a lance that drops blood and a broken sword which only the destined hero can make whole. This legend became Christianized, like many others of the heathen conceptions, and the talismanic vessel became the *H. G.*—or *Sangreal* of later legend—a cup connected with Christ; and in quest for it a new hero, Sir Galahad, appears, a type of chastity and virginity, who alone is fully worthy to complete the holy task. The Quest is one of the romances worked by Malory into his *Morte D'Arthur*, through which the story of Sir Galahad has had an abiding influence upon English literature, through the writings of Tennyson and others. See Alfred Nutt's *Studies on the Legend of the Holy Grail* (London, 1888).

Grain El'evators. See ELEVATORS.

Grammont'ians, *n. pl.* [*Grammont*, in Limoges, where the order was first established.] A monastic order founded A. D. 1073, with the sanction of Pope Gregory VII., by Stephen of Thiers, sometimes called Stephen de Muret. His rules enjoined poverty, obedience, silence, and abstinence from animal food. The order was established in England about A. D. 1100, in several places.

Gram'ophone, *n.* [Gr. *gramma*, letter, and *phone*, sound.] An instrument similar to the phonograph for recording and reproducing speech, invented by E. Berliner about 1895. It employs, instead of a wax cylinder, a circular plate or disk of metal covered with a film of finely divided oil or grease, on which the record is made by the tracing point in a sinuous spiral line. This record is subsequently etched into the metal by any suitable means, or is photographically reproduced on another sheet of metal. Glass covered with a deposit of soot is sometimes used. The sounds are reproduced by causing the point attached to the diaphragm to pass over the metal plate as it is rotated and the vibrations of the diaphragm give forth the sounds. See GRAPHOPHONE; PHONOGRAPH.

Gran'bury, in *Texas*, a post-town, cap. of Hood co., 40 m. S.W. of Fort Worth, on Ft. W. & Rio G. R.R. *Pop.* (1890) 1,164.

Grand, in *Oklahoma*, a post-village of Day co., 16 m. from Higgins, Texas, the nearest railroad station.

Grand Ar'my of the Republ'ic. A secret fraternal organization of soldiers who served in the Civil War of 1861–'65, and were honorably discharged. The idea was first suggested in Feb., 1866, by Dr. B. F. Stephenson, of Springfield, Ill., who had been a surgeon in the 14th Illinois Infantry, and the organization of Post 1 was effected at Decatur, Ill., April 6, 1866. Of the twelve charter members, all but one had served in Illinois regiments. Post 2 was soon formed at Springfield, and other posts were thereafter rapidly established in Illinois and the neighboring States. A convention was held at Springfield, Ill., July 12, 1866, and Gen. John M. Palmer was chosen department commander. Dr. Stephenson, who was the provisional commander-in-chief, assumed charge of the organization of posts in other States. The first National Convention was held in Indianapolis, March 20, 1866, with representatives from Indiana, Iowa, Illinois, Kansas, Kentucky, Missouri, New York, Ohio, Pennsylvania, Wisconsin, and the District of Columbia. Gen. John M. Palmer presided. Gen. Stephen A. Hurlbut was elected commander-in-chief, and Dr. Stephenson adjutant-general. The following rules were adopted: "(1) We, the soldiers and sailors, and honorably discharged soldiers and sailors of the Army, Navy and Marine Corps of the U. S., who have consented to this union, having aided in maintaining the honor, integrity, and supremacy of the national government during the late rebellion, do unite to establish a permanent association for the objects hereinafter set forth; and by our National Encampment do ordain and establish the following rules and regulations for the government of this association. (2) The association shall be known as the GRAND ARMY OF THE REPUBLIC. (3) The objects to be accomplished by this organization are as follows: (4) *Fraternity.* To preserve and strengthen those kind and fraternal feelings which bind together the soldiers, sailors, and marines who united to suppress the late rebellion, and to perpetuate the memory and history of the dead. (5) *Charity.* To assist such former comrades in arms as need help and protection, and to extend needful aid to the widows and orphans of those who have fallen. (6) *Loyalty.* To maintain true allegiance to the U. S. of America, based upon a paramount respect for, and fidelity to, its Constitution and laws; to discountenance whatever tends to weaken loyalty, incites to insurrection, treason or rebellion, or in any manner impairs the efficiency and permanency of our free institutions; and to encourage the spread of universal liberty, equal rights, and justice to all men. Soldiers and sailors of the U. S. Army, Navy, or Marine Corps, who served between April 12, 1861, and April 9, 1865, in the war for the suppression of the rebellion, and then having been honorably discharged therefrom after such service, and of such State regiments as were called into active service and subject to the orders of the U. S. general officers between the dates mentioned, shall be eligible to membership in the *G. A. of the R.* No person shall be eligible to membership who has at any time borne arms against the U. S." The second Encampment met in Council Chambers, in Independence Hall, Philadelphia, Jan. 15, 1868. Gen. John A. Logan, of Illinois, was elected commander-in-chief, and N. P. Chapman, adjutant-general. Subsequent annual sessions of the National Encampment have been held and commanders-in-chief elected as follows:

Date.	*Place of Meeting.*	*Commander-in-Chief.*
1869	Cincinnati, O.....	JOHN A. LOGAN.
1870	Washington, D. C...	JOHN A. LOGAN.
1871	Boston, Mass.....	A. E. BURNSIDE.
1872	Cleveland, O.....	A. E. BURNSIDE.
1873	New Haven, Conn...	CHARLES DEVENS, JR.
1874	Harrisburg, Pa.....	CHARLES DEVENS, JR.
1875	Chicago, Ill.....	JOHN F. HARTRANFT.
1876	Philadelphia, Pa	JOHN F. HARTRANFT.
1877	Providence, R. I.....	JOHN C. ROBINSON.
1878	Springfield, Ill.....	JOHN C. ROBINSON.
1879	Albany, N. Y.....	WM. EARNSHAW.
1880	Dayton, O	LOUIS WAGNER.
1881	Indianapolis, Ind....	GEO. S. MERRILL.
1882	Baltimore, Md.....	PAUL VAN DERVOORT.
1883	Denver, Col.....	ROBT. B. BEATH.
1884	Minneapolis, Minn..	JOHN S. KOUNTZ.
1885	Portland, Me.....	S. S. BURDETT.
1886	San Francisco, Cal...	LUCIUS FAIRCHILD.
1887	St. Louis, Mo.....	JOHN P. REA.
1888	Columbus, O.....	WM. WARNER.
1889	Milwaukee, Wis	R. A. ALGER.
1890	Boston, Mass.....	W. G. VEAZEY.
1891	Detroit, Mich.....	JOHN PALMER.
1892	Washington, D. C...	A. G. WEISSERT.
1893	Indianapolis, Ind....	J. G. B. ADAMS.
1894	Pittsburg, Pa.....	T. G. LAWLER.
1895	Louisville, Ky	I. N. WALKER.
1896	St. Paul, Minn.....	THADDEUS S. CLARKSON.
1897	Buffalo, N. Y.....	JOHN P. S. GOBIN.

The State organizations are known as "Departments," and the local, or precinct, organizations as "Posts," and the members as "comrades." The Posts are numbered, and any Post may have prefixed the name of a battle or locality, or a deceased soldier or sailor, or of some other deceased loyal person; as, "George G. Meade Post, No. 1." Every Post is required to establish a relief fund for assisting needy comrades or their widows or orphans. Each year on Memorial Day, May 30, the Posts visit the cemeteries in their precincts and decorate the graves of fallen comrades, often with appropriate ceremonies. The supreme power of the Order is lodged in the National Encampment, and all rules and regulations emanate from it. The organization cannot be used for partisan purposes, and the discussion of partisan questions at the meetings is forbidden by the Constitution. The motto of the Order is: "Fraternity, Charity, and Loyalty." On organizing the *G. A. R.*, Dr. Stephenson had in view a society of veterans "so cohesive, so incisive, so potential as a factor and teacher of patriotism, as to make the government evermore secure from the attacks of treason."—The *Ladies of the G. A. R.*, or *Loyal Ladies' League*, and the *Woman's Relief Corps*, are organizations of women, designed to coöperate with their husbands and brothers in works of loyalty and charity, and in the observance of Memorial Day. Of the *Woman's Relief Corps* the objects as specified are: "To specially aid and assist the *G. A. of the R.* and to perpetuate the memory of the heroic dead. To assist such Union veterans as need our help and protection, and to extend needful aid to their widows and orphans. To find them homes and employment, and assure them of sympathy and friends. To cherish and emulate the deeds of our army nurses, and of all loyal women who rendered loving service to their country in her hour of peril. To inculcate lessons of patriotism and love of our country among our children and in the communities in which we live. To maintain true allegiance to the U. S. of America. To discountenance whatever tends to weaken loyalty, and to encourage the spread of universal liberty and equal rights to all men."—The *Sons of Veterans* is an organization of the sons of Union soldiers and sailors, a part of whose duty is to assist the *G. A. R.* The number of *G. A. R.* Posts in existence at the last report, June 30, 1896, was 7,302, and the total number of members 340,610. The high-water mark of membership was reached in 1890, when the number of comrades enrolled was 408,489, in 7,178 Posts.

Grand Cañon (*kăn'yŏn*), in *Colorado*, a chasm of the Colorado river, 217 m. in length, to which should be added Marble Cañon, with which it connects, 69 m. long, making together 286 m. The average depth of the *G. C.* is a little over 5,200 ft.; its maximum depth is 6,300 ft., which is maintained for about 50 m. This great depth, which far surpasses that of any other cañon in the world, is believed to have been entirely excavated by the river, which is supposed to have begun its course on the surface of the plain. The *G. C.* has been several times traversed by boating parties, though it is rendered exceedingly dangerous by rapids and falls.

Grand Junc'tion, in *Colorado*, a city, cap., of Mesa co., 93 m. S.W. of Glenwood Springs, on four railroad lines; has cigar factory, flour, lumber, planing and saw mills. Gold, silver, copper, asphalt, coal and building stone are found in the vicinity. *Pop.* (1897) about 4,000.

Grand Junction, in *Iowa*, a post-town of Greene co., 38 m. S. of Ft. Dodge, on C. & N. W. and C., R. I. & P. R. Rs.; has cheese factory and manufactory of wagons and buggies; coal mines in vicinity. *Pop.* (1895) 1,011.

Grand Stand. (*Games.*) The principal stand from which to view the races, or any game or public exhibition.

Gran'ger. GIDEON, statesman, born at Suffield, Conn., July 19, 1767; graduated from Yale (1787); was called to the bar and became prominent as a lawyer; member of the Connecticut legislature; Postmaster-General of the United States (1801); State senator (1819–1821). He later removed to New York State, and was a firm advocate of the building of the Erie canal and other public improvements. Died Dec. 31, 1822.

Gran'gerism, *n.* The practice of illustrating some particular book with engravings torn from others; so called from Rev. James Granger, whose *Biographical History of England* (1769) was thus illustrated.

Gran'gers, *n. pl.* (*Sociol.*) An American society of agriculturists, founded in 1876, by a government clerk named Kelly, who called the society "Patrons of Husbandry." It is a secret society, with a ritual and four orders for men and women, its purpose being the social improvement and industrial benefit of the farming population. The meetings are made enjoyable by music and literary exercises, while libraries have been formed at the rooms of assembly. The interests of farmers are looked after by organizations for that purpose and the advocacy of newspapers. Political discussions are not permitted at the meetings. In 1871 there were only about 200 granges; in 1875 there were 30,000. Dissensions afterward interfered with the progress of the order, and it declined in strength, but in 1896 claimed to have established in all 27,378 subordinate granges in 44 States and territories.

Grange'ville, in *Idaho*, a post-town of Idaho co., 61 miles S.E. of Lewiston; has flour mills and a brewery. *Pop.* (1897) about 850.

Gran'ite, in *Maryland*, a post-town of Baltimore co.; has several granite quarries. *Pop.* (1890) 678.

Granite Falls, in *Minnesota*, a city, cap. of Yellow Medicine co., 70 m. W. of Glencoe, on C., M. & St. P. and Gt. N. R. Rs.; has flour mills, foundry, &c. *Pop.* (1895) 1,189.

Granite State. The popular name of New Hampshire, whose rocks are largely composed of granite.

Gran'iteville, in *Missouri*, a post-village of Iron co. *Pop.* (1890) 721.

Granite-ware. A kind of iron ware coated with an enamel that resists heat and acids and has the appearance of granite.

Grammichele (*grän-mēsh-ā'la*). A town of southern Italy, province of Sicily, 30 m. S.W. of the city of Catania.

Grant, SIR ALEXANDER, born at Dalvey, 1826; educated at Harrow and Baliol College, Oxford, graduating B.A. and elected to an Oriel fellowship. Besides holding other positions he was principal of Elphinstone College, Madras, vice-chancellor of Elgin College, Bombay, and (1868) principal of the University of Edinburgh, a position which he held until his death. Author of: *Ethics of Aristotle; Story of the University of Edinburgh*, &c. The degree of LL.D. was conferred upon him by the universities of Edinburgh and Glasgow, and that of D.C.L. by Oxford. Died Dec. 1, 1884.

Grant, JAMES, military novelist, born in Edinburgh, Aug. 1, 1822. Died May 5, 1887.

Grant, SIR JAMES ALEXANDER, M. R. C. S., physician, born at Inverness, Scotland, Aug. 11, 1830; graduated in medicine at McGill College, Montreal, and began practice in Ottawa; represented the county of Russell for eight years in the Dominion Parliament; president of the College of Surgeons of Ontario and member of many learned societies, both of Europe and America; knight-commander of the Order of St. Michael and St. George. His contributions to medical literature were numerous and valuable. Died Feb. 11, 1892.

Grant, JAMES AUGUSTUS, African traveller; born at Nairn, Scotland, in 1827; educated at Marischal College, Aberdeen; entered the Indian army, and rendered gallant service at the battle of Gujerat; was also present at the relief of Lucknow. In 1863, in company with Captain Speke, he explored the sources of the Nile; took part in the Abyssinian Expedition (1868) receiving a medal for his services; also the gold medal of the Royal Geographical Society. Author of: *A Walk Across Africa; Botany of the Speke and Grant Expedition*, &c. Died Feb. 11, 1892.

Grant, SIR JAMES HOPE, soldier; born at Kilgraston, Perthshire, Scotland, July 22, 1808; engaged in the Chinese war of 1842, and next served in the two Sikh wars; took part in the war against China (1859) as commander, and for his capture of the capital was created a K.C.B. Commanded the army of Madras from 1861 to 1865, and after his return to England was made a general. *Incidents in the Sepoy War*, and *Incidents in the China War* were edited from his journals by Captain H. Knollys. Died March 7, 1875.

Grant, SIR PATRICK, soldier; born at Auchterblair, Strathspey, Scotland, 1804; entered the service of the East India Company, and in 1857 commanded the army of Madras. Appointed governor of Malta (1867); general and colonel of the 78th Highlanders (1870); field marshal and governor of Chelsea Hospital (1872). He was made colonel of the Royal Horse Guards, and received many other honors. Died March 28, 1895.

Grant, ROBERT, author; born in Boston, Mass., Jan 24, 1852; graduated at Harvard, and practiced law in Boston. His published works include: *Little Tin Gods on Wheels; The Confession of a Frivolous Girl; An Average Man; The Opinions of a Philosopher; Face to Face*, and several other books of a semi-humorous character, in which human nature is well portrayed.

Grant, in *Louisiana*, a central parish; *area*, 646 sq. m.; bounded on the E. by Little river, on the S.W. by Red river. *Surface*, nearly level; *soil*, fertile. *Cap.* Colfax. *Pop.* (1890) 8,270.

Grant, in *Minnesota*, a W. county; *area*, 576 sq. m.; drained by the Pomme de Terre and Mustinka rivers. *Surface*, undulating prairie, abounding with small lakes. *Products*, much wheat, also oats, corn, barley, flax, potatoes; live stock. *Cap.* Elbow Lake. *Pop.* (1895) 7,987.

Grant, in *Nebraska*, a W. central county; *area*, 720 sq. m. *Surface*, hilly; *soil*, sandy. *Products*, hay and vegetables. Stock raising is the chief occupation. *Cap.* Hyannis. *Pop.* (1890) 458.

Grant, in *New Mexico*, an extreme S.W. county; *area*, 9,300 sq. m. *Surface*, partly mountainous; *soil*, fertile in the valleys. *Minerals*, gold, silver, lead, copper and iron. *Cap.* Silver Lake. *Pop.* 9,657.

Grant, in *Oklahoma*, a N. county; is intersected by the Salt Fork of the Arkansas river. *Cap.* Pond Creek. *Pop.* (1897) about 14,000.

Grant, in *Oregon*, an E. central county; *area*, 5,472 sq. m.; intersected by John Day river and its N. fork. *Surface*, partly mountainous, much forest; *soil*, fertile; good cattle and sheep ranges. *Products*, wheat, oats, barley, potatoes and hay. Stock raising is the chief occupation. Lumber is largely exported. *Cap.* Cañon City. *Pop.* (1890) 5,080.

Grant, in *South Dakota*, a N.E. county: *area*, 690 sq. m. *Surface*, undulating; timber scarce; *soil*, fertile and well watered. *Cap.* Milbank. *Pop.* (1895) 7,682.

Grant, in *West Virginia*, a N. E. co.; *area*, 490 sq. m.; drained by the N. and S. branches of the Potomac river. *Surface*, mountainous, much of it in forests; *soil*, fertile in the valleys. Coal, iron ore and limestone are abundant. Corn, wheat and live stock are the staples. There are sulphur and chalybeate springs in the co. *Cap.* Petersburg. *Pop.* (1890) 6,802.

Grant, in *Wisconsin*, an extreme S. W. co.; *area*, 1,130 sq. m.; bounded on the N. W. by the Wisconsin river, on the S. W. by the Mississippi river, and also drained by Grant and Platte rivers. *Surface*, diversified by ridges, valleys and extensive forests; *soil*, very fertile. Lead and zinc abound. *Cap.* Lancaster. *Pop.* (1895) 38,372.

Grant Isle, in *Maine*, a post-town of Aroostook co.; has several saw mills. *Pop.* (1890) 964.

Grant's Pass, in *Oregon*, an important town, cap. of Josephine co., 300 m. S. of Portland, on So. Pac. R. R.; has railroad shops, planing mills, sash, blind, and door factories, saw and shingle mills, &c.; is the shipping point of an extensive mining and farming country. *Pop.* (1897) about 2,750.

Granville, GRANVILLE GEORGE LEVESON-GOWER, 2D EARL OF, diplomatist and statesman, born in London, in 1815; was educated at Eton and Oxford. In 1836 he entered the House of Commons, and in 1840 became Under-Secretary of State of Foreign Affairs. In Dec., 1851, he became Foreign Secretary, President of the Council of Ministers in 1853, and leader of the House of Lords. In 1862 he served as chairman of the great exhibition held in London; represented his country as ambassador-extraordinary to Russia at the coronation of Alexander II., in 1858; was made Lord Warden of the Cinque Ports in 1865; Secretary of State for the Colonies in 1868; and Foreign Secretary (for the second time) in July, 1870. On Gladstone's return to power (1880–85) he was made Secretary for Foreign Affairs. Died March 31, 1891.

Grape Creek, in *Illinois*, a post-village of Vermillion co., on C. & E. Ill. R. R. *Pop.* (1890) 778.

Grape Cul'ture. (*Agric.*) The attempted cultnre of the European grape in the U. S., in the early days of the colonies, proved a failure, no part of the country except the Pacific slope proving adapted to it. The cause of the failure was, though not then recognized, the downy mildew and the root insect or phylloxera, which proved more injurious to the European than the native species. The European grape having failed, attention was paid to the native varieties, a vineyard of wild vines having been set out in Massachusetts as early as 1629. But the cultivation of the native grape was not actively engaged in until near the end of the 18th century, when a chance variety of the fox grape, known as the Alexander, was introduced into the plantations on the Ohio river. From this has descended, in great measure, the later popular varieties of American grapes—the Isabella, Catawba and Diana being early examples. The Catawba, introduced about 1820, continues a favorite grape. Still more popular is the Concord, introduced in 1853, with which the profitable culture of the grape began. In addition to the fox grape, other native species have been cultivated, one of which, *Vitis riparia*, has been introduced and is largely used in France and other countries of Europe as a stock on which to graft the wine grape, it successfully resisting the attacks of the phylloxera. Many attempts have been made to hybridize the fox and the European grape, but not with important results. The Scuppernong grape of the South (*V. rotundifolia*) has also given rise to cultivated varieties.—In 1890, according to the U. S. census, 188,031 acres were devoted to *G. C.* in the Eastern U. S., New York leading in the production of table grapes and Ohio coming next. The wine production of these two States was 4,463,083 gallons; and of the Pacific slope, where the European grape is grown, 14,622,000 gallons, while a large raisin crop was also raised. The phylloxera is invading this region, and the native grape may have to be substituted for foreign varieties. There are in North America at least 25 native species of grape, while more than 500 indigenous varieties are cultivated.

Grape'-cure, *n.* (*Hygiene.*) The employment of grapes, or of certain parts of them, as a diet for the relief of disease. Various ailments are treated in this manner in Germany, Austria, Hungary and Switzerland, though to but small extent elsewhere. In this mode of cure, the skins and seeds are ejected, and the pulp and juice alone eaten, it being usual to begin with a pound or two of grapes daily, and gradually increase to 6 or even 12 pounds. The effect is cooling, thirst is appeased, the kidneys and bowels are stimulated, and the appetite is increased. When proper amounts and kinds of food are taken with the grapes, admirable effects often result. It may be that the location of the various *G.* establishments in healthful regions aids the treatment; but there can be no doubt that the grape diet has a beneficial effect in very many cases.

Grape'vine Disease'. (*Entomol.*) Of the insects destructive to the vine the most injurious is the form known as *Phylloxera vastatrix*, or grape gall-louse, a North American insect which first became known to naturalists in 1854 as a parasite on the vine, and to which has been ascribed the failure of the European vine (*Vitis vinifera*) in the U. S. It appeared in Europe about 1863 (being probably carried from the U. S.), and in that country has caused immense damage, the monetary loss from its ravages in France alone far exceeding that from the Franco-German War. The eggs of this species are laid under the bark of the vine, lying dormant during the winter, but develop in April or May into a wingless but voracious grape-louse. It is like a small aphis, about the twenty-fifth of an inch long, with thick, three-jointed antennæ, short, thick legs, but with no trace of the honey-tubes of the aphides. In this form it may pass to the leaves and lay there parthenogenetic eggs, which form galls; but in Europe it attacks the roots and lays there its eggs, from which mature females develop in about 20 days, which lay more eggs in the roots. Half a dozen of these parthenogetic generations take place during the summer. The winged females appear from August to October, each of them laying about four eggs on the under surface of the leaves. From these, late in autumn, are born the sexual forms, males and females, destitute of wings and of the piercing and sucking mouth organs, which migrate to the stem, where each female lays a single egg under the bark. These are the winter eggs above mentioned, from which the complex "alternation of generation" begins again the

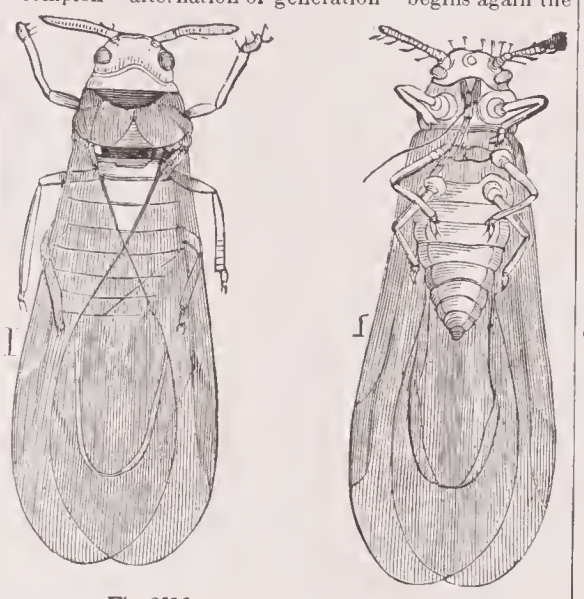


Fig. 2912.—PHYLLOXERA VASTATRIX.

Dorsal and ventral view of the winged female, magnified twenty times.

next year. The effect of this parasitic scourge is to cause the roots to become knotted and deformed, the whole plant suffering from its attacks, and eventually dying, after perhaps a survival through several seasons. The destruction of this pest without injury or destroying the plant has so far proved impracticable. Water, wherever it can be applied so as to keep the soil for a time saturated, is the most effectual destroyer, as the insect cannot long survive in water. Chemical remedies are too expensive and too difficult to apply to the roots. The only remedy in any way promising is that recently adopted in France—the planting of American species of grape, to form a stock on which to graft the cultivated vines. The insect attacks the American vine, but this seems to have superior powers of resistance. Another method of extermination has been the reproducing of some of the numerous natural enemies of the phylloxera, which include *Thrips*, *Aphides*, &c.

Graphol'ogy, *n.* [Gr. *grapho* and *logos.*] The science of estimating character or determining personality by examination of the handwriting.

Graph'ophone, *n.* [Gr. *grapho* and *phone.*] An apparatus for recording and reproducing articulate speech, a modification of the phonograph, the joint production of Messrs. Alex. Graham Bell, C. A. Bell and Sumner Tainter, their object being to produce a practical machine. They experimented to find a suitable substitute for the tin-foil used on the cylinder, and fixed upon a surface made of a mixture of beeswax and paraffine spread thinly upon paper. This can be used in the form of either the cylinder or the disk. The *G.* employs two separate diaphragms, one for speaking and the other for hearing. A uniformity of rotation of the recording surface is obtained by means of a motor provided with a suitable governor. For commercial purposes the *G.* takes the place of the stenographer. Correspondence dictated to the *G.* is reproduced for the copyist at any time. For entertainment, there is no limit to the variety of speech and of vocal and instrumental music that can be recorded and reproduced as occasion requires. See PHONOGRAPH.

Graph'oscope, *n.* [Gr. *grapho* and *skopeō.*] An optical apparatus for magnifying and giving fine effects to engravings, photographs, &c. Invented by C. J. Rowsell; exhibited in 1871.

Grass Cloth. (*Fabrics.*) A name given by travellers to different kinds of coarse cloth made by savage tribes, though grass rarely forms its fiber. Cloth has been made, however, from bamboo and a coarse matting esparto, which are true grasses; and a fine cloth is woven from the fiber of what is called China-grass, which is really a nettle. The Queensland grass-cloth plant, which yields a fine, strong fiber, is also a nettle.

Grass Trees or **Black Boys.** (*Bot.*) The names given certain plants of Australia and Tasmania, which resemble the yucca in habit, and bear long, grass-like leaves, which are used as food for cattle. The tender base of the leaves is agreeably edible, while the tree abounds in a medicinal balsamic gum. The grass tree or black boy gum is exceedingly prolific and abundant, and has been recommended as a source of illuminating gas, and also of picric acid.

Grava'men, *n.* [Lat.] The substantial cause of an action at law; the ground or burden of complaint; that part of an accusation which weighs most heavily against the accused.—A representation; a motion; specifically a motion proposed in convocation.

Grav'elotte, a small village of Germany, situated in Alsace-Lorraine, 8 m. W. of Metz, on the Moselle. At this place, on Aug. 18, 1870, the French under Marshall Bazaine were defeated by the Germans under Gen. Steinmetz and Prince Frederick Charles. The battle of Gravelotte, which decided the fate of Metz, was very bloody, the loss of the Germans being about 20,000, and that of the French about 13,000. The French army, after its defeat, was shut up in Metz, and was finally surrendered prisoners of war.

Grav'ity Bat'tery. A form of double fluid battery in which the fluids range themselves at different heights in a single jar by virtue of their different specific gravities.

Gravity Rail'road. A railroad in which the cars move down a series of inclined planes by their own weight alone, being drawn up to the various summits by cables or otherwise.

Gray, ELISHA, inventor; born at Barnesville, Ohio, Aug. 2, 1835; studied at Oberlin College, supporting himself by his trade of carpentry and boat building; improved the electric telegraph, and manufactured telegraph apparatus, visiting Europe for purposes of study. Among his patents, which number about fifty, many relate to the speaking telephone, the invention of which he claims. He is the author of *Experimental Researches in Electro-Harmonic Telegraphy and Telephony.*

Gray, GEORGE, statesman, born at Newcastle, Del., May 4, 1840; graduated from Princeton College (1859), studied law at Harvard, and was admitted to the bar (1863); opening an office in New Castle, he continued there till 1879, when he was appointed Attorney-General of Delaware, and removed to Wilmington; he held this position until 1885. Was a delegate to the National Democratic Conventions of 1876, 1880, and 1884; and was elected U. S. Senator in 1885 to fill the vacancy made by appointing Thomas F. Bayard, Secretary of State. He took his seat March 19, 1885; was elected for the full term in January, 1887, and reëlected in 1893. He is a prominent Democratic leader.

Gray, HENRY PETERS, genre and portrait painter; born in New York, June 23, 1819; pupil of Daniel Huntington; was elected a member of the National Academy, and subsequently president (1869–71). His works include: *Wages of War* (Metropolitan Museum, New York); *Cupid Begging His Arrow* (Pennsylvania Academy); *Judgment of Paris* (Corcoran Gallery, Washington). Died in New York, Nov. 12, 1877.

Gray, ISAAC PUSEY, politician; born in Chester co., Pa., Oct. 18, 1828; studied law; afterward spent a number of years in mercantile pursuits; moved to Union City, Ind. (1855); took part in the Civil War as colonel of the 4th Indiana Cavalry. He was successively identified with the Whig, Republican and Democratic parties, the latter after 1871; served four years in the Indiana State Senate; was elected Governor (1884); appointed U. S. Minister to Mexico (1893), and held other political offices. Died Feb. 14, 1895.

Gray, in *Kansas*, a S. W. co.; *area*, 864 sq. m.; intersected by the Arkansas river. *Surface*, rolling prairie; *soil*, a dark, sandy loam, very fertile. *Products*, wheat, alfalfa, barley, corn, rye, sorghum. Stock raising is the chief occupation. *Cap.* Cimarron. *Pop.* (1895) 1,256.

Gray, in *Texas*, a N. W. co.; *area*, 900 sq. m.; traversed by the N. Fork of the Red river. Unorganized. *Pop.* (1890) 203.

Gray'back, *n.* A name of several animals:—The California gray whale; the body-louse; the red-breasted sand-piper, or knot; the gray snipe, or dowitcher.

(*Colloq.*) A Confederate soldier during the Civil War; from his gray uniform.

Gray's Har'bor, in *Washington*, a village of Chehalis co., near Hoquiam. *Pop.* (1890) 523.

Great Bend, in *Kansas*, a city, cap. of Barton co., 83 m. N. E. of Dodge City, on A., T. & S. Fé and Mo. Pac. R. Rs. Here are salt mines and stone quarries. Grain, wool and live stock are largely shipped. Seat of the Central Normal College. *Pop.* (1895) 2,134.

Great Falls, in *Montana*, a city, cap. of Cascade co., 98 m. N. E. of Helena, on Gt. Nor. and G. F. & C. R. Rs.; has ore reduction works, claimed to be the largest in the U. S. *Pop.* (1897) about 12,500.

Great Lakes. (*Geog.*) The name frequently given to the chain of lakes which forms part of the northern boundary of the United States, including Lakes Superior, Huron, Michigan, Erie and Ontario.

Greed'y, *a.* [A. S. *grædig*, from *grædan*, to cry or clamor for; Dan. *graadig*, greedy; O. Ger. *grozan*, *gruozjan*, to solicit.] Clamorous for food, &c.; having a keen appetite for food or drink; ravenous; voracious; very hungry.

"Be not . . . too *greedy* upon meats."—*Eccles.* xxxvii. 29.

—Rapacious; vehemently desirous; eager to obtain. (Something preceding *of*.)

"Be not *greedy of* filthy lucre."—1 *Tim.* iii. 3.

Greeley, in *Kansas*, a W. co.; *area*, 780 sq. m. *Surface*, nearly level and almost destitute of timber; *soil*, very fertile. Stock farming is the chief occupation. *Cap.* Tribune. *Pop.* (1895) 1,035.

Greeley, in *Nebraska*, a cen. co.; *area*, 576 sq. m.; intersected by the North Loup river. *Surface*, undulating prairie; *soil*, fertile. *Products*, wheat, corn, and live stock. *Cap.* Greeley. *Pop.* (1890) 4,869.

Greely, Adolphus Washington, Arctic explorer, born at Newburyport, Massachusetts, March 27, 1844; served throughout the Civil War as a volunteer, and at its close entered the regular army as lieutenant. He conducted the expedition to Smith Sound (1881) for the purpose of carrying on observations in pursuance of the international scheme arranged at Hamburg in 1879. Three winters were spent by the party in the Arctic north, and when at the point of perishing from starvation, they were rescued, on June 22, 1884. In 1887 G. was made chief of the Signal Service, with the rank of brigadier-general. Author of, *Three Years of Arctic Service*, and a work on meteorology.

Green, Anna Katherine, novelist, noted for her detective stories, was born in Brooklyn, N. Y., and educated at Ripley College, Poultney, Vt. She married Charles Rohlfs, in 1884. Her first notable work was *The Leavenworth Case*; others of considerable popularity are: *Hand and Ring*; *The Mill Mystery* (1886), and *Marked Personal* (1893).

Green, John Richard, ecclesiastic and historian, born at Oxford, England, Dec. 12, 1837; educated at Magdalen College School; took orders and became curate of St. Barnabas' Church; afterwards had charge of Hoxton, and finally became vicar of St. Philip's, Stepney. He retired in 1868, and engaged in the preparation of his *Short History of the English People*. This work, the pioneer in a new field of history, published in 1874, was most favorably received, and the degree of LL.D. was conferred upon its author by the University of Edinburgh. He was also the author of: *Stray Studies*, and *The Making of England*. Died March 7, 1883.

Green, Seth, fish-culturist, born at Rochester, N. Y., March 19, 1817; received a common school education, and engaged in the fish and game business. His innate love of natural history developed into an intimate knowledge of fishes and their habits, and this led to his invention of original methods for preservation and propagation which subsequently made his name a household word in this connection. He invented valuable hatching appliances and made the science of pisciculture one of practical business; its recent development is largely due to his efforts. *G.* was appointed one of the fish commissioners of New York in 1868, and superintendent the following year. His published works include: *Trout Culture*; *Fish-Hatching*; and *Fish-Catching*. Died Aug. 20, 1888.

Green, Thomas Hill, philosopher, born at Birkin, Yorkshire, England, April 7, 1836; educated at Rugby and Balliol College, Oxford. In the so-called Hegelian movement *G.* was a leading representative. Published *Collected Writings*; *Prolegomena to Ethics*, &c.; was joint translator of Lotze's *Metaphysics*. Died Mar. 15, 1882.

Green, William Henry, Presbyterian clergyman, born at Groveville, Burlington co., N. J., Jan. 27, 1825; graduated from Lafayette College and Princeton Theological Seminary; pastor of the Central Presbyterian Church, Philadelphia (1849); professor of Hebrew and Old Testament Literature in Princeton Seminary (1851); was chairman o the Old Testament company of the American Committee for the revision of the Bible, and Moderator of General Assembly in 1891. Author of: *Hebrew Grammar*; *Chrestomathy*; *The Argument of the Book of Job Unfolded*; *Moses and the Prophets*, &c.

Green, William Mercer, ecclesiastic, born in Wilmington, N. C., May 2, 1798; graduated from the University of North Carolina; was ordained priest of the Protestant Episcopal Church (1821); first rector of St. John's Church, Williamsborough, and of St. Matthew's Church, Hillsborough; professor of English Literature in the University of North Carolina; elected first Bishop of Mississippi (1849); was one of the founders of the University of the South, at Sewanee, Tenn. Died Feb. 13, 1887.

Green Moun'tain Boys. Vermont soldiers in the revolution, organized under Ethan Allen, in 1775.

Green Mountain State. A common designation for Vermont.

Green Snake, *n.* A harmless snake (*Cyclophis estivus*), common in the southern U. S., bright green above, yellowish below.—Also the grass-snake (*Liopeltis vernalis*).

Green'back Par'ty. (*U. S. Polit.*) The word "greenback" was applied during the American Civil War to the large number of bank-notes issued by the government, the name being derived from their color. The word in time became applied to all the U. S. paper currency of that period, and, in 1867–68, a demand for an irredeemable paper currency (known as the "Ohio Idea") found much favor among Western Democrats. This idea grew until a greenback political party appeared (1874) which held a convention at Indianapolis and issued a platform of principles. In 1876 the party nominated Peter Cooper for the presidency and polled 81,740 votes. In 1880 it nominated James B. Weaver, who received 307,306 votes. Its adherents cast their votes in 1884 for Benjamin F. Butler, the candidate of the Labor party. No candidate of the party received any votes in the electoral college, and most of its supporters are now in the ranks of the Populist party.

Greene, George Sears, engineer and soldier, born at Warwick, R.I., May 6, 1803; graduated from West Point; entered the army, but resigned in 1836; became a civil engineer and was employed on various public works till 1857, when he was made engineer of Croton waterworks, New York; rendered valuable service in the Civil War, becoming brigadier-general of volunteers (1862); after being mustered out of volunteer service (1866) he resumed charge of the Croton water-works; president of the American Society of Civil Engineers (1875–77).

Greene, Samuel Dana, U. S. Navy, born in Cumberland, Md., Feb. 11, 1840; graduated from the Naval Academy; entered the service as midshipman and reached the rank of commander; was assistant professor of mathematics, and subsequently of amntomy, at the Naval Academy, and assistant to the superintendent (1878–82). Died Dec. 11, 1884.

Greene, in *Iowa*, a post-town of Butler co., 33 m. N.W. of Cedar Falls, on B., C. R. & N. R.R.; has a sash and door factory, flour mill and an egg and butter packing establishment. *Pop.* (1897) about 1,200.

Green'field, in *Iowa*, a post-village, cap. of Adair co., 20 m. N. of Creston, on C., B. & Q. R.R.; has a furniture factory. *Pop.* (1895) 1,244.

Green'halge, Frederick Thomas, was born in Clitheroe, Eng., July 19, 1842; removed with his parents to Lowell, Mass., in 1850; worked in the mills there; entered Harvard College in 1859, but was not able to complete his course from lack of money. He sought to enlist at the beginning of the Civil War, but was refused admittance by the surgeons; served in the commissary department at New Berne, N. C., Nov. 1, 1863, till April, 1864; after the war resumed his studies, and was admitted to the bar in 1865. He was elected to the Common Council of Lowell (1868); to the school committee (1871); in 1880 and 1881 was elected mayor of the city; in 1884 was delegate to the Republican National Convention; in 1888 member of Congress, and in 1893, 1894, and 1895 governor of Massachusetts. He had excellent powers of oratory, and represented Massachusetts in the dedication of the Chickamanga National Park, in Sept., 1895, and at the Atlanta Exposition on Massachusetts Day, in November following. Died in Lowell, March 5, 1896.

Green'leaf, Simon, an eminent American jurist, born at Newburyport, Mass., in 1783; became Dane professor of Law at Harvard University in 1846. His *Treatise on the Law of Evidence* (3 vols., 1842–53) is esteemed of standard authority. Died in 1853.

Green'leaf, in *Kansas*, a post-village of Washington co., 7 m. S. of Washington, on Mo. Pac. R. R.; has railroad repair shops. Coal abounds in the vicinity. *Pop.* (1895) 827.

Green'ough, Richard S., sculptor, born at Jamaica Plain, Mass., April 27, 1819; studied in Italy with his brother, Horatio *G.* His works include: *Moses and the Daughter of Pharaoh*; *Cupid Warming an Icicle*; *The Shepherd Boy and the Eagle*, &c.

Greens'burg, in *Kansas*, a post-village, cap. of Kiowa co., on C., R. I. & P. R. R. *Pop.* (1895) 387.

Greensburg, in *Kentucky*, a post-village, cap. of Green co., 85 m. S. of Louisville, on L. & N. R. R. *Pop.* (1890) 552.

Green'view, in *Illinois*, a post-town of Menard co., 33 m. N. of Springfield, on C. & A. R. R. *Pop.* (1890) 1,106.

Green'ville, in *New Hampshire*, a post-town of Hillsborough co. *Pop.* (1890) 1,255.

Greenville, in *Texas*, a post-town, cap. of Hunt co., 52 m. N. E. of Dallas, on M., K. & T. and 3 other R. Rs.; has flour, feed and planing mills and furniture factories. *Pop.* (1890) 4,330.

Green'wich, in *Ohio*, a post-village of Huron co., 18 m. S.E. of Norwalk, on B. & O., C., C., C. & St. L. and N. O. R. Rs. *Pop.* (1890) 881.

Green'y, *n.* (*Colloq.*) A greenhorn; a simpleton. (*College Slang.*) A freshman.

Greer, James Augustin, U. S. N., born in Cincinnati, O., Feb. 28, 1833; entered the navy as midshipman; during the Civil War commanded the river gunboat *Benton* in many of her engagements, that vessel carrying the flag of rear-admiral Porter; commanded the *Tigress* in the search for the missing *Polaris*; was chairman of the Lighthouse Board for several years. Retired in 1896, with the rank of rear-admiral.

Greer, in *Oklahoma*, a S.W. county; *area*, 3,000 sq. m. It is drained by the N. and the Salt forks of the Red river. *Cap.* Mangum. *Pop.* (1897) about 6,000.

Gregg, David McMurtrie, soldier, was born at Huntingdon, Pa., in 1833; graduated from West Point (1855) served in Oregon against the Indians (1858–60); captain of the 6th Cavalry, U. S. A. (1861); appointed colonel of the 8th Pennsylvania cavalry (volunteers) in January, 1862, being made brigadier-general in the same year, after service in the Peninsular campaign. Thereafter he commanded a division of cavalry, and rendered important services at Gettysburg and in later engagements; resigned on Feb. 3, 1865. He was sent to Prague (1874) as U. S. Consul; elected commander of the Loyal Legion in Pennsylvania (1886); Auditor-General of Pennsylvania (1891–94).

Gregg, John Irvin, soldier; born at Bellefonte, Pa., in 1825; lieutenant in the U. S. Army (1847); served in the Mexican and Civil Wars, rising (1863–65) to the command of a cavalry brigade; was taken prisoner three days before the surrender at Appomattox. He was brevetted major, lieutenant-colonel, colonel and brigadier-general in the regular army, and major-general of volunteers; became colonel of the 8th U. S. Cavalry in 1866; retired in 1879. Died Jan. 6, 1892.

Gregg, Maxcy, soldier; born at Columbia, S. C., in 1814; studied law and acquired distinction in his profession; engaged in the war with Mexico as major of the 12th Infantry; was a member of the State Convention of South Carolina in 1860, and one of the committee to prepare the ordinance of secession; entered the Confederate army, attaining the rank of brigadier-general; killed at the battle of Fredericksburg, Va., Dec. 13, 1862.

Gregg, in *Texas*, a N. E. co.; *area*, 260 sq. m.; is intersected by the Sabine river. *Surface*, diversified; heavily timbered; *soil*, fertile. *Cap.* Longview. *Pop.* (1890) 9,402.

Greg'ory, in *South Dakota*, a S. co.; *area*, 975 sq. m.; bounded on the N. E. by the Missouri river and traversed by Ponca river. *Surface*, nearly level. Stock raising is a leading industry. Unorganized. *Pop.* (1895) 1,042.

Grena'da, in *Mississippi*, a N. central county; *area*, 430 sq. m.; intersected by the Yalabusha river. *Surface*, undulating; *soil*, fertile. Nearly half the county is covered with forest. *Products*, cotton, corn, sweet potatoes and pork. *Cap.* Grenada. *Pop.* (1890) 14,974.

Grenloch', in *New Jersey*, a post-office of Camden co., about 15 m. S. E. of Camden.

Greno'la, in *Kansas*, a post-village of Elk co., 45 m. W. of Independence, on A., T. & S. Fé R. R. Coal and good building stone are found in the vicinity. *Pop.* (1895) 582.

Gresh'am, Walter Quinton, statesman, born at Corydon, Ind., March 17 1832; educated at Bloomington University; studied and practiced law; was elected to the Indiana Legislature (1860), but resigned to accept a commission in an Indiana regiment of volunteers; served gallantly with Sherman, was severely wounded at Atlanta, and received the brevet of major-general for meritorious conduct. Was appointed a U. S. judge in 1869 by President Grant; resigned in 1882 to become postmaster-general under President Arthur; on the death of Secretary Folger (July, 1884) he succeeded to the Treasury portfolio, but in October of the same year accepted an appointment as U. S. judge for the 7th circuit. This position he resigned in 1893 to enter President Cleveland's cabinet as Secretary of State. Mr. *G.* was a man of unquestioned integrity, whose somewhat erratic political affiliations were doubtless due to the faithful following of his honest convictions. Died May 28, 1895.

Gresham's Law. (*Polit. Economy.*) The dictum accredited to Sir Thomas Gresham (*q. v.*), that "bad money drives out good money;" or, stated more explicitly, if two forms of currency, of unequal value, be concurrently in circulation, the inferior or cheaper form will drive out the other through the process of hoarding or exportation. Contemporary economists are disposed to attach undue importance to this axiom, which, after all, is merely the application of the general law of commodity to money viewed as a commodity, and a restatement of that well-known law of human nature which forbids the use of an expensive article when a cheaper one will answer exactly the same purpose. If a coin be "clipped," but still passes for its face, it will continue to do monetary duty while the unabraded, full-weight coin is "driven" into the strong-box or melting-pot by the force of its extra grains of metal (and thereupon the latter ceases to be money, and becomes simply and solely a commodity). This is in accordance with the laws of both nature and human nature; upon the same principle no farmer would put 8 quarts into a peck if 7 quarts would command the same in exchange. It was obedience to this very law that caused the disappearance of all the silver money of the U. S. after 1834, when a change in our coinage ratio made the silver dollar slightly more valuable than the gold dollar; that "drove out" all our gold money, after 1861, when the gold currency became worth more, dollar for dollar, than paper; that forced millions of gold (and paper promises to pay gold) into retirement in 1893, when it was alleged and commonly believed that our greenbacks and various forms of silver currency were likely to fall below the gold level. But, acknowledging all this, the question still remains: Which is "good" money, and which "bad"? The Gresham law assumes that the best money is necessarily the dearest; while experience shows that money ceases to perform the monetary function, and actually disappears from the channels of trade, the moment it becomes dear as compared with any other contemporary form of currency. A razor that will not cut can hardly be considered a "good" razor, though made of gold and studded with diamonds; a "bad" one, made of ordinary cast-steel with a horn handle, will "drive it out," providing the latter will shave smoothly. It may be fairly questioned whether a form of money that is, or may become, so dear that it will not perform its function as a circulating medium of exchange, or that is likely to be driven completely

out of the channels of trade at any time by the operations of speculators, the alteration of coinage laws, or the changing fortunes of mining enterprises, can be properly considered "good" money. If it be true that the primary purpose and most important duty of money is to facilitate the exchange of commodities and services, it must logically follow that "good" money is that which circulates freely, and "bad" money that which circulates imperfectly. The worst form, then, would be that which does not circulate at all; and this is undoubtedly the condition assumed by Sir Thomas Gresham's "good" money when it is "driven out" by his "bad" money—the latter alone remaining to serve the needs of trade. See MONEY; BIMETALLISM.

Gret'na, in *Louisiana*, a post-town, cap. of Jefferson parish, 3 m. W. of New Orleans, on So. Pac. and two other railroads. Has large oil mills and cooperage works. *Pop.* (1890) 3,332.

Gre'ville, HENRY, the pen-name of Madame ALICE DURAND, born at Paris, Oct. 12, 1842. Married Emile Durand, a professor of law; resided in Paris and wrote a series of novels illustrating Russian society. Previous to her marriage she spent several years in St. Petersburg. Her works include: *Dosia*, which was awarded the Montyon prize from the French Academy; *Les Koumiassine; La Maison Maurèzè; Un Violon Russe; Madame de Dreux*, &c.

Grevillea (*grē-vil'le-ah*), *n.* (*Bot.*) A genus of *Proteaceæ*, distinguished by having apetalous flowers; a calyx which is either four-cleft or has four lineal sepals broadish at the end; four ovate sessile anthers, one of which is attached to the concave apex of each sepal; and an elongated, curved style, with the stigma either lateral or oblique, plane, or concave. The seed-vessel, called a follicle, is woody or leathery containing one or two occasionally winged oval seeds. This is the most extensive and also the handsomest genus of the order. It contains every variety of form, from lofty trees a hundred feet in height, with a girth of eight feet, as in *G. robusta*, the silk oak of the colonists, to humble procumbent shrubs, as in *G. acanthifolia*.



Fig. 2913.—GREVILLEA ACANTHIFOLIA.

Grevy (*grā'vē*), FRANÇOIS PAUL JULES, statesman and President of the French Republic, born at Mont-Sous-Vaudrez, department of the Jura, Aug. 15, 1813. When a student at Paris he took part in the attack against Charles X. in July, 1830. He studied law in Paris. On the breaking out of the revolution of 1848, he was appointed, by the Provisional Government, Commissioner for the Jura, and was subsequently returned by that department to the Constituent Assembly, and became its Vice-President. He voted against the expedition to Rome, and advocated granting but limited power to the Executive, foreseeing the possible abuse thereof. At the time of the *coup d' etat* (1851) he was arrested, and confined for a short time in Mazas prison. Upon his release he confined himself to his profession of law, acquiring celebrity for his defense of political offenders. In 1868, elected to the Assembly for Jura to fill a casual vacancy, and reëlected in 1869. He opposed the *plébiscite* of 1870. In 1871 he was elected President of the Assembly. He opposed the *Septennate*, upon the ground that the Assembly had not power to create a power outlasting its own. He refused the nomination, by the Assembly, of life senator in 1875. In 1876 was reëlected by the Jura, and again appointed President of the Chamber; on Jan. 30, 1879, elected by the Assembly President of the Republic for seven years, by a vote of 563 out of a total of 713 cast. In 1885 he was reëlected president for 7 years, but owing to a conflict between the Executive and the Assembly, and his inability to form a ministry, he resigned his office as President of the Republic, Dec. 2, 1887. *G.* was a man of high culture, with a judicial turn of mind, strict probity, and dignity of manner. Died Sept. 9, 1891.

Grey, SIR GEORGE, K. C. B., soldier and statesman, born at Lisbon, Ireland, 1812; educated at the Royal Military College, Sandhurst. In 1837 he started on an exploring tour of the interior of Australia, and later explored the Swan river district. He was successively the governor of South Australia and New Zealand, governor and commander-in-chief of the Cape of Good Hope; was appointed governor of New Zealand a second time; in 1875 became superintendent of Auckland, and in 1877 premier of New Zealand. He had high powers as a statesman and was very popular with the people. Author of: *Journals of Discovery in Australia; Polynesian Mythology*, &c.

Grid'ley, in *California*, a post-village of Butte co., 18 m. N.W. of Marysville, on So. Pac. R. R. Has a flour mill, planing mill and foundry. *Pop.* (1890) 686.

Grier'son, BENJAMIN HENRY, soldier, born in Pittsburg, Pa., July 8, 1826. At the outbreak of the Civil War he was engaged in business at Jacksonville, Ill.; entered the Federal service as aide on the staff of Gen. B. M. Prentiss, but in August, 1861, became major of the Sixth Illinois Cavalry and colonel of same regiment the following year, rendering brilliant service until June, 1863, when he was made brigadier-general; two years later (1865) he was promoted to the rank of major-general of volunteers; in 1866 received a commission as colonel in the regular army and was assigned to the command of the Tenth Cavalry. His subsequent service was chiefly in the Indian Territory (1868–73) as commander of the district, in Texas, New Mexico and in various Indian campaigns. His brevets in the U. S. Army are those of brigadier- and major-general.

Grif'fin, CHARLES, soldier, was born in Licking county, Ohio, in 1826; graduated from West Point (1847) and served in the artillery during the Mexican War; afterward saw service on the frontier till 1859, when he became instructor of artillery at the Military Academy. He commanded the West Point battery at the first battle of Bull Run (July 21, 1861), and was brevetted major for gallant conduct; was made brigadier-general of volunteers in June, 1862, and commanded a brigade on the Peninsula, winning distinction at Yorktown and Malvern Hill; engaged in the second battle of Bull Run, and those of Antietam and Gettysburg as division commander; was promoted to the rank of major-general and succeeded Warren in the command of the 5th corps after the battle of Five Forks; received the Confederate arms and colors at Appomattox. After the war *G.* was brevetted major-general in the regular army and assigned to the command of the 35th infantry. He died at Galveston, Tex., while in command of that department, Sept. 15, 1867.

Grif'fis, WILLIAM ELLIOT, educator and author, born at Philadelphia, Pa., Sept. 17, 1843; graduate of Rutgers College; went to Japan (1870) and became professor of natural science in the Imperial University of Tokio; after his return graduated from the Union Theological Seminary (1871); was pastor of the First Reformed Church, Schenectady, N.Y. (1877–1886) and of the Shawmut Congregational Church, Boston (1886). While in Japan he prepared some educational works and was engaged in organizing schools on the American plan. Author of: *The Mikado's Empire; Japanese Fairy World; Corea, the Hermit Nation*, &c.

Griggs, in *North Dakota*, an E. cen. co.; *area*, 720 sq. m.; drained by Sheyenne river and Hill creek. *Surface*, undulating; *soil*, very fertile. *Products*, wheat, oats, barley, potatoes and vegetables. Live stock is raised. *Cap.* Cooperstown. *Pop.* (1890) 2,817.

Grimes, JAMES WILSON, statesman, born at Deering, Hillsboro co., N. H., Oct. 20, 1816; educated at Dartmouth College; one of the founders of the Republican party. He canvassed nearly the whole of his State (Iowa) on several occasions; was elected governor in 1854; was U. S. Senator from 1859 to 1869, resigning in the latter year on account of failing health. During his service in the Senate he was a recognized authority on naval affairs, and was the first to urge the construction of ironclads. He opposed the impeachment of Andrew Johnson on the ground that the indictment as prepared charged no impeachable offence. Died Feb. 7, 1878.

Grinnell', HENRY, born in New Bedford, Mass., in 1800; educated there in the common schools; went to New York and entered the employ of a commission house, becoming senior partner of the firm of Grinnell, Minturn & Co. in 1825; retired from business with a fortune in 1852, and died June 30, 1874. Mr. *G.* was deeply interested in Arctic explorations, and fitted out vessels at his own expense to aid in the search for Sir John Franklin (1850), besides contributing freely to other expeditions. He was the first president of the American Geographical Society. Grinnell Land, in the Arctic Ocean, W. of Greenland and Kane Basin, was named for him.

Grippe, La. See INFLUENZA.

Gri'qualand, West and **East.** (*Geog.*) Two British districts of South Africa, one being a part of Cape Colony, the other a dependency of this colony. It is named from the Griquas, a mixed race sprung from Dutch settlers and native women.—*West G.* lies N. E. of Cape Colony, between the Orange river and the Bechuana territory, and is bounded E. by the Orange Free State and W. by the Kalahari country. This region is to some extent suitable for agriculture and sheep-farming, but its great value comes from the diamond mines, which were first discovered in 1867, and which have brought thither a steady stream of population. The diamond-bearing territory had been secured to Waterboer, a native chief; but, disputes arising in consequence of the influx of miners, *West G.* was annexed to Great Britain in 1871, and incorporated with Cape Colony in 1880. Kimberley, the chief center of the diamond industry, is the seat of government. *Area*, 17,491 square miles. *Population* (1891) 83,375, of which 29,670 were whites.—*East G.* lies between the borders of Kaffraria and Natal, forming a portion of what was formerly known as No-Man's Land. It was allotted to Adam Kok, a Griqua chief, and to the Basutos, but was annexed to Cape Colony in 1875 and is under the rule of a colonial governor or chief-magistrate. *Area*, 7,594 square miles. *Population*, 148,468 natives and 4,150 whites.

Gris'wold, RUFUS WILMOT, critic and author, born in Rutland co., Vermont, Feb. 15, 1815, became the editor of, among other publications, *The International Magazine*. His more notable works embrace: *Poets and Poetry of America*, and *The Prose Writers of America*. He was one of Poe's executors, and furnished to the 1850 editions of his works a biographical sketch which provoked much hostile criticism. Died in New York, August 27, 1857.

Groes'beck, in *Texas*, a post-village, cap. of Limestone co., 95 m. S. of Dallas, on H. & T. C. R. R.; has brick works and soda-water factory. *Pop.* (1895) abt. 850.

Grosgrain (*grō'grān*), *n.* A stout and durable corded silk stuff.

Gross, SAMUEL DAVID, surgeon and author, was born near Easton, Pa., July 8, 1805; graduated at Jefferson Medical College, Philadelphia (1828); became professor of Pathological Anatomy at Cincinnati Medical College (1835–39); professor of Surgery at the University of Louisville (1839–50) and at the University of New York (1850–51). He attained a world-wide reputation as a surgeon of almost unexampled skill and as a writer on surgical subjects; was a member of numerous medical and surgical societies of the U. S. and Europe; presided over the International Medical Congress at Philadelphia (1876); received the honorary degrees of D.C.L. from Oxford (1872) and LL.D. from Edinburgh (1884). His greatest work was *System of Surgery*, 2 vols., which has passed through many editions. Other works were: *Manual of Military Surgery; Elements of Pathological Anatomy*, &c. Died May 6, 1884.

Grove, SIR WILLIAM ROBERT, scientist, born in co. Glamorgan, Wales, 1811, graduated at Oxford in 1833, and two years later was admitted to the bar. In 1840 he became professor of Experimental Philosophy at the Institute of London; in 1866 president of the Association for the Advancement of Science; and in 1871 a judge of the Court of Common Pleas. In 1846 *G.* published *On the Correlation of Physical Forces*, in which he advanced the doctrine of the mutual convertibility of the various natural forces, heat, electricity, &c., and of their being all modes of motion. This work has been republished in the United States, France, Belgium, and Germany. Sir William was the discoverer of the principle of the voltaic battery, the striæ in the electrical discharge, the electricity of flame, the voltaic etching of daguerreotypes, the electro-chemical polarity of gases, new combinations for aplanatic object-glasses of telescopes, molecular impressions by light and electricity, &c.

Grove'ton, in *Texas*, a post-town, cap. of Trinity co., 100 m. N. E. of Houston, on M., K. & T. R. R. *Pop.* (1890) 1,076.

Grow, GALUSHA AARON, statesman, born at Ashford, Conn., Aug. 31, 1823; graduated from Amherst College; studied law; was admitted to the bar in 1847; was several times elected to Congress from Pennsylvania (1851–57, 1859–63); in the Thirty-seventh Congress was Speaker of the House. After several years of retirement from active political life, *G.* was elected Congressman-at-Large from Pennsylvania, in 1894, by a sweeping majority, and reëlected in 1896. He was originally a Democrat, but severed his connection with that party in 1854, on the repeal of the Missouri Compromise bill, becaming one of the founders of the Republican party.

Grozing-iron, *n.* A tool used by plumbers in smoothing solder-joints of lead pipe.—A glass-cutter, used before the adoption of the diamond.

Gru'-gru, *n.* (*Entom.*) The larva of a large insect, *Calandra palmarum*, eaten in South America.

(*Bot.*) The macaw-palm, *Acrocomia schlerocarpa*, growing in the West Indies, from the nuts of which is obtained an oil used to give a violet odor to soap.—A palm-tree, *Astrocaryum vulgare*, which yields a valuable wood.

Grum'dy, *n.* Pig iron in grains; used in the manufacture of steel.

Grun'dy, Mrs. The proverbial question "What will Mrs. Grundy say?" comes from the comedy *Speed the Plow*, being the expression of solicitude on the part of *Dame Ashfield* as to the opinion of her neighbor, *Mrs. Grundy*, who represents society in general or a critical public.

Gruyére (*grū-yār'*) **Cheese.** A celebrated skim-milk cheese made at Gruyère, Switzerland. It is said to owe its flavor to *melilotus officinalis*.

Guaco (*gwä'-cō*), *n.* (*Bot.*) *Aristolochia Guaco*, a plant celebrated for its efficiency in curing snake-bite.—Other plants having similar properties.

Guad'aloupe, in *New Mexico*, an E. co.; *area*, 8,320 sq. m.; intersected by Pecos river. *Surface*, is diversified; there are extensive plains, while along Pecos river it is mountainous. *Products*, corn, beans, wheat, oats, alfalfa and vegetables. *Cap.* Puerto de Luna.

Guard'-rail, *n.* A beam or rail, used at railroad switches, curves, and dangerous places, on the inside of a main rail, to keep the wheel on the track.—A hand-rail on the bridge of a steamboat or elsewhere; a safety-rail.

Guerraz'zi, FRANCESCO DOMINICO, Italian patriot, born at Leghorn on Aug. 12, 1804; studied law; accepted an office in the ministry of Tuscany (1849); subsequently, on the flight of the Grand-Duke, was made a member of the provisional government, and later, dictator. When the grand-ducal rule was restored he was imprisoned for three years and then condemned to the galleys for life, but was afterward allowed to select Corsica as his place of banishment. His liberty was subsequently restored and he became a member of the parliament of Turin (1862 and 1865). He was a brilliant writer of fiction; his works include: *La Battaglia di Benevento; L'Assidio di Firenze; Beatrice Cenci; L'Asino*, &c. Died Sept. 23, 1873.

Guest, JOHN, U. S. N., born in Missouri, in 1821, entered the navy as midshipman and attained the rank of commodore; served in the Mexican and Civil Wars. In the latter he took part in various engagements; commanded the *Owasco* at the bombardment of Vicksburg (1862), and the *Iosco* in the Fort Fisher engagements. Died Jan 12, 1879.

Guide'-board, *n.* A board with directions for travellers, placed at cross-roads, park drives, forest paths, &c.

Guide'-book, *n.* A book containing information regarding places, routes, &c., for the convenience of travellers and tourists.

Guillemin, AMADÉE VICTOR, scientist and author, born in Saône-et-Loire, France, July 5, 1826; professor of mathematics at Paris. He was a writer on science; his works have been very popular, and have passed through many editions. They include: *The Heavens; The Sun; The World of Comets,* &c. A number of his books have been translated into English.

Guilmant (*geel-mäng*), FÉLIX ALEXANDRE, organist and composer, born at Boulogne, France, Mar. 12, 1837; organist of St. Joseph's Church in Boulogne, subsequently of La Trinité in Paris; visited the U. S. (1893), playing in several cities very successfully; is considered among the foremost of composers for the organ. His vocal compositions include a fine mass and a lyric cantata entitled *Balthazar.*

Guin'ness, SIR BENJAMIN LEE, Bart., born Nov. 1, 1798; member of a Dublin brewing firm, one of the largest in the world, 3,000 persons being employed and 42 acres covered by its premises. He was a member of Parliament from 1865 to 1868; restored at his own cost (£140,000) the cathedral of St. Patrick in Dublin. Died May 19, 1868.—His third son, SIR EDWARD CECIL *G.,* born Nov. 10, 1847, placed in trust the sum of £250,000 to be spent for the providing of sanitary dwellings for workmen at a low rent, £200,000 to be given to London and the remainder to Dublin.

Guiraud, ERNEST, composer, born at New Orleans, La., June 23, 1830; studied with his father, producing his first opera, *Le Roi David,* before he was fifteen; entered the Conservatory in Paris and gained the Prix de Rome; was decorated with the cross of the Legion of Honor (1878); professor of advanced composition in the Conservatory (1880). His many works include: *Sylvie; Gretna Green; Piccolino; Le Kobold,* &c. Died May 6, 1892.

Gum'drop, *n.* A molded confection of sweetened and flavored gum-arabic, but often adulterated or imitated with glucose, gelatine, &c.

Gum-elas'tic, *n.* Caoutchouc, or India-rubber.

Gump'tion, *n.* (*Colloq.*) Shrewdness; cleverness; native intelligence; common sense.

(*Painting.*) The art of preparing colors; also, a nostrum much in request by painters in search of the supposed "lost medium" of the old masters, and to which they ascribe their excellence. The formula for preparing this medium gives a mixture of drying linseed oil and mastic varnish which gelatinizes; or simple linseed oil and sugar of lead.

Gun, Base'ball. (*Games.*) A device invented by Prof. Hinton and tried at the Princeton, N. J., baseball grounds on June 8–10, 1897. It is intended to do the work of the pitcher of a baseball team, and consists essentially in a cannon-shaped weapon provided with curved fingers projecting from the muzzle, the ball being expelled by the explosion of gunpowder, modified by the use of spiral springs and the employment of a slender tube through which the gases pass from the point of explosion to a space in the barrel behind the ball. The gas being thus introduced near the middle of the barrel and between the ball and the piston-like head of the spiral spring (which has a motion backward toward the breech), its force is exerted equally upon the ball and the spring, thus avoiding the danger of giving the ball too great velocity when expelled. As an additional safeguard, there is a vent in the barrel a few inches in the rear of the spring-head; if a superfluous charge reach the barrel, the spring will be forced back far enough to allow the gas to escape through the vent, thus relieving the pressure on the ball. The curves are produced by the projecting fingers, which are seven inches long, slightly curved inward, and faced with rubber. These are adjustable and may be placed at any point around the muzzle, thus producing whatever "curve" may be desired. (See CURVE PITCHING.) Although the trial at Princeton was highly successful from a mechanical point of view, the *B. G.* is probably of no value in actual practice. Its delivery is slow, because of the time required for loading, adjustment, &c.; and, in the nature of things, a batsman could easily judge, from the direction of the piece and the location of the fingers, the kind of a "curve" about to be delivered, and strike accordingly. It is highly interesting as a mechanical experiment, however, and may eventually develop into something more practical. A modification of the form shown in the accompanying illustration has been made, which has a short stock and, instead of resting on the ground, is fired from the shoulder, like a rifle.

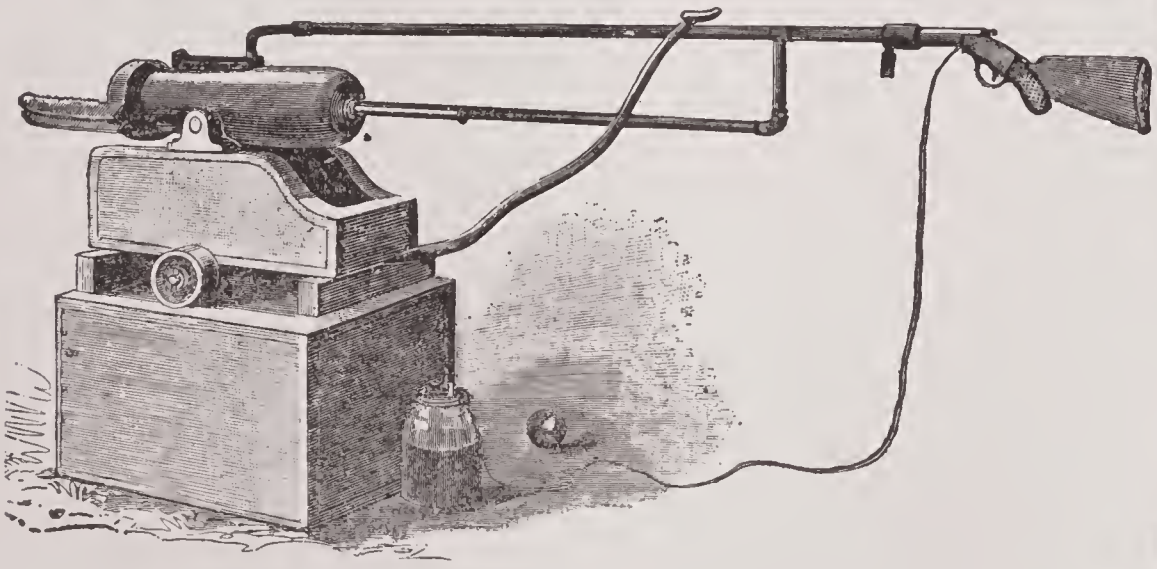


Fig. 2914.—BASEBALL GUN.

Gun, Machine and Rapid-fire. (*Ordn.*). A machine gun is one that is loaded and fired by machinery; generally has a number of barrels, and uses ammunition not larger than the largest of small arms. A rapid-fire gun is one that is loaded by hand, though in some cases discharged by machinery; it has only one barrel, and its projectile ranges from about 1½ inches (1-pounder) to 6½ inches (100-pounder), the limit being apparently the weight of projectile which one man can conveniently handle. These guns discharge armor-piercing shells, and are of special use in the navy for repelling torpedo boats, whose armor is easily penetrated by those of medium caliber. Every modern warship carries a battery of rapid-fire guns, whose celerity and accuracy of fire would render it very hazardous for a torpedo boat to approach within striking distance except under cover of darkness, fog, or battle-smoke. On shipboard, machine guns are usually placed in the fighting tops of the military masts, where they can sweep the decks of an adversary. On land they are particularly useful to defend ditches or defiles and to repel the charges of infantry, being capable of mowing down advancing troops by thousands. The best, if not the only, practical test of improved rapid-fire guns was afforded during the Chino-Japanese war, at the battle of the Yalu river, which, it is claimed, was won by the Japanese guns of this character rather than by the heavier ordnance. While it is true that one well-directed shot from a 13-inch cannon may annihilate a heavily-armored antagonist, more dependence is to be placed upon the 3- to 6-inch armor-piercing shells discharged at the rate of six to eight a minute, with perfect accuracy of aim and with force enough to penetrate the lighter sponsons and gun-shields and burst with deadly effect among the gunners. As a result of this experience and subsequent experiments, it is probable that most of our ordnance up to 6-inch caliber will hereafter be constructed with rapid-fire mechanism.

MACHINE GUNS.—Of the earlier patterns, the best-known was the French *mitrailleuse.* This consisted of 25 fixed barrels in rows of 5, with a breech-block containing 25 chambers coinciding with the barrels, each chamber carrying a cartridge and being provided with its own firing-pin. Several such breech-blocks were prepared and loaded beforehand for each gun; when placed in position the cartridges were rapidly discharged, in rotation, by a mechanism for releasing the pins which was operated by a crank.—Next of successful devices was the *Gatling gun,* which, in its perfected form, is now used all over the globe. This consists of a cluster of 45-caliber rifle barrels arranged around a central shaft and rotated by a crank. Back of the barrels is a brass cylinder having a series of grooves on the exterior corresponding to the barrels of the gun. Above this is the magazine, containing a supply of cartridges, one above the other, pointing toward the mouths of the barrels. When the barrels and the cylinder are rotated, a cartridge drops into the uppermost groove, a bolt automatically pushes it forward into the barrel, a firing-pin shoots against the detonator in the cartridge-end, exploding it, and an extractor automatically throws out the empty shell. All this happens in the twinkling of an eye, and the next barrel is in place for the second shot. This description applies to the earlier gatlings;



Fig. 2915.—GATLING GUN—NEW NAVY MODEL.

in the modern type important improvements are seen in the feeding apparatus. The gun shown in Fig. 2915 is the new model adopted by the U. S. Navy in 1895. In this the feed mechanism has been replaced by one of much simpler construction and less bulk; the cartridges are attached to strips of tin, fed by positive motion into the grooves, when they are discharged by the method already described. Another improvement, which may be applied when desired, is an electrical firing apparatus applied to the breech of the gun and controlled by a push-button, whereby the rate of fire may be regulated at the will of the operator. By the use of this it is possible to discharge the gun at the rate of 3,000 shots a minute. Each feed strip holds 20 cartridges, and 10,000 rounds, ready for instant use, may be carried in the limber. The improved army model is substantially the same in construction, the main improvement being in the positive feed, which acts quite independent of gravity, and therefore makes the weapon useful at any desired degree of elevation or depression.—The *Hotchkiss revolving cannon* has a caliber of 1½ inches, and but one mechanism for loading, firing and extracting shells, operating on each barrel in turn. This gun is effective, but relatively heavy and cumbersome, and it is being largely replaced by rapid-fire guns of corresponding caliber.—The *Gardner gun* has only two barrels, side by side. It is operated by a crank which actuates two cams at the rear of the barrels; these alternately push into position and fire the cartridges that are fed from

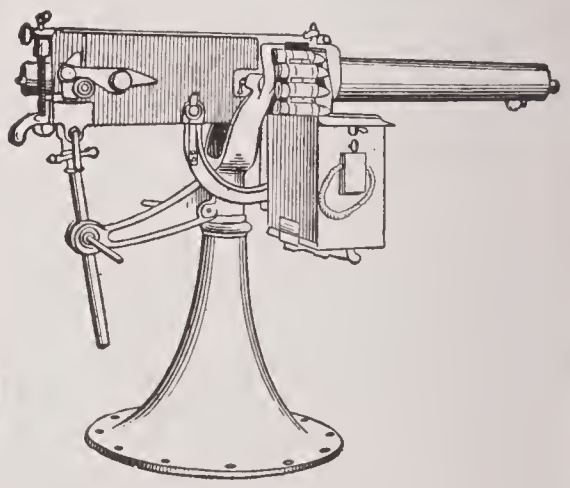


Fig. 2916.—MAXIM RAPID-FIRE GUN.

Model of 1897; 1½ inches caliber; naval mounting; fires 300 1-pound shells a minute; velocity, 1,800 feet a second; penetration, 2½ inches of iron.

the top. Its action is not exceedingly rapid, owing to the small number of barrels.—The *Nordenfeldt gun* has from two to seven parallel barrels, arranged side by side, as in the Gardner; each barrel is provided with a bolt, moved by a side crank, and is fed from a magazine overhead. As the bolts move backward cartridges drop into place, when the bolts start forward and drive them into the barrels, the hammers are released, and the shots discharged in very rapid succession, but not wholly in unison. This has been a favorite gun in England.—

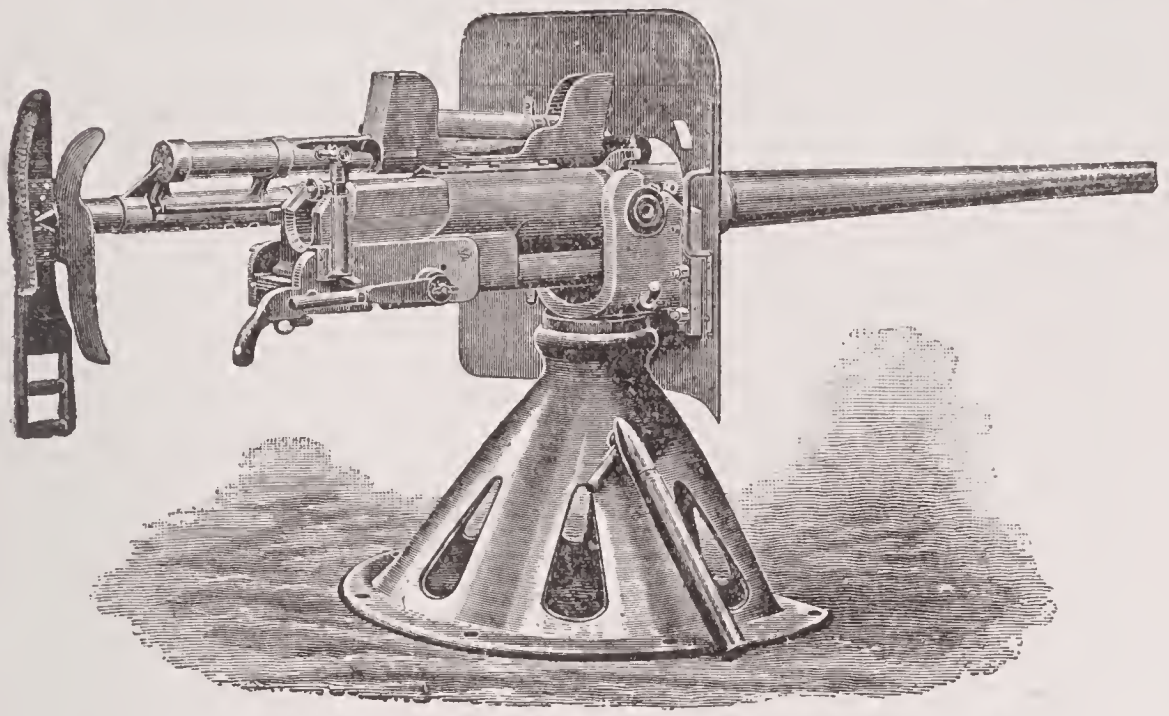


Fig. 2917.—MAXIM AUTOMATIC RAPID-FIRE GUN, WITH SHIELD—NAVAL PATTERN OF 1895.

The Maxim Automatic Machine Gun, as its name indicates, is designed to be almost wholly automatic in its action; and, in fact, after one shot is fired, the operator has but to keep one finger pressed upon the trigger, and the discharges will continue until the magazine is empty. Like the Gatling, this gun is the invention of an American. It differs essentially from the other machine guns described, having a single barrel and a most ingenious though rather complicated mechanism that cannot be intelligibly described in the space now at our disposal.

RAPID-FIRE GUNS.—The distinguishing feature of rapid-fire guns is the breech mechanism, which is so designed that the operation of loading and firing is expedited in the highest possible degree. The efforts of inventors in this line are almost wholly directed toward attaining simplicity of construction and ease and rapidity of handling, combined with the requisite qualities of strength and gas-tight breech-blocks. The *Hotchkiss* rapid-fire gun has a breech-block that moves vertically in a slotted breech. By means of hand levers at the sides, the breech-block is dropped down until the end of the barrel is uncovered, the same motion discharging the empty shell and cocking the hammer; after inserting a new cartridge (by hand) the movement of the levers is reversed, by which means the cartridge is driven home and the barrel again closed. The trigger is then pulled by hand.—The *Driggs-Schroeder* gun, invented and manufactured in the U. S., has a breech-block that both slides and rotates: on its upper surface (which is convex, corresponding to the interior form of the breech) are projecting ribs which fit into corresponding grooves in the inner and upper face of the breech, thus, by interlocking, resisting the recoil. After a discharge the block is slid downward far enough to disengage the ribs and grooves, and then revolved to the rear, throwing open the chamber of the gun. All this is accomplished by the action of a rotating handle and cam, and by the same movement the piece is cocked and the empty shell thrown out. After inserting a fresh cartridge the lever motion is reversed, the rotary swing of the breech-block driving the cartridge into place, and the upward slide firmly closing the breech. By many this is considered the very best gun of its kind yet devised.—The *Nordenfeldt* gun has a breech-block divided into two parts, of which the rear portion functions as a wedge, and the forward part as the block. Like the Driggs-Schroeder, the whole block has a combined sliding and rotary motion, but at its beginning the rear portion only slides downward, while the front part remains in position. When the former has reached a certain place, a cam action rotates the whole block to the rear, in much the same manner and with the same result as in the Driggs-Schroeder gun. By reversing the motion of the levers, after inserting the cartridge by hand, the breech-block resumes its former position, its rear portion rises vertically into its place in the slotted breech, and the gun is ready for firing.—The *Maxim* rapid-fire gun, like the machine-gun of the same inventor, is more nearly automatic than others of the same class. After the first shot the gun itself performs all subsequent operations except the introduction of the cartridge. Following each discharge, by a complex arrangement of springs, fingers and grooves, aided by the recoil of the piece, the breech is reopened, the empty shell cast out, and position taken for a fresh cartridge, which is automatically pushed into place, the breech closed, and the piece instantly fired if the operator's finger be kept pressed on the trigger.—*Tests.* On government trial the Driggs-Schroeder gun has fired 34 shots in one minute, 83 shots in three minutes; the time taken to dismount the piece and replace it in firing position was two minutes and 4⅘ seconds. Corresponding data for the Hotchkiss gun, at the same competitive trial were as follows: 28, 83, and one minute, 37⅘ seconds; for the Skoda (3-pounder): 24, 55, and 33⅘ seconds; for a model designated the Maxim-Nordenfeldt: 20, 65, and three minutes, 33⅘ seconds—the longer time consumed in dismantling and refitting being in part due to an accident. The *Sponsel* gun, made in Connecticut, fired 24 rounds in one minute, and 73 in three minutes. These results were reached under the most favorable circumstances and by the employment of skilled gunners; in actual practice nothing like so high a rate of fire could be long continued without overheating the guns, even if it were physically possible to serve them.

Gun'boat, *n.* (*Navy.*) Not the least useful addition to the navy of the United States is a fleet of 15 gunboats, built since 1887, and especially adapted for service on the inland waters of both home and foreign stations. These vessels have comparatively little defensive power, being practically destitute of armor, if we except a light protective deck; but they are provided with batteries of small calibre but of high power, and have considerable speed coupled with light draught. These characteristics enable them to ascend rivers and cruise in shallow waters which heavier vessels cannot enter, and provide a means of escape when pursued by more powerful adversaries of deeper draught. Nine of these vessels have been constructed since 1893, foreshadowing, as many assume, a more active foreign policy, inasmuch as warships of this type are of special utility on such foreign stations as the Asiatic, where it is occasionally necessary to ascend rivers that are entirely unnavigable for even our light cruisers. The smallest of our gunboat fleet is the *Petrel*, 892 tons, the keel of which was laid in 1887. This boat is 176 feet long, with 31 feet beam; has a draught of 11·7 feet, a recorded speed of 11·7 knots, 1,095 horse-power, and an armament of 4 6-inch breech-loading rifles, 1 1-pounder rapid-fire gun, 2 Hotchkiss revolving cannon, and 2 gatlings; contract price, $247,000. The *Bennington*, *Concord*, and *Yorktown*, each of 1,710 tons, are 230 feet long by 36 feet beam, with a mean draught of 14 feet; a recorded speed of 17·5, 16·8 and 16·14 knots, and a horse-power of 3,436, 3,405 and 3,392 respectively. Their armament consists of 6 6-inch breech-loading rifles, 2 6-pounder and 2 3-pounder rapid-fire rifles, 2 Hotchkiss revolving cannon and 2 gatlings each. The *Bennington* and *Concord* (keels laid in 1888) cost $490,000 each for hull and machinery; the *Yorktown* (keel laid in 1887) cost $455,000. The *Machias* and *Castine* were built in 1891–94, at a cost of $318,000 and $318,500 respectively. These boats are 204 feet long, with 32·1 feet beam and 12 feet mean draught; speed about 16 knots. They carry 8 4-inch, 4 6-pounder and 2 1-pounder rapid-fire rifles. An act of Congress on March 3, 1893, authorized the construction of three gunboats, which were subsequently named *Helena*, *Wilmington* and *Nashville*. These were built at Newport News, Va., the keels being laid in 1894. The two first named are sister ships, specially designed for service in Asiatic rivers. Their principal dimensions and specifications are: length, 250 feet, 9 inches; beam, 40 feet, 1⅜ inches; mean draught, 8 feet; displacement, 1,392 tons; horse-power, 1,600; speed required by contract, 13 knots. On trial the *Wilmington* steamed 15·1 knots, and the *Helena* made a record of 15·8, earning a substantial bonus for the builders, who were entitled to $20,000 for every knot in excess of the stipulated 13. These boats are devoid of sail-power, and have one military mast with two fighting tops, carrying 2 gatlings in the upper top and 2 6-pounders in the lower. The other guns are thus disposed: 4 4-inch rapid-fire guns mounted in pairs, respectively, 2 forward and 2 aft, those aft being mounted on the main deck, those forward on the forecastle deck, without other protection than that of gun-shields; 4 4-inch rapid-fire guns mounted in armored sponsons on the gun deck, amidships; 2 6-pounder Hotchkiss guns mounted forward on the forecastle deck; and 2 1-pounder Hotchkiss guns on the bridge. The *Nashville* is of the flush-deck pattern, and has two masts carrying triangular sails;

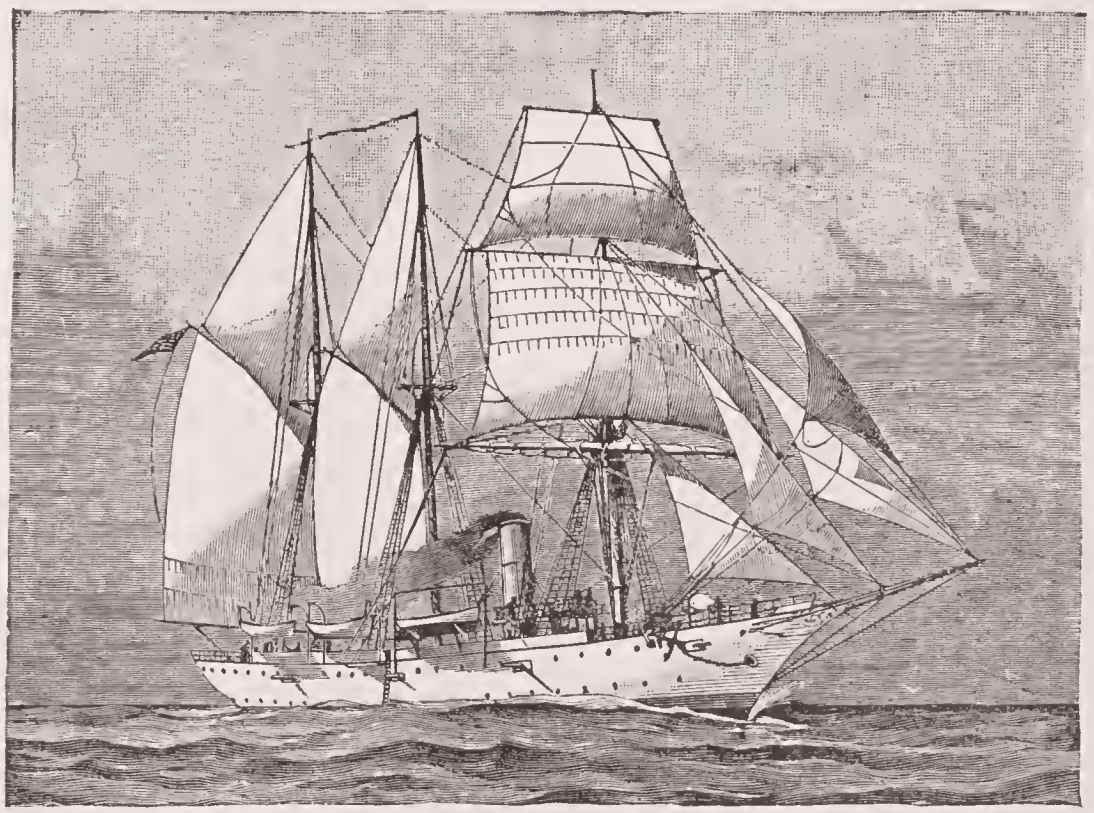


Fig. 2918.—UNITED STATES GUNBOAT ANNAPOLIS—COMPOSITE TYPE OF 1897.

length, 220 feet; beam, 36 feet; draught, 11 feet; displacement, 1,371 tons; horse-power, 1,750. The contract required a speed of 14 knots, but on trial 16·76 knots, or about 19 statute miles, were developed, earning a premium of $50,000 for the builders. The *Nashville* is propelled by twin screws. Her armament consists of 8 4-inch rapid-fire guns, arranged in sponsons on the gun deck, and in the open on the main deck; 4 6-pounder Hotchkiss rapid-fire guns on the gun deck, forward and aft, and 2 1-pounder Hotchkiss and 2 gatlings disposed

on the main deck. There is one torpedo tube in the bow. The contract price for these three vessels was $280,000 each.—*Composite Gunboats.* Of a somewhat different type are the six vessels authorized by act of Congress, March 2, 1895. These are of the *composite* type, a mixed structure of wood and metal. The rapid accumulation of barnacles and marine vegetation on the bottoms of iron and steel warships is a source of continual expense and loss of time incident to docking, to say nothing of decreased speed and increased consumption of coal due to these hindrances. In the composite type this difficulty is largely overcome by the employment of wooden planking riveted to the steel frames and covered externally with a copper sheathing. An inner sheathing of steel may be added if required for strength, the whole so fastened by composition bolts that galvanic action is practically avoided. Vessels of this class will be of particular utility in patrolling stations like the sealing-grounds of Alaska or the middle waters of the Yukon river, remote from docks, of which they will be made measurably independent by their copper bottoms. Three of these new boats, the *Annapolis*, *Newport*, and *Vicksburg*, have full sail-power, in addition to a single screw propelled by triple-expansion engines of 800 horse-power. The other three, *Marietta*, *Princeton* and *Wheeling*, carry only enough canvas to steady them in a seaway, and have twin screws driven by similar engines of the same power. These six vessels have a mean draught of 12 feet; displacement, 1,000 tons; speed required by contract, 12 knots. Those of *Annapolis* type are 168 feet long with 36 feet beam; of the *Marietta* type, 174 feet long with 34 feet beam. The contract price was $230,000 each, exclusive of armament. The latter consists, in each case, of 12 rapid-fire guns of the latest pattern, viz.: six 4-inch rifles, four 6-pounders and two 1-pounders. The *Annapolis*, which was the first of the six to be completed, was built by the Crescent Iron Co.; the *Princeton* at Camden, N. J.; the *Vicksburg* and *Newport* at Bath, Me.; the *Marietta* and *Wheeling* at the Union Iron Works, San Francisco.

Gun'delow, *n.* [Perhaps a corruption of *gondola.*] A flat-bottomed or unwieldy boat or barge; a transport.

Gung'l, JOSEF, composer of popular dance music, was born in Hungary, in 1810, the son of a stocking weaver. In early life he was a school teacher; but, having studied music and composition, he entered the Austrian army as a band-master. His marches, polkas, waltzes, &c, are still widely used on both continents. Died in 1889.

Gun'nison, in *Colorado*, a W. co.; *area* 3,200 sq. m.; drained by the Grand and Gunnison Rivers. *Surface*, mountainous. Mining, smelting, and stock raising are the chief industries. *Cap.* Gunnison. *Pop.* (1890) 4,359.

—A city, cap. of Gunnison co., 63 m. N.E. of Montrose, on D. & R. G. and Union Pac. R.Rs.; has smelting works. Iron and coal are very abundant in the vicinity. Gold, silver and manganese are also mined. *Pop.* (1890) 1,105.

Gun'powder Creek, in *North Carolina*, enters the Catawba river, in Caldwell co.

Gur'don, in *Arkansas*, a post-town of Clark co., 16 m. S.W. of Arkadelphia, on St. L., I. Mt. & S. R. R.; ships lumber and cotton. *Pop.* (1890) 802.

Gur'ney, SIR GOLDWORTHY, inventor, born in Cornwall, England, in 1793; studied medicine, but gave his attention to chemistry, delivering a course of lectures on the subject at the Surrey Institute; was the inventor of the Bude, oil gas, lime, and magnesium lights; claimed the invention of the oxyhydrogen blowpipe, and to have been the first to observe the deflection of the magnetic needle by voltaic cross-currents; also invented the high-pressure steam jet and tubular boiler; was knighted in 1863. Died Feb. 25, 1875.

Guth'rie, THOMAS, born July 12, 1803, at Brechin, Forfarshire, Scotland; student of the University of Edinburgh; was licensed as a preacher (1825); appointed one of the ministers of Old Greyfriars parish in Edinburgh (1837). He was eminent as a pulpit and platform orator, also as a social reformer and philanthropist, working among the most degraded of the population of Edinburgh. He joined the Free Church, and for many years held the ministry of Free St. John's, Edinburgh; was Moderator of the General Assembly of the Free Church of Scotland (1862), and one of the vice-presidents of the Evangelical Alliance; editor of the *Sunday Magazine*, and author of *The Way to Life; A Plea for Ragged Schools; Studies of Character; Parables*, &c. Died Feb. 24, 1873.

Guth'rie, THOMAS ANTHONY, author, born in Kensington, England, in 1856; educated at Trinity Hall, Cambridge; admitted to the bar, but never practiced; contributed short stories to magazines under the pen-name of F. ANSTEY. His works include: *Vice Versa*, which was successfully dramatized; *The Giants Robe; The Black Poodle; The Tinted Venus; The Fallen Idol*, &c. These novels are noted for their grotesque humor.

Guthrie, in *Oklahoma*, a thriving city, capital of the Territory, 90 m. S. of Arkansas City, Kansas, on the A., T. & S. Fé R. R. Has had a rapid growth, with considerable floating population. *Pop.* (1897) abt. 8,500.

Gut'tenburg, in *New Jersey*, a post-town of Hudson co., on Hudson river, opposite 70th St., New York city; has some manufactures. *Pop.* (1895) 3,626.

Gut'ter-snipe, *n.* A single-slip poster for attaching to curb-stones.—(*N. Y. Slang.*) A curb-stone broker. —A street Arab; a destitute child living on the street.

Gutz'kow, KARL FERDINAND, a noted author, was born in Germany in 1811; educated at the Friedrichswerder Gymnasium, and studied philosophy and theology at the University of Berlin. In 1830 he became one of the leading spirits of the Young German Party, and started the publication of a newspaper in 1831. He went to Stuttgart and became assistant editor of Menzel's *Literaturblatt*, afterwards continuing his studies at the Universities of Heidelberg, Jena, and Munich, developing very radical ideas in morals and sociology, which were expressed during his career as a journalist at Frankfort. As a result of the atheistic and unorthodox views expressed in his novel, *Wally, die Zweiflerin*, *G.* was sentenced to prison for three months and all his writings were suppressed. In the same year, however, he published another book, *Nero*, a dramatic work, in which his radical notions were even more fully elaborated. *G.* went to Hamburg in 1837, to escape the surveillance of the Prussian authorities, and thence to various German cities, finally locating in Berlin (1870) where he died in 1878. His works were numerous and varied in character, were very popular in their day, but undoubtedly worthy of condemnation from a moral standpoint.

Gutz'laff, KARL FREIDRICH AUGUST, a celebrated missionary, was born in Germany in 1803, and at an early age was apprenticed to a shoemaker in Stettin. While thus engaged he composed an elaborate poem in which was expressed his ardent desire to become a missionary and labor among the heathen. This poem was presented to the Prussian King in 1821, who at once directed that *G.* be placed in the missionary institution at Berlin. After two years of study there he was transferred to the Dutch Missionary Society at Rotterdam, by whom he was sent to Sumatra in August, 1826. Being detained by some means on the island of Java, *G.* established a residence at Batavia, and in two years mastered the Chinese language, and familiarized himself with the habits and disposition of the Chinese by associating with people of that nationality at Batavia. He now resolved to abandon the Dutch mission and labor in China; and in 1828 he joined the English missionary, Tomlin, in his work at Bangkok, Siam. Here he acquired the Siamese language, and perfected himself in the Chinese tongue. Proceeding to China, he established himself at Macao, and became closely associated with Robert Morrison. Here, in conjunction with Medhurst and others, *G.* began a new translation of the Bible into Chinese. He also founded a society for the diffusion of general knowledge throughout China, in the interest of which he published a monthly magazine in the language of the country, all the time preaching the gospel at Macao and other accessible points. He was later appointed chief interpreter to the British supervisional government in China, a position he was well qualified to fill. In this capacity he attempted to penetrate the province of Fo-kien (May, 1835), but the hostility of the natives made the effort a failure. About the same time the Chinese authorities prohibited the printing of books or other publications relating to Christianity in the Chinese language, and also the distribution by aliens of any kind of literature in that tongue. The methods of peace having failed in his conflict against heathenism, *G.* joined the British in their war with the Chinese and was able to render invaluable service because of his thorough knowledge of the language. He was also instrumental in bringing about the peace of 1842. In 1844 he established a society whose purpose was to diffuse the gospel through China by means of native missionaries, which effort was so successful that by 1848 no less than 50 Christianized Chinese had been sent as laborers through the interior of the country. In the interest of this society *G.* visited England, Germany, and other countries in 1849–50, returning to Hong Kong early in 1851, where he died a few months later in the same year.

Guyot (*gē'yō*), ARNOLD HENRY, scientist, born near Neufchâtel, Switzerland, 1807. He received his education at the college of his native city, the gymnasia of Stuttgart and Carlsruhe, and Berlin University. At Carlsruhe he formed an intimate friendship with Agassiz, A. Braun, and Schimper, and with them began the study of physical science, though studying theology for four years at Neufchâtel and Berlin. In 1835 he was graduated Ph.D. at Berlin University, his thesis being dedicated, by permission, to Humboldt and Ritter. He then proceeded to Paris, where he spent five years in teaching and studying, making scientific summer tours in France, Belgium, Holland, and Italy, for the purpose of investigating the glaciers and erratic boulders. He discovered and communicated to the Geological Society of France, in 1838, the principal laws which govern the formation and motions of the glaciers, which the subsequent observations of others have confirmed; he also showed how the distribution of the Alpine boulders in the regions around proved the extension and limits of the great diluvian glaciers in Switzerland and Lombardy. From 1839 to 1848 he was professor of History and Physical Geography in the College of Neufchâtel. A political revolution having broken up that institution, he resolved in 1848 to follow his friend and colleague, Agassiz, who had emigrated to the U. S. In 1848–9 he delivered a course of lectures in French on *The Relations between Physical Geography and History*, at Boston, which, translated by Prof. Felton, were published under the title of *The Earth and Man* (1849). He afterwards lectured at the Lowell Institute, the Smithsonian, and other Institutions; organized for the Smithsonian Institution a system of meteorological observations, and prepared for it the extensive series of practical tables, introducing and improving the barometers now generally employed. For ten years he was engaged in investigating the physical structure and elevation of the Appalachian system of mountains, from N. H. to Ga.; and in 1855 was appointed professor of Physical Geography and Geology in the College of New Jersey. He published numerous large wall-maps of physical geography, a physical atlas, classical maps, and a series of geographical text-books for the use of schools, all of high merit, as well as many papers in the scientific periodicals. Died in 1884.

Guy'ton, in *Georgia*, a post-town of Effingham co., 30 m. N.W. of Savannah, on Central R. R. of Ga. Turpentine is distilled here. *Pop.* (1897) about 750.

Guz'man-Blan'co, ANTONIO, born in Carácas, 1830; vice-president of Venezuela (1863); was deprived of the office (1868), but restored to power (1870). Although others filled the position of president, Guzman was for many years the actual head of affairs, and in 1889 was acting as envoy to all the European courts. Popular discontent was aroused by reports of corrupt contracts made in Paris, and he was deposed from power.

Gwin, WILLIAM MCKENDRY, politician, born in Sumner co., Tenn., Oct. 9, 1805; educated at Transylvania University; studied medicine; removed to Vicksburg, Miss.; was member of Congress (1841–43); U. S. Senator (1850–61); imprisoned for alleged disloyalty (1861–63). In 1864 he went to Mexico and entered the service of Maximilian, who created him Duke of Sonora. After the collapse of Maximilian, *G.* made a futile attempt to colonize his vast possessions in Sonora with people of Southern birth. Died Sept. 3, 1885.

Gyl'den, HUGO, astronomer, was born in 1841, at Helsingfors, Finland; was for a long time one of the principal astronomers at the Imperial Russian Observatory, at Pulkowa, and has since been director of the observatory at Stockholm, Sweden. His principal achievements have been in the problems of atmospheric refraction, the constant of abberration, and the lunar theory.

Gyni'æi, Morbi, *n. pl.* [From Gr. *gyne*, woman, and Lat. *morbus*, disease.] (*Path.*) Developmental diseases of women, as chlorosis, &c.; those attending the parturient state, amenorrhœa, &c.

Gyp'sum City, or Gypsum, in *Kansas*, a post-village of Saline co., 16 m. S.E. of Salina on M. Pac. R. R.; has manufactures of cement. *Pop.* (1895) 620.

H.

H. The eighth letter in the English language, is an aspirate belouging to the order of gutturals in most modern and ancient languages, and a simple attennation of the sound expressed by the Greek χ and the German and Scottish *ch*. The claims of *h* to be regarded as a letter have been denied by many grammarians; and certainly, when it is remembered that the sound of this letter is produced by a mere emission of the breath, without any conformation of the organs of speech, this opinion would seem well founded. The form of the character corresponds to the Phœnician or Hebrew *cheth* (ח) and the Greek *eta* (H, probably at one time pronounced *heta*), which denoted originally the syllable *che*. The figure H was used by the Greeks to signify the aspirate, until about the 5th century before Christ. After that time it was gradually abandoned in Greek writing, while its use was still preserved by the Latins. In the former language it was superseded by the small mark called the *spiritus asper* (ʿ), which was placed above the letter to which the aspirated sound was to be given. That the sound of *h* in Latin must have been faint, is sufficiently attested by the fact that many words were written indifferently with or without an *h*; as *honestus* or *onestus*. In many Latin words the letter *s* represents the Greek aspirate, as *sub* for ὑπό, *sal* for ἅλς, *sex* for ἕξ, *septem* for ἑπτά, *serpo* for ἕρπω, &c. In the languages derived from the Latin, the force of *h* has almost disappeared. In the French it is retained as a character, but is rarely heard in pronunciation. In the Italian it is altogether absent; while in Spanish it has become substituted in many cases for the Latin *f*, as *hijo*=Lat. *filius*, a son; *humoso*=*fumosus*, smoky. In the languages of the Gothic stock, *h* sometimes represents the Latin *c* and the Greek κ; as, in *horn*, Gothic *haúrn*, Lat. *cornu*, Gr. κέρας. This substitution, and the subsequent absence of *h*, particularly before *r* and *l*, have completely obscured the kindred character of many words which derive from the same root; as, for instance, Eng. *raw*, A.S. *hreaw*, Lat. *cru*-or, blood, *cru*-dus, bloody, raw. In English, the letter *h* may be considered as peculiarly indefinable with regard to its orthoepical position. The natural tendency in this language (as in those derived from the Latin) is to altogether eliminate the *h*; and this practice prevails, accordingly, among the lower orders of English people to an almost ineradicable extent,—a fault which the English-speaking classes of this country (possibly from the absence of dialectical provincialisms) are notably exempt from. In many districts of England, (and especially among illiterate Londoners,) the practice of subverting the proper use of *h*, or, in other words, omitting it where needed, and aspirating it where it ought not to be, may be exemplified, as in *'ome* for *home*, *hegg* for *egg*, &c. Again, another difficulty is found in correctly locating the pronunciation of *h*, that is to say, before what words of which it is the first letter it ought to be aspirated. The rule governiug this use of the letter is but vague: in *heir*, *honor*, *hour*, *herb*, with their derivatives, *h* is silent. It is generally defiued to bear a mute signification in *humble*, *hospital*, *humor*, &c.; but the rule is not absolute in these instances, many good speakers recoguizing the sound of the *h*. *H* is silent after *g* initial, as iu *ghost*, *ghoul*, *ghastly*, *gherkin;* after *r*, as in *catarrh*, *myrrh*, *rhomb*, *rhyme;* and also when following a noun in the same syllable, as *oh*, *Noah*, *buhl*, *Pharaoh*, &c. *H* is employed in conjunction with certain consonants to form digraphs expressing sounds which are not represented in the alphabet, as *sh*, *th*, *t͟h*, as in *should*, *think*, *thus;* also, to qualify the sounds of some other letters, as when following *c* and *p;* with the former producing a compound sound like that of *tsh*, as in *change*, *chapel*, with the latter of *f*, as in *phosphorus*, *phantom*, *Philadelphia*. Again, *h* coming after *c* and *g*, has the hard intonation before *e*, *i*, and *g*, as in *chronology*, *chemistry*, *Ghetto*, *Ghent;* in some other words, *ch* is sounded *sh*, as in *chivalry*, *chevron*. As an abbreviation H. stands for Hispania, Hadriauus, *hic*, *hæc*, *hoc*, &c.; Hil. for *hærides;* and HS. for *sestertium*. On French coins it signifies *La Rochelle*; on those of Austria, *Günsburg*. Among the Romans it stood for the last of the eight nundinal letters. It was also used to symbolize 200, and H for 200,000.

(*Mus.*) H is the designation given by the Germans to the note B ♮; their B being equivalent to the English B ♭, and in their music denotes the seventh diatonic interval, or the twelfth string of the chromatic scale.

Ha, (*interj.*) An exclamation denoting surprise, joy, or grief.

"*Ha!* what art thou! thou horrid headless trunk?" — *Rowe.*

—*v. a.* To express surprise; to hesitate; as, to hum and *ha*.

Haa, (*hă,*) a small island of Scotland, co. Sutherland, 4 m. from Far-out Head.

Haaf, *n.* [Dan. *haf*, the sea.] A name applied to the fishery, or occupation of fishing, in the vicinity of the Shetland Islands.

Haak, *n.* Same as HAKE, *q. v.*

Haar'kies, *n.* [Ger. *haar*, hair, and *kies*, gravel pyrites.] (*Min.*) Capillary pyrites in very delicate acicular crystals.

Haar'lem, a city and lake of the Netherlands. See SECTION II.

Haar'lem, in *New York*. See HARLEM.

Hab'akkuk. (*Script.*) The name of the 35th in order of the books of the Old Testament, forming one of those of the 12 minor prophets.

Hab'eas Cor'pus. [Lat., you may have the body.] (*Law.*) It is one of the first objects of all civil institutions to secure to every member the rights of personal liberty, or, in other words, the control and disposition of his own person, at his own will and pleasure, in such manner, however, as not to violate the laws or infringe upon the rights of others. It may seem, upon the first consideration of the subject, that this is not an object of the institutions and laws of an arbitrary government, since the sovereign, and those representing him in an executive or military capacity, may seize and imprison any one, with or without cause, or upon grounds more or less important and excusable, according as the government is, in its principles and in its administration, more or less arbitrary. But a slight reflection will show that, even in the most arbitrary governments, the first object is to secure one subject from the seizure of his person or the violation of his rights, whether of person or property, by another; for in a community of men, where every member should be left at liberty to seize upon and imprison any other, if he had the physical power to do so, there would be, substantially, and to practical purposes, no government at all. There might be an association of men acting under the orders of the prince, and in concert with each other, who should have more power than any other association in the community, and who might, accordingly, by the right of the strongest, seize persons and property at their own will and pleasure; but such an association would hardly deserve the name of civil polity or government, which signifies not merely physical power and superiority of force, which exists among brutes as well as men, but a body of laws more or less extensive, whereby the liberty and rights of the subjects are secured more or less effectually, according to the degree of improvement and perfection in the constitution and laws of the state. In every government, therefore, whether arbitrary or free, or occupying any one of the various degrees in the scale of freedom, one of the first and most important objects is the security of the person from violence or detention not authorized by law. There is, then, this essential difference, in this respect, between different governments;—in those which are arbitrary, the present will of the sovereign, and, accordingly, of those representing him in civil and military capacities, is the law; whereas, in others, the law is a fixed rule, which every citizen or subject may know and conform to, if he chooses; the sovereign and the magistrates being bound by this law no less than the other members of the society. This fixed law settles beforehand all the cases in which any person may be detained or imprisoned; and the term *imprisonment*, in this application, does not signify merely shutting up in a gaol, since the voluntary detention of a person in a private house or in the streets, says Sir William Blackstone, is an *imprisonment*. The cases in which imprisonment is lawful being thus ascertained by the law, the great provision of *Magna Charta* (q. v.) intervenes, namely, "That no freeman shall be seized or imprisoned, but by the judgment of his equals or the law of the land." The term *equals* or *peers*, here, has reference to an indictment or trial by jury, or other body, of which the office and functions are equivalent to those of jurors, as is the case in regard to the House of Lords, in respect to certain parties and offences. This particular mode of accusation or trial might as well be omitted, and the rule would then stand, that no man should be imprisoned but by the law of the land. It is the law alone that can imprison, and not the sovereign, or any representative of the sovereign, whether the sovereignty resides in one individual, or a body, or more than one body of men. This principle constitutes the leading feature of *Magna Charta*, and lies at the foundation of every free government. In order to secure personal liberty, and at the same time to maintain government, which requires, in the case of crimes and some others, the restraint of the person, it is absolutely essential that the law should not only specify explicitly the cases in which the citizen may be seized or imprisoned, but also provide that he shall not be arrested, or restrained of his liberty, in any other case whatever; and such is the law in the U. States and in England. Nor is this principle confined to the person, it being no less the law that a man's goods, setting aside his person, shall not be seized and detained, otherwise than by order of the law. Such being the rules that lie at the foundation of civil society, the very important questions occur: how these rules are to be enforced; how is the law most effectually to guarantee to every one of its subjects the inviolability of his person and property? The first and most obvious security is that derived directly from the law of nature, and not surrendered among the other sacrifices made by the members of a community to each other, as a condition precedent to the forming of civil society. The law permits every man to defend his person and property, and to repel by force, any unlawful invasion of either. It will not justify him in using extreme force, and committing any outrageous, disproportionate, or wanton injury, in resisting and repelling even an unlawful injury of his person or property; but it will justify him in using a reasonable degree of force, proportioned to the injuriousness or atrocity of the violence attempted by the assailing party. But the law of nature affords but a feeble protection, and men unite in communities for the purpose of obtaining more effectual defences against wrong, and reparations for injuries when committed; and the very first provision of the law is to inflict punishment for any wrongs and violence whereby the public is disturbed, and also to make reparation to a party injured. If one man unlawfully seizes the property, or imprisons the person of another, he is, by the laws of every community, liable to make amends in damages. As far, therefore, as an injury is such that it can be repaired by a pecuniary compensation, and as far as the trespasser is able to make such reparation, the remedy is complete. But since trespassers are not always able to make reparation for injuries, and some injuries are such that pecuniary damages are not an adequate reparation, and also, because the law intends to prevent wrongs, as well as to provide for punishments and compensations where they have been committed, it provides certain processes for immediate prevention, in case of a violent and unauthorized invasion of property or person. Of this character are the processes on complaint for forcible entry on real estate, the action of replevin in respect to goods and chattels, and the writ *de homine replegiando*, or writ of *H. C.*, in respect to the person. The writ *de homine replegiando* is similar to that of replevin, and is, in fact, as its name imports, *the replevying of a man*. When a man's person has been carried out of the country, so that he cannot be found, then a process takes place somewhat similar to that adopted when goods are carried off, so as not to be repleviable. In the case of the goods, a process *in withernam* issues, by which other goods are taken. So in the case of the man; the person who thus conveyed him away is himself taken in a process *in withernam*, as a pledge for the restoration of the person sought to be replevied. This process of replevying a man is very ancient in the English law; forms of the writ being given by Fitzherbert, and also found in the Register of Writs. But it was not until more than 400 years after the date of *Magna Charta* that an adequate remedy was adopted, whereby the great privilege, provided for in that charter, was effectually secured. This security was effected by the *Habeas Corpus* Act, passed in the 31st year of Charles II. c. 2, which has been adopted, in substance, in all the U. States; and many of the State constitutions expressly guarantee to the citizens the right to this writ, as one of the fundamental principles of the government; and by the Constitution of the U. States, the privilege of this writ is secured, at all times, except in cases of rebellion or invasion, when the public safety may require its suspension. The right is liable to be suspended in England in the same cases, it being sometimes necessary to clothe the executive with an extraordinary power, as the Romans were in the habit of choosing a dictator in emergencies, when the public was in danger. This, as Sir William Blackstone says, is the sacrifice of the security of personal liberty for a time, the more effectually to secure it in future. At all times, when the privilege is not suspended by law, every citizen has a right to this writ. It is, however, to no purpose that the party should be brought before a judge, on *habeas corpus*, to be immediately remanded to prison. The laws, accordingly, except certain cases; thus the laws of New York provide, that if a person is not a convict, or in execution by legal process, or committed for treason or felony, plainly expressed in the warrant, and has not neglected to apply to be released for two whole terms, he is entitled to this writ. An application may be made to a judge, either in court or out of court, for this writ; and if it does not appear that the person is imprisoned under some of the circumstances above named, or if it be in some other State than New York, if it does not appear to the judge that his case comes under some of the exceptions provided by the law of the State (and the laws except only the plainest cases), then it is the absolute duty of the judge to grant the writ, directed to the gaoler, officer or person who detains the complainant, ordering him to bring the prisoner before him. The laws of England provide that, if the Chancellor or any of the 12 judges refuses the writ when the party is entitled to it, he incurs a very heavy forfeiture to the complainant. It is universally, in the U. States, the imperative duty of the judge to order the complainant to be immediately brought before him, unless his case plainly comes within one of the exceptions pointed out by the law. The party being thus brought up, the judge determines whether he is entitled to be discharged, absolutely, or to be discharged on giving a certain bail, or must be remanded to prison. If the imprisonment is wholly unauthorized, the complainant is discharged; if it be not unauthorized, but is yet for a cause in which the party is entitled to be discharged on giving bail, the judge orders accordingly. This is the writ which is justly denominated the *great bulwark* and second *Magna Charta* of British liberty. And it is no less the bulwark of American than of British liberty; for it not only protects the citizen from unlawful imprisonment, at the suggestion of the civil officers of the government, in behalf of the public, but also against groundless arrests at the suit or instigation of individuals. There are other writs of *habeas corpus*, but the one we have described is always intended when the term is used without other explanation.

Haben'dum, *n.* [Lat., to be held.] (*Law.*) The name of a clause in a deed of grant or lease, in which is described the estate or interest granted by the deed.

Hab'erdash, *v. n.* To deal in small wares; to peddle.
Hab'erdasher, *n.* [Possibly from Ger. *habe*, goods, and *vertauscher*, a barterer.] A seller of small wares, confined at present to ribbons, pins, tapes, needles, and thread.
Hab'erdashery, *n.* The wares sold by a haberdasher; the business of a haberdasher.
Haberdine, (*hab-er-deen'*,) *n.* [Probably corrupted from *Aberdeen*.] A dried salt cod.
Haber'geon, *n.* [Fr. *aubergeon;* A.S. *hals*, the neck, and *beorgan*, to defend.] (*Anc. Armor.*) A coat of mail; a piece of defensive armor, in the form of a coat or tunic (*Neh.* iv. 16; *Job* xli. 26), descending from the neck



Fig. 1223. — HABERGEON.

to the middle of the body, and formed of tough hide, or many quilted linen folds, or of scales of brass overlapping each other like fishes' scales, or of small iron rings or meshes linked into each other, (*Ex.* xxviii. 32; xxxix. 23.)
Hab'ergham-Eaves, a town of Lancashire, England, 2 m. N. of Burnley. *Manuf.* Cotton and woollen goods; in its neighborhood are also coal-mines. *Pop.* 8,350.
Hab'ersham, in *Georgia*, a N.E. co., bordering on S. Carolina; *area*, abt. 450 sq. m. *Rivers.* Tugaloo, Chattahoochee, Soquee, Tallulah, and Broad rivers. *Surface*, broken and hilly, a spur of the Blue Ridge traversing it from N. to S., mounts Yonah and Currahee rising to considerable heights. *Soil*, in general fertile. *Min.* Gold, rubies, diamonds, cornelians, and iron. *Cap.* Clarkesville.
Habil'iment, *n.* [Fr. *habillement*, from *habiller*, to clothe, from Lat. *habere*, to have.] A garment; clothing. (Mostly used in the plural.)
Hab'it, *n.* [Fr., from Lat. *habitus*, a dress.] State or condition of anything; as, *habit* of body. — Temperament; a tendency to, or aptitude for, the performance of certain actions, acquired by custom, or a frequent repetition of the same act. — See CUSTOM.
—Garb; dress; clothes, or garments in general.

"Costly thy *habit*, as thy purse can buy." — *Shaks.*

—A coat worn by ladies over their other garments; as, a riding-*habit*, a walking-*habit*.
(*Bot.*) The general features or aspects of plants, or of their mode of growth. — The resemblance in structure and growth between plants of the same species.
—*v. a.* To dress; to clothe; to deck; to array.
Hab'itable, *a.* [Fr., from Lat. *habitabilis*, from *habitare*, freq. of *habere*, to have.] That may be dwelt in; capable of sustaining human beings; as, the *habitable* portions of the globe.
Hab'itableness, *n.* Capacity of being inhabited.
Hab'itably, *adv.* In a habitable manner.
Hab'itancy, *n.* Same as INHABITANCY, *q. v.*
Hab'itant, *n.* [Lat. *habitans*, pp. of *habitare*, to dwell.] A dweller; one who lives in any place.

"Earth's *habitants*." — *Milton.*

Habitans, (*a'be-tong*,) *n. pl.* The name by which the inhabitants of Canada, born in the country, but of French origin, are known.
Hab'itat, *n.* [Lat., it swells.] (*Zoöl.* and *Bot.*) The natural abode or locality of a plant or animal.
Habita'tion, *n.* [Fr., from Lat. *habitatio*.] Act of inhabiting; state of dwelling; as, a palace in ruin for want of *habitation*.
—Place of abode; a settled dwelling; a mansion; a house; a residence.

"A local *habitation* and a name." — *Shaks.*

(*Bot.*) The habitat, or extent of territory, over which any given species of plants may grow.
Hab'ited, *p. a.* Clothed; dressed; as, *habited* befitting his rank.
Habit'nal, *a.* Formed or acquired by frequent use or custom; customary; as, *habitual* piety, *habitual* profanity.
—Usual; accustomed; rendered permanent by continued causes; as, the *habitual* color of the skin, a *habitual* characteristic.
Habit'nally, *adv.* By habit; customarily; by frequent practice or use.
Habit'nalness, *n.* Quality or state of being habitual.
Habit'nate, *v. a.* [Fr. *habituer;* L. Lat. *habituare*, to accustom.] To train; to accustom; to make familiar by frequent use or practice: to inure.

"They *habituate* themselves to their vicious practices." *Tillotson.*

—*a.* Accustomed; rendered familiar by use; invcterate by custom.
Habitua'tion, *n.* Act or state of being trained, accustomed, practised, or inured to a habit.
Hab'itude, *n.* [Fr., from Lat. *habitudo*.] Relative state or condition; customary manner or mode of life; custom; habit; repetition of the same acts: as, the *habitudes* of good company.
Habitué, (*a-be-too-ay'*,) *n.* [Fr.] One accustomed to a certain place, employment, amusement, &c.; as, an *habitué* of the tavern, of the theatre, &c.
Hab'nab, *adv.* [Corrupted from *hap-ne-hap*, *i. e.* let it happen or not.] At random; by chance; without any rule or certainty of effect.

"Cyphered and astral characters set down *hab-nab*."—*Hudibras.*

Habs'burg, Haps'burg, [Lat. *Habsburgum*,] a castle of Aargau, in Switzerland, 8 m. N.E. of Aarau, founded in 1020. It is the cradle of the House of Austria. — See HAPSBURG (HOUSE OF).
Hachette, JEANNE, (*a-shet'*,) an heroic young Frenchwoman of Beauvais, who inspired and led on a troop of armed women to encounter Charles the Bold in 1472, when he attacked their city. When the walls were stormed, she slew a standard-bearer who led the assault, as he was about to plant the trophy on the rampart, and hurled the body into the moat, at the same time setting her foot on the standard. In memory of this act, and for her gallant services, the inhabitants have for ages held a procession on the 10th of July, in which the women take precedence of the men; and further, to mark their admiration, her descendants were for ever exempted from the payment of taxes.
Hachure', *n.* [Fr. *hacher*, to hack.] A short line used by map-engravers, most usually in delineating mountains.
—*v. a.* To form the representation of mountains on a plane surface, as in map-engraving, by means of short lines called *hachures*.
Hacienda, (*a-the-en'da*,) *n.* [Sp., from Lat. *faciendæ*, *pl.* of *faciendum*, a thing to be done, *future p. part.* of *facere*, to do.] In Spanish-speaking countries, a single plantation, or the dwelling and out-buildings pertaining thereto. — An estate on which mining, agriculture in any of its branches, or the breeding of cattle, is carried on. — A public treasure; exchequer.
Hack, *v. a.* [A. S. *haccan*; Ger. *hacken*; allied to *hash* and *gash*.] To chop; to cut irregularly and in small pieces; to notch; to mangle by repeated blows of a cutting-instrument.

"I'll fight till from my bones my flesh be *hacked*."— *Shaks.*

—To speak with stops or catches, or with hesitation.
—*n.* A notch; a cut. — Hesitating or faltering speech.
—*v. n.* To cough frequently in the effort to raise phlegm. — To be exposed for hire, as a hackney-horse. — To become a prostitute.
Hack, *n.* [Abbrev. of HACKNEY, *q. v.*] A horse kept for hire; a horse much used for draught or hard service; a worn-out horse. — Anything exposed for hire, or used in common; a coach or other carriage kept for hire. — A writer employed in the drudgery and details of bookmaking. — A rack for holding hay, straw, or fodder for cattle. — A name given to the rows of crude brick as they are exposed in the field to dry. — A pick used in chipping stone. — The frame in the tail-race of the mill.
—*a.* Hired; much used or worn, like a hired horse.
Hack'berry, *n.* (*Bot.*) See CELTIS.
Hack'bolt, *n.* Same as PUFFIN, *q. v.*
Hack'but, *n.* Same as HAQUBUT, *q. v.*
Hack'ensack, in *New Jersey*, a post-town and township, cap. of Bergen county, on the Hackensack river, about 10 m. N. by W. of New York. Has extensive manufactories. *Pop.* (1895) 7,282.
Hackensack River, in *New York* and *New Jersey*, ries in Rockland co., of the former State, pierces New Jersey in Bergen co., and continuing its S. course, enters Newark Bay from Hudson co.
Hack'ee, *n.* (*Zoöl.*) The Chipmunk or striped squirrel. See SCIURIDÆ.
Hack'ery, *n.* [Hind. *chakhrâ*, a cart.] A street-cart drawn by oxen; much used in Bengal.
Hack'etstown, a town of Ireland, in the co. of Carlow, Leinster, about 8 m. S. E. of Baltinglass. *Pop.* 1,021.
Hack'ettstown, in *N. J.*, a post-town of Warren co., on D. L. & W. R. R., 62 m from New York. *Pop.* 2,594.
Hack'ing, *a.* Short and interrupted; as, a *hacking* cough.
Hac'kle, *v. a.* [Dut. *hekelen*. See the noun.] To comb, as flax: to separate, as the coarse part of hemp or flax from the fine, by means of a hackle. — To tear asunder.
—*n.* [Dut. *hekel*, a comb; Ger. *hechel*, allied to *haken*, to grapple, to hook.] An instrument with teeth, or a board set with spikes, for separating the coarser part of hemp or flax from the fine: a hatchel. — Raw silk; any flimsy substance unspun. — A fly for angling.
Hac'kles, *n. pl.* A term applied to the slender feathers from the neck and backs of birds used by fly-fishers. The most esteemed hackles are the *duns*.
Hack'ly, *a.* Rough; broken, as if hacked.
Hack'ney, *n.* [Fr. *haquenée*; L. Lat. *hakaneius*, from *equus*, a horse.] A horse kept for hire; a horse much used.—A coach or other vehicle kept for hire; anything much used, or used in common. See COACH.—A hireling; also, a prostitute.
—*a.* Let out for hire; devoted to common use; prostituted; much used; common: trite; as, a *hackney* quotation.
—*v. a.* To use much; to practise in one thing; to make trite. — To carry in a hackney-coach.
Hack'neyed, *p. a.* Used much or in common; worn out: as, a *hackneyed* metaphor.—Practised: accustomed.
Hack'ney-man, *n.*; *pl.* HACKNEY-MEN. A man who lets out carriages with horses for hire.
Hacqueton, (*hack'tong*,) *n.* [Fr. *hoqueton*, a piece of armor; Sp. *algodon*.] A stuffed jacket, either of cloth or leather, formerly worn under armor.
Had, *imp.* and *pp.* of HAVE, *q. v.*
Had'dam, in *Connecticut*, a post-town and township, semi-cap. of Middlesex county, on the Connecticut river, about 25 miles E. N. E. of New Haven. *Pop.* (1897) about 2,100.
Had'dam, in *Kansas*, a post-village of Washington co.
Had'dam Neck, in *Connecticut*, a post-office of Middlesex co.
Had'dington, or **East Lothian,** a county of Scotland, bounded N. by the Frith of Forth, S. by Berwick, E. by the German Ocean, W. and S.W. by the county of Edinburgh. *Area*, 280 sq. m. *Manuf.* Pottery, salt, linens, and woollens. The country produces all the grains, beans, turnips, and grasses. *Pop.* 40,700. — A town, capital of the above county, on the Tyne, 15 m. E. of Edinburgh. It has an extensive grain-market. *Pop.* 4,000.
Had'dington, in *Pennsylvania*, a suburban village within the chartered limits of Philadelphia, abt. 5 m. W. by N. of the State House.
Had'dock, *n.* [O. Fr. *hadot;* W. *hadawg*.] (*Zoöl.*) The *Morrhua æglefinus* of Linnæus (Fig. 1224), a well-known Malacopterygious fish, is nearly allied to the cod; and, like it, is a native of the northern seas, where it assembles in prodigious shoals, visiting particular coasts at stated seasons. Nor is it by any means scarce on the shores of America, particularly along the eastern coast from New York to the Arctic regions: and as its flesh is sweet and wholesome, and it comes at the season when cod is scarce, it is a fish of considerable value. The *H.* is generally about twelve or fourteen inches in length, and weighs from two to three pounds; though, occasionally, they are met with nearly three feet long, and weighing 10 or 12 pounds; the smaller or moderate sized ones, however, are most esteemed for the table. The body is long and slender; the head slopes suddenly down from the crown to the point of the nose; the lower jaw is longer than the upper, and furnished with a narrow band of teeth; the barbule at the chin is small; the eye is large, and the irides silvery; the head, cheeks, back, and upper part of the sides are of a dull-grayish hue; lower part of the sides and belly, silvery. On each side is a large black spot. The lateral line is black; the dorsal fins and tail dusky blnish-gray; pectoral, ventral, and anal fins lighter; the tail bifid. Their food is small fish, crustacea, and marine insects. They spawn in February and March; and they are in the best condition for the table from October to January. See FINNAN.



Fig. 1224. — HADDOCK, (*Morrhua æglefinus.*)

Had'don, in *Ind.*, a twp. of Sullivan co.
Haddon, in *New Jersey*, a township of Camden county.
Had'donfield, in *New Jersey*, a post-borough of Camden co., on 2 R.R. lines, 6 m. S. E. of Camden. *Pop.* 2,670.
Hade, *n.* [A.S. *heald;* Ger. *halde*, a declivity.] (*Mining.*) The inclination which nearly all veins of mineral have from a perpendicular direction: as, a *hade* to the north, when the general inclination is to that point. (Said only of mineral veins.)
—*v. n.* To deviate from the vertical; as, the vein *hades* east.
Had'eln, a district of Prussia, in Hanover, extending for 12 m. along the mouth of the Elbe; *area*, 110 sq. m. *H.* is marshy, generally fertile, below the sea-level, but well protected by dykes.
Had'er, in *Minnesota*, a post-village of Goodhue co., abt. 20 m. S.W. of Red Wing.
Had'ersleben, a town of Prussia, in Schleswig, on the Little Belt, 31 m. N. of Flensburg. Its harbor serves as a means of communication between Schleswig and the island of Fünen.
Ha'des, *n.* [Gr. *hades*, also *haides*, from *a* privative, and *idein*, to see.] (*Gr. Myth.*) A word denoting the abode of the dead, or the reputed god of the nether world, called also Pluto. Hesiod makes the mortals of the brazen age the first who descended to Hades.
Had'ing, *n.* (*Mining.*) The direction of a *slip* or *fault*.
Hadji, (*hăd'ji.*) [Ar., a pilgrim.] The title of a Mohammedan who has performed a pilgrimage to Mecca, a religious act which every true believer is bound to perform at least once in his life: but minors, slaves, and lunatics are exempt from this obligation. *Hadji* is the name of the celebration which takes place on the arrival of the caravans of pilgrims at Mecca, and a Mohammedan who has made the pilgrimage commonly bears for the rest of his life the title of *hadji* prefixed to his name. As is well known, presence at these ceremonials is strictly prohibited to all but the faithful; but at least five European Christians are known to have been present at these ceremonies: the last two of these were the celebrated travellers Burckhardt (in 1814) and R. F. Burton (in 1853), both of whom have published interesting accounts of their journeys.
Hadleigh, (*had'ly,*) a town of Suffolk, England, on the Bret (tributary of the Stour), 8 m. W. of Ipswich, 58 m. N.E. of London. *Manuf.* Silk stuffs and yarn-spinning. *Pop.* 4,740.
Had'ley, in *Illinois*, a post-village of Will co., abt. 28 m. S.W. of Chicago.
—A village and township of Pike co., abt. 20 m. E. of Hannibal.

Had'ley, in *Massachusetts*, a post-town and township of Hampshire co., on the Connecticut river, about 90 m. W. of Boston. *Pop.* (1895) 1,669.

Had'ley, in *Michigan*, a post-village and township of Lapeer co.

Had'ley, in *New York*, a post-town and township of Saratoga co., on the Hudson river, 54 m. N. by W. of Albany. *Pop.* (1897) about 1,200.

Had'ley's Mills, in *North Carolina*, a post-village of Chatham co.

Had'ley Sta'tion, in *Illinois*, a village of Lawrence county.

Had'lyme, in *Connecticut*, a post-village of New London co., on the Connecticut River, abt. 30 m. S.S.E. of Hartford.

Had'ramaut, an extensive province of S. Arabia, extending along the Gulf of Oman, between Yemen on the W. and Marah on the E. It was a part of the ancient Arabia Felix, and is guarded by a mountain-range along the coast, which has an average elevation of 5,000 feet.

Had'rian. See ADRIAN.

Hadriano'ple. See ADRIANOPLE.

Hæcce'ity, *n.* [L. Lat. *hæccēitas*, from *hæcce*, intensive form of *hæc*, fem. of *hic*, this.] (*Logic.*) The relation of subjectivity or individuality, imagined by the philosophers called Schoolmen to have been a positive attribute.

Hæm'achrome, *n.* [Gr. *haima*, blood, *chroma*, color.] (*Chem.*) A name sometimes given to the coloring-matter of the blood. — See HÆMOGLOBIN.

Hæm'acryme, *n.* [Gr. *haima*, blood, and *krumos*, cold.] A name given by Latreille to any animal having cold blood.

Hæmadynamom'eter, *n.* [Gr. *haima*, blood, *dynamis*, force, *metron*, measure.] An instrument to measure the pressure of the blood. It indicates both the pressure of the blood in the blood-vessels and the time of its movements, by the variations in a column of mercury.

Hæ'mal, *a.* [Gr. *haima*, blood.] Relating to the blood, or the blood-vessels.

Hæ'mal Arch, *n.* (*Anat.*) That part of the vertebra, or primary segment of the skeleton, which encompasses the main axis of the vascular system or its prolongations. It is situated opposite the neural arch, and, except in mass, is inverted and beneath the centrum.

Hæman'thus, *n.* [Gr. *haima*, blood, and *anthos*, flower.] (*Bot.*) The Blood-flower, a genus of plants, order *Amaryllidaceæ*. The juice of *H. toxicarius* is extremely poisonous, and is used by the Hottentots to poison their arrow-heads.

Hæmapophy'sis, *n* [Gr. *haima*, blood, and *apophusis*, a process.] (*Anat.*) The autogenous vertebral elements which close or form the hæmal arch. In the human thorax they close the arch, as *cartilages of the ribs*, with the aid of a hæmal spine or sternal bone; in the sanrian tail they form, with the spine, the entire hæmal arch.

Hæmateme'sis, *n.* [Gr. *haima*, blood, and *ēmēsis*, vomiting.] (*Med.*) The vomiting of blood from the stomach. An individual, previously, perhaps, to appearance, in robust health, after some strong mental emotion or physical exertion, is suddenly seized with a sense of fulness of the stomach and sickness, when he speedily ejects by vomiting a quantity of blood. The attack is usually preceded by various premonitory symptoms, as loss of appetite, indigestion, nausea, uneasiness or pain in the epigastric region, &c. The blood proceeding from the stomach is to be distinguished from that coming from the lungs, and will be known by its being almost always of a dark color, while that proceeding from the lungs is generally bright and florid. *H.* may exist, and yet no blood be ejected; for it may come in small quantities and pass through the alimentary canal; it may also proceed from the fæces, mouth, or nostrils. It may result from various causes; as, 1, it may be idiopathic; 2, it may be vicarious of some other habitual hæmorrhage; 3, it may depend upon disease or injury of the stomach itself; 4, it may be the consequence of disease situate elsewhere, and producing mechanically a plethora of the veins of the stomach; 5, it may result from a morbid condition of the blood, and form one symptom of a more general disease. The mode of treatment will necessarily vary in particular cases; in general, every effort is to be made to tranquillize the circulation and to arrest the hæmorrhage, for which purpose ice taken into the stomach is often very beneficial. The acetate of lead, in combination with opium, may also be given. All irritating substances should be avoided; and whatever nourishment is taken into the stomach should be in the form of cold liquids. This is a disease which is often feigned by impostors swallowing blood and afterwards vomiting it.

Hæm'atherm, *n.* [Gr. *haima*, blood, and *thermē*, heat.] (*Zoöl.*) A name given by Latreille to any animal having warm blood; — the opposite of *hæmacryme*.

Hæmat'ics, *n. pl.* Medicines that act, or are believed to act, on the blood, and to have a specific tendency in changing its constituents when corrupted.

Hæm'atin, Hæmat'osin, *n.* (*Chem.*) A product of the decomposition of the hæmoglobin of the blood. It occurs in old extravasations.

Hæmatin'ics, *n. pl.* Articles of the materia medica which tend to increase the number of coloring globules in the blood. Various preparations of iron are mostly used for this purpose.

Hæm'atite, *n.* (*Min.*) Native oxide of iron, the streak and powder of which are blood-red. It is more frequently written HEMATITE, *q. v.*

Hæmat'ocele, *n.* [Gr. *haima*, blood, and *kēlē*, a tumor.] A swelling or tumor arising from extravasated blood.

Hæmatoc'onite, *n.* [Gr. *haima*, blood, *konis*, powder.] (*Min.*) A variety of calcite or carbonate of lime, colored red by sesquioxide of iron.

Hæm'ato-crystal'lin, *n.* See HÆMOGLOBIN.

Hæmatoi'din, *n.* (*Chem.*) A crystalline body (an oblique rhombic prism), of a bright orange-red color, formed in blood which has been effused into the tissue of a live animal. It is soluble in ammonia.

Hæmatol'ogy, *n.* [Gr. *haima*, and *logos*, a discourse.] The doctrine of the blood; the medical belief connected with the blood, and the various ideas as regards the healthy change of its constituents.

Hæmatopo'didæ, *n. pl.* (*Zool.*) A family of Grallatores birds, comprising Waders, which have the bill compressed. The best-known species or genera are the *Oyster-catcher* and the *Turnstone*, q. v.

Hæmatozo'a, *n.* [Gr. *haima*, blood, *zoön*, a living being.] (*Zoöl.*) A term applied to the animalcules, or entozoa, which exist in the blood of mammals, birds, reptiles, fishes, and many invertebrate animals. They are generally microscopic, without generative organs, and found existing in the blood circulating both in the arteries and veins. A very small proportion attain a large size and have organs of reproduction; these are generally found in some special part of the body. Thus the variety called *Distoma hæmatobium* is only found in the abdominal venous system; another variety is found restricted to the abdominal arterial system of the horse; and the *Pseudalius filum* is only found in the pulmonary artery and branches of the porpoise. Very little is known concerning the origin of these entozoa. It seems probable that some of the minute forms are the larvæ of a worm living in the organs surrounding the vessels. The most important of the human hæmatozoa is the variety mentioned above; it has only been observed in Egypt. The liver-fluke, *Distoma hepaticum*, has sometimes been found in the interior of the portal vein. Those hæmatozoa which have been found in tumors must have been conveyed there by the blood. Horses and dogs are frequently affected with these parasites; in the case of the latter animal, they are seldom large enough to be visible to the naked eye. The presence of hæmatozoa does not, however, seem to affect the general health of either men or the animals.

Hæmatu'ria, *n.* [Gr. *haima*, blood, and *ouron*, urine.] (*Med.*) A discharge of urine intermingled with blood.

Hæmodora'ceæ, *n. pl.* [From *hæmodoron*, one of the genera.] (*Bot.*) An order of plants, alliance *Narcissales*. — DIAG. Hexapesalordeous tubular flowers, 3 stamens opposite the petals, or 6; anthers turned inwards, and radicle remote from the hilum, which is naked. — They are herbaceous plants, with fibrous roots and sword-shaped leaves. There are about 50 known species, chiefly natives of N. and S. America, S. Africa, the Mascarene islands, and New Holland. Some of them have beautiful flowers. A red color exists in the roots of some; hence, the name *Blood-root* has been given to them. In this order are ranked the *Vellozia*, or Tree-lilies.

Hæmoglo'bin, *n.* (*Chem.*) A substance forming the principal part of the red globules of the blood of vertebrate animals. From the blood of some animals it can be obtained in crystals, which are of different forms in different animals. The *H.* of venous blood differs from that of arterial blood; and this difference is caused by its union with oxygen in arterial blood, and loss of oxygen in the venous blood. The red color is due to the presence of a small quantity of oxide of iron.

Hæmop'tysis, *n.* [Gr. *haima*, blood, and *ptusis*, spitting.] (*Med.*) The coughing up of blood from the lungs and air-tubes. It is important to ascertain the source of the blood which escapes from the mouth, and, if determined to be from the lungs, to ascertain whether it is symptomatic of disease of these organs, or merely vicarious in its character. It is not so much dangerous in itself as an indication of some other dangerous disease, being most frequently connected with tubercular consumption. Bleeding from the lungs may occur without organic disease in plethoric and robust individuals living a life of excitement and excess, and in nervous, irritable individuals weakened by mental or bodily fatigue, and leading sedentary lives. It is often hereditary, and may be brought on by violent muscular effort, paroxysms of cough, blows or pressure on the chest, inspiration of irritating vapors, or of rarefied air on high mountains. The blood may be exuded from the tracheal or bronchial membranes, or it may proceed from capillaries communicating with the air-passages in any part of their extent. The amount varies from a drachm or two to as many pints at a time, and is generally florid, and more or less mixed with air, differing from the dark, coagulated blood which comes from the stomach. An attack is frequently announced by a feeling of heat and oppression in the chest behind the sternum, followed by a cough, which brings up the blood. When the quantity is very great, it pours forth without cough, and almost by an act of vomiting, with considerable spasmodic effort. In all such cases, it is best to seek medical advice as early as possible. Among the agents that are useful in arresting hæmoptysis may be noticed the essence of turpentine, 10 to 30 drops in a glass of water, tannin, or gallic acid. Nauseating medicines, as tartar emetic and ipecacuanha, are also frequently employed. Common salt, in a dose of from 60 to 120 grains, is an excellent popular remedy. In all cases, calmness of mind, rest, silence, erect position, cool air, and freeness of the bowels, should be enjoined. When the attack proceeds from congestion, blood-letting is recommended in certain cases. If cough be present, it should be allayed by narcotics. After the attack, astringent tonics, as iron and quinine, may be given; and the return of the bleeding is to be guarded against by avoiding the exciting causes, and attending to the rules of health.

Hæm'orrhage, Hem'orrhage, *n.* [Gr. *haimorrhagia*, from *haima*, blood, and *rhegnusthai*, to flow.] (*Med.*) A bleeding or flow of blood from some of the vessels of the body. The most common cause of hæmorrhage is external violence, by which the blood-vessels of a part are divided. When an artery of some size is thus injured, a continuous stream of bright red blood is projected with a force proportioned to the size of the vessel, and with a motion corresponding with the pulsations of the heart. If a vein, on the other hand, be injured, the blood is of a dark crimson color, and the flow is continuous and equable, with much less force than from an artery. Where merely a number of capillaries are injured, the blood flows in a more or less rapid oozing from the wound, but without being projected to any distance from the body. When a large artery is cut, the bleeding is so excessive as to cause almost instant death. If of smaller size, fainting is usually, after a time, produced by loss of blood, and, the heart ceasing its action, the blood coagulates about the wound, and thus stops it up. Frequently the returning action of the heart forces away the obstruction, and the blood flows afresh; and in this way, if not attended to, the patient may perish from exhaustion. With arteries of smaller size, the flow of blood is at first rapid, but after a few minutes, with exposure to the air, the orifice contracts, the blood coagulates, and the bleeding ceases, without much danger of returning. Hæmorrhage from wounded veins is much less dangerous, as the blood flows with much less violence, and the edges of the vessels tend more to come together. Hence bleeding from a vein is seldom immediately fatal. When blood gushes out from internal parts, through any of the natural apertures of the body, the person is commonly said to have "burst a blood-vessel." This, however, is very rarely the case. If there be any rupture, it is usually only one of the minute capillaries: but even of this there is often no palpable evidence. Blood may exude abundantly from a surface which presents, to the naked eye at least, no appreciable injury or change. There are even well-authenticated instances on record of cutaneous hæmorrhage, where a dew of blood has appeared upon some portion of the skin, and been wiped away, and reappeared again and again, without any discernible change of the affected surface, beyond some occasional variation of its color. There are also what are termed "habitual hæmorrhages," as from the nostrils, &c., which take place periodically with certain individuals, and belong to the original constitution of the body, and can scarcely be regarded as disease. Again, there are certain forms of hæmorrhage not habitual, which may be denominated idiopathic, inasmuch as they are apt to arise without any perceptible connection with antecedent local disease. In other respects they differ considerably, and are distinguished as active and passive, — the former being preceded by active congestion, and therefore akin to inflammation; the latter often occurring without any apparent previous congestion of any kind. Passive hæmorrhage derives its name from being ascribed to some change in the condition of the blood-vessels themselves, by which their textures become relaxed and debilitated: but more probably it arises from some alteration in the condition and consistence of the blood itself, which becomes attenuated. Active hæmorrhage occurs principally in persons who are young and robust, who live well and lead indolent lives, — and is, for the most part, to be regarded as an effort of nature to cure itself. It is followed by morbid consequences only when the quantity has been excessive, or when it inflicts some mechanical injury upon the parts along which the blood passes. Hence it is frequently improper to employ any direct means of stopping the flow of blood; but much will depend upon the circumstances of each particular case. As they are akin to inflammation, the treatment of inflammation may often be requisite. In all severe cases, the antiphlogistic regimen should be strictly enjoined. The patient must be kept in a state of absolute quiet; all motion of the body and emotion of the mind, all kinds of stimulating food and drink, should be carefully avoided; and the patient surrounded, as much as possible, by cool, fresh air. Sometimes, as in inflammation, it is necessary to have recourse to venesection, in order to divert the current of blood from the suffering organ. Mercury is an important remedy for inward bleedings. Cold is also a valuable remedial agent, placed either in direct contact with the bleeding surface, or as near as possible to it. Acetate of lead, and the various vegetable compounds of gallic acid, are important astringent remedies in such cases. When a large artery is wounded, it is generally necessary to pass a ligature around it, above and below the wound.

Hæmorrhoids, or **Piles,** (*hem'or-roydz,*) *n. pl.* [Gr. *haima*, and *rheo*, I flow.] (*Med.*) A disease of the rectum and anus, accompanied or followed by tumors in those parts, or by a flow of blood from them when the patient is at stool, recurring after intervals, and sometimes periodically. It is usual to apply the term either to a simple bleeding from the veins of the lower part of the rectum, recurring more or less frequently, yet not accompanied with any distinguishable tumors, either within or on the outside of the anus; or else to swellings formed by a varicose distention and morbid thickening of those vessels, either with or without occasional hæmorrhage; or, lastly, to tumors originally produced by effused blood, but subsequently converted into an

organized substance. They are distinguished into external and internal piles, according as they are situated outside of or within the anus; and into *blind*, or such as do not bleed; and *open*, or such as are liable to occasional hæmorrhage. The tumors vary greatly in size and form, some of them being hardly as large as a pea, others as large as a walnut or apple. They are sometimes attended with great pain, so that the patient can neither sit nor walk, with generally more or less fever and restlessness. Sometimes the patient's strength is greatly reduced by discharges of blood or sero-purulent matter; or inflammation of the neighboring parts may be induced, causing abscesses, fistulæ, &c. Generally, however, the disease is of a less severe nature. It may be caused by anything which is capable of retarding the return of blood through the hæmorrhoidal veins. The pressure of the gravid uterus, costiveness, and the frequent retention of hardened fæces in the rectum, are frequent causes. Persons of sedentary habits are often troubled with this disease. In its treatment, it is of importance that the bowels be kept open by gentle laxative medicines, as castor-oil; and great benefit will often be derived from the application of warm water to the part, or from sitting over a steam of warm water when at stool. An ointment composed of equal parts of the powder of oak-galls and hog's lard, and applied to the part, is usually of great service. The application of leeches to the part is also recommended, if the disease be in a state of inflammation. Where all other remedies fail, it is often necessary to have recourse to an operation; but this should only be in very severe cases, as it is not unattended with danger. This is done either by cutting off the tumors with a pair of scissors or a knife, or by applying a tight ligature round their base, so as to cause them to slough away.

Hæ'mus. (*Anc. Geog.*) The name applied to that part of the Balkan chain which separates Thrace from Thessaly. According to mythology, Hæmus, son of Boreas and Orithyia, having aspired to divine honors, was changed into this mountain.

Hære'siarch, Here'siarch, *n.* [Gr. *hairesiarchos*, from *hairesis*, heresy, and *archos*, a chief.] (*Eccl. Hist.*) The founder of an heretical sect.

Hær'nesite, *n.* (*Min.*) A beautiful, white, transparent, flexible mineral from the Banat, Austria. *Comp.* Arsenic acid 46·6, magnesia 24·3, water 29·1. *Sp. gr.* 2·474.

Haff. [Ger., bay or harbor.] An extensive bay or gulf of Pomerania, Prussia, 10 m. N. of Stettin, at the mouth of the Oder, separated from the Baltic by a strip of land.

Haffle, *v. n.* [Ger. *haften*, to stick, cling, or falter.] To speak indistinctly; to hesitate; to falter; as, he *haffles* his words. — To prevaricate; as, the witness *haffled*.

Hafiz, Mohammed, (surnamed Shems Eddin, "son of religion,") the most popular of the Persian poets, was b. at Shiraz, and flourished in the 14th cent. Like Anacreon, his verse is dedicated to love and wine. The complete collection of his odes is entitled the *Divan*; they have been the subject of numerous commentaries, and it is a standing controversy whether they are to be interpreted literally or allegorically. Some of the odes have been translated into English by Sir. W. Jones and others, and the whole collection has been translated into German. He d. about 1389; and his countrymen erected a monument to his memory, which was destroyed by an earthquake in 1825.

Hafnarfiord, (*haf-nar-fē-ōrd'*,) a seaport-town in Iceland, on a small bay of its own name, S.S.E. of Reikiavik.

Haft, *n.* [A. S. *hæft*, from *hæften*, to seize or take; Ger. *heft*, a handle.] That part of an instrument or vessel which is taken in the hand; as, the *haft* of a knife.

—*v. a.* To furnish with a haft, hilt, or handle.

Hag, *n.* [A. S. *hæges*; Ger. *hexe*. In Saxon, from *egesian*, to terrify.] A witch; a fury; a fiend; a she-devil. — A sorceress or enchantress. — A morass or quagmire. — A term of reproach, often applied to an ugly old woman; a crone.

(*Zoöl.*) See Lamprey.

—*v. a.* To torment; to harass with vain terrors; to tire.

Ha'gaman's, or Hagerman's Mills, in *New York*, a post-vill. of Montgomery co., abt. 36 m. W.N.W. of Albany.

Ha'gar. [Heb., stranger, slender, flight.] (*Script.*) An Egyptian bondmaid in the household of Sarah (*Gen.* xvi. 1–3), who, being barren, gave her to Abraham for a secondary wife, that by her, as a substitute, she might have children, in accordance with the customs of the East in that age. *H.* bore Abraham a son, whom he called Ishmael (God has heard), and in whom he for a time saw the future father of the progeny promised him. But sixteen years later, and when Abraham was (we are told) a hundred years old, Sarah herself bore Isaac; and we find it significantly repeated nine times in seven verses (*Gen.* xxi. 2–9) that Abraham and Sarah were his parents — in repudiation, according to rabbinical authorities, of certain rumors about Isaac's illegitimacy, spread by Hagar. At last, the domestic contentions which naturally arose led Abraham, though reluctantly, to cast out *H.*, together with Ishmael. How the two fugitives lost their way in the desert of Beersheba; how the water in the bottle being spent, the broken-hearted mother sat herself at a distance from her child, in order that she might not see his death; how her weeping and the loud voice of the boy were answered by an angel, who pointed out a well (Temzem, in the enclosure of Mecca), — all this forms one of the most touching and well-known narratives of the Bible. In the New Testament, *H.* is referred to allegorically as Mount Sinai, or "the Jerusalem which now is," (*Gal.* iv. 22.) Her name is much honored among the Arabs, who claim to be her descendants.

Ha'gar, or Ha'ger, in *Michigan*, a post-township of Berrien co. *Pop.* (1897) about 625.

Hag'berry, *n.* (*Bot.*) The Scottish name for the bird-cherry, *Prunus padus*.

Hag'but, Hack'but, *n.* [O. Fr. *haquebute*.] An arquebuse, the butt of which was held down for greater convenience in holding the weapon. (Also written *haquebut*.)

Ha'genbach, Karl Rudolf, a German theological writer, b. at Basle, 1801. After studying at Bonn, Berlin, and Basle, he became professor of theology at the latter university. *H.* is a voluminous author, his chief works being *A Guide to Christian Instruction*; *A Compendium of the History of Doctrines*, and the *Spirit and History of the Reformation*. D. 1874.

Ha'gersville, in *Penna.*, a post-village of Bucks co.

Ha'gerstown, in *Indiana*, a post-town of Wayne co.

Ha'gerstown, in *Maryland*, an important manufacturing town, cap. of Washington co., 22 miles N.W. of Frederick, on Antietam creek, the Cumb. Valley and 3 other railroads; is an active trade center, and has extensive and varied manuf. industries. *Pop.* (1897) about 12,500.

Ha'gerstown, now called New Hagerstown, in *Ohio*, a post-village of Carroll co.

Hag'fish, *n.* (*Zoöl.*) Same as Hag, *q. v.*

Hag'gada, *n.*; *pl.* Haggadoth. [Heb., an account or narrative.] A story, legend, or narrative added by the ancient Rabbins to the text of Scripture, to render the passage or text more clear and striking. — Any Jewish legend connected with the Scriptures.

Hag'gai. (*Script.*) One of the prophetic books of the Old Testament, whose author, Haggai, flourished during the reign of Darius Hystaspes, about five hundred years before Christ. He is classed among what are usually termed the minor prophets. His book comprises four discourses, of which, in all probability, we have only an epitome, and which are all concerning the same subject, — the building of the Temple. In the first he reproves the indifference of the people respecting the building of the Temple, assigning that as the reason why they are punished with great drought and unproductive harvests; and exhorts them to undertake the work, encouraging them with the promise of divine aid (i). The second brief discourse consists of a consolatory promise, that the glory of the second temple shall surpass that of the first (ii. 1–9). The third censures the outward and legal righteousness prevailing among the people, by means of which they were deprived of the divine blessing (ii. 10–19). The fourth contains a promise of the future glorification awaiting the royal offspring of David and Zerubbabel, after the downfall of all earthly thrones. The style of Haggai in reproving is indeed vehement, but by no means poetic. In general, it is flat and destitute of power, though there are passages, where he treats of future events, in which he becomes somewhat elevated. There is also a marked poverty of language, as may be observed in the frequent repetition of the same expressions.

Hag'gard, *a.* [Fr. *hagard*, wild, ferocious; Ger. *hager*, thin, lean, from *hege*, *hain*, an ancient poetical name for *death*.] Spare; harsh; rugged in features; as, a *haggard* countenance. — Having eyes sunk in their sockets; ugly.

"His hands and *haggard* eyes to heaven he cast." —*Dryden.*

—Wild; untamed; intractable. "The *haggard* hawk." *Spenser.*

—*n.* Any thing wild or irreclaimable. — An ugly old woman; a hag.

Hag'gardly, *adv.* In a haggard or ugly manner; with deformity.

Hag'ged, *p. a.* Lean; ugly; like a hag.

Hag'gis, Haggess, Haggiss, *n.* [Scot. *hog*, *hag*, to hack; and Gael. *gais*, a sheep, also a piece of mutton.] (*Cookery.*) A favorite dish in Scotland. It is made by mincing finely, after long boiling, a lamb or calf's pluck, heart, &c., mixing this mince with scorched oatmeal, onions, a small quantity of beef suet, salt, pepper, and some good strong stock or gravy, and putting the whole into a sheep's paunch or stomach, carefully tied at both ends, and of which it fills about two-thirds, the rest of the space being left for the expansion of the steam generated by the boiling, to which it is subjected for three or four hours. The *H.*, however savory to the nostrils when first opened for the meal, requires both young and vigorous appetites to digest without subsequent reproach or inconvenience.

"Auld Scotland wants nae skinking ware . . .
Gi'e her a *haggis!*" — *Burns.*

Hag'gish, *a.* Of the nature of a hag; deformed.

"*Haggish* age steals on." —*Shaks.*

Hag'gishly, *adv.* In the manner of a hag.

Hag'gle, *v. a.* [A corruption of *hackle*, q. v.] To notch or cut in an unskilful manner; to make rough by cutting; to mangle.

—*v. n.* To be tedious in making a bargain; to be long in fixing a price; to hesitate; to cavil.

Hag'gler, *n.* One who cavils, hesitates, or makes difficulty in bargaining.

Hag'gling, *p. a.* Hacking or mangling. — Cavilling and hesitating in coming to terms on a bargain.

—*n.* Act of hesitating and making difficulties in bargaining.

Ha'giarchy, *n.* [Gr. *hagiarchē*, from *hagios*, sacred, and *archē*, government.] Government by men in holy orders; government of the priestly order.

Hagiocracy, *n.* [Gr. *hagiokrateia*, from *hagios*, holy, and *kratein*, to rule.] Government by a priesthood; hierarchy.

Hagiog'rapha, *n. pl.* [Gr. *hagiographa*, i. e. *biblia*, the books written by inspiration.] (*Theol.*) A term sometimes applied to certain books of the Old Testament. The Jews divided the books of the Old Testament into — 1. the Law, comprehending the five books of Moses; 2. the Prophets; and 3. the writings termed by them *Cetubim*, and by the Greeks *Hagiographa*; whence the word has been introduced into the English language. The last were held to be inspired in a lower degree than the others; but they did not always agree as to what books belonged to the second, and what to the third class. With us, the Hagiographa comprise the books of Psalms, Proverbs, Job, Song of Solomon, Ruth, Lamentations, Ecclesiastes, Esther, Daniel, Ezra, Nehemiah, and the Chronicles.

Hagiog'raphal, *a.* Belonging to the hagiographa, or sacred writings.

Hagiog'rapher, *n.* One of the inspired or sacred writers.

Hagiog'raphy, *n.* Same as Hagiographa, q. v.

Hagiol'ogist, *n.* [Gr. *hagios*, holy, and *legestes*, one who gives an account.] One who treats, writes, or discourses about the sacred Scriptures. — One who writes of the lives of the saints, or the legends connected with them.

Hagiol'ogy, *n.* A history of the lives of the eminent persons mentioned in Scripture. — An account of the lives of the saints.

Ha'gioscope, *n.* (*Arch.*) [Gr. *hagios*, holy, and *skopein*, to view.] An opening made between the extreme arms of the transept, in a cruciform church, and the high altar, to enable worshippers, so placed, to have a view of the officiating priest.

Hag'ley, in *Illinois*, a former post-office of Cass co.

Hag'-ridden, *a.* Afflicted with nightmare.

Hag's-taper, *n.* (*Bot.*) See Verbascum.

Hag's'-tooth, Hake's-tooth, *n.* (*Naut.*) A part of a matting, and the like, which is interwoven with the rest in a manner to break its uniformity.

Hague, (The,) (*haig.*) [Du. *Gravenhaag*, "the count's meadow;" Fr. *La Haye*.] A town of the Netherlands, of which it is the cap. and usual residence of the king and court, is situated in the prov. of S. Holland, 10 m. S.W. of Leyden, and 13 N.W. of Rotterdam. The Hague is an open town, being surrounded only by a moat crossed by drawbridges. It presents all the characteristic features of a Dutch town; its houses and pavements are of brick, and several of its streets are intersected with canals, and bordered with rows of trees; its general appearance, however, is much superior to that of the commercial cities of Holland. The N. end of the town is the fashionable quarter, and in it is the Vyverberg, a fine open space, ornamented with a lake, and wooded island in the centre. Around and adjacent to this square are all the chief public edifices. These comprise the National Museum, containing a gallery of superb pictures; the Royal Museum, filled with rare curiosities; the Royal Palace; the palace of the Prince of Orange; and the *Binnenhof*, occupied by various government officers, and the chambers in which the States-General of Holland meet. This building served for the prison of Grotius and Barneveldt, the latter of whom was executed in front of it in 1618. The Hague has also numerous churches, charitable, literary, scientific, and educational institutions, a royal library with 100,000 vols., a theatre, and many noble private picture-galleries. Near the town is the *Bosch*, a finely wooded park belonging to the king of Holland, containing within its precincts the *Huys in den Bosch* ("House in the wood"), the summer palace of the royal family. The Hague has never been a place of much commercial importance, — printing, the manufacture of porcelain, and cannon-founding being the chief industries. — It became the residence of the feudal lords of Holland in 1250, from which period it continued the seat of government till 1806; it again assumed the rank of a capital on the restoration of the House of Orange. The astronomer Huygens, the naturalist Ruysch, and King William III. of England were born here. *Pop.* with suburbs (1897) estimated at 174,500.

Hague (*hāg*), in *Florida*, a post-office of Alachua co.

Hague, in *New York*, a post-town and township of Warren co., on Lake George, about 90 m. N. of Albany.

Hague, in *North Dakota*, a post-office of Traill co.

Hague, in *Virginia*, a post-village of Westmoreland co.

Hague'but, *n.* Same as Hagbut (*q. v.*).

Hagnenau (*hāg-nō*), a fortified town of Germany, in Alsace, on the Moder, 16 miles N. of Strasburg. *Manuf.* Tobacco, madder, earthenware, woollen and cotton fabrics, and soap; it has also breweries and foundries for metal. *Pop.* 12,650.

Hah, (*haw,*) *interj.* An exclamation expressing surprise or sudden effort; ha!

"She stamps, and then cries *hah!* at every thrust." —*Dryden.*

Ha-ha', or Haw-haw, *n.* [By redupl., from *haw*, a hedge.] An enclosure by a ditch, bank, or fence, so arranged that one does not perceive it until almost upon it. By means of these the steeple-chasers in Great Britain frequently come to grief. (See, also, Haw-haw.)

Hah'nemann, Samuel, the founder of homœopathy, b. of poor parents at Meissen, in Saxony, 1755, and received his diploma as doctor in physic at Heidelberg, in 1781. The same year he was appointed district physician at Gomehn, near Magdeburg, and continued his studies in chemistry and mineralogy with all the ardor of an enthusiast. In 1784 he removed to Dresden, and soon afterwards abandoned the practice of physic in disgust, and confined himself to his private researches in chemistry and literature. These studies began to acquire a fixed direction in 1790, and in 1796 he commenced the record of their results in the journal of his friend, Hufeland, in an article entitled *Essay on a New Principle*, *&c.* In 1805 he published his *Medicine of Experience*, and in 1810 his *Organon of Rational Medicine*, in which the new doctrine was reduced to a

system, and methodically illustrated. In a second edition, published 1819, the title of his work was abbreviated, and became the *Organon of Medicine.* A third edition appeared in 1824, and was translated into English nine years afterwards. It was followed by a fourth edition in 1829, and a fifth in 1833 (translated by Dr. Dudgeon), each of which embodied fresh results, and enlarged the field which this indefatigable experimentalist had undertaken to cultivate. While this and the other works of the author mentioned below were making their way silently over Europe, *H.* himself was experiencing the usual fate of the world's benefactors. In 1813 he had removed from Dresden to Leipsic, where he was persecuted by the apothecaries as an empiric, and this had risen to such a height in 1820, that he was glad to avail himself of the protection offered to him by the Duke of Anhalt-Cöthen. In the same year he published his *Pure Medicine*, in 6 volumes 8vo., and in 1829 his *Theory of Chronic Maladies, and the Proper Medicines for them*, in 4 volumes, which were enlarged to 6 volumes in a second edition, 1840. In the meantime, his domestic circumstances were changed for the better by his marriage in 1835 with a French lady, in whose company he removed from Cöthen to Paris, at the age of 80. *H.* remained in Paris till his death in 1843, and had the satisfaction to hear that homœopathy was about to have a chair at the university of Vienna, and that hospitals were proposed in London, in Berlin, and in many cities of Austria. The principles of his therapeutic reform — for such it undoubtedly is — may be described as a recognition of derangements in the vital or spiritual force of the body, whether occasioned or not by material influences, as the *primary causes* of disease; the cure of which is by the reaction of the vital force against the remedy. The application of this theory consists — 1st. in the discovery; and 2d, in the preparation of specific remedies corresponding to every species of abnormal action and such remedies are found both in theory and practice to be the *assimulates* of the disease — or medicines by which precisely the same symptoms would be produced. The reason of the cure is difficult to express in few words, and illustrations far below the refined philosophy on which it depends have been used by professional writers. According to the terms of the theory, the medicines may be considered as diffusing themselves with a gentle but irresistible force, like that of light, between the mortal corruption and the vital spirit in combat with it, and being more subtile than the disease, and yet, like it, they engage the vital force in a quicker and more decisive conflict, and then gradually yielding before it, as their own virtue expires, the vital force is liberated, and, as a matter of course, resumes its normal action. This explanation, however, is only half the truth, for it is well known that fluids in effervescence are reduced to rest by the satisfaction of what may be called the hunger of one body for another, and something of this kind may take place when the assimulate is introduced to the disease. Be the explanation what it may, the discovery of the facts by years of patient and often painful experience, is the title of *H.* to the gratitude of society. He proved the virtue of an immense number of assimulates by testing their effects on himself and friends, and displayed equal art in the method of their refinement. His *Organon of Medicine* not only raises the art of healing to the rank of an exact science, but renders it an elegant and philosophical study; while the facilities of its practical application have been carried to such perfection, especially by his followers in this country, that many mothers of families have become expert homœopathic physicians, and rarely require the aid of a practitioner. Besides the works mentioned, *H.* is the author of some 200 treatises on medical and physical science. For his likeness, see HOMŒOPATHY.

Haidin'gerite, *n.* (*Min.*) A white, glassy, transparent arsenate of lime. *Sp. gr.* 2·848. *Comp.* Arsenic. acid 58·1, lime 28·3, water 13·6. But one specimen has been observed. The name has also been applied to a double sulphide of iron and antimony, called *Berthierite.*

Haik, (*hāk,*) *n.* [Ar. *hâke*, to weave.] A large piece of cloth formed like a poncho, or scrape, worn by the Arabs of better condition over the tunic, and in bad weather covered by the burnous.

Hail, *n.* [A. S. *hagel.*] (*Meteorol.*) The fall of aerial moisture in the form of ice. Hail occurs in two unlike forms, of different origin, which are now distinguished as hard, or true hail, and soft hail. The latter, often also known as sleet, denotes the fine, light grains that frequently fall in winter, rarely in summer, and seem an accompaniment of snow. Just how soft hail is formed is not yet known, and the mode of formation of hard hail is still a matter of theory, the easy explanation that it is frozen rain being insufficient. True hail occurs in hard, compact, irregular masses of ice, either clear or opaque, both kinds often occurring in alternate layers in a hail-stone. Hail-stones in the higher latitudes occur almost solely in the warmer months, and seem due to peculiar atmospheric conditions. They are most destructive when accompanying tornadoes or great thunderstorms, the hail-stones becoming occasionally larger than hens' eggs, and occasioning great devastation. Occasionally they are of great size and irregular shape, becoming ice masses of 2 or 3 inches diameter and several pounds weight, and falling with a force sufficient to kill animals.—*Theory.* The theory of hail formation entertained by many meteorologists is, that atmospheric vapor, carried up by vertical motion of the air, is condensed into rain, and at a greater height into snow. The rain-drops, still carried upward, and held suspended for a time, are frozen into clear ice. They may fall in this condition, or may be caught during their fall by the vortex and again carried upward, gaining a new coating of ice, which is covered with frozen snow in the form of granular ice at a higher elevation. By a succession of such movements alternate layers of clear and granular ice are formed, the number of layers indicating the number of ascents and descents. These stones may be frozen together during their fall into the large, irregular masses often seen. Hail-storms are limited in area and brief in duration. They are usually preceded by a sudden and considerable fall of the barometer, attended by wind, and followed by heavy rain.

Hail, *v. n.* To pour down roundish masses of ice or frozen vapor.

—*v. a.* To pour down in the manner of hail.

Hail, *interj.* [A. S. *hælu, hal*; Ger. *heil;* possibly akin to Gr. *holos*, whole.] A salutation, meaning *be well;* be in health; health to you.

"*Hail!* fellow, well met."—*Swift.*

—*n.* A salutation, or wish of health; as, a kindly *hail.*

—*v. a.* To call to, especially to a person at some distance; to arrest one's attention; to greet; to salute; to welcome.

"The man that *hails* you Tom or Jack."—*Cowper.*

—To call; to designate.

"And such a son, that all men *hailed* me happy."—*Milton.*

—*v. i.* To report one's self at home; as, where do you *hail* from? — much used at sea, when vessels meet; — also used ashore among the members of different secret societies as indicating the query, *To which lodge do you belong?*

Hailes'borough, in *New York*, a post-village of St. Lawrence co., on the Oswegatchie River, about 25 m. S. of Ogdensburg.

Hail'-shot, *n.* Small shot, which scatter, when discharged from a gun, like hail.

Hail'-stone, *n.* A single mass of hail; a pellet of frozen snow.

Hail'y, *a.* Consisting of hail; full of hail; as, *haily* showers.

Haimatu'ria, *n.* [Gr. *haima*, blood, and *ouron*, urine.] (*Med.*) A discharge of blood with the urine, owing generally to a diseased state of the kidneys or bladder. It is usually a symptom of some other disease, upon the nature of which its treatment, in general, depends.

Hai'nan, an island of China, in the prov. of Kwangtung, E. of the Gulf of Tonquin, separated from the mainland of China by a channel of but 10 m. in width; Lat. 18° 10′ to 20° N., Lon. 108° 25′ to 111° E. *Area*, 12,000 sq. m. The E. coast is steep and rocky; the N.W. coast is unapproachable because of sand-banks; but the S. coast is indented with several commodious and safe harbors. The interior of the island is mountainous and barren, but the low lands near the sea are fertile and well cultivated. *Prod.* Sugar, pearls, coral, wax, gold, and silver. The metropolis of the whole island is Kiung-choo-foo, the port of which is open to European shipping from 1858. Though the Chinese have possessed this island since B. C. 108, yet there are, in the interior, some wild and hitherto unsubdued tribes.

Hainault, (*hay'no.*) [Ger. *Hennegau.*] A frontier prov. of Belgium, bounded E. by Namur, N. by Brabant, E. and W. by Flanders, and on the S.W. by France. *Area*, 1,424 sq. m. *Prod.* Wheat, flax; excellent breeds of horses, horned cattle, and sheep are also reared. Extensive coal-fields, iron mines, marble and limestone quarries. *Manuf.* Linen, porcelain, and pens. *Principal Rivers.* Haine (whence the name), Sambre, Meuse, and Scheldt. *Chief towns.* Mons (the cap.), Tournay, Ath, Soignies, Charleroi, and Thuin. *Pop.* 911,841.— *H.* was governed by a regular succession of counts from the time of Regnier I., who began to reign about 860. In 1436 it passed into the hands of Philip the Good, Duke of Burgundy, and by the treaties of the Pyrenees, Nov. 7, 1659, and of Nimeguen, Sept. 17, 1678, part was ceded to France, forming the prov. of French Hainault. In 1814 it was allotted to the Low Countries, and in 1830 was incorporated with Belgium.

Hain'burg, a town of Austria, on the right bank of the Danube, 27 m. E.S.E. of Vienna, and 2 m. from the Hungarian frontier. *Manuf.* Tobacco. It is mentioned in the *Nibelungen Lied*, being at the date of that song a border fortress of the Huns. *Pop.* 5,150.

Haines, in *Pennsylvania*, a township of Centre county.

Haines'burg, in *New Jersey*, a post-village of Warren co., about 12 m. N. of Belvidere.

Haines Creek, in *New Jersey*, enters Raucocas Creek above Lumberton.

Haines'port, in *New Jersey*, a post-village of Burlington co., about 7 m. S. of Burlington.

Haines'ville, in *Illinois*, a post-village of Lake co., 15 m. S.W. of Waukegan. Also called PRETTYMAN.

Haines'ville, or HAYNESVILLE, in *Missouri*, a village of Clinton co., about 40 m. S.E. of St. Joseph.

Haines'ville, in *New Jersey*, a post-village of Sussex co., about 15 m. N. by W. of Newton.

Haines'ville, in *W. Virginia*, a village of Berkeley co.

Hair, *n.* [A.S. *hær, her;* Ger. *haar*, allied to Lat. *hirtus*, rough.] (*Anat.*) The name applied to the small cylindrical, transparent, insensible, and elastic filaments which arise from the skin, and are attached to it by means of small roots. *H.* is found to grow on all parts of the surface of the human body, except the palms of the hands and the soles of the feet.

(*Anat.*) A hair consists ordinarily of a shaft and a bulb, — the shaft projecting above the skin, and the bulb originating in a follicle on the true skin. The *H.* grows from the bottom of the follicle, and when it is colored, the cells containing the coloring-matter are developed there also. Human *H.* varies in diameter from $\frac{1}{140}$th to $\frac{1}{2000}$th of an inch. Its section is never circular in outline, but always oval, and under the microscope exhibits a centre of light pithy substance, invested with a horny sheath. This outer portion of the hair appears made up of ring-like scales that overlap each other like the shingles of a house. The hair is kept moist and smooth by an oil secreted by glands just beneath the epidermis. In hairs which act as tactile organs in some of the animals, as the whiskers of the cat, the hair-bulb contains a true papilla furnished with nerves. *H.* is elastic, and will stretch nearly one-third of its original length, and sustain a weight of 6 ounces without breaking. When dry and warm, it is easily made electrical, and it readily attracts moisture from the atmosphere. It elongates by moisture, and one form of hygrometer indicates the condition of the air in that respect by the elongations or contractions of a human hair. The color of the hair seems to depend on the presence of a peculiar oil, which is of a blackish-green color in dark *H.*, blood-red in red *H.*, and nearly colorless in white *H.* The *H.* becomes gray in advanced life from a deficient secretion of the coloring-matter. There seem to be well-attested cases on record in which the hair has become gray or white within 24 hours from the effects of any strong mental excitement. It is said that a Sepoy of the Bengal army, only 24 years of age, on being brought before the British officers for examination, was almost stupefied with fear, and so great was the shock that within an hour his jet-black *H.* changed to gray. The hair grows faster by day than by night, and in summer than winter; and it has been known to continue to grow after death. The quantity of *H.* that grows upon the human body varies among the different races. The Indian races of America, and the Mongols and similar nations in northern Asia, have scanty hair and beards, while among other nations the growth of both is heavy, and there are individual instances where the hair grows down the back, and sometimes covers nearly the whole body. The hair of the head serves to protect the brain from extremes of heat and cold, and partially to shield it from the effects of blows. The beard protects the throat, and bronchial affections are far less prevalent where it is worn than where the throat is deprived of its natural covering. The moustache serves as a natural respirator, and travellers on dusty roads, and workmen in dusty trades, as millers, masons, steel and iron grinders, &c., are soon made aware of the protection it affords to the lungs. Its good offices are evident also to those who are exposed to the cold air, or to a foggy or malarious atmosphere.—*Chem.* Hair contains sulphur and a large percentage of nitrogen. The presence of these may account for the unpleasant odor emitted while burning. It dissolves in caustic potash with the liberation of ammonia, and on the addition of an acid, deposits a kind of protein. See HAIR-DYE, HAIR-DRESSING.

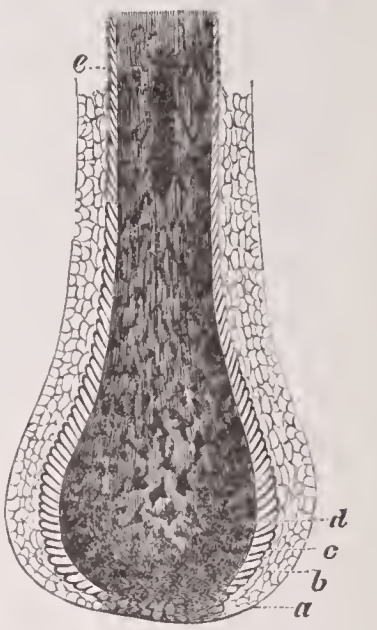


Fig. 1226.

MAGNIFIED SECTION OF BULB OF A SMALL BLACK HUMAN HAIR.

a, basement membrane of the follicle; *b*, layer of epidermic cells resting upon it; *c*, layer of imbricated cells, forming the outer lamina, or *cortex*, of the hair; *d*, more bulky cells containing pigment; *e*, a mass of cells in the axis of the hair, loaded with pigment.

(*Bot.*) The hairs in plants are very different from the *H.* of animals, although there is sometimes a considerable general resemblance, and the same purpose of protection from cold and from various atmospheric influences seems also to be sometimes served by them. They are produced by no special organ analogous to the bulbs from which the hairs of animals grow, but are composed of cellular tissue, arise from the epidermis, and are covered with extensions of the cuticle. Some hairs consist of a single elongated cell; some of several cells placed end to end. The gradations are quite indefinite between the most elongated hairs and the mere warts or ruggosities which often appear on the surface of plants. In like manner, hairs pass into *bristles* (*setæ*) and *prickles* (*aculei*), which are merely stronger and harder hairs; but spines or thorns are totally different, arising from the wood of the stem or branch. Hairs are very often connected with *glands*, which are cells, or clusters of cells, producing secretions. Stinging hairs, as in Nettles, *Loasas*, and some *Malpighias*, are ducts, with venom-secreting glands at their base.—See EPIDERMAL TISSUE.

Hair'bell, *n.* (*Bot.*) Same as HAREBELL, *q. v.*

Hair'-bracket, *n.* (*Ship-Carp.*) The moulding immediately behind the figure-head of a ship.

Hair'-breadth, *n.* A very small distance; as, to escape by a *hair-breadth.* — The 48th part of an inch.

—*a.* Very close; very narrow; as, a *hair-breadth* rescue

Hair'-cloth, *n.* Cloth or stuff made of hair, very rough and prickly, worn sometimes in mortification.

Hair'-dresser, *n.* One who dresses or cuts hair; a barber; a perruquier.

Hair'-dressing, Head'-dressing, *n.* (*Costume.*) The adornment of the hair, and the forming of it into fantastic shapes, has been practised by women in all ages, and in no direction have the caprices of fashion been more strikingly displayed than in disposing this natural covering of the head. The early Hebrew women gloried in their luxuriant tresses, plaiting them, and adorning their heads with ornaments of gold, silver, and precious stones. The Greeks allowed their hair to grow to a great length, while the Egyptians often removed it as an incumbrance. There is no "fashion" connected with the hair, in vogue at the present time, which is new. It is not a modern idea to resort to borrowed or "false" hair to satisfy the caprices of fashion, neither is it to dye the hair, or dress it with unguents and oily substances. The Greek, Egyptian, Carthaginian, and Roman ladies, more than twenty-five centuries ago, made use of the most extravagant quantities of borrowed hair, and they wound it into large protuberances upon the back of their heads, and to keep it in place used "hair-pins" of precisely the form as in use at the present



Fig. 1227. — HAIR-DRESSES, (13TH CENTURY.)

time. The Roman women of the time of Augustus were especially pleased when they could outdo their rivals in piling upon their heads the highest tower of borrowed locks. They also arranged rows of curls formally around the sides of the head, and often the very fashionable damsels would have pendent curls in addition. An extensive commerce was carried on in hair, and after the conquest of Gaul, blonde hair, such as was grown upon the heads of German girls, became fashionable at Rome, and many a poor child of the forest, upon the banks of the Rhine, parted with her locks to adorn the wives and daughters of the proud conquerors. The great Cæsar indeed, in a most cruel manner, cut off the hair of the vanquished Gauls and sent it to the Roman market for sale, and the cropped head was regarded in the conquered provinces as a badge of slavery. To such a pitch of absurd extravagance did the Roman ladies at one time carry the business of adorning the hair, that upon the introduction of Christianity, in the first and second centuries, the apostles and fathers of the Church launched severe invectives against the vanity and frivolity of the practice. The Saxons and the Franks wore



Fig. 1228.
HEAD-DRESSES, AND FASHION OF WEARING PATCHES.
(From a French drawing, 1739.)

long hair. The Normans, too, adopted long hair as a fashion; and from them, and the more modern French, the courtiers and cavaliers of the 17th century adopted the practice of wearing those flowing "love-locks" which excited the ire of the Puritans. It was, however, in the management of ladies' hair, that the art of the professional hair-dresser was in those times mainly exercised. In the 18th century, the dressing of hair, male and female, rose to a great pitch of extravagance and folly. The hair of a lady of fashion was frizzed up in convolutions and curls, decorated with ribbons, jewels, and feathers, and filled with pomatum and powder to a degree perfectly monstrous. (*Fig.* 1229.) As women of less exalted rank slavishly attempted to follow these absurdities, the business of dressing hair was extensively followed. The cost of a full dressing being, however, too high to be lightly incurred, often one dressing was made to suffice for a week or fortnight, week or fortnight. Exaggerated methods of dressing the hair continued into the 19th century, assuming the protuberant form known as the *waterfall* and other unsightly forms; but these absurd freaks of fashion have been succeeded by simpler and more graceful methods of dressing the hair. Hair-dressing in such unbecoming forms is now largely confined to savage or barbarous tribes, some of the Africans and the Pacific Islanders being the chief offenders



Fig. 1229.
HAIR-DRESS (1782).
(From Stewart's *Whole Art of Hair-dressing*).

Hair'-dyes and Wash'es, *n.* In ancient times, people grew old as they do now, and the frosts of age blanched the raven locks of youth; and there were also those with hair glowing with red, or some other tint not deemed desirable. Hence it was that hair-dyes came into use, and a brisk demand for substances capable of changing the color of the hair has been maintained for thirty centuries. The substances employed before the science of chemistry was understood, were usually quite ineffective in their influence. They were, for the most part, fugitive vegetable stains, which water would easily remove. There was, however, a metallic mixture made in Egypt, which possessed qualities of the highest excellence. If the statements of some writers can be relied upon, this mixture was far superior to any form of hair-dye known to modern chemists. There is at the present time a dye used by the Armenians, in the East, which may be, in many respects, like the ancient dye. It is a metallic substance resembling dross. This is powdered, and mixed with fine nut-galls and moistened. A little of the paste is taken in the hand and rubbed into the hair or beard, and in a few days it becomes beautifully black. Those who have visited the Armenian convents in Turkey cannot but have admired the fine black beards of the monks, even those of advanced age. This dye is undoubtedly composed of a mixture of iron and copper, which metals, in conjunction with the gallic acid formed from the galls, produces a dye of superior excellence. A hair-dye which came widely into use after the Mexican War, and was known as "General Twiggs' Hair Dye," from being used by the officer of that name, was a poisonous compound, being made largely of the acetate of lead. It became very popular, however, and formed the basis of numerous *Restoratives*, *Embrocations*, *Washes*, *Dressings*, &c., sold for use on the hair. The formula and method of preparing it is simple. Take of finely powdered *acetate of lead*, 120 grains; *lac sulphur*, 160 grains; *rose-water*, one pint; *glycerine*, one ounce. Mix the glycerine with the water, and add the acetate of lead and sulphur. The mixture must be well shaken before using. The lead and sulphur do not all dissolve in the rose-water, but fall to the bottom of the vessel as a precipitate. This preparation will gradually dye the hair a black or dark-brown color if a small quantity be rubbed into it once or twice a day. Its frequent use is, however, attended with great danger, as numerous instances of lead-poisoning have resulted from its employment. There are many other hair-dyes into which lead enters, which are equally objectionable.—A very convenient dye is the solution of plumbate of potash. It is slow in its action, but it does not stain the skin. It is prepared by dissolving in four ounces of liquor of potassa as much freshly precipitated oxide of lead as it will take up, then diluting the resulting clear solution with 12 ounces of pure water. It may be applied as a wash to the hair. The permanganate of potassa forms an excellent dye, where a dark-brown color is desired. It is safe and easily applied, but it has the disadvantage of staining the skin. If care be used, this need not occur. The solution may be made by dissolving in two ounces of distilled water 120 grains of the crystals of permanganate of potassa. Pyrogallic acid is also employed to give a brown tint, while a fine golden color may be obtained from a solution of peroxide of hydrogen in water. The most desirable black dye is made by first soaking the hair with a solution of sulphide of potassium, the darkness of the color depending on the strength of this solution; when partly dry, the hair is saturated with a solution of nitrate of silver. A very permanent dye is thus produced, needing only to be renewed as the growth of new hair becomes conspicuous. The frequent use of *oils*, *bear's grease*, *arctusine*, *pomades*, *lustrals*, *rosemary washes*, &c., upon the hair, is a practice not to be commended. All of these oils and greasy pomades are manufactured from lard-oil and simple lard or other similar oily substances. There are many persons whose hair is naturally dry and crisp, and in most families there is a want of some innocent and agreeable wash or dressing which may be used moderately and judiciously. The mixture which may be regarded as the most agreeable, cleanly, and safe is composed of Cologne spirit and pure castor-oil. The following is a good formula:

Pure, fresh castor-oil, 2 oz.
Cologne spirit (95 per cent), 16 oz.

The oil is freely dissolved in the spirit, and the solution is clear and beautiful. It may be perfumed in any way to suit the fancy of the purchaser. The oil of the castor-bean has for many years been employed to dress the hair, both among the savage and civilized nations, and it possesses properties which admirably adapt it to this use. It does not rapidly dry, and no gummy, offensive residuum remains after taking on the chemical changes which occur in all oils upon exposure to light and air. It is best diffused by the agency of strong spirit, in which it dissolves. The alcohol or spirit rapidly evaporates, and does not in the slightest degree injure the texture of the hair. This preparation, for dressing the hair of children or ladies, will meet nearly or quite all requirements.

Hair'ed, *a.* Having hair; hairy.

Hair'-glove, *n.* A glove made of horse-hair, used while bathing to excite the action of the skin.

Hair'iness, *n.* The state of being covered with, or abounding in hair.

Hair'-lace, *n.* [From *hair* and *lace.*] The fillet with which women used to tie up their hair.

"If she forgets to warm her *hair-lace*,
She gets a cold as sure as death." — *Swift.*

Hair'less, *a.* Destitute of hair; as, a *hairless* scalp.

Hair'-line, *n.* A very slender line, made of hair.

Hair'-pencil, *n.* A small brush used by artists in painting, often called a *camels'-hair brush*. They are usually made from the finest hairs of the marten, badger, &c. When small, they are mounted in quills; but when larger, in tinned tubes.

Hair'-powder, *n.* A fine powder composed of flour, &c.; much used in the 18th century for sprinkling upon the hair of the head, or upon the wig.

Hair'-salt, *n.* [Ger. *haar-salz.*] (*Min.*) A form of EPSOMITE, *q. v.*

Hair'splitting, *a.* Making excessively minute and unimportant distinctions in argument.

Hair'-spring, *n.* (*Horology.*) The fine wire in a watch, which gives motion to the balance-wheel.

Hair'-stroke, *n.* The upward, lighter, and more delicate stroke in penmanship, made for connecting together different letters, or the parts of the same letter.

Hair'-trigger, *n.* (*Gun.*) A trigger connected with the tumbler of a gun-lock by a contrivance called *a hair*, by means of which, on the very slightest pressure, the fire-arm is discharged. — Also applied to a pistol made upon this principle.

Hair'-worm, *n.* (*Zoöl.*) See GORDIUS.

Hair'y, *a.* Overgrown with hair; covered with hair. — Consisting of hair; resembling hair; of the nature of hair; as, a *hairy* mantle.

Haitian, (*hā'shan,*) *a.* and *n.* Same as HAYTIAN, *q. v.*

Hake, *n.* [O. Eng. *haak;* Ger. *hecht*, a pike.] (*Zoöl.*) See MERFUCIUS.

—*v. n.* To go about idly; to mope; also, to sneak, or loaf.

Ha'kim, *n.* [Arab., a physician.] A title given among the Arabs to physicians, and also to other persons as a title of respect.

Hal, a town of Belgium, prov. S. Brabant, 10 m. S.S.W. of Brussels. *Manuf.* Cloths and linen goods. *Pop.* 7,160.

Ha'las, a town of Hungary, 75 m. S. of Pesth, on Lake Halasto; *pop.* 14,300.

Halberd, *n.* [Fr. *hallebarde;* Ger. *hellebarde*, from *hell*, clear, bright, and *barde*, a broad-axe.] (*Mil.*) An offensive weapon consisting of a shaft about five feet long, made of oak, having a steel head formed somewhat like a crescent. It was much used formerly, but is seldom or ever now seen, except in some Scottish burghs, where it is employed by the civil officers who attend the magistrates in processions, and on other public occasions.



Fig. 1230.—HALBERD.

Halberdier, (*hal'ber-deer.*) *n.* [Fr. *hallebardier.*] One armed with a halberd.

Hal'berstadt, a city of Prussia in Saxony, on the Holzemme, 32 m. S.W. of Magdeburg. *Manuf.* Cloth, wool, tobacco, leather gloves, hats, candles, and brandy. *Pop.* (1897) 38,765.

Hal'bert, in *Indiana*, a township of Martin co.

Hal'cott, in *New York*, a township of Greene co.

Hal'cottsville, in *New York*, a post-village of Delaware co., abt. 70 m. S.W. of Albany



Nathan Hale

1755–1776

Hal'cyon, *n.* [Fr. and Lat., from Gr. *hals*, the sea, and *kunai, kunân*, to search.] (*Zoöl.*) See ALCEDO.
—*a.* Calm; undisturbed; peaceful; quiet; as, *halcyon* ease.

Hal'cyon-days, *n. pl.* [Lat. *dies halcyones*, or *halcyonii.*] (*Antiq.*) A term applied by the ancients to the 7 days which immediately precede and follow the shortest day, from the circumstance that the halcyon, or king-fisher selected that period for incubation, and they believed that, on that account, the weather was always remarkably quiet about that time. Hence the phrase "halcyon-days" has passed into a proverb, as denoting times of peace and tranquillity.

Halcyon'idæ, *n. pl.* (*Zoöl.*) See ALCEDINIDÆ.

Hal'cyonoid, *a.* Same as ALCYONOID, *q. v.*

Hal'dane, in *Illinois*, a post-office of Ogle co.

Hal'deman, SAMUEL STEHMAN, an American naturalist and philologist, born near Columbia, Pa., in 1812, and educated at Dickinson College, was employed on the New Jersey and Pennsylvania geological surveys in 1836–37. In 1871 he became professor of Natural History in the University of Pennsylvania, four years later obtained the same post in the Delaware College, Newark, Del., and was afterward professor of Geology and Chemistry to the State Agricultural Society of Harrisburg, Pa. He addressed several interesting papers on entomology and conchology to the scientific societies of Philadelphia and Boston, a list of which will be found in Agazziz's *Nomenclator Zoölogicus*, and in Allibone's *Dictionary of English and American Authors*. Prof. *H.* directed much of his attention to the philosophy of speech, and its bearing on etymology. His essay, *Analytic Orthography*, containing phonetic versions of the Lord's Prayer in Cherokee, Wyandot, and Grebi, and examples of the numerals from one to ten in about 70 languages or dialects, with the pronunciation appended by the author from the lips of the natives, gained the Trevelyan prize in England (1858) against 18 European competitors. In 1851 he published a volume on the ancient pronunciation of Latin. At the time of his death, Sept. 10, 1880, he was professor of Comparative Philology in the University of Pennsylvania.

Hal'densleben, Neu, a town of Prussia on the Ohre, 14 miles N.W. of Madgeburg. *Manuf.* Linen and clay-pipes. *Pop.* (1895) 6,150.—ALT HALDENSLEBEN, a town on the opposite bank of the Ohre, has a pop. of 2,200.

Hal'dimand, a co. of province of Ontario, bordering on Lake Erie; *area*, about 459 sq. m. *Rivers.* Grand and Chippeway rivers, and Nanticoke creek. *Surface*, broken; *soil*, fertile. *Cap.* Cayuga. *Pop.* 16,308.

Hale, SIR MATTHEW, learned English jurist; born 1609. After completing his education at Oxford, he was admitted to the bar and became, successively, counsel for Lord Strafford, Archbiship of Laud, and, in 1647, for the eleven members of the House of Commons whose impeachment was demanded by the army. In 1659 he entered parliament, and after filling a minor judgeship was appointed, in 1671, Lord Chief Justice of the King's Bench. He left behind him the reputation of being one of the ablest and most incorruptible men who ever wore the ermine. His chief works are *History of the Pleas of the Crown*, a work of great authority, and the *History of the Common Law* (6th ed., 8vo., London, 1820). Died in 1676.

Hale, NATHAN, soldier and patriot, was born in Coventry, Conn., June 6, 1755; graduated at Yale (1773), and taught school at East Haddam and New London in his native State. At the beginning of the War of Independence he enlisted, and became a lieutenant in the regiment commanded by Col. Charles Webb. He was made captain in Jan., 1776, and, with a few picked men, captured a British supply vessel at New York under the guns of an English frigate. Subsequently he voluunteered to enter the British lines as a scout; was apprehended, and hanged as a spy in New York city, Sept. 22, 1776.

Hale, *a.* [A. S. *hâl*; Ger. *heil.*] Healthy; sound; hearty; well-complectioned; robust; unimpaired; as, a *hale* body.
—*v. a.* To drag by force; to pull violently or rudely; to haul.

Lest he *hale* ye to the judge.—*Luke* xii, 58.

—*n.* A violent pull or haul.

Hale, in *Missouri*, a post-village of Carroll co. *Pop.* (1897) about 590.

Hale's Eddy, in *New York*, a post-vill. of Delaware co.

Hale'sia, *n.* (*Bot.*) The Snowdrop-tree, a genus of plants, order *Aquifoliaceæ*, represented in N. America by the two beautiful species *H. tetraptero* and *H. diptera*.

Hal'evy, JACQUES FRANÇOIS FROMENTAL, a French musical composer, B. at Paris, of Jewish parentage, 1799. The first work of *H.*'s that brought him any considerable reputation was *La Juive*, produced at the Grand Opéra in 1835. The most important of his subsequent pieces (of a serious character) were, *La Reine de Chypre*, *Charles VI.*, *Le Juif Errant*, and *La Magicienne*. Those executed for the Opéra Comique are regarded as his most successful; the principal are—*Les Mousquetaires*, *L'Eclair*, and *Le Val d'Andorre*. D. 1862.

Half, (*haf,*) *n*; *pl.* HALVES. [A.S. *half*, *healf*; Ger. *halb.*] A moiety; one part of a thing which is divided into two equal parts.
—*v. a.* To divide into two equal parts.
—*a.* Consisting of a moiety or half; as, *half* a loaf is better than none.
—*adv.* In part, or in an equal degree; as, *half* loth, *half* consenting.

Half'-and-half', *n.* A mixture of bitter beer and strong ale, or of porter and ale, much used in England.

Half'-binding, *n.* A mode of binding books, by which the back, and sometimes the corners, are of leather, while the rest of the binding consists of cloth, or pasteboard.

Half'-blood, *n.* Relation between persons born of the same father, or of the same mother, but not of both.

"A sister by the *half-blood.*"—*Locke.*

Half'-blooded, *adj.* A term applied to animals, when but one of the progenitors is of pure blood; as, a *half-blooded* Durham ox.
—Mean; degenerate.

"*Half blooded* fellow, yes."—*Shaks.*

Half-boarder, *n.* A term applied in pensions or boarding-schools to such persons who take in the establishment no other meal than their dinner.

Half'-bound, *a.* Having but the back, and sometimes the corners bound in leather, the rest being in cloth or paper, as a book.

Half'-bred, *a.* Imperfectly bred; not thoroughly acquainted with the rules of good breeding; unpolished; impolite; rude.

Half'-breed, *a.* Half-blooded; as, a *half-breed* Canadian.
—*n.* One whose father is of one race, and the mother of a distinct one. In America, the term is most frequently applied to the offspring of Indians and whites.

Half'breed Creek, in *Iowa*, enters Des Moines River in Lee co.

Half-brother, *n.* A brother by one of the parents, but not by the other; a step-brother.

Half'-caste, *n.* A term mostly used in British India, and signifying the offspring of a European and Hindoo.

Half'-cent, *n.* (*Numis.*) A copper coin of the United States, of the value of five mills, or the 200th part of a dollar. The first were issued in 1793, the last in 1857.

Half'-cock, *n.* The position of the cock of a gun, when it is retained by the first notch.
—*v. a.* To set the trigger of a fire-arm at the first notch.

Half'-crown, *n.* The half of a crownpiece sterling, value about 58 cents.

Half-Day, in *Illinois*, a post-village of Lake co., about 28 m. N. of Chicago.

Half'-dime, *n.* (*Numis.*) A silver coin of the U. States, of the value of 5 cents, or the $\frac{1}{20}$ of a dollar. Its weight is 19 grains and $\frac{2}{10}$ of a grain,—equal to $\frac{4}{100}$ of an ounce troy,—and is of the fineness of $\frac{900}{1000}$. It was first coined in 1793.

Half'-dollar, *n.* (*Numis.*) A silver coin of the U. States, of half the value of the dollar or unit. Its weight, as reduced by Act of Feb. 21, 1853, is 129 grains, and its fineness $\frac{900}{1000}$.

Half'-eagle, *n.* (*Numis.*) A gold coin of the United States, of the value of five dollars. Its weight is 639 grains of standard fineness, namely $\frac{900}{1000}$ of pure gold, and 100 of alloy of silver and copper.

Hal'fer, *n.* A male fallow-deer castrated.

Half'-faced, *a.* Showing only one half or a part of the face; small-faced;—used contemptuously.

"This same *half-faced* fellow, Shadow."—*Shaks.*

Half'-hatched, (*-hatcht,*) *a.* Only partially incubated; as, "eggs but *half-hatched.*"—*Gay.*

Half-heard, *a.* Not heard throughout; heard but imperfectly.

"And leave *half-heard* the melancholy tale."—*Pope.*

Half'-hearted, *a.* Not having true courage or genuine affection; unkind; deficient in generosity.

Half-length, *a.* Containing but one half the length or size of a person; as, a *half-length* portrait.

Half-mast, *a.* Placed at half the height of a mast, as a flag. (Implying a death on board ship, or used as a mark of mourning.)

Half-measure, *n.* An imperfect plan of operation; a feeble effort.

Half'-moon, *n.* The moon at its quarters when half its disc appears illuminated.—Anything in the shape of a half-moon.
(*Fortif.*) See RAVELIN.

Half Moon, in *New York*, a post-town and township of Saratoga co., on the Hudson river, about 12 miles N. of Albany. It borders on the Erie Canal. *Pop.* 3,732.

Half Moon, in *Pennsylvania*, a township of Centre co.

Half Moon Island, in *Tennessee*, a post-office of Roane co.

Half-Moon Bay, or **Spanish-town,** in *California*, a post-village of San Mateo co., about 25 miles S. of San Francisco.

Half-Moon Keys, a number of small islands and reefs E. of Portland Point, at the S. extremity of Jamaica, West Indies.

Half-note, *n.* (*Mus.*) A minim, being half a semibreve.

Hal'ford, in *Alabama*, a P. O. of DeKalb co.

Half-pace, Hante'pace, Hant'pas, *n.* (*Arch.*) A raised floor in a bay-window.

Half-part, *n.* The half of anything; an equal share or division.

Half-pay, *n.* Half the amount of salary or wages; particularly, in most of the standing armies of Europe, a reduced allowance to a naval or military officer, on his retirement from professional duty, or when he is not on actual service.
—*a.* Receiving or entitled to half-pay; as, a *half-pay* officer.

Halfpenny, (*haf'pĕn-ny*, or *hā'pen-ny,*) *n.*; *pl.* HALFPENCE. An English copper coin, of the value of half a penny, or one cent; also, the equivalent value of half a penny; as, a *halfpenny* loaf.

Half'pennyworth, *n.* The worth or value of half a penny.

"Oh, monstrous! but one *halfpennyworth* of bread to this intolerable deal of sack!"—*Shaks.*

Half-pike, *n.* (*Mil.*) A small, short pike, formerly carried by officers; also, a similar weapon used in boarding ships.

Half-pint, *n.* The fourth part of a quart; as, a *half-pint* of wine.

Half-port, *n.* (*Naut.*) A wooden shutter for a ship's port-hole, having a circular aperture to allow the muzzle of a gun to protrude.

Half-press, *n.* (*Printing.*) The quantity of work performed by one man at a printing-press.

Half-price, *n.* Half the usual price charged for admission to a place of public entertainment; a reduction of the charge for admission made late in the evening, or when a performance is half over.

Half-read, *a.* Having superficial knowledge by reading.

Half-round, *n.* (*Arch.*) A moulding of semicircular form.

Half-scholar, (*häf'skōl-ar,*) *n.* One imperfectly learned.

Half-seas-o'ver, *a.* Somewhat intoxicated with liquor. (Used colloquially.)

Half'-shift, *n.* A movement of the hand in playing the violin, whereby a high note is produced.

Half-sighted, (*häf'sīt-ed,*) *a.* Seeing imperfectly; having weak discernment.

Half'-sister, *n.* A sister by one parent only.

Half'-step, *n.* (*Mus.*) A semitone.

Half-strained, *a.* Half-bred; imperfect.

"I find I'm but a *half-strain'd* villain yet."—*Dryden.*

Half-sword, *n.* Close fight; combat within half the length of a sword.

Half'-terete', *a.* (*Bot.*) That is flat on the one side, and terete on the other.

Half'-tide, *n.* Half the duration of a single tide, or nearly six hours.

Half'-timbers, *n. pl.* (*Ship-building.*) Those timbers in the cant-bodies which are answerable to the lower futtocks in the square body.

Half-tint, *n.* (*Painting.*) See DEMI-TINT.

Half-tongue, (*-tŭng,*) *n.* (*O. Eng. Law.*) A jury composed half of denizens, and the rest aliens.

Half'-way, *adv.* In the middle; intermediate; at half the distance.

"He meets destiny *half-way*, nor shrinks at death."—*Granville.*

—*a.* At unequal distance from the extremes; as, a *half-way* house.

Half-way, in *Kentucky*, a post-office of Allen co.

Half-way, in *Missouri*, a post-office of Polk co.

Half-way, in *New York*, a P. O. of Onondaga co.

Half-way, in *Oregon*, a P. O. of Union co.

Half'-way Prairie, in *Iowa*, a village and former post-office of Monroe co.

Half'-wit, *n.* A numskull; a dolt; a blockhead; a silly person.

Half'-witted, *a.* Weak in intellect; silly; dull in understanding.

Half'-year, *n.* The period of six months.

Half'-yearly, *a.* Semi-annual; two in a year.
—*adv.* Semi-annually; twice in a year; as, the dividends are payable *half-yearly.*

Hal'ibut, *n.* (*Zoöl.*) The common name of the genus *Hippoglossus*, which includes the largest fishes of the *Pleuronutidæ*, or Flounder family, attaining the length of 6 or 7 feet in the North Atlantic, and weighing from 300 to 400 lbs.

Hal'ibut Island, in *Alaska*, an island in the North Pacific Ocean, near the S.W. extremity of the peninsula of Alaska: Lat. 54° 48′ N., Lon. 164° 15′ W. Circumference 22 m. This island was discovered by Capt. Cook, the celebrated navigator, who named it from the immense numbers of halibut taken off its shores.

Halicarnas'sus, (*Anc. Geog.*) A city of Caria, in Asia Minor, on the Ceramian Gulf, where the small town of Bondroum now stands. It was originally called *Zephyria*, was of Dorian origin, and is famous as the birthplace of Herodotus, B. C. 484. The celebrated tomb of Mausolus was erected B. C. 353, and the city was taken by Alexander the Great, B. C. 334. It was a bishopric in the Primitive Church. The site of the ancient town was discovered in 1839 by Lieut. Block.—See MAUSOLEUM.

Hal'icore, *n.* See MANATEE.

Halieu'tics, *n. sing.* [Gr. *alicutikos*, relating to fishing.] Ichthyology.

Hal'ides Acid, *n. pl.* (*Chem.*) Compounds of chlorine, bromine, &c., with oxygenated or acid radicals.

Hal'ifax, GEORGE SAVILLE, MARQUIS OF, an English statesman, B. 1630. He contributed to the restoration of Charles II., who made him a privy councillor, and rewarded him with a coronet. On the accession of James II., he was appointed President of the Council, from which he was dismissed for refusing his consent to a repeal of the Test Acts. In the Convention Parliament he was chosen speaker of the House of Lords, and at the accession of William and Mary was made Lord Privy Seal. D. 1695.

Hal'ifax, a manufacturing town of Yorkshire, England, on a branch of the Calder, 35 m. S.W. of York. *Manuf.* Cloths, plush, carpets, cotton thread, with several dyeing establishments.

Hal'ifax, a maritime city of British N. America, on a small peninsula on the S.E. coast of Nova Scotia, of which it is the cap. The town stands on the declivity of a hill about 250 ft. in height, rising from the W. side of one of the finest harbors in the N. American continent. The streets are generally broad, and the front of the town is lined by wharves. Warehouses rise over the wharves, and dwelling-houses and public buildings rear their heads over each other as they stretch along and up the sides of the hill. Among the chief public buildings are the Government House, Province Buildings, con-

taining the govt. offices, legislative chambers, Supreme Court, and public library; Dalhousie College, Military Hospital, &c. The dockyard covers 14 acres, and forms the chief depôt of naval stores in the British N. American colonies. The harbor opposite the town, where ships usually anchor, and where, at medium tides, there are 12 fathoms of water, is rather more than a mile wide. After narrowing to ¼ m., about 1 m. above the upper end of the town, it expands into *Bedford Basin*. This sheet of water, which is completely landlocked, occupies a surface of 10 sq. m., and is capable of containing the whole British navy. *H.* harbor is accessible at all seasons, and its navigation is scarcely ever interrupted by ice. The best mark in sailing for it is Sambro light-house, on a small island off Sambro Head, abt. 13 m. S. by E. of Halifax, with a fixed light 210 ft. high. Another light-house stands on Magher's Beach, a spot extending from McNab's Island, at the very entrance of the port. When the latter light is seen, ships may run in without fear. The harbor and its approaches are fortified by strong batteries. A canal connects *H.* harbor with Cobequid Bay and the Bay of Fundy. Since its first settlement, in 1749, *H.* has continued to be the seat of a profitable fishery; and its general commerce is highly prosperous, engrossing as it does nearly the whole foreign trade of Nova Scotia. In 1817, *H.* was declared a free port to a certain extent, and has since acquired the privilege of warehousing. Some ships of large size are employed in the South-Sea fishery, but, generally speaking, the inhabitants are less enterprising and successful fishers than the New-Englanders. Mail-steamers sail between Halifax and Liverpool, and Falmouth, Eng., and other packets regularly to Boston, New York, and the W. Indies. *Manuf.* Soap, candles, leather, paper, sugar, tobacco, beer, liquors, &c. *Pop.* (1897) 39,900.

Hal'ifax, in *Massachusetts*, a post-town and township of Plymouth co., about 30 m. S.S.E. of Boston. *Pop.* (1895) 562.

Hal'ifax, in *North Carolina*, a N.N.E. co.; *area*, about 680 sq. m. *Rivers.* Roanoke river and Fishing creek. *Surface*, diversified; *soil*, fertile. *County-seat*, Halifax. *Pop.* (1890) 28,908.

—A post-town, cap. of Halifax co., on the Roanoke river, about 87 m. N.E. of Raleigh. It is memorable as being the place where the constitution of North Carolina was formed.

Hal'ifax, in *Pennsylvania*, a post-borough and township of Dauphin co., on the Susquehanna river and the Northern Central R. R., 20 m. N. of Harrisburg. *Pop.* (1897) about 610.

Hal'ifax, in *Kentucky*, a post-office of Allen co.

Hal'ifax, in *Vermont*, a post-town and township of Windham co., 120 m. S.W. of Montpelier. *Pop.* (1897) about 720.

Hal'ifax, in *Virginia*, a S. co., bordering on North Carolina; *area*, about 820 sq. m. *Rivers.* Staunton or Roanoke, Dan, Banister, and Hycootee rivers. *Surface*, generally level; *soil*, fertile. *Min.* Plumbago. *Cap.* Houston. *Pop.* (1890) 34,424.

Hal'imas, *n.* Same as HALLOWMAS.

Haliog'rapher, *n.* One who treats of, or describes the sea.

Haliog'raphy, *n.* [Gr. *als*, the sea, and *graphein*, to describe.] A treatise on, or description of, the sea.

Hal'iotoid, *a.* (*Zoöl.*) Ear-shaped.

Halio'tis, *n.* [Gr. *als*, the sea, and *ous*, ear.] (*Zoöl.*) The Ear-shell family, containing gasteropods, the shell of which somewhat resembles in shape the human ear. The head of the animal is large, having two long, round tentacula, with eyes at the base on footstalks; foot very large, having the margin fringed all round. It is always found near the surface of the water. Found in the East Indies.

Ha'lite, *n.* (*Min.*) Rock-salt: common salt; chloride of sodium: NaCl. *Comp.* Chlorine 60·7, sodium 39·3. *Sp. gr.* 2·1–2·257. Color white,—sometimes blue, purplish, yellowish, or reddish, from the presence of impurities. Rock-salt occurs in beds of rocks of different geological ages, and is generally mixed with chloride of calcium, chloride of magnesium, and sulphato of lime,—also, sometimes, with sulphate of magnesia.—For a full account of salt-mining and manufacture, see SALT.

Hal'itus, *n.* [Lat., vapor.] (*Physiol.*) The aqueous vapor exhaling from newly-drawn blood. It has a peculiar odor, which soon disappears.

Hall, *n.* [A. S. *heal, hæll*; D. *hal*; Ger. *halle*; Lat. *aula*; Gr. *au-lē*, probably from *aēmi*, to breathe hard, to blow, because in Grecian houses the hall was open to the air; Sansk. *ālaya*, a house.] A large room at the entrance of a house or suite of chambers.

"That light we see is burning in my *hall*."—*Shaks.*

—A public room in a building, devoted to the administration of magisterial justice; a spacious building attached to inns of court; as, the *hall* of the Middle Temple. (Eng.)—A place of public assembly; as, a town-*hall*, a music-*hall*, &c.—A term given to certain colleges in the English universities; as, Magdalen *Hall*, Oxford. It is also applied to the public eating-room of a college; as, to dine in *hall*.

(*Hist.* and *Arch.*) The principal apartment in the castles and mansions of the Middle Ages, which was used on all occasions of ceremony, and in which the meals were served. Some of the palaces of the early Frank and Saxon kings appear to have consisted of little else than the hall. The earliest existing specimens are of the 12th cent.; and though none of them retain their roofs or fittings, it is apparent that several of them were divided into three alleys, by rows of pillars and arches. In these halls the king, together with his courtiers and all his retainers, dwelt, sitting at the same table and around the same hearth. There was generally another smaller chamber attached, in which the king and his courtiers slept, while the retainers slept in the hall. The Normans built halls very similar to those of the Saxons; and, with few modifications, similar buildings were erected until the 14th cent. The population then being more numerous, and manners more refined, it became necessary to have more numerous apartments. The hall, however, held its place as the chief room of the house, in which the king or lord of the manor administered justice, gave audiences, or received and entertained his guests. From the 14th cent. downwards, numerous examples of large and stately halls still remain in England, France, and Germany. Among the finest of these relics may be mentioned that at Eltham Palace, Kent, Eng., represented in Fig. 1231. The hall



Fig. 1231.—THE GREAT HALL AT ELTHAM PALACE, (Eng.)

originally was essentially a part of feudal architecture. The principal entrance was at one end, where, in those which retain traces of the original fittings, a space is parted off by a screen extending across the whole width, and supporting a gallery above. In the screen were doors leading into the body of the hall. At the upper end, a portion of the floor, called the *dais*, was raised one or two steps above the rest, on which was placed the principal table, at which the host and superior guests sat. The chief seat was in the middle, next the wall, commanding a view down the room. The fire, or open hearth, was often in the middle of the floor, and the smoke escaped through a louvre on the top of the roof; sometimes, however, fire-places were formed in the side-walls. In halls of the Perpendicular date, there was a large bay-window at one end, and sometimes at both ends, of the dais, where the "cupboard," or buffet, was placed. Many of these arrangements are still retained in the university halls. The walls were frequently lined, for some part of their height, with wainscoting, and an ornamental canopy was fixed over the principal seat. The walls were also sometimes hung with tapestry or carpeting.

Hall, JAMES, an American judge and author, B. in Philadelphia, 1793. He served during the war of 1812–14, and in 1818 returned to the study of the law at Pittsburg, Penna. In 1812 he was elected judge of the circuit court of Illinois, and also State treasurer. In 1833 he took up his residence in Cincinnati, where he devoted himself to the mixed pursuits of banking and literature. His chief works are, *Legends of the West* (Phila., 1832; 2d ed. 1833); the *Harpe's Head, a Legend of Kentucky* (1833); *Sketches of the West* (2 vols., Phila., 1835); *Tales of the Border* (1835); and *Notes on the Western States* (Phila., 1838). In conjunction with T. H. McKenney, Judge *H.* brought out an elaborate and costly *History of the Indian Tribes* (3 vols., Philadelphia and Washington, 1838–1844), for which he supplied the greater part of the letter-press. Of his later works the chief are the *Wilderness and the War-Path* (New York, 1845), and the *Romance of Western History* (Cincinnati, 1859). A uniform edition of his works was published in 4 vols. in 1853. D. 1868.

Hall, JAMES, a distinguished American geologist and palæontologist, B. at Bingham, Mass., in 1811. After studying at the Rensselaer School, N. Y. State, for 6 years, *H.*, in 1837, was appointed on the New York Survey, and his report has been published in a 4to. vol., with illustrations from his own pencil. While thus engaged he was able to direct his attention to the palæozoic formations of the W. States of this country; and 3 vols. of the *Palæontology of New York*, published in 1847, 1852, and 1859 respectively, embody his investigations on this subject. In the production of this work Prof. *H.* had to contend against several obstacles, and in one of the intervals which occurred while the State was hesitating whether it should go on, he was invited to take part in the Canadian Survey, under Sir William Logan. This offer, however, *H.* was obliged to decline, having been appointed, in 1855, Geologist of the State of Iowa, of the survey of which he published a volume in 1858; and the New York legislature having made final arrangements with him to continue his "Palæontology." In 1850 Prof. *H.* was elected by the Royal Geographical Society of London one of its 50 foreign members, and in 1858 he received the Wollaston Medal from the same scientific body. He is a member of several scientific societies in Europe and in the U. States, to which he has at various times contributed many valuable papers.

Hall, LYMAN, one of the signers of American Independence, B. in Conn. about 1731, graduated at Yale College in 1747, commenced the study of medicine at Sunbury, Ga., in 1752, represented the latter State in Congress, 1775–80, was appointed Governor of his State in 1783, and D. 1791.

Hall, SAMUEL CARTER, F.S.A., English art and literary critic, born May 9, 1800. After a considerable literary experience, he established, in 1839, the *Art Journal*, which stood at the head of its class, and had considerable influence on the progress of British art. *H.* was also the editor of the *Book of Gems, Book of British Ballads, Baronial Halls of England*, &c. Died March 16, 1889.—His wife, Anna M. F. *H.*, born in Dublin, Jan. 6, 1800, was a voluminous novelist and story writer, her work including *Sketches of Irish Character; Tales of the Irish Peasantry, The French Refugee*, &c. Died Jan. 30, 1881.

Hall, in *Georgia*, a N. co.; *area*, about 497 sq. m. *Rivers.* Chattahoochee, Chestatee, and Oconee rivers. *Surface*, extremely diversified; *soil*, fertile. *Min.* Gold, diamonds, silver, lead, rubies, emeralds, and amethysts. *Cap.* Gainesville. *Pop.* (1890) 18,047.

Hall, in *Nebraska*, a central co.; *area*, about 552 m. *Rivers.* Nebraska or Platte river, and many of its tributaries. *Surface*, undulating; *soil*, fertile. *Cap.* Grand Island. *Pop.* (1890) 16,513.

Hall'age, *n.* A toll levied on goods sold in a public hall.

Hal'lam, HENRY, an English historian, B. at Windsor, 1777. His father was dean of Bristol. After studying at Eton he was sent to the university of Oxford, where he distinguished himself by his classical attainments. He afterwards settled in London, and entered upon his career of literary labor as one of the first contributors to the "Edinburgh Review." His *View of the State of Europe during the Middle Ages*, published in 1818, was the first great result of his studies and researches. His masterly work on the *Constitutional History of England* was given to the world in 1827. Hallam belonged to the Whig party in politics, but he preserved a singular calmness and exemption from political passions, and wrote with an impartiality which is rarely rivalled. In 1833 a very heavy blow fell on him in the death of his eldest son, a young man of high promise, and the chosen friend of Alfred Tennyson, whose love and sorrow are recorded in those exquisite lyrics which form his "In Memoriam." The next great work of *H.*, published in 1837–39, was his *Introduction to the Literature of Europe in the 15th, 16th, and 17th Centuries.* Other family bereavements followed in rapid succession, and after losing his daughter, his wife, and his second son, (the last in 1850,) the aged and mourning father himself died in 1859. *H.*'s works have passed through many editions, and have been translated into the French and German languages.

Hal'lamshire, a district of England, in the S.W. riding of co. York.

Halle, (*hahl'.*) [Anc. *Hala Saxonum.*] A city of Prussia in Saxony, on the Saale, 9 m. N. of Merseburg. *Manuf.* Woollens, stockings, silk, leather, buttons, hardware, and starch. The University of *H.*, founded in 1694, and to which the University of Wittenberg was united in 1815, is of very high literary repute. *Pop.* 52,620.

Hal'leck, FITZ-GREENE, an American poet, B. at Guilford, Conn., 1795. He entered a banking-house in New York city in 1813, and remained in that city engaged in mercantile pursuits until 1849, when he returned to Connecticut. His first contribution to American literature consisted of various humorous and satirical odes and lyrics, contributed to the "New York Evening Post" in 1819, in conjunction with his friend J. R. Drake, under the pseudonyms of "Croaker," and "Fanny." His longest satirical poem appeared in the same year. In 1822 *H.* visited England and the continent of Europe, and on his return to the U. States, in 1827, brought out a small vol. of poems, containing *Alnwick Castle, Marco Bozzaris*, &c.; and some other pieces, which had appeared in different periodicals, were collected and published in 1835. For some time previous to the death of J. J. Astor, *H.* was engaged to assist him in his business affairs, and was one of the original trustees of the Astor Library. In 1865 appeared his last work, *Young America*, which is not up to the mark of its predecessors. D. 1867. His statue was erected in Central Park, N. Y., in 1877.

Hal'leck, HENRY WAGER, an American general, B. in New York city, about 1810, entered West Point as a cadet in 1835, graduated in 1839, was appointed to the U. S. Engineer Corps as 2d lieutenant in July of the same year, and was one of the Assistant Engineer Professors at West Point from that time till 1840. He was made 1st lieut. in 1845, having previously published a work on *Bitumen*, and he wrote a series of lectures on War, published in 1846 under the title of *Elements of Military Art and Science.* In the Mexican war he served on the Lower Californian coast, and was breveted captain in 1847. From the latter year till 1849, *H.* was secretary of the State of California under the military govt. of Gens. Kearney, Mason, and Riley. In 1849 he was a member of the convention to form and draft the constitution of the State of California, was promoted to be

capt. of engineers in 1853, and retired from the service in 1854. *H.* practised law in San Francisco, and was at the head of a prosperous firm at the breaking out of the civil war. At the instance of Gen. Scott, he was recalled from San Francisco in 1861, and commissioned a major-general of the U. States army, Aug. 19. On his arrival he was placed in command of the dept. of the West to relieve Gen. Hunter. Early in 1862, after the victories of Paducah, Fort Donelson, Fort Henry, &c., it became necessary to enlarge the dept., thereby embracing all the country, for some miles, on both sides of the Mississippi River. Gen. *H.* directed the siege of Corinth in May; was called to Washington, and appointed Commander-in-chief of the Union armies, July 11, retiring in favor of Gen. Grant in 1864. D. 1872.

Hallelujah, Hallelujah, (*hal-lē-lū'ya,*) *n.* and *interj.* [Heb., from obsol. *halal*, to be clear, to sing, to chant, to praise, and *Jah*, Jehovah.] Praise ye the Lord; give praise to God: — a well-known doxology derived from the Old Testament, and used, among the early Christians, at Easter, and during the interval thence to Whitsuntide.

Hal'ler, ALBERT, an eminent anatomist and physiologist, B. at Berne, Switzerland, 1708. He was originally destined for the Church, but subsequently turned his attention to medicine, which he studied under Camerarius and Duvernay at Tübingen, and afterwards at Leyden under Boerhaave, where he was the associate of Albinus and Ruysch, and where also he graduated as a doctor. He was appointed teacher of anatomy in 1734; but his reputation having greatly extended, he was nominated Professor of Anatomy, Surgery, and Botany, in the university of Göttingen, by George II. of England, in 1736. Here he remained 17 years, and here his great work, *Disputationes Anatomicæ Selectæ*, by which he is chiefly known, was composed. He refused the chair of botany in Oxford, and he declined solicitations from the king of Prussia, the States of Holland, and the empress of Russia. George II., in consideration of his great merits, obtained for him a brevet as a noble of the empire, and he is often spoken of as Baron Haller; but he never used this title in his native country. He left Göttingen for Berne in the year 1753, and spent the rest of his life in honorable but active retirement in Switzerland. D. at Berne, 1777.

Hal'lett's Cove, or ASTORIA, in *New York*. See ASTORIA.

Hal'lettsville, in *Texas*, a post-town, cap. of Lavaca co., 80 m. S.E. of Austin. *Pop.* (1890) about 1,200.

Hal'ley, EDMUND, an English astronomer and mathematician, B. at Haggerston, near London, 1656. He received his education at St. Paul's School, and Queen's Coll., Oxford, where he attained so great a proficiency in mathematical studies, that in 1676 he published observations on a spot in the sun, by which the motion of that body on its axis were determined. The same year he went to St. Helena, where he determined the positions of 350 stars. On his return to England he was created master of arts, and chosen a fellow of the Royal Society. In 1680 he made the tour of Europe with Mr. Nelson; and on the passage to Calais was the first to observe the great comet — the same which visited our hemisphere again in 1835. (See COMET.) After his return, he gave his attention to the theory of the planetary motions, which made him acquainted with Sir Isaac Newton, who intrusted to him the publication of his *Principia*. To ascertain exactly the cause of the variation of the compass, he was made commander of a ship in 1698, and sent to the Western Ocean; but his crew being mutinous, he was obliged to return. The year following he sailed again, and proceeded as far south as the ice would permit; the result of which observations he published in a general chart. In 1703 he was appointed Savilian professor of geometry at Oxford: in 1705 he made public his valuable researches on the orbits of comets; in 1713 he became secretary to the Royal Society; and in 1719 he succeeded Flamsteed as Astronomer Royal. The remainder of his life was chiefly spent in the sedulous performance of his duties in that situation, especially in completing the theory of the motion of the moon. D. 1742. His principal works are *Catalogus Stellarum Australum*, *Tabulæ Astronomicæ*, *An Abridgment of the History of Comets*, &c.

Halliards, (*hal'yards,*) *n. pl.* (*Naut.*) The ropes or tackles usually employed to hoist or lower any sail on its respective mast. (Also written *halyards* and *haulyards.*)

Hal'lier, *n.* [From *hale*, to pull.] A kind of net for ensnaring birds.

Hal'lite, *n.* (*Min.*) Same as ALUMINITE, *q. v.*

Hall'-mark, *n.* In England, the official mark of the Goldsmiths' Company, &c., affixed to gold and silver plate, as the stamp of its purity.

Hal'loca, in *Georgia*, a district of Chattahoochee co.

Hal'lock, in *Illinois*, a post-township of Peoria co., about 10 m. S.W. of Lacon.

Hal'lock's Mills, in *New York*, a village and former post-office of Westchester co.

Halloo', *v. n.* [Fr. *haler*, to hound or set on dogs: probably akin to A.S. *ahlowan*, to low, to bellow.] To cry out; to call to by name, or by the word *halloo*, with a loud voice.

"A cry more tuneable was never *halloo'd* to." — *Shaks.*

—*v. a.* To encourage with shouts.

"Old John *halloos* his hounds again." — *Prior.*

—To chase with shouts. — To call or shout to; to vociferate after.

"He that first lights on him, *halloo* the other." — *Shaks.*

—*n.* A hail; a call; a shout to command attention; as, a view-*halloo*.

—*interj.* Hey there! ho! — an exclamation inviting attention or encouragement; as, *halloo*, boys!

Hallow, (*hal'lō,*) *v. a.* [A.S. *halgian, gehalgian*, to hallow, from *halig*, holy. See HOLY.] To make holy; to consecrate; to set apart for sacred or religious use; to reverence as holy.

"And vestal fires in *hallow'd* temples burn." — *Dryden.*

Halloween', *n.* In Scotland, a term designating the eve of Hallowmas, or All-Saints' day.

Hal'liwell, JAMES ORCHARD, F.R.S., an English archæologist, B. at Chelsea, 1820. At an early age he showed considerable taste for antiquarian researches, and made himself thoroughly acquainted with the ancient literature and antiquities of England. These studies led him to Shakspeareau criticism, on which he has written extensively. His most important works were: *A Life of Shakespeare*; *A Descriptive Calendar of the Records of Stratford-on-Avon*; *A Dictionary of Archaic and Provincial English*; *Popular Rhymes and Nursery Tales*, published in 1849, and an edition of Shakespeare in 16 volumes folio, brought out by public subscription, and completed in 1865. Died Jan. 3, 1889.

Hal'lowell, in *Maine*, a thriving city of Kennebec co., on the Kennebec river, and the M. C. R. R., 2 m. S. of Augusta. *Pop.* (1897) about 3,400.

Hal'lowmas, *n.* [A. S. *halig*, holy, and *mæsse*, feast. See MASS.] The sacred feast of All-Souls, All-Saints, or All-Hallows.

Halloy'site, *n.* (*Min.*) A hydrated silicate of alumina. It occurs in earthy masses of various colors. In water some varieties become translucent and absorb one-fifth their weight of water. *Sp. gr.* 1·8-2·4. *Comp.* Silica 43·3, alumina 37·7, water 19·0. It is generally derived from the decomposition of minerals containing alumina, as feldspar.

Halls'borough, in *Virginia*, a post-village of Chesterfield co., abt. 17 m. S.W. of Richmond.

Hall's Corners, in *Indiana*, a post-office of Allen co.

Hall's Corners, in *New York*, a P. O. of Ontario co.

Hall's Islands, a small group in British N. America, at the W. entrance of Frobisher Strait; Lat. 63° N., Lon. 65° W.

Hall's Landing, in *Illinois*, a village of Putnam co., on the Illinois River, below Hennepin.

Hall's Mills, in *Illinois*, a village of Jackson co.

Hall's Mills, in *New York*, a village of Albany co., abt. 31 m. S.W. of Albany.

Halls'port, in *New York*, a P. O. of Alleghany co.

Hall's Store, in *Delaware*, a P. O. of Sussex co.

Hall's Stream, in *New Hampshire*, enters the Connecticut River a few m. above Colebrook.

Hall's Valley, in *Ohio*, a post-office of Morgan co.

Halls'ville, in *Illinois*, a post-office of De Witt co.

Halls'ville, in *N. Carolina*, a post-village of Duplin co., abt. 97 m. S.E. of Raleigh.

Halls'ville, in *Missouri*, a post-village of Boone co., abt. 40 m. N. of Jefferson City.

Halls'ville, in *New York*, a post-village of Montgomery co., abt 60 m. W.N.W. of Albany.

Halls'ville, in *Ohio*, a post-village of Ross co., abt. 12 m. N.E. of Chillicothe.

Halls'ville, in *Texas*, a post-village of Harrison co.

Hall'ton, in *Pennsylania*, a post-village of Elk co.

Hall'town, in *West Virginia*, a post-village of Jefferson co.

Hallucina'tion, *n.* [Fr., from Lat. *hallucinatio*, or *alucinatio*, from *alucinor*, from Gr. *aluō, alusō*, in Attic Gr. *halūō*, to wander in mind, from *al-ē*, a wandering or roaming, a wandering in mind.] A wandering of mind; error; delusion; mistake: folly; as, a mere *hallucination* of the vulgar. — A diseased state of mind, in which a person has a settled belief in the reality of things which have no existence.

(*Physiol.* and *Med.*) It was a favorite maxim of Kant's, "that the senses do not deceive us at all, — it is only the judgment that deceives us." This is indeed true of illusions, where what is represented to consciousness are objects really existing, but different from what they really are; but it is not true as regards *H.* strictly so called, where the senses convey to consciousness what does not really exist, representing as an object what is only a subjective process. As regards illusions, they are often owing to inexperienced judgment, or may also proceed from a defective state of the organ itself, and may be corrected by observation. They sometimes affect only one, sometimes several, and even all of the senses. *H.* of the sight are perhaps the most frequent, and are commonly visions of sparks, flames, luminous spectres, terrific phantoms, &c. *H.* of hearing are also very common, — humming or ringing in the ear, the sound of voices, &c. *H.* of smell are much more rare; but hysterical persons often smell objects which are not present — such as sulphur, musk, violets, &c. *H.* of taste wholly resemble those of smell; and *H.* of touch are also rare. In illusions we have chiefly to consider the external occasion and the mental condition of the individual; in *H.*, the organic and physical condition. The illusion is often in the object, and is frequently produced by emotions, heated fancy, passion, &c. The *H.* has always a subjective ground; either the receptive organ suffers, or the leading nerve, or the reacting cerebral centre, chiefly from pressure of blood, cramp, &c. The course and termination of these states of mind, which are only symptomatic, issue, after longer or shorter duration, either in health, from undeceiving the patient, or, if this does not happen, in a fixed idea — in insanity. The *H.* of sight and hearing, on account of the physical dignity of their organs, are especially of a fatal import.

Hallu'cinator, *n.* One who acts under illusion of mind or hallucination; a blunderer.

Hallu'cinatory, *n.* Tending to produce hallucination; laboring under hallucination; as, *hallucinatory* ideas.

Hal'lux, *n.* [Lat. *aller.*] (*Anat.*) The great toe.

Halm, *n.* Same as HAULM (*q. v.*).

Halm'stadt, a town of Sweden, capital of a district of same name, on the Cattegat, at the mouth of the Nissa, 96 m. W.N.W. of Carlscrona. *Manuf.* Woollen goods and various other fabrics. The district of which *H.* is the capital has an area of 1,950 sq. m., and a population of 117,600. *Pop.* of town (1897) about 10,900.

Ha'lo, *n.*; *pl.* HALOES. [Lat. *halo, halonis*, or *halos, halo*, from Gr. *halōs*, a threshing-floor, also the disc of the sun, a halo.] A circle of light; a nimbus; an aureola; a glory, as exemplified in the bright ring encircling the heads of saints, &c., in pictorial representations.

(*Meteor.*) A luminous circle or ring, usually colored, surrounding the sun or moon under certain conditions of the atmosphere. Of such rings there are two kinds, each apparently depending upon essentially different physical causes. The first are of small dimensions, their diameters being between 5° and 12°; generally three or more concentric rings appear together, differently colored, and presenting appearances similar to the optical

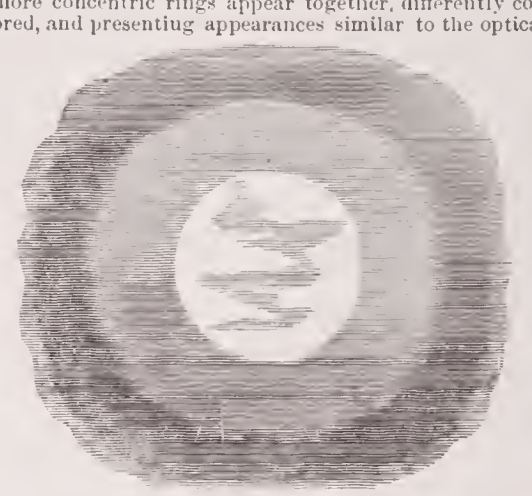


Fig. 1232. — HALO.

phenomena of the rings of thin plates. These are usually called *coronæ*; and they appear either when a small quantity of aqueous vapor is diffused through the atmosphere, or when light fleecy clouds pass over the sun or moon. The second kind consist usually of a single luminous ring, but of much larger dimensions, the diameter being about 45°. It is to appearances of this kind that the term *halo* is usually appropriated. Various causes have been assigned for the origin of *H.*; but the most probable is that of Mariotte, who supposes the phenomenon to arise from the *refraction* of light in passing through small transparent and prismatic crystals of ice floating in the higher regions of the atmosphere.

(*Anat.* and *Physiol.*) An AREOLA, *q. v.*

—*v. a.* or *n.* To surround with a halo.

Hal'ogen, *n.* [Gr. *hals*, salt, *gennein*, to generate.] (*Chem.*) A salt-producer. The *H.* include a group of non-metallic elements that combine with the metals and produce compounds resembling or analogous to common salt. Chlorine, iodine, bromine, and fluorine are simple halogens, and cyanogen is a compound *H.* They have a great affinity for the metals, and combine directly with them at ordinary temperatures. United with hydrogen they form acids; also all of them except fluorine combine with oxygen and form acids.

Halog'enous, *a.* (*Chem.*) Partaking of the quality of a halogen.

Ha'loid Ether, *n.* (*Chem.*) A compound formed by the union of halogen with hydrocarbon.

Ha'loid Salt, *n.* (*Chem.*) A salt formed by the union of one of the halogens with a metal. Common salt is an example: it being formed by the union of chlorine with sodium, NaCl.

Haloraga'ceæ, *n. pl.* [From *Haloragis*, the typical genus.] (*Bot.*) The Mare's-tail, or Water-chestnut family, a small order of plants, alliance *Myrtales*, closely allied to the *Onagraceæ*, q. v. There are 70 species in 8 genera. They are herbaceous or half-shrubby; pretty much scattered over the world, but almost all aquatic, or growing in wet places. The stems and leaves often have large air-cavities. The flowers are generally small, and the plants insignificant in appearance.

Hal'oscope, *n.* [Gr. *alōs*, halo, and *skopein*, to view.] (*Optics.*) A beautiful instrument for the exhibition of the phenomena of halos, parhelia, &c. It was invented by Auguste Bravais in 1863.

Halo'trichite, *n.* [From Gr., for hair-salt.] (*Min.*) An iron alum, or sulphate of alumina and iron. It is found in silky fibres of a whitish color and inky taste. *Comp.* Sulph. acid 35·9, alumina 11·5, oxide of iron 8·1, water 44·5.

Halser (*haws'r*), *n.* Old spelling of HAWSER (*q. v.*).

Hal'sey, in *Oregon*, a post-village of Linn co.

Hal'sey Valley, in *New York*, a P. O. of Tioga co.

Hal'stead, a town of Essex co., England, near the Colne, 43 m. N.E. of London, 23 m. S.W. of Ipswich. *Manuf.* Baize, figured and plain silk-velvets, silk-winding and straw-plaiting. *Pop.* 6,280.

Halt, *v. n.* [A. S. *healtian*, to be lame, from *healdan*, to hold; Icel. *haltra.*] To hold up; to stop in walking or proceeding; to stop during a march.

—To limp, that is, to stop with lameness; to be lame.

"Sidney's verse *halts* ill on Roman feet." — *Pope.*

—To hesitate; to stand in doubt whether to proceed, or what to do; to fail; to falter.

"How long *halt* ye between two opinions?"—1 *Kings* xviii. 28.

—To have an irregular rhythm; as, "a *halting* sonnet." *Shaks.*

—*v. a.* (*Mil.*) To stop; to cause to cease marching; as, the troops *halted* in a valley.

Halt, *a.* [A.S. *healte:* Fris. *halte;* Dan. and Swed. *halt;* Icel. *halltr*, lame.] Lame; holding up or stopping in walking; limping.

—*n.* A stop in marching; as, the general brought his brigade to a *halt.*

—The act of limping; lameness.

Halt'er, *n.* One who limps or halts; a lame person.

Hal'ter, *n.* [Ger., from *halten*, to hold; D. *halfter*, a halter.] That which holds, confines, or leads; especially, a rope, and strap or headstall, for leading or securing a horse; also, a rope for hanging criminals.

"No man e'er felt the *halter* draw,
With good opinion of the law."—*Trumbull.*

—*v. a.* To put a halter on; to catch and hold with a halter; to bind with a rope or cord; as, a "*haltered* neck."—*Shaks.*

Hal'teres, *n. pl.* [Lat.] (*Zoöl.*) Two small club-like appendages which occur in Dipterous insects, and which are supposed to be identical with the hind wings of other insects.

Halt'ingly, *adv.* In a lame, halting, or hesitating manner.

Hal'ton, a co. of prov. of Ontario, bordering on Lake Outario; *area*, abt. 362 sq. m. *Rivers.* Twelve Mile and Sixteen Mile creeks. *Surface*, diversified; *soil*, fertile. *Cap.* Milton.

Hal'vans, *n.* [Cornish.] Refuse of tin ore.

Halve, *v. a.* [From *half.*] To divide into two equal parts; as, to *halve* a sheep.

—To join, as timbers by letting into each other.

Halved, (*hăv'd,*) *a.* Divided into two equal parts. (*Bot.*) Appearing as if one half was absent; dimidiate.

Halves, (*hăvz,*) *n. pl.* of HALF. Two equal parts of a thing.

Hal'yards, *n. pl.* (*Naut.*) See HALLIARDS.

Ham, *n.* [A.S.] A house, farm, home, or village;—forming the initial or final syllable of many topographical names; as, Old*ham*, *Ham*burg.

Ham, *n.* [A.S., L. Ger., and D. *ham;* Fris. *hamme*, the back part of the knee; Fr. *jambe;* It. *gamba*, from Lat. *campe*—Gr. *kampē*, the bend of a limb, a joint. See JAMB.] The bend of the knee-joint behind; the inner or hind part of the knee; the inner angle of the joint which unites the thigh and the leg of an animal.—The thigh of a beast, particularly of a hog, salted and dried in smoke: or of a sheep; as, mutton *ham.*

Ham, [Heb., burnt, swarthy, black.] (*Script.*) A son of Noah. The impiety revealed in his conduct towards his father drew upon him, or, rather, according to the Bible statement, on his son Canaan, a prophetic malediction. (*Gen.* ix. 20-27.) Ham was the father of Cush, Mizraim, Phut, and Canaan, that is, the ancestor of the Canaanites, Southern Arabians, Ethiopians, Egyptians, and the Africans in general, (*Gen.* x. 6–20.)

Ham, a small town and fortress of France, dept. Somme, on the river Somme, 36 m. E.S.E. of Amiens, and 70 N.N.E. of Paris. *H.* is chiefly celebrated for its fortress



Fig. 1233.—HAM.

(Fig. 1233), a strong castle, built in 1470 by the Count de St. Pol, which was the place of confinement of Marbœuf, Moncey, and others; and subsequently of Polignac, Chantelauze, Peyronnet, and Guernon Ranville from 1831 to 1836; and of Louis Napoleon, afterwards Emperor of the French, from 1840 till 1846. The round tower of this castle is 108 feet in height, and has walls of extraordinary thickness. *Pop.* 3,100.

Ham'adan, Amadan. [Anc. ECBATANA, *q. v.*] A city of Persia, prov. of Irak, 160 m. W.S.W. of Teheran, Lat. 34° 50′ N., Lon. 48° 32′ E. *H.* is an entrepôt for the commerce carried on between Bagdad and Teheran. The tombs of Avicenna, and of the poets Attard and Aboul-Hasif, attract annually a great concourse of pilgrims. *Pop.* 33,000.

Ham'adryad, *n.*; Eng. *pl.* HAM'ADRYADS; Lat. *pl.* HAMADRY'ADES. [Lat. *hamadryas;* Gr. *amadryas;* Fr. *hamadryade.*] (*Myth.*) A wood-nymph, supposed by the Greek and Roman poets to live and die with the tree to which she was attached.

Ham'ah, (the HAMATH of Scripture.) [Gr. *Epyphania.*] A fortified city of Syria, on the Orontes, 111 m. N.E. of Damascus. *Manuf.* Silks, cloths, girdles, turbans, &c. *Pop.* (1897) about 45,000.

Hamamelida'ceæ, *n. pl.* [From *hamamelis*, the typical genus.] (*Bot.*) The Witch-hazel family, an order of plants, alliance *Umbellales.* DIAG. A 2-celled, not didymous fruit, without a double epigynous disc, and imbricated corolla, alternate leaves with stipules, and anthers with deciduous valves. They consist of small trees and shrubs, having the following characters:—Leaves alternate, with deciduous stipules. Flowers perfect or unisexual; calyx superior, 4- or 5-lobed; petals 4 or 5, with an imbricated æstivation, or altogether wanting; stamens 8, half of them sterile, and placed opposite to the petals, and half fertile, and alternate with them; anthers introrse; ovary inferior; styles 2. Fruit capsular, with a loculicidal dehiscence; seeds pendulous and albuminous. These plants are natives of North America, China, Japan, the central parts of Asia, Madagascar, and South Africa. *Hamamelis Virginica*, the Witch-hazel, a curious little tree not uncommon in our forests, puts forth its yellow flowers from October to February. It produces only edible seeds; and its bark and leaves possess astringent properties.

Ha'man, (*Scrip.*) A favorite of Ahasuerus, king of Persia. In order to revenge himself upon Mordecai the Jew, he plotted the extermination of all the Jews in the kingdom; but in the providence of God he was thwarted by Esther, fell into disgrace with the king, and wrought his own ruin and the upbuilding of the Jews, B. C. abt. 485.

Ha'mate, *a.* [Lat. *hamatus.*] Hooked; hamous; curved at the knee into a hook.

Ha'mated, *a.* Hooked; set with hooks.

Hambato. See AMBATO.

Ham'blen, in *Michigan*, a post-office of Bay co.

Ham'bleton, in *Maryland*, a post-office of Talbot co.

Ham'blin, in *Indiana*, a township of Brown co.

Ham'burg, a free State of the German Empire, the territories of which comprise the city of Hamburg, with its suburbs, the district of Geest, and the bailiwicks of Bergedorf and Ritzebüttel. The little state is bounded on all sides by Holstein, except on the S. and S.W., where the Elbe separates it from Hanover. *Area*, 148 sq. m. *Desc.* Besides the Elbe, it is watered by the Alster and Bille. It is generally a level plain, not particularly fertile, except in the Vierländer dist., to the S.E. A good deal of land is devoted to fruit, flowers, and vegetable gardens, and the entire country round the city of Hamburg is dotted over with flourishing villages and plantations. *Pop.*, 1876, 388,618, including a garrison of two battalions of German soldiers. *Cap.* Hamburg.

HAMBURG, the principal commercial city, emporium, and sea-port of Germany, cap. of above State, and of the three existing Hanse towns and former imperial cities of that country, is situated on the N. bank of the Elbe, at the point where it receives the Alster, 60 m. S.E. from its mouth, 60 N.E. of Bremen, and 36 m. S.W. of Lübeck. The city is oval-shaped, several miles in circuit, and was formerly fortified, but its ramparts now serve as public walks. The principal ornament of *H.* is the Alster. This river rises in Holstein, some miles above the city, and spreads out into a wide lake, which flows through deep broad ditches, some of which encircle the ramparts, while others intersect the city in all directions, forming numerous canals navigable for barges of considerable size. This lake is called the *Outer Alster.* The *Inner Alster* is a large square sheet of water, connected with the former by a narrow channel, spanned by a single arch. On three sides of the Inner Alster there are broad walks, with rows of trees, the favorite resort of the Hamburgers of all classes and all ages. The best houses in the city are to be found in its immediate neighborhood. The Jungfernsteig occupies its S. and W. sides. The whole of *H.* has been very nearly rebuilt since the disastrous fire of 1842, which raged for 3 days, and destroyed a large portion of the city. The city proper is divided into five parishes, those of Saints Peter, Nicholas, Catherine, James, and Michael, the churches of which are among its chief architectural embellishments. The church of St. Michael is the most interesting in the city. It is 245 feet long, by 180 feet broad, and has a tower 456 feet in height. Its interior is capable of seating 6,000 persons; it has a fine altar-piece, an organ with 5,600 pipes, and a large crypt supported by 69 granite columns. There are about 20 other places of worship of various denominations. Among the other noticeable edifices are the New Exchange, the *Rathhaus*, the Gymnasium, many noble asylums, hospitals, and schools, one of the finest theatres in Germany, the city library, observatory, museums, &c. The arm of the Elbe opposite the city is not very wide, but it is deep enough for vessels of large burden. The maintenance of floating lights, buoys, &c., for the safe navigation of the river, costs the city a large sum yearly. The tide rises at the quays from 5 to 12 ft., and flows about 20 Eng. miles above the city. *H.* is perhaps the greatest commercial city on the European continent. She owes this distinction principally to her situation. The Elbe, which may be navigated by lighters as far as Melnick in Bohemia, renders her the entrepôt of a vast extent of country. *H.* has, besides, a water-communication by means of the Spree, and of artificial sluices, with all the country between the Elbe and the Oder, and between the latter and the Vistula, so that a considerable part of the produce of Silesia destined for foreign markets, and some even of that of Poland, is conveyed hither. There are no docks or quays at Hamburg; and it is singular, considering the great trade of the port, that none have been constructed. Vessels moor in the river opposite the city, though the largest class of vessels sometimes load and discharge by means of lighters at Cuxhaven, a few miles further down. The shipping of *H.* is nearly eight times as large as that of Belgium, and nearly double that of Denmark and Belgium, in 1877. *H.* is joined by railways with the principal towns of the continent of Europe, and its trade embraces every article that Germany either sells to, or buys from, foreigners. The flourishing state of the commerce of this city is owing, to a great extent, to the absence of almost all fiscal impositions on the liberty of intercourse. The government of *H.* is very similar to that of Bremen; the executive power is vested in a senate of 18 members. *Manuf.* Sugar, tobacco, soap, woollen, cotton, and silk fabrics, gold, silver, and copper wares, ropes, anchors, sail-cloth, surgical and musical instruments, &c. *Hist. H.* was founded by Charlemagne toward the close of the 8th century. After the extinction of his dynasty, it became successively subject to the dukes of Saxony, and the counts of Holstein. Early in the 13th cent. it joined with Lübeck in the formation of the Hanseatic League; in 1258 it obtained a portion of territory; and acquired the right to legislate for itself in 1269. In 1528 it adopted Lutheranism. It was long subject to attacks from the Danes, but in 1768 it purchased a resignation of all claims upon it from Denmark, and a security against future attacks. In 1806 it was occupied by the French, and, in 1810, made the capital of the dept. Bouches de l'Elbe. It suffered severely from the exactions of the French troops under Marshal Davoust; but at the peace it was partially indemnified for its losses, and has since gradually retrieved its former flourishing condition. In 1881, by treaty signed under compulsion of Prince Bismarck, and which went into effect from October 1, 1888, *H.* entered into the Zollverein or Customs-Union of the German Empire, and so lost the greater part of its advantages as a free port. For this loss *H.* was in part compensated by certain concessions from the Empire. The port of Hamburg possesses some of the largest and finest ocean steamers and sailing vessels afloat. *Pop.* (1897) about 360,000.

Ham'burg, in *Ala.*, a p.-vill. of Perry co., abt 70 m. W. by N. of Montgomery; in *Ark.*, a p.-town, cap. of Ashley co., abt. 75 m. E.S.E. of Camden; in *Conn.*, a p.-vill. of New London co., abt. 14 m. W. by N. of New London; in *Fla.*, a P. O. of Madison co; in *Ills.*, a p.-vill. of Calhoun co., on the Mississippi river, abt. 90 m. S.W. of Springfield; in *Ind.*, a vill. of Clark co., abt. 8 m. N. of New Albany; a P. O. of Franklin co.; in *Iowa*, a city of Fremont co.; in *Mich.*, a p.-town and twp. of Livingston co., abt. 25 m. S.S.W. of Trenton.

Ham'burg, in *Mississippi*, a post-village of Franklin co., about 20 m. E. of Natchez.

Ham'burg, in *Missouri*, a post-village of St. Charles co., on the Missouri river and M., K. & T. R.R., about 30 m. W. of St. Louis.

Ham'burg, in *New Jersey*, a post-village of Sussex co., about 13 m. N.E. of Newton.

Ham'burg, in *New York*, a post-village and township of Erie co., 10 m. from Buffalo. The village has a population of about 1,400 and was formerly called HAMBURG-ON-THE-LAKE.

Ham'burg, in *Ohio*, a post-village of Fairfield co., about 28 m. S.E. of Columbus.

—A village of Preble co., about 30 m. W.N.W. of Dayton.

Ham'burg, in *Pennsylvania*, a post-borough of Berks co., on the Schuylkill river, about 15 m. above Reading. *Pop.* (1897) about 2,450.

—A village of Clinton co., about 6 m. S. of Lock Haven.

—A village of Mercer co., about 10 m. N.W. of Mercer.

Ham'burg, in *South Carolina*, a post-village of Aiken co., located on the Savannah river, opposite the city of Augusta, Ga.

Ham'burg, in *Tennessee*, a post-village of Hardin co., on the Tennessee river, about 15 m. S. of Savannah.

Ham'burg, in *Virginia*, a P.O. of Shenandoah co.

Ham'burg, in *Wisconsin*, a township of Vernon co.

Ham'burg-white, *n.* (*Painting.*) A color of great power and depth, rather purplish or inclining to crimson; it dries with extreme difficulty, but differs in no other essential quality from other cochineal lakes.

Ham'den, in *Connecticut*, a post-village and township of New Haven co. *Pop.* of twp. (1897) about 4,000.

Ham'den, in *New York*, a post-township of Delaware co., about 4 m. S. by W. of Delhi. *Pop.* (1890) 1,507.

Ham'den Junction, in *Ohio*, a post-village of Vinton co., about 70 m. W.S.W. of Marietta.

Hame, *n.* Home, in old English and Scottish parlance.

"As bees flee *hame* wi' lades o' treasure."—*Burns.*

Ha'meln, a fortified town of Prussia, prov. Hanover, at the junction of the Weser and Hameln, 24 m. S.W. of Hanover. *Manuf.* Tobacco, hats, and woollens. *Pop.* (1897) about 9,625.

Ha'mer, in *North Carolina*, a post-office of Caswell co.

Ha'mer, in *Ohio*, a township of Highland co.

—A village of Paulding co.

Ha'mer, in *South Carolina*, a post-office of Marion co.

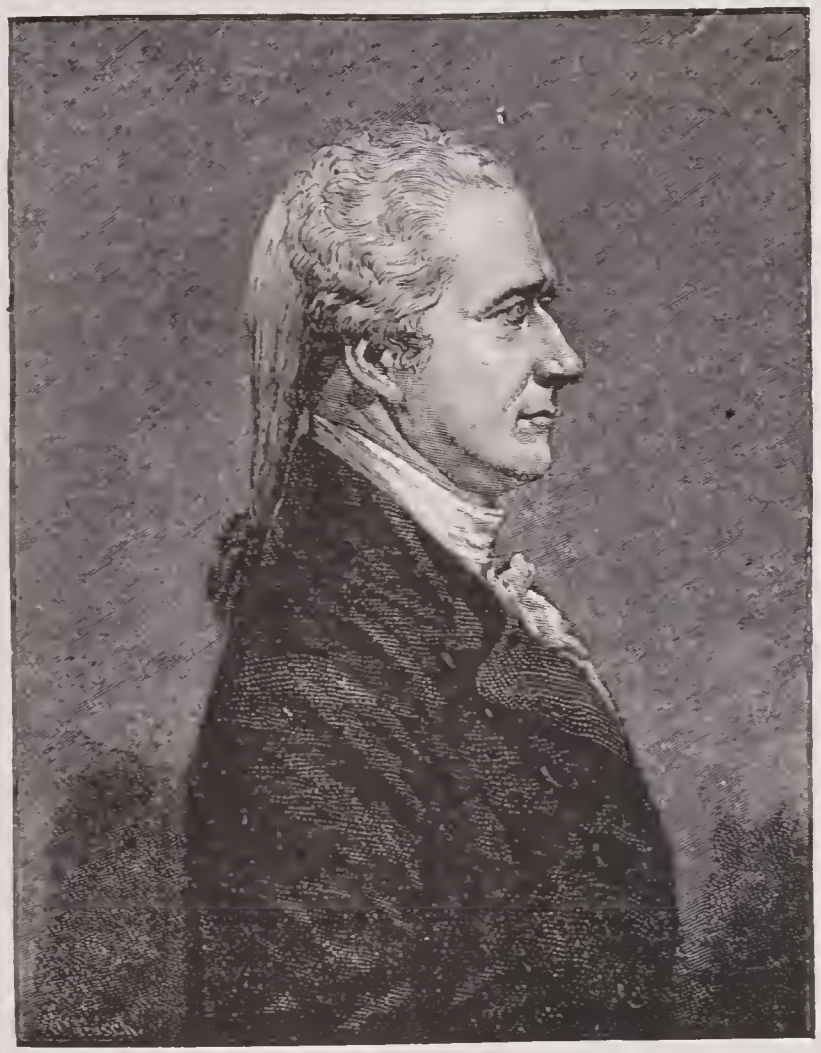
Ha'mersville, in *Ohio*, a post-village of Brown co., about 33 m. E.S.E. of Cincinnati. *Pop.* 642.

Ha'merville, in *Pennsylvania*, a vill. of Columbia co.

Hames, *n. pl.* Two lyre-shaped pieces of wood or metal inserted into the groove of a horse's collar, to which the traces of the harness are fastened.

Ha'miform, *a.* [Lat. *hamus*, hook, and *forma*, form.] (*Zobl.*) With the extremity curved after the fashion of a hook.

Hamil'car, the name of several Carthaginian generals, the most famous being *H. Barca*, the father of Hannibal. In B. C. 247 he was sent to command in Sicily, and held his ground there for six years against all the efforts of the Romans, who had conquered the island. Peace being made, and the first Punic War ended, *H.* after subduing the mercenary troops in his own country, went to Spain, and conquered or acquired great part of



Alexander Hamilton

1757-1804

it. Hannibal, then a boy, accompanied him. *H.* was killed in a battle with the Vettones, B. C. 229.

Ham'ilton, Alexander, a distinguished American officer and legislator in the war of Independence, was born in 1757, at Nevis, W. Indies. While a student of Columbia College, at the age of 17, he published several essays concerning the rights of the colonies, which were marked by vigor and maturity of style, as well as by soundness of argument. Before he was 19 he entered the American army, with the rank of captain of artillery; and by the time he was 20, the commander-in-chief had made him his aid-de-camp, with the rank of lieutenant-colonel. From this time he continued the inseparable companion of Washington during the war, and was always consulted by him on the most important occasions. After the war, Colonel Hamilton, then about 24, commenced the study of the law, and was soon admitted to the bar. In 1782 he was chosen a member of Congress from the State of New York, where he quickly acquired the greatest influence and distinction. He contributed greatly to the favorable reception of the Constitution, by the essays he wrote, in conjunction with Madison and Jay, in the "Federalist." On the organization of the Federal government in 1789, he was appointed Secretary of the Treasury; and during his continuance in that office, about five years, he raised the public credit from the lowest state of depression to a height altogether unprecedented in the history of the country. In 1798, when an invasion was apprehended from the French, and a provisional army had been called into the field, his public services were again required; and on the death of Washington, in 1799, he succeeded to the chief command. When the army was disbanded, Hamilton again returned to the bar, and continued to practise, with increased reputation and success, until 1804. A quarrel having taken place between him and Colonel Burr, the latter challenged him, and they met at Hoboken on the 11th of July. At the first fire Hamilton fell, mortally wounded, on the same spot where, a short time previously, his eldest son had been killed in a duel. The object alike of bitter hatred and of the warmest admiration, *H.*, who excelled equally as a writer and a speaker, enjoyed among his contemporaries, both friends and foes, a reputation for sterling ability.

Ham'ilton, Anthony, Count de, a courtier and man of letters in the 17th cent. He was descended from an ancient Scotch family, but B. in 1646, in Ireland; from whence he was taken to France, when a child, by his parents, who were attached to Charles II. When James II. was obliged to contend for his crown in Ireland, he gave *H.* a regiment of infantry, and made him governor of Limerick; and after the ruin of the royal cause, he accompanied James to France, where he passed the rest of his life. His wit and talents secured him admission into the first circles; and he D. at St. Germain, in 1720. — *H.* is chiefly known as an author by his *Memoirs of Count de Grammont*, a lively and spirited production, exhibiting a free and faithful delineation of the voluptuous court of Charles II. His other works are, *Poems and Fairy Tales*, which, as well at the Memoirs, are in French, and display elegance of style with fertility of invention.

Hamilton, Sir William, Bart, a distinguished Scottish metaphysician, B. at Glasgow, 1788, studied at Oxford, where he took first-class honors. In 1813 he was called to the Scottish bar; and in 1821 he was appointed professor of Universal History in the University of Edinburgh; — but this chair was little more than an honorary appointment, and in 1836 he obtained the office for which his tastes and his studies pre-eminently qualified him — the chair of Logic and Metaphysics, — which he filled with such lustre as to have regained for Scotland its former distinction in the field of metaphysics. In 1852 he published a volume under the title of *Discussions in Philosophy*, consisting of essays reprinted chiefly from the "Edinburgh Review," and which on their appearance had attracted attention both at home and abroad. His edition of the works of Dr. Thomas Reid, published in 1846, displayed vast erudition and profound thought; and a similar award must be given to his collected edition of the works of Dugald Stewart — the publication of which began in 1854. His *Lectures on Metaphysics* have been published since his death, and these abundantly evince, that, whatever differences may hereafter agitate the schools as to the success or failure of some of his speculations, his comprehensive grasp, his inexorable analysis, his prodigious learning, truth, and honesty of dealing with the adherents of every system, will secure a universal and lasting homage. The prominent results of his labors in philosophy reduce themselves to three heads: his profound vindication of the doctrine of common sense; his elaborate discussion of the theory of perception in relation to our belief in an external world; and his enunciation of the law of the conditioned as bearing on our knowledge of the absolute and infinite. The two first are in the direct line of the Scottish school, the last is more original, or colored with German influences; and the impulsion which he has given under this third head, if less marked by agreement among his followers, is more powerful, and is likely to be the next starting-point of British philosophy. D. 1856. A very formidable assault on Sir W. Hamilton's system has recently (1865) been made by Mr. J. S. Mill, in his "Examination of Sir W. Hamilton's Philosophy, and of the principal Philosophical Questions discussed in his Writings."

Hamilton, a town of Scotland, in Lanarkshire, at the junction of the rivers Clyde and Avon, 35 miles S.W. of Edinburgh, and 12 N.W. of Lanark. *Manuf.* Cottons. *H.* contains a fine palace, belonging to the ducal family of the same name. *Pop.* (1897) about 25,000.

Ham'ilton, a city and port of entry of province of Ontario, cap. of the co. of Wentworth, at the head of Hamilton bay, 70 m. N. W. of Buffalo, N. Y. The city is regularly laid out, and contains very many handsome and substantial public and private edifices, and situated as it is upon an excellent harbor at the W. extremity of Lake Ontario, commands an extensive commerce. *Manuf.* Machinery, &c. *Pop.* (1897) about 52,000.

Hamilton, in *California*, a village and township of Butte co., on the Feather river, about 8 m. S.W. of Oroville.

Hamilton, in *Colorado*, a village of Park co., about 100 m. S.W. of Denver.

Hamilton, in *Florida*, a N. co., bordering on Georgia; *area*, about 376 sq. m. *Rivers.* Alapaha, Suwanee, and Withlacoochee rivers. *Surface*, low, in the N.E. part swampy; *soil*, in general, fertile. *Cap.* Jasper. *Pop.* (1897) about 10,000.

Hamilton, in *Georgia*, a post-village, cap. of Harris co., about 22 m. N. of Columbus. *Pop.* (1897) 500.

Hamilton, in *Illinois*, a S. co.; *area*, about 440 sq. m. *Rivers.* Skillett Fork of the Little Wabash river, and N. fork of Saline creek. *Surface*, undulating; *soil*, fertile. *Cap.* McLeansboro. *Pop.* (1890) 17,800.

—A city of Hancock co., on the Mississippi river, 2 m. E. of Keokuk. *Pop.* (1897) about 1,500.

—A township of Lee co.

Hamilton, in *Indiana*, a central co.: *area*, about 400 sq. m. *Rivers.* West fork of White river, and Buck, Cicero, and Eagle creeks. *Surface.* undulating; *soil*, fertile. *Cap.* Noblesville. *Pop.* (1890) 26,123.

—A village of Allen co., on the St. Joseph river, about 14 m. N.E. of Fort Wayne.

—A village of Clinton co., abt. 54 m. N.W. of Indianapolis.

—A township of Delaware co.

—A township of Jackson co.

—A village of Madison co., about 6 m. W.N.W. of Anderson.

—A post-village of Steuben co., on Fish creek, about 36 m. N. by E. of Fort Wayne.

—A township of Sullivan co.

Hamilton, in *Iowa*, a central co.; *area*, about 576 sq. m. *Rivers.* Boone and Skunk rivers. *Surface*, undulating; *soil*, fertile. *Cap.* Webster City. *Pop.* (1895) 18,514.

—A township of Decatur co.

—A township of Hamilton co.

—A post-village of Marion co., about 16 m. S.E. of Knoxville.

Hamilton, in *Kansas*, a post-village of Greenwood co.

Hamilton, in *Kentucky*, a post-village of Boone co., on the Ohio river, about 48 miles below the city of Cincinnati, Ohio.

Hamilton, in *Massachusetts*, a post-town and township of Essex co., on the Ipswich river, about 22 m. N. by E. of Boston. *Pop.* (1895) 961.

Hamilton, in *Michigan*, a township of Gratiot co.

—A township of Van Buren co.

—A township of Clare co.

Hamilton, in *Minnesota*, a post-office of Fillmore co.

—A flourishing village of Scott co., located on the Chic., Mil. & St. Paul R.R.

Hamilton, in *Mississippi*, a post-village of Monroe co., about 12 m S. of Aberdeen.

Hamilton, in *Missouri*, a post-village of Caldwell co., about 50 m. E. of St. Joseph. *Pop.* (1890) 1,641.

Hamilton, in *North Carolina*, a post-village of Martin co., on the Roanoke river about 100 m. E. of Raleigh.

Hamilton, in *Nebraska*, a post-village of Gage co.

—A township of Fillmore co.

Hamilton, in *New Jersey*, a township of Atlantic co., on the Great Egg Harbor river.

—A township of Mercer co.

Hamilton, in *New York*, a N.E. co.; *area*, about 1,764 sq. m. *Rivers.* Racket, Black, Hudson, and Sacondaga rivers. *Surface*, elevated; *soil*, not fertile. *Min.* Iron. *Cap.* Sageville. *Pop.* (1890) 4,762.

—A post-village and township of Madison co., about 28 m. S.W. of Utica. It is the seat of the Madison University, an excellent educational institution founded in the year 1820. *Pop.* of village (1890) 1,744.

Hamilton, in *Ohio*, a S.W. co., adjoining Indiana and Kentucky; *area*, about 400 sq. m. *Rivers.* Ohio, Great and Little Miami, and Whitewater rivers, and Mill creek. *Surface.* undulating; *soil*, fertile. *Cap.* Cincinnati. *Pop.* (1890) 374,573; (1897) about 402,500. It is the most populous co. in the State.

—A city, cap. of Butler co., on the Great Miami river, about 20 m. N. of Cincinnati. It is well built, and possesses considerable manufacturing and commercial interests. *Pop.* (1897) about 20,000.

—A township of Franklin co.

—A township of Jackson co.

—A township of Lawrence co.

—A township of Warren co.

Hamilton, in *Pennsylvania*, a township of Adams co.

—A township of Franklin co.

—A post-office of Jefferson co.

—A township of McKean co.

—A township of Monroe co.

Hamilton, in *Tennessee*, a S.S.E. co., bordering on Georgia; *area*, about 575 sq. m. *Rivers.* Tennessee river, and some smaller streams. *Surface*, diversified, a spur of the Cumberland Mountains bounding it on the N.W. and W.; *soil*, fertile. *Cap.* Chattanooga. *Pop.* (1890) 53,482.

Hamilton, in *Texas*, a N. central co.; *area*, about 900 sq. m. *Rivers.* Lampasas and Leon rivers, and several smaller streams. *Surface*, diversified; *soil*, fertile. *Cap.* Hamilton. *Pop.* (1890) 9,313.

—A post-village, cap. of Hamilton co., about 95 m. N. by W. of Austin. *Pop.* (1890) 726.

—A village of Shelby co., on the Sabine river, about 20 m. S.E. of Shelbyville. Its post-office is East Hamilton.

Hamilton, in *Virginia*, a post-village of Loudoun co., about 157 m. N. of Richmond.

Hamilton, in *Washington*, a post-town of Skagit co. *Pop.* about 200.

Hamilton, in *Wisconsin*, a village of Lafayette co., about 20 m. S.E. of Mineral Point.

—A village of Ozaukee co., on Cedar creek, about 10 m. S.S.W. of Ozaukee.

—A post-village of Fond du Lac co.

Hamilton Bar, in *Pennsylvania*, a township of Adams co.

Hamilton College, in *New York*. See Clinton.

Hamilto'nia, *n.* (*Bot.*) Same as Pyrularia, *q. v.*

Hamilton Square, in *New Jersey*, a post-village of Mercer co., about 6 m. E. by N. of Trenton.

Ham'iltonville, or Newton Hamilton, in *Pennsylvania*, a post-borough of Mifflin co., on the Juniata River, about 90 m. W.N.W. of Harrisburg.

Ha'min, a fortified town of Prussia, prov. Westphalia, 19 m. N.W. of Arensberg, and cap. of the co. of the Marck. It is noted for its excellent hams. *Pop.* 6,410.

Ha'mite, *n.* [Fr., from Lat. *hamus*, a hook.] (*Pal.*) One of a genus of extinct cephalopods, which inhabited chambered cells, losing their spiral form soon after their commencement, and then continued for a considerable extent with a single bend upon themselves like a hook. They are found in the green-sand formation in England.

Hamit'ic, *a.* Relating or pertaining to Ham, the son of Noah, or to his descendants.

Ham'let, *n.* [Dim. of A. S. *ham*, home; Fr. *hameau.* See Home.] Originally the dwelling of a freeholder; in its modern sense, a small village; a small cluster or congregation of houses in the country.

"The rude forefathers of the *hamlet* sleep." — *Gray.*

Ham'let, a celebrated Danish prince, whose story is told by Saxo-Grammaticus, and rendered familiar to all acquainted with the English tongue by the admirable tragedy written by Shakspeare.

Ham'let, in *Illinois*, a post-village of Mercer co., about 18 m. S.S.W. of Davenport, Iowa.

Hamlet, in *Indiana*, a post-village of Stark co.

Hamlet, in *New York*, a post-village of Chautauqua co.

Hamlet, in *Rhode Island*, a village of Providence co., about 15 m. N. of Providence.

Ham'lin, in *Arkansas*, a post-office of Cross co.

Hamlin, in *Kansas*, a post-village of Brown co., about 37 m. N.W. of Atchison.

Hamlin, in *Kentucky*, a post-office of Calloway co.

Hamlin, in *Michigan*, a township of Mason co.

—A township of Eaton co.

Hamlin, in *New York*, a post-town of Monroe co. *Pop.* (1890) 2,338.

Hamlin, in *Pennsylvania*, a post-office of Lebanon co.

—A township of McKean co.

Hamlin Grove, in *Iowa*, a post-township of Audubon co.

Ham'linton, in *Pennsylvania*, a P. O. of Wayne co.

Ham'me, a trading-town of Belgium, prov. E. Flanders, 4 m. N. of Termond. *Manuf.* Soap, almond-oil, canvas, and cordage.

Ham'mer, *n.* [A. S. and L. Sax. *hamer*; Ger. and Dan. *hammer*; Icel. and O. Ger. *hamar*; Sansk. *ham*, to strike.] A tool used by mechanics, which consists of an iron head fixed crosswise upon a handle. The *H.*, however, employed in the useful arts vary greatly in form, and the weights of individual examples may be estimated from several tons to the fraction of an ounce. The *H.* used by blacksmiths are of several kinds. Among others are the *about-sledge*, which is the largest of all, and is held by both hands at the furthest end of the handle, and being swung at arm's length above the head, is made to fall heavily upon the work. The *up-hand sledge* is not so large, but is used with both hands, and seldom raised above the head. The *hand-H.* is the smallest, and may be used with one hand at the anvil. The class of *H.* called *riveting-H.* have the handle fixed to them by passing it through a hole in the head, where it is made to fit or be wedged firmly; the face is formed of steel, as well as the riveting end, and welded to the iron. These *H.* are used by carpenters, smiths, engineers, and numerous artisans, varying in size and form according to the purpose for which they are required. A variety of *H.* having two claws, called *claw-H.*, are much used by carpenters and other mechanics, as the claw, together with the handle, forms a powerful lever for drawing out nails, &c. The largest *H.* are those used in the manufacture of iron. In this form they are not mere tools, but machines moved by steam or some other power. There are many varieties. *Froming's forge-H.*, which is used for heavy castings, as well as for edge-tools, knives, files, &c., may be moved either by hand, water or steam power. A heavy hammer-head with a guide-rod, cones, and vertical spring, accomplish the work by means of a driving-shaft made to rotate by any source of power. In *Hutton's power-H.* the weight is raised by a strap or chain, attached to a drum or pulley on an axis; when the blow is struck, the momentum is made to assist in raising the *H.* again. This *H.* is much used in beating iron and steel between pairs of dies. The *frictional-action-H.* can be worked by any continuously revolving power-shaft, and can be made to hammer 150 blows per minute with a very heavy hammer-head. *Cotton's air tilt-H.* and *Waterhouse's compressed-air forge-H.* for light work in a smith's shop, are also useful varieties; and there are many more. The powerful machine called the *steam-H.* was originally invented by Mr. Nasmyth, in 1842. Steam-*H.* since that time have received many minor improvements in their construction. In some

cases the *H.*-block is a sort of plunger, working in the cylinder, instead of a heavy mass suspended from the piston-rod, as the *Morrison's H.* (Fig. 1046), much used in this country; in some *H.*, the piston-rod and piston are all cast in one piece, while others are so contrived as to increase the space through which the *H.* falls to the anvil. A class of cheaper and simpler steam-*H.* is also made for certain purposes, either in iron-forging, boiler-riveting, or ore-crushing. Some of the *H.* now in use are of great weight, and it seems probable, from the magnitude of the works undertaken in iron manufacture at the present day, that still larger and more powerful *H.* will be constructed.

(*Anat.*) The most exterior of the four small bones of the ear.

(*Gunnery.*) That part of the lock of a musket which descends violently upon the percussion-cap when the trigger is pulled.

—That part of the mechanism of a clock which strikes on the gong and proclaims the time. — That part of a piano which, acting in connection with the keys, strikes the wires which produce the tones.

Ham'mer, *v. a.* To beat with a hammer. — To work, form, or forge with a hammer.

"I must pay with *hammer'd* money instead of milled." — *Dryden.*

—To work in the mind; to contrive by intellectual labor; — often before *out.*

"I cannot do it; yet I'll *hammer out.*" — *Shaks.*

—*v. n.* To work; to be busy; to be engaged in contrivance.

"Wilt thou still be *hammering* treachery?" — *Shaks.*

—To be in agitation; to be working.

"Blood and revenge are *hammering* in my head." — *Shaks.*

Ham'merable, *a.* That may be worked or shaped with a hammer.

Ham'mer-beam, *n.* (*Arch.*) A horizontal piece of timber from, or near, that above the feet of a rafter, the object of which is to counteract the tendency of a rafter to an outward thrust. It is only used in Gothic roofs, and is of value as providing a counterbalance to the weight of the rafter.

Ham'mer-cloth, *n.* The cloth which covers the box of a carriage.

Ham'merer, *n.* One who works with a hammer.

Ham'merfest, a town of Norway, prov. of Finmark, on the island of Qualoe, in the Arctic Ocean; Lat. 70° 40′ N., Lon. 23° 35′ 43″ E. It is only remarkable for being the most northern town of Europe. *Pop.* 1700.

Ham'merfish, *n.* Same as HAMMERHEAD (*q. v.*).

Ham'mer-harden, *v. a.* To harden by repeated hammering, as metal in the cold state.

Ham'merhead, Ham'merfish, *n.* (*Zoöl.*) See ZYGÆNA.

Ham'merman, *n.*; *pl.* HAMMERMEN. A hammerer; a forgeman.

Ham'mersley's Fork, in *Pennsylvania*, a post-office of Clinton co.

Ham'mersmith, a town of England, co. Middlesex, on the N. bank of the Thames, 4 m. S.W. of London. *H.* is principally inhabited by merchants and others whose business calls them daily to the city. A striking feature of *H.* is the fine suspension bridge across the Thames, which was completed in 1827, at a cost of $500,000. *Pop.* of town and parish (1895) 45,400; of the town alone, about 25,000.

Ham'mer-wort, *n.* [A. S. *hamor-wyrt.*] (*Bot.*) See PARIETARIA.

Hammoehry'sos, *n.* [Lat. *hammochrysus.*] (*Min.*) See MICA.

Ham'mock, *n.* [Sp. *hamaca*; of Indian origin, the word *hamac*, in the language of some of the aboriginal W. India tribes, denoting nets of cotton extending from two posts, and used as beds.] (*Naut.*) A kind of hanging bed or cot, suspended between trees or posts, or by hooks. They are generally used by sailors on shipboard, where the *H.* consists of an oblong piece of hempen cloth, having fastened to each end several small lines, meeting in a *grummet* or iron ring; these form the *clews.* The whole having a mattress and pillow placed in it, is hoisted up into its place by small ropes called *lanyards*, and suspended from hooks in the beams of the ceiling overhead, about 9 feet asunder. The *H.* forms a very agreeable bed, especially in cold weather; but some little practice is needed at first to get in and out successfully. During the day the *H.*, lashed up tight, with the mattresses and bedding rolled within, are stowed in the netting along the upper edge of the bulwark.



Fig. 1234. — HAMMOCK.

Hammonas'set River, in *Connecticut*, enters Long Island Sound between New Haven and Middlesex cos.

Ham'mond, in *Indiana*, a township of Spencer county.

Hammond, in *Louisiana*, a post-town of Tangipahoa parish.

Hammond, in *New York*, a post-town and township of St. Lawrence co., on St. Lawrence river, about 20 m. S. W. of Ogdensburg. *Pop.* (1890) 1,774.

Hammond, in *South Carolina*, a P. O. of Horry co.

Hammond, in *Wisconsin*, a post-village and township of St. Croix co., on the C., St. P., M. & O. R. R., about 16 miles N. E. of Hudson.

Hammond Corners, in *New York*, a village of Chemung co.

Ham'mondsburg, in *Iowa*, a village of Warren co.

Ham'mond's Creek, in *Pennsylvania*, a village of Tioga co. Its P. O. is HAMMOND.

Ham'mondsport, in *New York*, a post-village of Steuben co., about 6 m. N.E. of Bath. *Pop.* (1890) 934.

Hammondsville, in *Ohio*, a p.-vill. of Jefferson co.

Ham'monton, in *New Jersey*, a post-village of Atlantic co., abt. 30 m. S.S.E. of Camden.

Ham'monville, in *Kentucky*, a P. O. of Hart co.

Ham'orton, in *Pennsylvania*, a post-village of Chester co., abt. 32 m. W. by S. of Philadelphia.

Hamose', Ha'mous, *a.* [From Lat. *hamus*, a hook.] (*Bot.*) With the end forming a curve; hamulose.

Hamp'den, JOHN, an English patriot, B. at London, 1594. He was the head of a wealthy family, and was cousin to Oliver Cromwell. In 1625 he was returned to Parliament for the borough of Grampound. His sympathies were with the popular party, and in 1626 he was one of those who refused to contribute to the general loan required by the king, and was imprisoned. After being unconditionally set free, he began to take an active part in affairs, and his reputation grew rapidly. In 1636 he set the example of refusing to pay the ship-money, a tax arbitrarily imposed by the king. His refusal was without passion, but firm, — his resolution being to have the question of right tried in his own person. Proceedings were instituted against him, and in the following year the trial took place, which lasted 13 days. The decision was against *H.*, but it made him more than ever the favorite of the people, who felt it as a heavy blow fallen on their liberties. Its tendency was to consolidate the party opposed to arbitrary power, and to hasten the crisis of civil war. *H.* and other members were impeached by the king, who made an unsuccessful attempt to seize them. At the commencement of the war, *H.* levied a body of troops, and served under Essex. He displayed great ability, vigor, and energy, both as a soldier and as a member of the Committee of Public Safety; but in a skirmish with Prince Rupert, at Chalgrove, June 18th, 1643, he was severely wounded, and died on the 24th.

Hamp'den, in *Kansas*, a village of Coffey co., on the Neosho river, about 100 miles S.S.W. of Leavenworth.

Hampden, in *Maine*, a post-town and township of Penobscot co. *Pop.* (1897) about 2,500.

Hampden, in *Massachusetts*, a S.W. co., bordering on Connecticut. *Area*, about 634 sq. m. *Rivers.* Connecticut, Westfield, and Chicopee rivers. *Surface*, uneven; *soil*, fertile. *Cap.* Springfield. *Pop.* (1895) 152,938.

Hampden, in *Minnesota*, a township of Kittson co.

Hampden, in *Ohio*, a post-township of Geauga co.

Hampden, in *Pennsylvania*, a post-township of Cumberland co.

Hampden, in *Wisconsin*, a thriving township of Columbia co.

Hampden Corner, in *Maine*, a post-office of Penobscot co.

Hampden-Sidney College, in *Virginia*, a seminary and post-office of Prince Edward co., about 68 m. W. by S. of Richmond. The college was founded in 1783, and has graduated some very prominent men. It possesses a considerable library.

Ham'per, *n.* [Contracted from *hanaper*, *q. v.*] A large, square basket for conveying things to market, &c.; as, a *hamper* of game.

—*v. a.* To put into a hamper.

Ham'per, *n.* [Dan. *hamp*; Swed. *hampa*, hemp; Icel. *hamlade*, entangled, as with a rope. See HEMP.] A fetter or chain; a shackle; an instrument that binds.

—*v. a.* To shackle; to put a hamper or fetter upon; to entangle; to ensnare; — hence, to impede in action, motion, or progress; to perplex; to encumber; to embarrass; as, a poor man *hampered* with a large family. — To make complicated; to tangle.

"Their *hampered* nerves unwind." — *Blackmore.*

Hamp'shire, HANTS, (more properly *Southampton-shire,*) a S. co. of England, including, also, the Isle of Wight, is bounded S. by the English Channel and the Solent, which cuts off the Isle of Wight; N. by Berkshire; E. by Surrey and Sussex; and W. by Wiltshire and Dorsetshire. *Area*, including the Isle of Wight, 1,625 sq. m. *Desc. H.* is distinguished as an agricultural shire, though its sea-coast has also rendered it of considerable importance as a maritime and commercial co. It is traversed by the ranges of the N. and S. Downs, and the S.W. division of the county is extensively occupied by the New Forest; but the county is generally well wooded. *Rivers and Harbors.* The Loddon, falling into the Thames; the Anton, the Itchin, the Avon, and the Boldre Water, which empties near Lymington. These rivers are navigable for a considerable distance. Along the coast, and in the Solent, which divides it from the Isle of Wight, are numerous excellent harbors and roadsteads, of the former of which Portsmouth is the principal. *Prod. H.* is famous for the breeding of cattle, and more especially of hogs and sheep, its bacon being considered the best in the kingdom. It also produces excellent wheat and abundance of hay; very fine honey, and large quantities of cider are made. *Manuf.* Woollen goods, cloth, shalloons, serges, &c. Malt and leather are made at Basingstoke. Silk, straw hats, paper; vast quantities of common salt, and of Epsom and Glauber salts, are also manufactured. *Chief towns.* Winchester, Southampton, Portsmouth, Andover, and Gosport. *Pop.* (1891) 690,086.

Hampshire, in *Illinois*, a post-village and township of Kane co., about 58 miles W.N.W. of Chicago. *Pop.* of village (1890) 696.

Hampshire, in *Iowa*, a township of Clinton co.

Hampshire, in *Massachusetts*, a W. central co.; *area*, about 572 sq. m. *Rivers.* Connecticut, Chicopee, and Westfield rivers. *Surface*, uneven; *soil*, fertile. *Cap.* Northampton. *Pop.* (1895) 54,713.

Hamp'shire, in *New York*, a P. O. of Steuben co.

Hampshire, in *Tennessee*, a post-office of Maury co.

Hampshire, in *West Virginia*, a N.E. co., bordering on Maryland and Virginia; *area*, about 550 sq. m. *Rivers.* Cacapon, and the two main branches of the Potomac river. *Surface*, highly diversified; *soil*, fertile. *Min.* Coal and iron in abundance. *County-town.* Romney. *Pop.* (1890) 11,419.

Hampshire, New. See NEW HAMPSHIRE.

Hamp'shirite, *n.* (*Min.*) A variety of APHRODITE.

Hamp'stead, a picturesque village of England, county Middlesex, now forming an outlying district of London. It stands on the crest of a hill, 460 feet above sea-level, in the midst of an extensive heath covering about 280 acres, which commands a superb view of the surrounding counties. *H. Heath* is a favorite pleasure resort of the Londoners, who assemble here on Sundays and holidays in tens of thousands. *H.* possesses many fine, old, historic mansions, and has for a couple of centuries been celebrated as the place of residence of some of the most eminent of the English poets. *Pop.* about 20,000.

Hamp'stead, in *Maryland*, a post-village of Carroll co., about 56 m. N.N.W. of Annapolis.

Hamp'stead, in *New Hampshire*, a post-township of Rockingham co.

Hamp'stead, in *Virginia*, a post-vill. of King George co., about 56 m. N.N.E. of Richmond.

Hamp'ton, a town of England, co. Middlesex, 10 miles W.S.W. of London. In its vicinity is the magnificent palace of Hampton Court, built by Cardinal Wolsey, and subsequently the favorite residence of many of the English sovereigns. It contains a splendid collection of historical paintings, and several cartoons by Rafaelle. *Pop.* 5,500.

Hamp'ton, in *Arkansas*, a post-village, cap. of Calhoun co., about 80 m. S. of Little Rock.

Hamp'ton, in *Connecticut*, a post-township of Windham co., abt. 35 m. E. by N. of Hartford.

Hamp'ton, in *Georgia*, a post-village of Henry co., on the Central R. R. of Georgia.

Hamp'ton, in *Illinois*, a post-village and township of Rock Island co., on the Mississippi river, about 12 miles above Davenport, Iowa.

Hamp'ton, in *Iowa*, a post-town, cap. of Franklin co., about 90 m. N.N.E. of DesMoines. *Pop.* (1895) 2,527.

Hamp'ton, in *Ky.*, a post-village of Livingston co.

Hamp'ton, in *Michigan*, a township of Bay co.

Hamp'ton, in *Minnesota*, a post-town and township of Dakota co., about 11 miles S.W. of Hastings.

Hamp'ton, in *Missouri*, a post-village of Platte co., about 14 m. E.S.E. of Leavenworth, Kansas.

Hamp'ton, in *Nebraska*, a post-village of Hamilton co.

Hamp'ton, in *New Hampshire*, a post-town and township of Rockingham co., about 50 miles S.E. of Concord. *Pop.* 1,330.

Hamp'ton, in *New Jersey*, a village of Burlington co.

Hamp'ton, in *New York*, a village of Oneida co.

—A post-town of Washington co.

Hamp'ton, in *Pennsylvania*, a post-village of Adams co., about 20 miles S.S.W. of Harrisburg.

Hamp'ton, in *Virginia*, a post-village, cap. of Elizabeth City co., on the James river, 96 miles S.E. of Richmond; was almost entirely burnt during the Civil War. A Normal and Agricultural Institute was established here in 1868, under the auspices of the American Missionary Association, for the purpose of preparing youths of the South, without distinction of color, for the work of organizing schools in the Southern States. Here is also an extensive Soldier's Home, beautifully located within sight of Hampton Roads. *Pop.* (1897) about 2,800.

Hamp'tonburg, in *New York*, a township of Orange county.

Hamp'ton Falls, in *New Hampshire*, a post-township of Rockingham co. *Pop.* 622.

Hamp'ton Roads, in *Virginia*, an arm of Chesapeake Bay, at the mouth of James river, between Hampton and Norfolk. The channel is commanded by Fortress Monroe, on Old Point Comfort, and by Fort Calhoun. Light-houses have been erected at different points of this harbor, which is one of the safest and most capacious on the Atlantic coast.

Hamp'tonville, in *N. Carolina*, a post-village of Yadkin co., about 130 m. W.N.W. of Raleigh.

Ham'-shackle, (*-shăk'l,*) *v. a.* To bind, secure, or fasten by attaching the head with a cord, &c., to one of the forelegs; as, to *ham-shackle* a mule; — hence, to curb, confine, or restrain.

Ham'ster, *n.* (*Zoöl.*) The *Cricetus frumentarius*, a rodent animal of the rat tribe, distinguished by two immense cheek-ponches, which will hold a quarter of a pint, and by its remarkable instincts. It inhabits the sandy districts of the N. of Europe and Asia, Austria, Silesia, and many parts of Germany, Poland, &c., and is very injurious to the agriculturist on account of the quantity of grain it devours. The general size of the *H.* is nearly that of a brown or Norway rat, but it is of a much thicker form, and has a short and somewhat hairy tail.

Ham'string, *n.* One of the tendons of the ham.

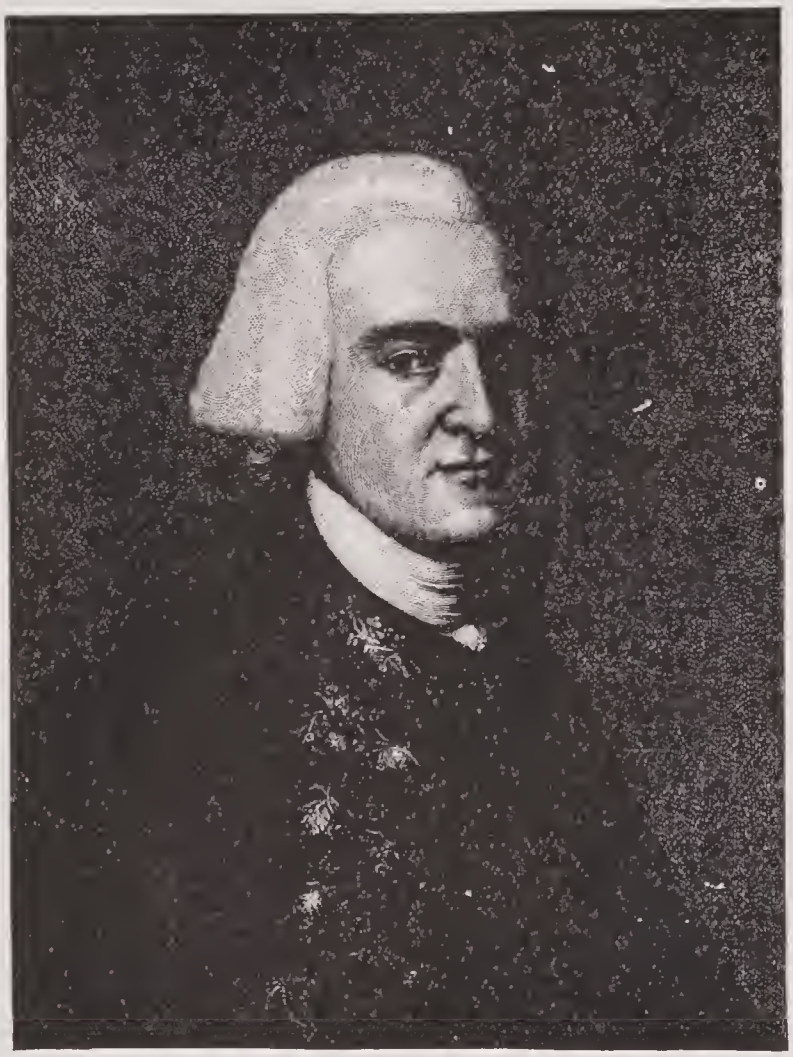
"A player, whose conceit lies in his *hamstring.*" — *Shaks.*

—*v. a.* (*imp.* and *pp.* HAMSTRUNG or HAMSTRINGED.) To cut the tendons of the ham, and thus to lame or disable.

Ham'trame, in *Michigan*, a township of Wayne county.

Ham'ulose, *a.* [From Lat. *hamus*, hook.] Having a small hook at the end; hamose.

Han. (*Hist.*) The name of the most celebrated of the 25 dynasties of China (206 B.C. to 220 A.D.), founded by Kun-tsu. The number and character of its heroes and



John Hancock

1737–1793

literature are superior to those of most other periods, and to this day the term *Sons of Han* is the favorite appellation of the Chinese among themselves.

Hanani'ah. (*Script.*) A false prophet of Gibeon, who for his impious hardihood was overtaken with speedy death, according to the word of God. (*Jer.* xxviii. 15-17.)

Han'aper, *n.* [Norm. *hanap;* A.S. *hnæp;* Fr. *hanap*, a drinking-vessel.] A kind of basket for holding and carrying money.

—In the English Court of Chancery, a kind of basket formerly used to receive all fees, &c., derivable from charters, grants, patents, &c.; — hence, the exchequer office so named

Hanau, (*ha'now,*) a town of Prussia, on the Kintzig, near its confluence with the Main, 11 miles S. of Hesse-Cassel, and the same distance S.E. of Frankfort-on-the-Main. *Manuf.* Watches, jewelry, camlets, hats, silk stuffs, carpets, leather, gloves, and hosiery, carriages, &c. *Pop.* 17,500.

Hance, Hanch, *n.* [See HAUNCH.] (*Arch.*) The end of an elliptical arch, which is an arc of smaller circle than the *scheme* or central part of the arch.

(*Naut.*) The fall of the fife-rail down to the gangway.

Han'cock, JOHN, an American statesman, B. in Quincy, Mass., 1737. He graduated at Harvard College in 1757, and entered the counting-house of an uncle, on whose death in 1764 he received a large fortune, and became a prominent merchant. After the affray known as the "Boston Massacre," in 1770, and at the funeral of the slain, he delivered an address so glowing and fearless in its reprobation of the conduct of the soldiery and their leaders, as to greatly offend the governor, who endeavored to seize the person of *H.*, who was a member, and afterwards president, of the provincial Congress at Concord. This is said to have been one of the objects of the expedition to Concord which led to the first battle of the revolution. In 1775, *H.* was chosen president of the Continental Congress, and in 1776 signed the Declaration of Independence. In 1780 he was chosen first governor of the State of Massachusetts; to which office, with an interval of two years, he was annually reëlected till his death, 1793.

Han'cock, WINFIELD SCOTT, an American military commander, B. in Montgomery co., Penn., 1824, entered West Point Academy in 1840, graduated in 1844, and received his commission of 2d lieutenant. He served during the Mexican war, was promoted for his gallantry, and having filled several subordinate posts, was made assistant quartermaster-general, which rank he held at the outbreak of the civil war. In 1861 *H.* was appointed a brigadier-general of volunteers, and attached to the army of the Potomac. He accompanied Gen. McClellan's army to the peninsula in 1862, and distinguished himself both before Yorktown and Williamsburg. At the battle of Fredericksburg, in Dec., 1862, Gen. *H.* commanded a division of the 2d Corps, which suffered most severely, and for his services on this occasion he received his commission as major-general. He took part in the battles of Chancellorsville and of Gettysburg in 1863, and in one of the many struggles which took place during that most eventful campaign was severely wounded. In 1868, *H.* was appointed by Pres. Johnson to the command of the S.W. military dist., but his appointment was not indorsed by the senate. In June, 1880, he became the unsuccessful Democratic nominee for President. At the time of his D. at New York, February 9, 1886, he commanded the Department of the East.

Han'cock, in *Geo.*, a N.E. cent. co.; *area*, 474 sq. m. *Rivers.* Oconee, Ogeechee, and Buffalo creek. *Surface*, diversified; *soil*, moderately fertile. *Min.* Gold, agate, chalcedony, opal, kaolin, &c. *Cap.* Sparta. *Pop.* (1890) 17,149.

Han'cock, in *Illinois*, an extreme W. co., adjoining Iowa and Missouri; *area*, about 769 sq. m. *Rivers.* Mississippi river, Crooked creek, and some smaller streams. *Surface*, undulating; *soil*, very fertile. *Cap.* Carthage. *Pop.* (1890) 31,907.

—A township of the above co.

Han'cock, in *Indiana*, a central co.; *area*, about 307 sq. m. *Rivers.* Blue river, and Sugar creek. *Surface*, mostly level; *soil*, fertile. *Cap.* Greenfield. *Pop.* (1890) 17,829.

—A post-office of Harrison co.

Han'cock, in *Iowa*, a N. central co; *area*, abt. 576 sq. m. *Rivers.* Iowa and Boone rivers. *Surface*, diversified; *soil*, fertile. *Cap.* Concord. *Pop.* (1895) 11,141.

Han'cock, in *Kentucky*, a N.W. co., bordering on Indiana; *area*, about 200 sq. m. *Rivers.* Ohio river, and Blackford and Panther creeks. *Surface*, undulating; *soil*, fertile. *Cap.* Hawesville. *Pop.* (1890) 9,214.

Han'cock, in *Maine*, an E. co., bordering on the Atlantic ocean; *area*, about 1,650 sq. m. *Rivers.* Penobscot, Union and Narraguagus rivers, besides numerous smaller streams and lakes. *Surface*, diversified; *soil*, fertile. *Cap.* Ellsworth. *Pop.* (1890) 37,312.

—A post-town and township of the above co., at the head of Frenchman's Bay, about 75 m. E. by N. of the city of Augusta. *Pop.* (1890) 1,190.

Han'cock, in *Maryland*, a post-village of Washington co., on the Potomac river, about 125 m. W.N.W. of Baltimore. *Pop.* 815.

Han'cock, in *Massachusetts*, a post-town and township of Berkshire co.

Han'cock, in *Michigan*, a post-village and township of Houghton co., about 1 m. north of Houghton. *Pop.* of village (1894) 1,662.

Han'cock, in *Mississippi*, a S. co., bordering on Louisiana and the Mississippi Sound; *area*, about 594 sq. m. *Rivers.* Pearl and Wolf rivers. *Surface*, level; *soil*, sterile. *Cap.* Bay St. Louis. *Pop.* (1890) 8,318.

Han'cock, in *New Hampshire*, a post-town and township of Hillsborough co. *Pop.* (1897) about 650.

Han'cock, in *New York*, a post-village and township of Delaware co. *Pop.* of village (1890) 1,279.

Han'cock, in *Ohio*, a N.W. central co.; *area*, about 522 sq. m. *Rivers.* Auglaize, and the headwaters of the Portage river, and Eagle and Ottawa creeks. *Surface*, generally level; *soil*, fertile. *Min.* Limestone. *Cap.* Findlay. *Pop.* (1890) 42,563.

Han'cock, in *Pennsylvania*, a post-office of Berks co., located on the Phila. & Reading R.R.

Han'cock, in *Tennessee*, a N.E. co., adjoining Virginia; *area*, abt. 260 sq. m. *Rivers.* Clinch and Powell's rivers. *Surface*, mountainous; *soil*, generally fertile. *Min.* Iron ore. *Cap.* Sneedsville. *Pop.* (1890) 10,342.

Han'cock, in *Texas*, a post-office of Limestone co.

Han'cock, in *Vermont*, a post-town and township of Addison co.

Han'cock, in *Wisconsin*, a post-township of Waushara co., about 12 m. W. by N. of Wautoma.

Han'cock, in *W. Virginia*, an extreme N. co., adjoining Ohio and Pennsylvania; *area*, abt. 92 sq. m. *Rivers.* Ohio river, and some smaller streams. *Surface*, generally level; *soil*, fertile. *Cap.* Fairview. *Pop.* 6,414.

Han'cock's Bridge, in *New Jersey*, a post-village of Salem co., abt. 5 m. S. of Salem.

Hand, *n.* [A.S., L. Ger., Ger., Swed., and D. *hand;* Dan. *haand;* Icel. *hönd.* The root is found in Icel. *henda*, to lay hold of.] The extremity of the human arm, consisting of the palm and fingers, connected with the arm at the wrist. (See below, § *Anat.* and *Physiol.*)

—A limb of certain animals which performs a similar office to that of the human hand; as, the *hand* of a hawk. — A measure of four inches, or of a hand's breadth; a palm; — commonly used in computing a horse's height; as, a mare of fourteen *hands*. — A term used in describing the parts of a horse; as, *forehand*, for the head, neck, and fore quarters; and *hind-hand*, which includes the rest. It also designates the hand of the rider, — the *spur-hand* being the right hand, and the *bridle-hand* the left. — The index of a dial, or that which points the time. "The *hands* of clocks and shadows of sun-dials." (*Locke.*) — Side; quarter; part; direction, either right or left; as, "It is allowed on all *hands*." (*Swift.*)—Power of performance; skill; means of making or producing; ability; dexterity; as, a good *hand* for work. — External action; deed; performance; — hence, manner of acting or performance. "Virgil had his last *hand* put to it." (*Addison.*) — Agency of conveyance, or transmission; as, to buy at second-*hand*, that is, when no longer new, or in the original condition. — Possession; power; control; course of execution; act of ownership; — commonly in the plural; as, I place myself entirely in your *hands*. — An agent; a man employed in agency or service; a laborer; any subordinate person employed as a worker, or one who is skilful and expert at any occupation; as, a field *hand*, a first *hand*, a ship's complement of *hands*, &c.

—Style of penmanship; form of handwriting; chirography; as, he writes a good *hand*, court-*hand*, an Italian *hand*, &c.—The cards held at a game; as, he had six trumps in his *hand*, and took the odd trick.

Hand is used figuratively to express: (1.) A state of action; labor; operation; work; — in opposition to the *head*, which implies thought and the creative faculty, and the *heart*, which symbolizes sentiment or feeling; as, the *hand* of society crushes him. — (2.) Might; supreme power; influence; — chiefly used scripturally. — (3.) Brotherhood; amity; tenderness of feeling; as, to extend the *hand* of friendship. — (4.) Affiance; contract; as, to ask a woman's *hand* in marriage.

(NOTE. *Hand* is frequently employed in composition to denote an action performed by the hand; as, a *hand*-shake, a *hand*-stroke, &c.; or, as used in, or intended for, manual employment; as, a *hand*-saw, a *hand*-bell, a *hand*-barrow, a *hand*-organ, a *hand*-spike, a *hand*-gun, &c.; managed, measured, or conducted by the hand; as, a *hand*-gallop, a *hand*ful, a *hand*-breadth; tractable, or inured to control by the hand; as, a *hand*-wolf.)

At hand, within reach; near to; approaching; not far distant.

"The hour is *at hand* when I promised to roam." — *Bayly.*

Under the hand, or pressure of the bridle.

"Hollow men, like horses, hot *at hand*,
Make gallant show and promise of their mettle."—*Shaks.*

At all hands, or *on all hands*, by all parties; from those on all sides.—*At any hand*, or *at no hand*, on any account; on no account; as, *at any hand* it must be done.

At the hand of, as a gift, grant, or benefit from, by bestowal; as, to receive confirmation *at the hands of* a bishop.—*By hand*, done or performed by man's hand, without other or extraneous aid; as, cloth woven *by hand*, to send a letter *by hand*. — *Clean hands*, immunity from guilt, or suspicion of guilt; as, he came out of the affair with *clean hands*.—*From hand to hand*, from one person to another. — *Hand to hand*, in close contact; as, they fought *hand to hand* —*Hand in hand*, in union; conjointly; with unanimity.

"Thus *hand in hand* through life we'll go." — *Cotton.*

Fit; appropriate; suitable; pat.

"A kind of *hand in hand* comparison."—*Shaks.*

Hand-made, made by hand; in contradistinction to machine-made; as, *hand-made* paper. —*Hand over hand*, by passing the hands consecutively one before or above the other; as, to haul a rope *hand over hand*. — (*Naut.*) Swiftly; rapidly; as, to gain upon the chase *hand over hand*.—*Hands off!* forbear! hold! keep off! don't touch! —*Heavy hand*, oppression; tyranny. —*In hand*, ready or prompt payment; in actual possession; as, "receiving *in hand* one year's tribute." (*Knolles.*) — In course of preparation. "What revels are *in hand?*" (*Shaks.*) — Mooted, or in agitation. "I had a rougher task *in hand*." (*Shaks.*) — *Laying on of hands*, form of consecrating or blessing persons. — *Light hand*, amenity; gentleness of touch; as, a *light hand* on the reins. — *Off hand*, or *out of hand*, straightway; at once; without hesitation or difficulty; as, work done *out of hand*. —*Off one's hand* or *hands*, removed from one's care, control, or possession.

"May dunce by dunce be whistled *off my hands*." — *Pope.*

On hand, in present possession; as, she has six marriageable daughters *on hand*. — *Right hand*, the place of honor, power, and strength.

"Still in thy *right hand* carry gentle peace." — *Shaks.*

Slack hand, idleness; want of thrift; carelessness. — *Strict hand*, rigorous government or discipline; severe supervision or control. —*High hand*, loftiness of manner or pretension; self-assumption of power or authority; as, he carries it with a *high hand*. — *To bear a hand*, (*Naut.*) to assist promptly; to hasten up at the moment; as, *bear a hand* here with the rope. — *To be hand and glove*, to be on close terms of friendship and familiarity; to be adapted one to another; (said of persons.) — *To change hands*, to change sides, or owners; as, the business has *changed hands*. — *To clap hands*, to pat the hands together loudly, as an expression of applause, joy, or satisfaction. — *To come to hand*, to be arrived: to have received possession of; as, your esteemed letter *came to hand* on the 10th. — *To have a hand in*, to be implicated or concerned in; to take a share in; to be engaged in; as, they all *have a hand in* the mischief. —*To have in hand*, to be engaged upon; to undertake; to have in course of prosecution. —*To have one's hands full*, to have more than enough to do at one time; to be overburdened with business; to be under a pressure of difficulties. — *To his* or *my hand*, &c., already prepared or available; in readiness. "Many, whose greatness and fortune were not made *to their hands*." (*Addison.*) —*To lend a hand*, to assist; to render help; as, *lend* me *a hand* to lift this. — *To lift the hand against*, to assault; to use violence against. —*To live from hand to mouth*, to obtain a precarious sustenance; to live without provision for the future; to subsist on the bare requirements of want, or from day to day.— *To make one's hand*, to derive advantage; to gain superiority; to obtain profit.

"The French king, supposing to *make his hand* by those rude ravages in England, . . . proclaimed hostility." — *Hayward.*

To put one's hand to, lay hands on, or *upon*, to seize; to take forcible possession of.

"Time has *laid his hand upon* my heart." — *Longfellow.*

To put the finishing hand to, to complete; to perfect; to give the last or final touches or corrections to. — *To set the hand to*, to undertake; to set about the doing of anything.

"He was a very idle fellow, that would never *set his hand to* any business."—*Addison.*

To strike hands, to become security or guarantee for another's solvency or good conduct. — *To take in hand*, to attempt; to enter upon an undertaking or business; also, to take possession of, and deal with; as, he was a restive horse until I *took him in hand*. — *To wash the hands*, to make a profession of innocence; to decline to take part in or meddle with: as, *he washed his hands* of any complicity in the transaction. — *Under the hand of*, authorized, sanctioned, or authenticated by the handwriting or sign-manual of; as, *under the hand* and seal *of* the Secretary of State.

(*Anat.* and *Physiol.*) The hand is the lower portion of the superior extremity, the great organ of touch and prehension. "In many respects," says Dr. George Wilson, "the organ of touch, as embodied in the hand, is the most wonderful of the senses. The organs of the other senses are passive; the organ of touch alone is active. . . . . The hand selects what it shall touch, and touches what it pleases. It puts away from it the things which it hates, and beckons towards it the things which it desires. . . . . Moreover, the hand cares not only for its own wants, but when the other organs of the senses are rendered useless, takes their duties upon it. . . The blind man reads with his hand, the dumb man speaks with it; it plucks the flower for the nostril, and supplies the tongue with objects of taste. Not less amply does it give expression to the wit, the genius, the will, the power of man. Put a sword into it and it will fight, a plough and it will till, a harp and it will play, a pencil and it will paint, a pen and it will speak. What, moreover, is a ship, a railway, a light-house, or a palace, — what, indeed, is a whole city, a whole continent of cities, all the cities of the globe, nay, the very globe itself, so far as man has changed it, but the work of that giant hand with which the human race, acting as one mighty man, has executed its will?" (*Five Gateways of Knowledge.*) The hand is that which distinguishes man in the class of mammals, he being the only animal possessed of

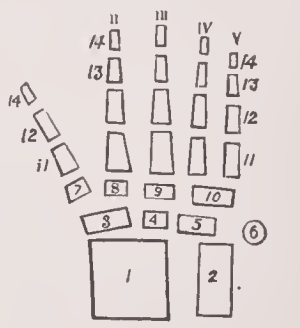


Fig. 1235.

DIAGRAM OF THE BONES OF THE HAND, (with the ends of the radius and ulna.)

1, end of radius; 2, end of ulna; 3, scaphoid; 4, semi-lunar; 5, cuneiform; 6, pisiform; 7, trapezium; 8, trapezoid; 9, magnum; 10, unciform; 11, 11, metacarpal bones; 12, 12, first row of phalanges; 13, 13, second row; 14, 14, third row; I, thumb; II, forefinger; III, middle-finger; IV, ring-finger; V, little finger.

two hands *bimana*. That which constitutes the hand, properly so called, is the power of opposing the thumb to the other fingers, so as to seize upon the most minute objects. The hand is composed of a number of small bones, 27 in all, (Fig. 1235.) so arranged as to combine the greatest possible degree both of strength and flexibility. These are arranged into three divisions, — those of the *carpus*, *metacarpus*, and *phalanges*. The carpus, or wrist, comprises eight bones, arranged in two rows, four in each; which are the scaphoid, naviculare, or boat-shaped bone; the semi-lunar, or half-moon; the cuneiform, or wedge-shaped; the pisiform, or pea-like; the trapezium; trapezoid; the magnum, or great bone; and the unciform, or hook-shaped. The metacarpal bones are five in number, and constitute the bones of the palm and back of the hand. The phalangeal bones are fourteen in number, three for each of the four fingers, and two for the thumb. They are named in their numerical order from above downwards, *i. e.* from the palm of the hand. The inferior extremities of the radius and ulna articulate with the scaphoid, semi-lunar, and cuneiform bones of the first row of the carpus. The articulations between the first and second rows of the carpal bones are very remarkable. These articulations are connected by numerous ligaments running in various directions, by means of which the bones are kept in their proper positions. (Fig. 1236.) The second row of carpal bones articulate with the metacarpal, and form the carpo-metacarpal articulations. They are connected by dorsal and palmar ligaments, stretching from the carpal to the metacarpal bones. The metacarpo-phalangeal and inter-phalangeal articulations are similarly formed, and are connected by lateral ligaments on each side, and a strong ligament in front. Besides these there are the various muscles of the hand, which give to it its several motions of flexion, extension, abduction, adduction, and circumduction. The hand is also richly supplied with blood-vessels and nerves.

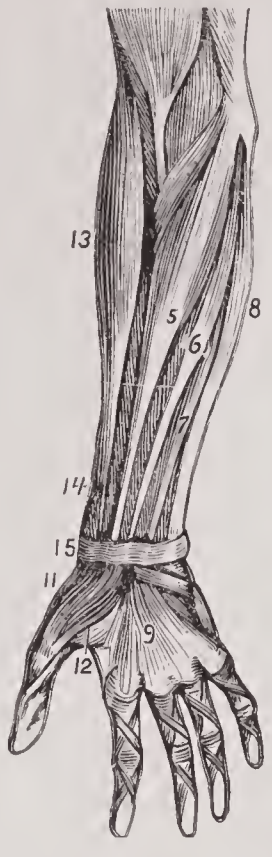


Fig. 1236.

Diagram of Fig. 1236, which presents a front view of the superficial layer of muscles of the fore-arm; 5, the flexor carpi-radialis muscle; 6, the palmaris longus muscle; 7, one of the fascieuli of the flexor sublimis-digitorum muscle, (the rest of the muscle is seen beneath the tendons of the palmaris longus.) 8, The flexor carpi-ulnaris muscle. 9, The palmar fascia. 11, The abductor pollicis muscle. 12, One portion of the flexor brevis-pollicis muscle. 13, The supinator longus muscle. 14, The extensor ossis metacarpi, and extensor primi internodii pollicis muscles, curving around the lower border of the fore-arm. 15, The anterior portion of the annular ligament, which binds the tendons in their places. — *Practical Explanation.* The muscles 5, 6, 8 bend the wrist on the bones of the fore-arm. The muscle 7 bends the second range of finger-bones on the first. The muscle 11 draws the thumb from the fingers. The muscle 12 flexes the thumb. The muscle 13 turns the palm of the hand upward. The muscles 8, 13, 14 move the hand laterally.

Hand, *v. a.* To give or transmit with the hand; as, to *hand* wine around. — To guide, lead, and lift with the hand; to conduct; as, to *hand* a lady into a carriage. — To pledge by the hand; to handfast.

(*Naut.*) To furl; as, to *hand* the sails.

To hand down, to transmit in succession, as from father to son, or from ancestor to descendant.

"A story incapable of being *handed down* to us."—*Pope.*

Hand'-barrow, *n.* A barrow impelled by a man's hand.

Hand'-basket, *n.* A portable basket; a basket small enough to be carried in the hand.

Hand'-bell, *n.* A table-bell; a small bell rung by the hand.

Hand'bill, *n.* An instrument for pruning trees. — A loose printed sheet to be circulated; a printed notice or advertisement to be posted in public places.

Hand'book, *n.* A book for handy use; a manual; a guide-book; a traveller's itinerary; as, Murray's *Handbook* of Germany.

Hand'-brace, *n.* (*Carp., &c.*) A tool for boring, consisting of a crooked spindle, at one end of which a broad head or breastplate is attached by a swivel, so that it may remain stationary while the crank is turned; at the other end is a socket, into which a drill can be fixed.

Hand'-breadth, *n.* A space equal to the breadth of a hand; a palm.

Hand'-car, *n.* A sort of tram or car, made to be propelled along a railroad by hand-power.

Hand'-cart, *n.* A light cart adapted to be moved by hand.

Hand'cloth, *n.* Same as HANDKERCHIEF, *q. v.*

Hand'craft, *n.* See HANDICRAFT.

Hand'craftsman, *n.* A handicraftsman; a mechanic.

Han'del, GEORGE FREDERICK, an illustrious German musician, b. at Halle, in Saxony, 1684. He had been originally intended by his father for the law; but early evincing an unmistakable inclination for the "concord of sweet sounds," a master was found for him, and his progress was so rapid, that at ten years of age he composed a set of sonnets. In 1703 he went to Hamburg, where he played a violin in the orchestra of the opera. He was soon its director, and composed his first opera, *Almira*, which was rapidly followed by *Nero*, *Florinda*, and *Daphne*. His violent temper involved him in a quarrel with a brother-composer, which resulted in a duel; the sword of his adversary was stopped by a button or a music score. He next visited Italy. In Florence he composed *Rodrigo*, 1709. Itis *Agrippina*, composed in Venice, had a run of 30 nights. At Rome he produced his *Il Trionfo del Tempo*. At Naples he composed *Acis and Galatea*, and in 1710 returned to Germany, where he was appointed chapel-master to the Elector of Hanover, afterwards George I. He afterwards went to England, where he was patronized by Queen Anne and the nobility. He composed *Rinaldo*, *Pastor Fido*, *Theseus*, and in 1715, *Amadis da Gaula*, in which Nicolini and Valentini first sung in England. The opera was an exotic in England, and a plant of slow growth. A Royal Academy of Music was formed, and after some competition was placed under *H.*'s management; but his overbearing temper could not cope with musical jealousies. An opposition house was started, and both soon failed, with a loss to *H.* of $50,000. He now commenced the composition of his oratorios. *Esther* was produced in 1733; it was followed by *Deborah*, *Alexander's Feast*, and *Israel in Egypt*; and in 1740 appeared *L'Allegro e Penseroso*, and *Saul*. These were produced in the Lincoln's Inn Fields Theatre, but with no profit. Even the *Messiah*, the most sublime of his compositions, was at first a failure. Tired of this titanic struggle, *H.* went to Dublin, where he remained nine months, and received a generous support. On his return to London he composed his *Samson*, and produced his *Messiah* for the benefit of the Foundling Hospital. It was repeated annually for the same purpose, and from 1749 to 1777 brought to that charity $51,500. *H.* became blind, but he still composed, and played on the organ, being led to his seat, and forward to receive the plaudits of the audience. D. 1759.

Hand'cuff, *n.* [A. S. *handcops*—*cops*, a fetter.] A name given to one of a pair of manacles, consisting of iron rings, connected by a chain to the wrists. (Usually in the plural.)

—*v. a.* To place handcuffs on; to manacle; to fetter.

Hand'-director, *n.* (*Mus.*) An instrument to aid in forming a good position of the hands and arms when performing on the pianoforte; a hand-guide.

Hand'-drilling Machine', *n.* A small drilling-machine turned by manual labor.

Hand'ed, *a.* Having the greatest power or dexterity in one of the hands; as, right-*handed*, left-*handed*. — With hands joined.

"Into their inmost bow'r *handed* they went."—*Milton.*

Hand'er, *n.* One who hands or transmits; a conveyer in succession.

"Yet grant they were the *handers* down."—*Dryden.*

Hand'ful, *n.; pl.* HANDFULS. As much as the hand will grasp or contain; as, a *handful* of gold. — A small number or quantity; as, a *handful* of men.

Hand'-gallop, *n.* (*Manege.*) A slow and easy gallop, in which the hand presses the bridle to hinder increase of speed.

Hand'-gear, *n.* (*Mach.*) In a locomotive-engine, the handles of the working-gear, placed conveniently to the foot-plate, so as to be within reach of the engine-driver when he requires to use them for regulating the different parts of the engine.

Hand'-glass, *n.* A small glazed frame placed over plants for their protection.—A hand mirror.

Hand'-grenade', *n.* (*Mil.*) See GRENADE.

Hand'-guide, *n.* (*Mus.*) See HAND-DIRECTOR.

Hand'-hole, *n.* A small open space at the bottom of a steam-boiler, for the purpose of permitting insertion of the hand when cleaning, &c.

Hand-hole plate. The cover of the above.

Hand'-hook, *n.* An instrument made by smiths to twist square iron.

Han'dicap, *n.* (*Sports.*) A weight-for-age race for horses; also, a distance or time-allowance.

Han'dicapper, *n.* (*Sports.*) One who adjusts the weights in a handicap, and settles the conditions upon which the horses run.

Han'dicraft, *n.* [A. S. *handcraft.*] Work performed by the hand; handcraft; manual occupation. — One who is skilled in some mechanical art. (R.)

Hand'icraftsman, *n.; pl.* HANDICRAFTSMEN. A man skilled or employed in some manual occupation; a manufacturer: a mechanic; an artisan.

Hand'ily, *adv.* With dexterity, expertness, or skill; adroitly; with ease or convenience; in a handy manner.

Hand'iness, *n.* Quality of being handy; ease of performance derived from practice; dexterity; adroitness.

Hand'iwork, *n.* [Corruption of *handwork.*] Work of the hands; product of manual labor; manufacture; work performed by power and wisdom.

Hand'kercher, Han'kercher, *n.* A handkerchief. (Antiquated, but sometimes used as a vulgar colloquialism.)

Hand'kerchief, *n.* [*Hand*, and *kerchief*. See KERCHIEF.] A piece of cloth, usually silk, linen, or cotton, carried about the person for the purpose of wiping the face, hands, mouth, nose, &c., as occasion requires. — A neckerchief; a neckcloth. (In this sense an erroneous term.)

Hand'-language, *n.* Same as CHIROLOGY, *q. v.*

Handle, (*han'dl,*) *v. a.* [A. S. *handlian*; Ger. *handeln.*] To touch or feel with the hand; to use or hold with the hand. — To manage; to wield; to use; — hence, to perform or manage with skill or dexterity.

"That fellow *handles* his bow like a crow-keeper."—*Shaks.*

—To treat; to use well or ill; as, the man got roughly *handled*. — To discourse on; to treat; to discuss; to use by mention in writing or speaking.

"In an argument *handled* thus briefly, everything cannot be said."—*Bp. Atterbury.*

—To deal with; to practise.

"They that *handle* the law know me not."—*Jer.* ii. 8.

—To practise on; to transact with; to conduct.

"My lord, you shall see how I'll *handle* her."—*Shaks.*

—To render easy and familiar by frequent touching; as, to *handle* a colt.

—*v. n.* To use the hands; to execute by means of the hands; as, each man *handled* his rifle.

—*n.* [A. S. *handel.*] That part of a vessel, weapon, or instrument, by which it is held in the hand; a haft; as, the *handle* of a knife, the *handle* of a whip. — The instrument of effecting a purpose; that of which use is made; a tool; a catspaw; a dupe.

"They overturned him by the fatal *handle* of his own good-nature."—*South.*

To give a handle. To furnish cause; to give occasion; as, his conduct *gave a handle* to censorious tongues.

Han'dleable, *a.* That may be handled; suitable to handle.

Hand'-lead, *n.* (*Naut.*) A small lead used in sounding.

Hand'less, *a.* Wanting a hand or hands.

Hand'ling, *n.* A touching, or use by the hand; discussional treatment; as, the subject requires gentle *handling*.

(*Painting.*) Manner of touch; mode of using the brush, or pencil.

Hand'-loom, *n.* See WEAVING.

Hand'-made, *a.* See HAND.

Hand'maid, Hand'maiden, *n.* A female servant or attendant. "Nature's *hand-maid*, ART."—*Dryden.*

Hand'-mill, *n.* A mill worked by hand.

Hand'-organ, *n.* A kind of musical instrument; a small portable organ consisting of a barrel or cylinder, turned with a crank.

Hand'plant, *n.* (*Bot.*) See CHEIROSTEMON.

Hand'-pump, *n.* (*Mach.*) In a locomotive-engine, the pump placed by the side of the fire-box, to be worked by a hand-lever when the engine has to stand with steam up.

Hand'-rail, *n.* A rail for the hand, supported by balusters, &c., as in staircases.

Hand'-railing, *n.* (*Mach.*) In a locomotive-engine, the railing along the sides of the engine, to protect persons passing to the front of the engine for any necessary purpose.

Hand'-sail, *n.* (*Naut.*) A sail worked by the hand.

Hand'-saw, *n.* A saw from 26 to 30 inches in length, with a handle at one end. — used for cutting wood.

Hand'-screw, *n.* A jack; an instrument for raising heavy timber.

Hand'sel, *n.* [A. S. *hand-selen*, a putting into another's possession; *hand-syllan*, to deliver up—*hand*, and *syllan*, to deliver, give, bestow.] A gift, purchase, &c., delivered into another's hand; the first sale: money for the first sale; an earnest; a New-Year's gift; the first act of using anything. (Used colloquially.)

"The Apostles term it the *handsel*, or earnest, of that which is to come."—*Hooker.*

—*v. a.* To give, sell, or deliver, as into the hand of another; to bestow any gift or make any purchase at a particular time or season; to give as an earnest, or earnest-penny; to use or do anything the first time.

"On timorous deer he *handsels* his young paws."—*Cowley.*

Hand'sel-Monday, *n.* The first Monday in the New Year, when *handsels* or presents are given.

Handsome, (*han'sum,*) *a.* [Belg. *handsaem*, fit, made to the hand; D. *handzaam*; A.S. *hand* and *samer.*] Moderately beautiful; well made; having symmetry of parts; comely; nice; good-looking; having a pleasing appearance or expression; as, a *handsome* man, a *handsome* person. — Graceful in manners; marked with propriety and ease; elegant; correct; appropriate; suitable; becoming; as, a *handsome* address, a *handsome* style. — Ample; liberal; generous; moderately large; as, a *handsome* fortune, a *handsome* profit, a *handsome* offer, &c.

Hand'somely, *adv.* In a handsome manner; gracefully; neatly; dexterously; with a degree of beauty, or due symmetry or proportion of parts; amply; generously; liberally; as, to endow a school *handsomely*, a *handsomely* built ship, the men fought *handsomely*, &c.

Hand'someness, *n.* Quality of being handsome; a moderate degree of beauty or elegance; gracefulness; ease and propriety in manner.

Hand'spike, *n.* A wooden bar used with the hand as a lever, for moving heavy things, as in raising weights.

(*Naut.*) A wooden lever employed on board a ship in working the windlass and capstan, one end being squared to fit the holes in the capstan-head, and in the barrel of the windlass.

(*Ordnance.*) A stout ashen pole, 7 feet in length, used as a lever in the service of heavy guns. It is round at the handle, and square toward the other end, the extremity of which is bevelled. When the *H.* is used as a lever of the first kind, the bevelled side should be down; when used as a lever of the second kind, the bevelled side should be uppermost.

Hand'-staff, *n.; pl.* HAND-STAVES. A javelin. — *Ezek.* xxxix. 9.

Hand′-taut, *a.* (*Naut.*) Tightened with the utmost power of the hand.

Hand′tree, *n.* (*Botany.*) Same as HAND-PLANT. See CHEIROSTEMON.

Hand′-vice, *n.* A small vice which is held in the hand, used for small job-work, &c.

Hand′-wheel, *n.* (*Mach.*) Any wheel regulated by hands in general; the handle for adjusting valves, &c.

Hand′-winged, (*-wingd,*) *a.* Having wings shaped like a hand, as bats.

Hand′-wolf, *n.* A wolf tamed to domesticity.

Hand′work, *n.* Same as HANDIWORK, *q. v.*

Hand′writing, *n.* The cast, style, or form of writing peculiar to each hand or person; chirography; penmanship. — Any writing performed by hand; manuscript.

Hand′y, *a.* [Swed., Goth., and D. *haudig;* O. Ger. *handag.*] Dexterous in the use of the hand; adroit; skilful; skilled to use the hands with ease in performance; ingenious; practising with expertness and readiness.

"Each is *handy* in his way." — *Dryden.*

—Ready to the hand; near; convenient; as, he has everything *handy* to his work.

Han′dy, in *Michigan,* a township of Livingston co. *Pop.* (1897) about 1,200.

Handy, in *Oregon,* a post-office of Marion co.

Hand′y-book, *n.* A digest; a compendium; a vademecum; a manual.

Han′dy-dan′dy, *n.* A play among children, in which something is passed from one hand to the other behind the back, and then a guess made in which hand it may be found.

"*Handy-dandy,* which is the justice, which is the thief." — *Shaks.*

Hand′y-fight, *n.* Boxing; pugilistic strife.

"Pollux loves *handy-fights.*" — *Ben Jonson.*

Hand′y-gripe, *n.* Grasp by the hand.

Hand′y-stroke, *n.* A stroke or blow given by the hand.

Hand′ywork, *n.* Same as HANDIWORK, *q. v.*

Han′eryille, in *Wisconsin,* a post-office of Dane co.

Hanes′ville, in *Maryland,* a post-office of Kent co.

Ha′ney, in *Wisconsin,* a post-township of Crawford co.

Haney's Corners, in *Indiana,* a post-office of Ripley county.

Ha′neyville, in *Pennsylvania,* a P. O. of Clinton co.

Han′ford, in *California,* a post-village, cap. of Kings co., on So. Pac. R.R. *Pop.* (1897) about 2,600.

Hang, *v. a.* (*imp.* and *pp.* HANGED or HUNG.) [A.S *hangian;* Ger. *hängen;* Dan. *hænge;* Icel. *hanga;* O. Ger. *hâhan;* Goth. *hahan,* to crucify, to suspend; probably from Sansk. *sang, sag,* to adhere.] To suspend from some elevated point or position; to place without solid support or foundation; — frequently before *up* or *out;* as, to *hang* one's hat *up,* to *hang* a picture, to *hang up* a sign, to *hang out* clothes to dry. "*Hang out* our banners on the outward walls" (*Shaks.*) — To cause to depend; to impend, or to be pendulous; to fix in such a manner as to be movable; as, to *hang* a gate, to *hang* a clock-weight. —To put to death by suspending from the neck; as, to *hang* a murderer. — To append; to fix to, by hanging decorations, pictures, and the like; used in application to a wall, a tree, &c.; as, to *hang* a room with tapestry, to *hang* a Christmas-tree with toys. — To cause to hang; to droop; to decline.

"White lilies *hang* their heads and soon decay." — *Dryden.*

To hang down, to let fall below the proper or natural situation; to decline; to bend down; as, to *hang down* the head.

To hang fire. (*Mil.*) To be slow in igniting the charge; as, the gun *hangs fire.*

—*v. n.* To be suspended; to depend; to dangle; to be pendulous; to float; to be supported by something raised above the ground, without support from below; as, a *hanging* garden. "Over it a fair portcullis *hung*" (*Spenser.*) — To be put to death by suspension from the neck; to be strangulated by the halter.

"The court forsakes him, and Sir Balaam *hangs.*" — *Pope.*

—To rest on something for support; to cling to; — with *on* or *upon.* "*Hanging on* Hotspur's neck." — *Shaks.*

—To be incommodiously connected: to be a weight; to drag; as, time *hangs* heavy *on* one's hands.

—To be delayed; to linger.

"The monarch o'er the syren *hung,*
And beat the measure as she sung." — *Scott.*

—To hover; to impend; to present a threatening aspect; (generally preceding *over:*) as, a storm *hangs over* us. — To lean; to incline; to have a downward tendency; to present a steep declivity; as, *hanging* grounds.

"His neck obliquely o'er his shoulders *hung.*" — *Pope.*

—To be uncertain; to have the attention arrested; to be held in a state of suspense.

To hang on or *upon,* (emphasizing the preposition,) to adhere; to hold fast or stick to. "Gloominess which is apt to *hang upon* the mind." (*Addison.*) — *To hang to,* to cling. — *To hang by the eyelids,* to hang by a very frail hold or tenure; to be left incomplete, or in an unfinished condition. — *To hang on the lips,* or *to hang on words,* to be rapt or fascinated by eloquent speech. "Wond'ring senates *hung on all he spoke.*" (*Pope.*) — *To hang together,* to remain united with, or as a part of a whole. "In the common cause . . . we *hung together.*" (*Dryden.*) — To possess consistency or cohesion. "Your device *hangs* very well *together.*" (*Dryden.*) — *To get the hang of,* to acquire the knack of; to master with facility; as, *to get the hang of* a business.

Hang, *n.* [Ger.] A steep declivity. — Arrangement; method; order; plan; as, the *hang* of a discussion.

Hang′-bird, *n.* (*Zoöl.*) A name sometimes given to the BALTIMORE ORIOLE, *q. v.,* from its pendent nest.

Hang′-by, *n.* A hanger-on; a dependant; — used in a contemptuous sense. (R.)

Hang′-choo-foo. See HANG-TCHEOU.

Hang′dog, *n.* A low and degraded man.

Hang′er, *n.* One who, or that which, hangs; as, the *hanger* of a kettle. — A short broadsword incurvated towards the point, and suspended to the side. — That by which a thing is suspended.

Hang′er-on, *n.* One who besets another importunely in soliciting favors; a servile dependant; a toady; a parasite; a lickspittle.

"Two he reckoned his friends, and all the rest *hangers-on.*" *L'Estrange.*

Hang′ing, *p. a.* Foreboding death by the halter.

"Sir . . . you have a *hanging* look." — *Shaks.*

—Requiring or meriting the punishment of death by the halter; as, it is a *hanging* matter.

Hang′ing, *n.* The mode of capital punishment used in this country and in England is that kind of death in which the body is wholly or partially suspended by the neck, the constricting force being the weight of the body itself, while in strangulation it is due to some other cause. In both cases death commonly results from asphyxia. If, however, the cord be loose, or applied to the upper part of the neck, a small quantity of air may still reach the lungs, and in such cases death will arise from apoplexy, the cerebral circulation being interrupted by the pressure. In many cases death is produced by a mixed condition of asphyxia and apoplexy. In the execution of criminals, it has often been observed that death does not always ensue within the same period of time; which is to be accounted for from the greater or less degree of constriction produced by the ligature. In some rare cases, death has taken place with great rapidity, owing to a displacement of the dentiform process of the second cervical vertebra; by which the spinal marrow became suddenly compressed. This cause of death, however, is extremely rare, and is only likely to occur in very corpulent subjects, when a long fall is given to the rope, and when much violence is at the same time employed by the executioner. Sometimes violent convulsions are observed of the limbs and trunk; but there is no reason to believe that the individual suffers pain then any more than in an epileptic fit. It has often been found impossible to restore animation after the body has been suspended only a very few minutes. Sometimes here, as in drowning, a person may in the first instance recover, and subsequently die, in spite of the best medical treatment, from the depressing effects produced on the muscular and nervous system. In attempting to restore animation in such cases, artificial respiration, cold affusion when the skin is warm, with the vapor of ammonia, and other stimuli, are recommended to be employed. The application of electricity, or electro-magnetism, in the course of the spine is also sometimes attended with benefit. If there should be much cerebral congestion on recovery, venesection may be cautiously resorted to. From experiments, as well as from the evidence of persons who have been resuscitated, we learn that asphyxia comes on in the most insidious manner in death from hanging; and that the slightest constriction of the trachea will speedily produce insensibility. Such persons have been conscious of a ringing in the ears, a flash of light before the eyes, then darkness and stupor. In medical jurisprudence it often becomes an important question to determine whether the individual was suspended before or after death, and which must often be determined by the circumstances of each case, as there is no distinctive sign by which the hanging of a living body can be determined, or which may not be simulated in the dead subject. It is also often important to determine whether the individual hanged himself or was hanged by others; and there, too, an opinion can only be arrived at from a consideration of the circumstances. In such cases, however, the presumption is in favor of suicide, as hanging is a difficult mode of perpetrating murder, unless the strength of the parties be greatly disproportionate, or the assailants numerous. Hanging is also sometimes the result of accident. — See PUNISHMENT (CAPITAL).

Hang′ing-buttress, *n.* (*Arch.*) A buttress not standing solid on a foundation, but supported by a corbel.

Hang′ing Gardens, *n. pl.* (*Antiq.*) A series of magnificent gardens laid out on elevated terraces at Babylon, and supposed to have been constructed by Queen Semiramis. According to Diodorus and Strabo, the form of these gardens was square, each side being about 400 feet in length; so that the area of the base was nearly four acres. In Dr. Falconer's *Historical View of the Gardens of Antiquity,* quoted in Loudon's *Encyclopædia of Gardening,* it is stated that "they were made to rise with terraces constructed in a curious manner, above one another, in the form of steps, and were supported by stone pillars to the height of more than 300 feet, gradually diminishing upwards till the area of the superior surface, which was flat, was reduced considerably below that of the base. This building was constructed by vast stone beams placed on pillars of stone (arches not being then invented), which were again covered with reeds, and cemented with bitumen, over which was placed a double row of bricks united with cement. These bricks were covered with plates of lead, which effectually prevented the moisture from penetrating downwards. Above all was laid a coat of earth, of depth sufficient for plants to grow in; and the trees planted there were of various kinds, and were ranged in rows on the side of the ascent, as well as on the top, so that at a distance it appeared as an immense pyramid covered with wood. The situation of this extraordinary effort of human skill aided by wealth was nearly adjoining to, or upon the river Euphrates, from which water was supplied by machinery for the fountains and reservoirs employed for cooling the air and watering the garden." The different terraces and groves also contained fountains, parterres, seats, and banqueting-rooms, and combined the minute beauties of flowers and foliage (only to be rightly estimated in those desert plains) with recesses of shade and extensive prospects. The existence of these hanging gardens has been doubted by some authorities; but it is said that their locality can be traced, and their ruins discovered, among the numerous mounds of sand which mark the position of ancient Babylon.

Hang′ing Grove, in *Indiana,* a township of Jasper co.

Hang′ing-holder, *n.* One who holds up hangings.

Hang′ing Rock, in *Ohio,* a post-village of Lawrence county, on the Ohio River, about 110 miles S. by E. of Columbus.

Hang′ing Rock, in *W. Virginia,* a village of Hampshire co., abt. 28 m. W. of Winchester.

Hang′ings, *n. pl.* Lining for the walls of rooms, or arras, tapestry, &c.; as, paper-*hangings.*

Hang′ing-side, *n.* (*Mining.*) The side of an inclined vein which points over.

Hang′ing-sleeves, *n. pl.* Loose strips of the same stuff as the dress or gown is made of, depending behind from the shoulders.

"Shakes in *hanging-sleeves* the little box and dice."—*Dryden.*

Hang′man, *n.; pl.* HANGMEN. One who hangs another; specifically, a public executioner; — sometimes, also, used as a term of reproach in reference to low, disreputable persons.

"The fear o' hell 's a *hangman's* whip
To haud the wretch in order." — *Burns.*

Hang′manship, *n.* Office or character of a hangman. (R.)

"I abominate and detest *hangmanship.*" — *W. S. Landor.*

Hang′nail, *n.* A small filament of skin hanging from the root of a finger-nail.

Hang′-nest, *n.* A nest suspended from a bough or branch. — A hang-bird.

Han′go-Udde, (*Hango Head,*) a promontory of Russia, at the extreme S. of Finland, on the Gulf of Finland; Lat. 59° 46′ N., Lon. 22° 56′ E. Here the Czar, Peter the Great, in 1714, gained his first naval victory over the Swedes.

Hang-Tcheon, or HANG-CHOO-FOO, one of the largest and richest cities of China, cap. of prov. Tchè-kiang; on the Tsien-tang-kiang, 20 m. from its month in the Eastern Sea, and 140 m. S.E. of Nankin; Lat. 30° 20′ 20″ N., Lon. 119° 48′ E.



Fig. 1237.
TOWER OF THE THUNDERING WINDS.

The city is surrounded with high and thick walls, said to be 10 m. in circuit. The Grand Canal has its terminus here in a large commodious basin. This city has, in consequence, a river-communication with Pekin, and a vast command of internal navigation, which it has turned to good account. *H.* is celebrated for its silk manufactures, and its embroidery excels that of any part of China. No city in China, unless it be that of Soo-chow-foo, possesses wealth to compare with that of this remarkable place, which, moreover, is the most literary and most religious city of the empire. Colleges and temples, *literati* and priests, abound and flourish in Hang-choo-foo. One cause of the celebrity of the city is found in the beauty of its environs. The tower of the Thundering Winds (Fig. 1237), although in ruins, is still an imposing edifice, and perhaps, after the Great Wall, the only remains of ancient Chinese architecture extant; while monumental gateways, light airy bridges, and temples of the size of villages, render the natural beauties of the city highly picturesque. One of the temples possesses 500 images of the Io-han (Buddhist saints), of the size of life, richly covered with gold. Nothing can exceed the beauty of the valleys opening into the lake, richly adorned as they are with trees, chiefly the camphor and tallow trees, and the arbor vitæ. *H.-T.* was formerly the capital of the empire. *Pop.* estimated at 800,000.

Hank, *n.* [Dan. *hank,* a handle, a hook, a tack, a clasp; Swed. *hank,* a band: Ger. *henkel,* a handle, a hook, an eye; allied to *hang.*] The name given to two or more skeins of yarn, silk, or cotton, when tied together. When single they are called *skeins.* — In some parts of England, a latch; a hasp; a holdfast.

—*pl.* (*Naut.*) Rings of ash or iron, by which fore-and-aft sails are confined to the stays on which they are severally suspended, and upon which stays the hanks slide, while the sail is in process of being set or hauled down.

Hank'er, *v. n.* [D. *hankeren;* allied to *hank* and *hang.*] To desire eagerly and longingly to get hold of or possession of something with a keen, restless appetite; to have a vehement desire for something, accompanied with uneasiness; generally before *for* or *after;* as, to *hanker after* liberty, to *hanker for* a woman, &c.—To form a knot or group; to congregate; to cluster: as, to *hanker* about a doorway.

Han'na, Marcus A., merchant and politician, was born at New Lisbon, Columbiana co., Ohio, Sept. 24, 1837; son of a physician of that village, who removed to Cleveland in 1852, and engaged in the wholesale grocery business under the firm name of Hanna, Garretson & Co. *H.* entered the employ of this firm after completing a course of study at the Western Reserve College, and shortly became a partner. He developed a marked degree of business sagacity, and in 1885 established the firm of M. A. Hanna & Co., which does a very large business in mining, shipping, &c. Mr. *H.* began his political career in 1884, as delegate to the Republican National Convention, where he supported Garfield. He was instrumental in electing Major McKinley governor of Ohio, and it is conceded that the latter's election to the Presidency, in 1896, was largely due to the energetic methods of Mr. *H.*, who had already secured the nomination of his favorite at St. Louis against very formidable opposition, and who conducted McKinley's campaign as Chairman of the Republican National Committee. Upon Mr. Sherman's acceptance of the State portfolio, in March, 1897, Mr. *H.* was appointed by Governor Bushnell to take Mr. Sherman's place in the U. S. Senate for the remainder of the latter's term, which expires in 1899.

Han'nibal, the great Carthaginian general, was B. B. C. 247. He was son of Hamilcar Barca, and when nine years of age swore, by his father's command, eternal enmity to the Romans, as the condition of accompanying him to Spain. He learned the art of war under his father there, and was present at the battle in which he fell. Hannibal was then 18, and after serving six years under Hasdrubal, who was assassinated B. C. 221, he became commander-in-chief of the Carthaginian army. To complete the conquest of all Spain south of the Ebro, he besieged the city of Saguntum, and after an heroic defence of eight months, took it. The city being in alliance with Rome, its fall was the occasion of the great war between Rome and Carthage known as the *Second Punic War. H.* at once prepared for the invasion of Italy, and in the spring of B. C. 218 he set out on his arduous march from the Ebro, through hostile and unknown countries, across great rivers and mountain-chains, to the Po. His army, composed of Africans and Spaniards, was greatly reduced in numbers by the withdrawal of a large body, and by losses on the march; but he crossed the Pyrenees, forced the passage of the Rhone before Scipio arrived to oppose it, and in October made the passage of the Alps in 15 days. The terrible hardships of this enterprise cost him a very large number of his troops, both foot and horse, and elephants. The first engagement took place near the Ticinus, and resulted in the defeat of the Romans. The battle of the Trebia was fought toward the end of December, and the Romans were again defeated. *H.* was joined by the Gaulish tribes, and took up his winter-quarters among them. In the spring of 217 he defeated the consul Flaminius on the shores of Lake Thrasimenus, and destroyed the Roman army. So fierce was the struggle that a shock of earthquake passed unfelt by the armies engaged. *H.* advanced southward, and passed the Apennines into Apulia, harassed however by the new policy of the cautious Fabius, who avoided fighting. In the spring of 216 *H.* won the great victory of Cannæ, and again destroyed the Roman army. After this victory almost all South Italy declared for him, and he went into winter-quarters at Capua. From that time the war changed its character, and it is not possible here to give even a summary of its progress. The conquest and loss of Tarentum, the loss of Capua, the defeat and death of Hasdrubal at the battle of the Metaurus in 207, still left *H.* strong enough to hold his ground in the southern extremity of Italy for four years longer; but in 203 the scene of war was changed to Africa, and in the following year Scipio finally defeated *H.* at the battle of Zama, and peace was concluded. The great Carthaginian did not lose hope, but applied himself to political and financial reforms, and preparation for fresh war. His enemies, however, accused him at Rome, and he fled to the court of Antiochus, king of Syria, who was just entering on a war with the Romans. After three years, the war ending with the defeat of Antiochus, *H.*, to avoid being given up to Rome, took refuge with Prusias, king of Bithynia, B. C. 190. And finally, when his surrender was demanded in 183, he put an end to his life by poison. It is acknowledged that *H.* ranks with the greatest generals of ancient or modern times. His great bodily strength and agility, capacity of endurance, frank and fascinating manners, marvellous sagacity, caution in planning, and rapidity in action, made him the idol of his troops; and his power over them, composed though they were of men of so many nations, was such that during the 16 years of the war there was never a mutiny in his camp. He was a man too of considerable cultivation, and shone as a statesman almost as much as a general.

Han'nibal, in *Missouri,* a city of Marion co., on the Mississippi River, abt. 153 m. above St. Louis. It has considerable commerce, and is increasing rapidly in population and importance. *Manuf.* Tobacco, hemp, &c. *Pop.* (1897) about 15,000.

Han'nibal, in *New York,* a post-village and township of Oswego co., about 28 m. N.W. of Syracuse.

—A post-village of Oswego co., about 60 m. N.E. of Rochester.

Han'nibal, in *Ohio,* a post-village of Monroe co.

Han'nibal Centre, in *New York,* a post-village of Oswego co., about 30 m. N.W. of Syracuse.

Han'no. There were several eminent Carthaginians of this name.—One of the most celebrated is the maritime discoverer who made a voyage on the western coast of Africa, of which he has left a description, called the *Periplus of Hanno.* The purpose of this voyage was to make discoveries for the benefit of commerce, and to settle colonies, of which he established several.—Two Carthaginian generals, of the name of *H.*, commanded in Sicily, successively, during the Punic war. Another was eminent both as general and statesman, and was the persistent opponent of the party which maintained the war with Rome.—Another *H.* was one of the commanders under Hannibal in Italy, and was successful on several occasions.

Han'over, a province of Prussia, and previous to 1867 a kingdom of N.W. Germany, is situate between Lat. 51° 18′ and 53° 52′ N., and Lon. 6° 43′ and 11° 45′ E., bounded N. by the German Ocean and the Elbe, E. by Prussian Saxony and Brunswick, S. by Hesse-Cassel and Westphalia, and W. by Holland. Its boundary-line is very irregular; length, from the mouth of the Elbe S., 172; breadth, E. and W., 180 m. *H.* is divided into seven *landdrosteien,* or administrative divisions, superintended by a *landdrost,* or high-bailiff. The 7th of these divisions, however, the mining-district of the Harz, is governed by a *berghauptmann,* or captain of the mountain. *Area,* 14,846 sq. m. *Gen. Desc.* The surface of the prov. is generally an inclined plain, elevated in few places more than 200 feet above sea-level. In the S. part of the prov. are the Harz Mountains, the highest summit of which, the Brocken, is 3,740 feet high. This mountain mass forms the watershed between the Elbe and Weser. Several large moors dot the country, while the lowlands on the sea-coast, which, being below sea-level, are diked, form the most productive part of the soil. *Rivers.* Elbe, Weser, Ems, and their affluents. Several lakes are found, as the Dümmer-See, Seeburger-See, &c. *Soil,* generally good, though intermixed in many places with marl and sandy deposits. *Agric., &c.* Barley and oats are largely cultivated and exported; rye and wheat too are grown—the latter in insufficient quantities for home demand. Potatoes, turnips, hemp, tobacco, hops, and various grasses are also extensively cultivated. Horses are bred on an important scale, large numbers being annually sold to the French and Italian governments for cavalry service. Cattle and sheep-rearing is also extensively carried on. *Min.* Coal, salt, and iron are found in considerable quantities, and in the Harz district actively mined. *Manuf.* Linens, yarn, thread, osnaburgs, hempen fabrics, machinery, chemicals, and india-rubber and gutta-percha wares. *Chief towns.* Hanover (the cap.), Emden, Göttingen, Osnabrück, Hildesheim, Luneburg, Stade, &c. *Pop.* (1880) 2,117,629; (1890) 2,278,-361; (1897) estimated at about 2,354,500. *Hist.* The late kingdom of *H.* was formed out of the duchies formerly possessed by several families of the junior branch of the house of Brunswick. Henry "the Proud," third duke of Bavaria, married Gertrude, the ruling princess of Brunswick; their son, well known in the Crusades as Henry "the Lion," was the first Guelph duke of Brunswick. He married a daughter of Henry II., king of England; and from this marriage both the houses of Brunswick and Luneburg are descended. The Reformation numbered the princes of the house of Brunswick among its zealous supporters. Ernest of Zell, the reigning duke, was one of the most eloquent defenders of Luther at the Diet of Worms. His grandson, Ernest Augustus, married Sophia, a grand-daughter of James I. of England, and on this marriage was founded the claim of the elder branch of the house of Brunswick to the crown of England, acknowledged by the English parliament in 1701. George Louis was the issue of this marriage, and became king of England, under the name of George I., in 1714; from which time till 1837, year of the death of William IV., England and Hanover were under the rule of the same sovereign. The Salic law in 1837 conferred the Hanoverian crown on Ernest, duke of Cumberland, 5th, and eldest surviving son of George III. In 1804, Prussia took possession of *H.*, but ceded it in the same year to the French, by whom it was constituted a part of the kingdom of Westphalia established in 1808. At the peace of 1813, the king of Great Britain reclaimed his German dominions, which were much enlarged by the stipulations of the treaty of Vienna, and formed into a kingdom. In June, 1866, on the outbreak of the war with Austria, the kingdom of *H.* was occupied by Prussian troops, and in Sept. following was formally united with Prussia, despite a protest made by the king, George V.

Han'over, a city of W. Germany, cap. of above province, and metropolis of the former kingdom of the same name, on the Leine, an arm of the Weser, 84 m. S. of Hamburg, 62 S.E. of Bremen, and 35 W. of Brunswick. It is built in an extensive sandy plain, and is divided by the river into an old and new town, each of which is governed by a separate magistrate. The former is narrow, ill-built, and dirty; the new town is, on the contrary, open cleanly, and adorned with handsome streets and buildings. Of the latter the chief are the royal palace, the viceroy's palace, the House of Assembly of the States, the mint, arsenal, royal stables, and town-hall. *H.* contains a goodly number of religious, benevolent, and scholastic establishments, besides literary and scientific institutions, libraries, lyceums, &c. The commercial organizations include an exchange, a chamber of commerce, and a *berg-handlung,* or market for mining produce. *Manuf.* Unimportant.—About 1 mile distant from the city is Herrenhausen, once the favorite residence of kings George I. and II. of England. *Pop.* (1897) about 190,000.

Han'over, in *Connecticut,* a village of New Haven co., on the Quinepiac river, about 15 m. N. by E. of New Haven.

—A post-village of New London co.

Han'over, in *Illinois,* a village of Clinton co., on Shoal creek. The post-office is Germantown.

—A township of Cook co.

—A post-village and township of Jo Daviess co., on Apple river, about 16 m. S.S.E. of Galena. *Pop.* of village (1890) 743.

—A village of Cook co.

Han'over, in *Indiana,* a post-village and township of Jefferson co.

—A township of Lake co.

—A village of Ohio co., on Laughery's creek, about 4 m. S.W. of Aurora.

—A township of Shelby co.

Han'over, in *Iowa,* a township of Allamakee co.

Han'over, in *Kansas,* a post-village of Washington co. *Pop.* (1895) 938.

Han'over, in *Maine,* a post-town and township of Oxford co.

Han'over, in *Maryland,* a post-village of Howard co.

Han'over, in *Massachusetts,* a post-town of Plymouth co., about 20 m. S.S.E. of Boston. *Pop.* (1895) 2,051.

Han'over, in *Michigan,* a post-village and township of Jackson co.

Han'over, in *Minnesota,* a post-village of Wright co., 25 m. N.W. of Minneapolis.

Han'over, in *Nebraska,* a post-township of Gage co.

Han'over, in *New Hampshire,* a post-town and township of Grafton co., about 55 m. N. W. of Concord. It is also the seat of Dartmouth College, at which institution some of our most eminent statesmen were educated.

Han'over, in *New Jersey,* in Burlington co. See New Hanover.

—A post-township of Morris co., on the Passaic River, abt. 5 m. N. of Morristown.

Han'over, in *New York,* a township of Chautauqua co.

Han'over, in *Ohio,* a township of Ashland co.

—A township of Butler co.

—A township of Columbiana co.

—A village of Harrison county, about 75 miles N. by E. of Marietta.

—A post-village and township of Licking co., abt. 8 m. E. of Newark.

Han'over, in *Pennsylvania,* a township of Beaver co.

—A former township of Dauphin co., now divided into East and West Hanover, *q. v.*

—A township of Lehigh co.

—A township of Luzerne co.

—A township of Northampton co.

—A township of Washington co.

—A post-borough of York co., about 18 miles S.W. of York. *Pop.* (1897) about 4,000.

Han'over, in *Virginia,* an E. central co.; *area,* about 450 sq. m. *Rivers.* N. and S. Anna rivers, which unite in this county to form the Pamunkey. *Surface,* hilly; *soil,* in general fertile. *Cap.* Hanover Court-House. *Pop.* (1890) 17,402.

Han'over, in *Wisconsin,* a post-village of Rock co., abt. 7 m. S.W. of Jonesville.

Han'over Centre, in *New Hampshire,* a post-office of Grafton co.

Han'over Court-House, in *Virginia,* a post-village and cap. of Hanover co., 1 m. from the Pamunkey River, and 20 N. of Richmond. Henry Clay was born here. A brisk action occurred at this place, May 28, 1862, between a Confederate force, and a brigade of Nationals under Gen. Porter, in which the former were defeated, with a loss of 200 men killed and 730 prisoners.

Hanove'rian, *a.* (*Geog.*) Of, relating, or pertaining to Hanover.

—*n.* (*Geog.*) A native, or naturalized citizen of Hanover.

Han'over Island, an island in the Pacific Ocean, off the W. coast of Patagonia, Lat. 51° S., Lon. 74° 30′ W.

Han'over Junction, in *Pennsylvania,* a post-office of York co.

Han'overton, or Han'over, in *Ohio,* a post-village of Columbiana county, about 10 miles W. of New Lisbon.

Han'over Town, in *Virginia,* a village of Hanover co., on the Pamunkey River, abt. 15 m. N.N.E. of Richmond

Han'overville, in *Pennsylvania,* a post-village of Northampton co.

Han'sard, *n.* A merchant, trader, or burgher of a Hanse town.

(*Eng. Pol.*) The name given to the official report of proceedings in the British Houses of Parliament; (so called from the name of the publisher.)

Han'se, Han'sa, or **Hanseat'ic Leagne,** *n.* (*Hist.*) A celebrated commercial confederacy formed among certain commercial cities of North Germany, in the 13th century, and took its name from the old German word *hansa,* signifying an association or confederacy for mutual aid. As the commercial cities of the North began to increase in wealth and importance, they came to be harassed by the attacks of pirates and robbers, and various tolls were imposed which interfered seriously with trade. These circumstances at length gave rise, in 1239, to an agreement between Hamburg, Ditmarsch, and Hadeln, and in 1241 a confederacy was formed between Hamburg and Lübeck, in which they mutually agreed to protect each other against all

violence. This confederacy was joined by Brunswick in 1247. In a short time the number of the members had so much increased, that in 1260 a diet was held at Lübeck, the chief city of the league. Regular meetings of the confederacy now took place there every three years, about Whitsuntide, and the general archives of the league were kept there. The confederacy was at its highest degree of power and splendor during the 14th and 15th centuries, and comprised at one time no fewer than 85 cities. These were distributed into four classes or *circles*. Lübeck was at the head of the *first* circle, and had under it Hamburg, Bremen, Rostock, Wismar, &c. Cologne was at the head of the *second* circle, with 29 towns under it. Brunswick was at the head of the *third* circle, which comprised 13. Dantzic was at the head of the *fourth* circle, having under it 8 towns in its vicinity, besides several others that were more remote. The supreme authority of the league was vested in the deputies of the different towns assembled in congress. In it they discussed all their measures; it decided upon the sum that each city should contribute to the common fund, and upon the questions that arose between the confederacy and other powers, as well as those that frequently arose between the different members of the confederacy. Any one might be chosen a deputy, and, besides merchants, the congress comprised clergymen, lawyers, artists, &c. When the deliberations were concluded, the decrees were formally communicated to the magistrates of the cities at the head of each circle, by whom they were subsequently communicated to those below them; and the most rigorous measures were adopted for carrying them into effect. One of the burgomasters of Lübeck presided at the meeting of congress, and during the recess the magistrates of the city had the sole, or at least the principal, direction of the affairs of the league. Sometimes congresses were held at other places besides Lübeck, as Hamburg, Cologne, &c., and extraordinary congresses were also occasionally held. As the power of the confederated cities increased, they became more ambitious; they endeavored to acquire the monopoly of the trade of the North, and to obstruct and hinder the navigation of foreign vessels in the Baltic. They succeeded in obtaining, partly in return for loans of money, and partly by force, various privileges and immunities from the northern sovereigns, which secured to them almost the whole foreign commerce of Scandinavia, Denmark, Prussia, Poland, Russia, &c. They now declared their object to be to protect themselves and their commerce from pillage, to guard and extend the foreign commerce of the allied cities, and as far as practicable to monopolize it; to manage the administration of justice within the limits of the confederacy; to prevent injustice by public assemblies, diets, and courts of arbitration; and to maintain the rights and immunities received from princes, and, if possible, to increase and extend them. The league exercised a judicial power, and inflicted the greater and lesser ban; any place which incurred these punishments being said to be *verhansed*. At length there was no mart in Europe that was not gradually drawn within the circle of its influence; and by the greatness of its wealth, and the might of its arms, it became the mistress of crowns, lands, and seas. It conquered Eric and Hakon, kings of Norway, and Waldemar III. of Denmark. It deposed a king of Sweden, and gave his crown to Albert, duke of Mecklenburg. In 1428 it equipped a fleet of 248 ships, with 12,000 soldiers, against Eric of Denmark. In the country under its immediate influence, it constructed canals, and introduced a uniform system of weights and measures. In order to facilitate and extend their commercial transactions, the league established various factories in foreign countries, at London in 1250, at Bruges in 1252, at Novgorod in 1272, and at Bergen in 1278. In London their factory was of considerable size and importance. They enjoyed various privileges and immunities; they were permitted to govern themselves by their own laws and regulations; had the custody of one of the gates of the city (Bishopsgate) committed to their care; and the duties on various kinds of imported commodities were considerably reduced in their favor. In the Netherlands, and in Norway and Russia, they enjoyed the like important privileges. The foreign factories were subjected to an almost monastic strictness of discipline, which even required the celibacy of the factors, clerks, &c. After the middle of the 15th century, the power of the league began to decline, not owing to any misconduct on the part of its leaders, but to the progress of that improvement which it had done so much to promote. The civilization, which had been at first chiefly confined to these cities, gradually spread from them, as from so many centres, over the contiguous country. The people began to be sensible of the advantages to be derived from commerce and navigation, and their princes also saw it to be for their advantage to encourage such enterprises; while at the same time the roads, or seas, were no longer insecure. In addition to these circumstances, the interests of the different cities which composed the league were becoming daily more and more opposed to each other; and the discovery of America led to a total revolution in the state of trade. The last diet of the confederation was held at Lübeck in 1630, when the union was dissolved. Hamburg, Lübeck, and Bremen subsequently formed an association among themselves, and remained free republics till 1810, when they were incorporated into the French empire. In 1813 they again became free, and, in conjunction with Frankfort-on-the-Main, were recognized as the *Free Hanseatic Cities*. In 1866, Frankfort-on the-Main fell under the dominion of Prussia, and in 1881 were forced into the Zollverein of the German Empire, along with Bremen, Hamburg, and Lübeck.

Hanseat'ic, *a.* (*Geog.*) Relating or pertaining to the Hanse towns, or to their league.—See HANSE.

Han'sel, *n.* and *v.* See HANDSEL.

Hans'ford, in *Kentucky*, a P. O. of Rock Castle co.

Hans'ford, in *Texas*, a post-village, cap. of Hansford co.

Han'som, Han'som cab, *n.* [From the name of the inventor.] See CAB.

Han'son, in *Kentucky*, a post-village of Hopkins co.

Han'son, in *Massachusetts*, a post-town and township of Plymouth co. *Pop.* (1895) 1,267.

Han'sonville, in *California*, a mining village of Yuba co., abt. 24 m. N.N.E. of Marysville.

Han'sonville, in *Virginia*, a P. O. of Russell co.

Han't, (in the U. States *hānt*; in England *hănt*.) A vulgar contraction of *have not*, or *has not*; as, I *han't*, (i. e., *I have not*.)

"You *han't* that simper about the mouth for nothing."—*Addison.*

Hants, a contracted method of writing HAMPSHIRE, England, *q. v.*

Hants, a central co. of Nova Scotia; *area*, abt. 1,000 sq. m. *Rivers.* Shubenacadie River, and some smaller streams. *Surface*, diversified; *soil*, in some places fertile. *Min.* Coal and gypsum. *Cap.* Windsor.

Hap, *n.* [W. *hap*, luck, chance, fortune; *hapian*, to happen, to have luck or chance. See HAPPEN.] That which happens; chance; accident; luck; casual event; that which comes suddenly or unexpectedly.

"Her life had full of *haps* and hazards been." — *Fairfax.*

Hap, *n.* In Scotland, a wrapper; a plaid cloak.

Hap, *v. n.* To happen; to befall; to occur by chance.

Hap-haz'ard, *n.* [See HAZARD.] Chance; accident.

We live at *hap-hazard*, and without any insight into causes and effects." — *L'Estrange.*

Hap'less, *a.* Luckless; unfortunate; unlucky; unhappy; as, a *hapless* maid.

"The pangs of guilty power and *hapless* love." — *Dr. Johnson.*

Hap'lessly, *a.* In a hapless manner.

Hap'ly, *adv.* By hap or chance; perhaps; possibly; it may be; by accident; casually; peradventure.

"*Haply* slumbering on the Norway foam." — *Milton.*

Happed, (*hapt.*) *a.* [From *hap*, a plaid or wrapper.] Wrapped; cloaked; covered, as with a plaid; as, "*happed* with flowers." (*Hogg.*) — (Used in Scotland.)

Happen, (*hap'n,*) *v. n.* [W. *hapiaw*, to happen.] To come by chance; to come abruptly: to come without one's previous expectation; to fall out; to befall; as, when do you expect it will *happen?* — To come to pass; to occur; to take place; as, the accident *happened* yesterday.

To happen on, to light on; to come across; to meet with, as, *to happen on* a stroke of good-fortune.

Hap'pily, *adv.* [From *happy*.] In a happy manner: fortunately; successfully; luckily; prosperously. — In a state of happiness and felicity; as, they are living *happily* together. — Gracefully; dexterously; with ease or address; as, he acted his part *happily*.

Hap'piness, *n.* [Icel. *heppni*, happiness.] State or condition of being happy: the agreeable sensations which spring from the enjoyment of good; that state of a being in which his desires are gratified; bliss; felicity; enjoyment of pleasure, &c.; mental satisfaction.—Good luck; good fortune; prosperity.

"A *happiness* that makes the heart afraid." — *Hood*

—Fortuitous elegance; artless or unstudied grace.

"Certain graces and *happinesses* peculiar to every language." *Denham.*

Hap'py, *a.* [Icel. *happ*, good luck, unlooked-for fortune, *heppinn*, fortunate; W. *hapus*, happy.] Having good hap; lucky; fortunate; successful; as, a *happy* thought, a *happy* experiment.

"Ye *happy* mixtures of more *happy* days."—*Byron.*

—Being in the enjoyment of agreeable sensations from the possession of good; enjoying pleasure from the gratification of the feelings, senses, or appetites; deriving ease, peace, comfort, or satisfaction; contented in mind.

"*Happy* the man, and *happy* he alone,
He who can call to day his own." — *Dryden*

—That supplies satisfaction or pleasure, or furnishes enjoyment; as, everything is in *happy* train.

"Must I leave thee, native soil, these *happy* walks and shades." *Milton.*

—Prosperous; having secure possession of good; in circumstances of solid felicity or content.

—Dexterous; ready; skilful; able; having capacity or address.

"One gentleman is *happy* at a reply, another excels in a rejoinder."—*Swift.*

—Propitious; significant of good; favorable; promising; as, a *happy* omen.

Hap'py Camp, in *California*, a post-village of Siskiyou co., on the Klamath river, about 40 miles above Orleans Bar.

Hap'py Creek, in *Virginia*, a P. O. of Warren co.

Happy Hol'low, in *Kansas*, a twp. of Graham co.

Happy Val'ley, in *Tennessee*, a P. O. of Carter co.

Haps'burg, or **Habs'burg,** [Contracted from *Habichtsburg*, Hawk's Castle.] (*Hist.*) The name of the reigning imperial family of Austria, derived from the castle of Hapsburg, or Habichtsburg, on the Wüpelberg, on the right bank of the Aar, in the present Swiss canton of Aargau. The castle was built in the 11th century, by Werner, bishop of Strasburg, grandson of Guntran "the Rich," count of Alsace and Breisgau, and who is said to have been a descendant of Ethico I., duke of Alemannia and Alsace. The proprietors of Hapsburg became, at a later period, *counts of Hapsburg*; and, gradually extending their dominions, subsequently assumed the title of *landgrave*. In 1273, Rodolph, of this house, became emperor of Germany, and the founder of the reigning house of Austria. The subsequent history of this house forms part of the history of Germany and Austria.

Haquebut, (*hak'but.*) *n.* (*Mil.*) When the hand-gun and arquebus were first introduced, the *butt* or stock was perfectly straight, and in the form of a stick or broom-handle, which prevented the soldier who was using it from taking a proper aim by directing his eye along the barrel. To obviate this inconvenience and imperfection in the weapon, the Germans fitted the barrel to a hooked butt, — whence the name, — by which means the fire-arm could be discharged from the chest as before, while an additional facility was given for taking aim at the object towards which the weapon was directed. It was introduced into England about 1485. Tho *H.* may be considered as the first step in the long series of improvements in small arms which seem to have culminated in the rifles produced in modern times.

Haque'ton, *n.* A coat of mail.

Har'ald, kings of Norway. The *first* of the name D. 933; the *second* succeeded 963, and was killed 978; the *third*, B. 1017, reigned over half Norway 1047, and was killed 1066; the *third*, a pretended son of Magnus III., began his career about 1130, usurped the throne, and was vanquished by another pretender 1136.

Har'ald, kings of Denmark. The *first* of the name known to historians, called the *seventh*, reigned 930–980; the *eighth* succeeded 1014, and died in England 1017; the *ninth* reigned 1076–80.

Har'alson, in *Georgia*, a N.W. co., adjoining Alabama; *area*, abt. 325 sq. miles. *Rivers.* Tallapoosa, and other smaller streams. *Surface*, hilly; *soil*, fertile. *Cap.* Buchanan.

Haramuk, (*har'a-mook'.*) one of the Himalaya Mountains, N. of Cashmere; Lat. 34° 26′ N., Lon. 74° 43′ E. Height, 13,000 feet.

Ha'ran, or rather CHARAN, called by the Greeks *Charran*, and by the Romans *Charræ*. It was situated in the north-western part of Mesopotamia, on a river of the same name running into the Euphrates. It is supposed to have been so called from Haran, the father of Lot and brother of Abraham; but there appears no ground for this conclusion except the identity of names. Abraham, after he had been called from Ur of the Chaldees, tarried here till his father Terah died, when he proceeded to the land of Canaan (*Gen.* xi. 31, 32; *Acts* vii. 4). The elder branch of the family still remained at *H.*, which led to the interesting journeys thither, described in the patriarchal history — first, that of Abraham's servant to obtain a wife for Isaac (*Gen.* xxiv.), and next, that of Jacob when he fled to evade the wrath of Esau (*Gen* xxviii. 10). The plain bordering on this town is celebrated in history as the scene of a battle in which the Roman army was defeated by the Parthians, and the triumvir Crassus killed. *H.* still retains its ancient name in the form of *Harran*, and is only peopled by a few families of wandering Arabs, who are led thither by a plentiful supply of water from several small streams. It is situated in a flat and sandy plain, in 36° 40′ N. Lat., 36° 2′ 45″ E. Lon.

Harangue, (*ha-răng'.*) *n.* [Fr.: It. *aringa*; Sp. *arenga*, from O. Ger. *hring* (the same in Icel., Old Sax., and A. S.), a ring, a circle.] A speech addressed to an assembly, or to an army arranged in a ring or circle; a popular oration; a declamatory public address; rant; noisy declamation.

"*Harangues* are heard . . . in factious opposition." — *Milton.*

—*v. n.* To make a speech to a large assemblage; to indulge in noisy declamation.

—*v. a.* To address by an harangue or oration; as, the general *harangued* his troops.

Ha'ras, *n.* [Fr.] In France, an establishment for the breeding of race-horses.

Harass, (*hăr'as,*) *v. a.* [Fr. *harasser*, from Gr. *arassō*, to strike hard, to dash in pieces; Heb. *taras*, to pull or tear down, to destroy.] To vex; to molest; to distress; to annoy; to tease; to weary with importunity, care, or perplexity.

"The griefs that *harass* the distress'd."—*Johnson.*

—To weary; to fatigue to excess; to tire with a repetition of bodily efforts, or an undue amount of labor.

"Spent with watching, and *harass'd* out with duty." — *Dryden.*

Har'asser, *n.* One who, or that which, harasses or wearies.

Har'assment, *n.* Act of harassing. (R.)

Harbinger, (*hăr'bin-jer,*) *n.* [Ger. *herberger*; D. *herbergier*, an inn-keeper, both from A. S. *hereberga* — *here*, an army, and *beorgăn*, to shelter; scouts being sent out from an army on march to select a proper place to pitch the camp.] A person who goes before to provide harbor or lodgings for those that follow; — hence, in its modern application, a forerunner; a precursor; that which precedes and gives notice of the expected arrival of something else.

"The evening star, Love's *harbinger*, appeared." — *Milton.*

Har'bingered, *a.* Ushered by a harbinger.

Har'bison, in *Indiana*, a township of Dubois co.

Harbor, Harbour, (*hăr'bĕr,*) *n.* [A. S. *here-berga* — *here*, an army, and *beorg*, refuge, shelter. See HARBINGER.] A place of entertainment and rest; a lodging; an asylum; a refuge; a shelter.

"Curst be all those easy fools who give it *harbour*." — *Rowe.*

—A port or haven for shipping; an area of navigable water communicating with the sea, or with a navigable river or lake, deep enough to receive large vessels, and protected from the effects of storms or heavy seas. *H.* must always be accompanied by a roadstead, in which vessels may await the high tides, if the *H.* should be exposed to their action; and in all cases it is preferable that there should be an outer harbor, in which the ships frequenting the particular port should be able to bring

up or to lose the way they retain from the open sea. *H.* are divided into *harbors of refuge*, *tidal harbors*, and *permanent harbors*. In *H.* of refuge all that is needed is to secure facility of entrance and safe berths for the vessels lying in them, together with great facilities for putting to sea; but as the vessels frequenting *H.* of this class are usually destined for some other port, there will be no necessity for making enclosed docks where the ships might be free from the inconvenience of the tides. In tidal *H.* such inclosed docks are wanted; for large vessels are rarely so built as to allow of their being beached, or unloaded upon the beach, when the ships are left by the tide. Permanent *H.* may dispense with the works for the inclosure of the shipping; but they

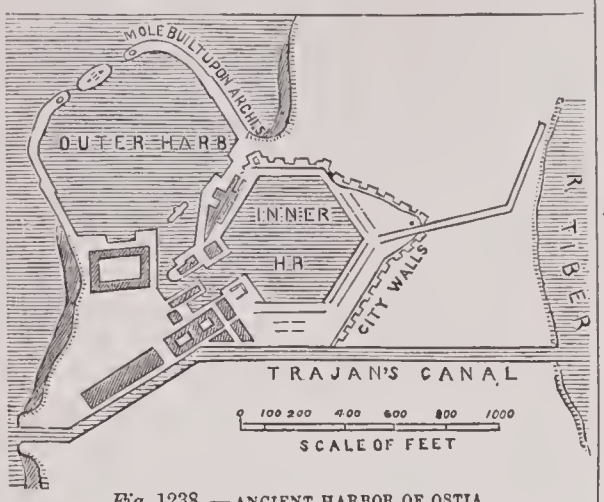


Fig. 1238. — ANCIENT HARBOR OF OSTIA,
(At the mouth of the Tiber.)

will be always unfit for the purpose of a commercial port, as ships, unless always at the same level, cannot be economically unloaded; in such seas as the Mediterranean, the Caspian, and the great lakes of N. America, this remark does not apply. Practically, permanent *H.* are either *military* or *civil*. The first require large areas of water surface, where the ships may lie in ordinary, as at New York, Cherbourg, Plymouth, Portsmouth, Brest, Toulon, Norfolk, &c.; the latter are usually smaller, and more compact, as Boston, Mobile, Liverpool, Havre, Southampton, Falmouth, Glasgow, London, Bordeaux, &c. The art of constructing artificial harbors may be traced down to the birth of commerce and naval warfare, but far above all other ancient nations, the Romans excelled in this branch of marine engineering. The port of Ostia, illustrated in Fig. 1238, and which is now 2 or 3 miles inland, has perhaps not been surpassed in modern times, and is especially remarkable for having a mole with open arches, resting upon stone piers, which gave full play to the tidal and littoral currents, and thus prevented the deposition of sandbanks.

—*v. a.* To shelter; to defend; to secrete; to permit to lodge, rest, or reside; to entertain; as, to *harbor* a guest, to *harbor* a suspicion. — To protect or secure, as a vessel in distress.

—*v. n.* To take refuge or shelter; to lodge or abide for a time; to sojourn; to receive entertainment.

"Let's *harbour* here in York."—*Shaks.*

Har'borage, Har'bourage, *n.* Shelter; rest; entertainment. (R.)

"Your king . . . craves *harbourage* within your city walls." *Shaks.*

Har'bor Creek, in *Pennsylvania*, a post-township of Erie co.

Har'borer, *n.* One who gives harbor or shelter; an entertainer.

Har'bor Grace, a town of Newfoundland, on the W. shore of Conception Bay, about 20 m. N.W. of St. John's.

Har'bor Island, in the W. Indies. See BAHAMA ISLANDS.

Har'borless, *a.* Destitute of a harbor.

Har'bor-master, *n.* An officer appointed to superintend all business connected with a harbor or port for ships.

Har'bortown, in *New Jersey*, a P. O. of Mercer co.

Har'burg, a fortified town of Prussia, in Hanover, 24 m. N.W. of Luneburg, on the right bank of the Elbe, opposite to Hamburg. *Manuf.* Tobacco, wax, linen, sail-cloth, starch, and gunpowder.

Hard, *a.* [A. S. *heard*; D. *hard*; Ger. *hart*; Dan. *haard*; Icel. *hardr*; probably akin to Fr. *hardi*, and to Gr. *kartos*, for *kratos*, strength. Root Sansk. *garatha*, hard.] Firm; solid; massive; compact; not yielding to pressure; resisting easy penetration or separation; — correlative of *soft*; as, a *hard* stone, *hard* wood, a *hard* nut, &c. — Difficult to the understanding; not easily penetrated by the intellect; as, a *hard* problem. "*Hard* words, which I was obliged to use." (*Arbuthnot.*) — Difficult of accomplishment; full of difficulties, obstacles, or contrary influences; painful; laborious; fatiguing; arduous; attended with difficulties or pain, or both; as, a *hard* task, a metal *hard* to fuse. — Powerful; forcible; difficult to resist or restrain.

"They are struggling with a power which will always be too *hard* for them.' —*Addison.*

—Oppressive; cruel; unfeeling; rigorous; not easy to influence or control; difficult to please or touch; as, a *hard* heart; — hence, abusive; harsh; as, *hard* words; also, rough; rude; coarse; as, a *hard* countenance.

"Rough ungovernable passions hurry men on to say or do very *hard* or offensive things."—*Atterbury.*

—Acid; sour; harsh; rough; austere; as, *hard* cider. — Harsh; stiff; forced; constrained; unnatural; displeasing to the taste or imagination; as, *hard* coloring.

"His direction is *hard*, his fingers too bold." —*Dryden.*

—Unreasonable; unjust; severe; rigorous; difficult to put up with; not easy to bear; painful to endure or consent to; as, *hard* work, a *hard* winter, *hard* times, *hard* conditions, a *hard* lot, &c.

(*Pron.*) Abrupt or vehement in utterance; not smoothly or gradually sounded by the tongue; — said of certain consonants, as *g* in *get*, and *c* in *carol*, as differing from the sound of the same letters in *gin*, *cistern*, &c. — *Hard cash*, *hard money*, specie, coin, or metallic currency, as distinguished from paper money. — *Hard water*, water containing mineral ingredients that decompose soap, and thus make it unsuitable for lavatory uses. — *Hard wood*, wood of a close grain and solid texture, as teak, greenheart, oak, ash, box, &c. — *Hard pan*, the indurated stratum of earth deposited beneath the soil.

Hard, *adv.* With pressure or urgency; — hence, zealously; diligently; earnestly; as, to plead *hard*.

"My correspondent . . . presses *hard* for an answer."—*Atterbury.*

—Uneasily; vexatiously; as, it goes *hard* with our friend. — With difficulty; laboriously; as, the cable runs *hard*. — Closely; distressfully; so as to raise difficulties; as, to be pushed *hard* for money. — With urgent pressure; vigorously; violently; vehemently; — hence, fast; rapidly; nimbly; expeditiously; as, to run *hard*. — With great force; tempestuously; boisterously; violently; copiously; heavily; as, it rains *hard*, it blows *hard*.

Hard by, close; near to; not far distant.

"Down in a dale, *hard by* a forest's side."—*Spenser.*

Hard up, pressed for ready money; short of cash; destitute of means or resources; in a state of poverty and extremity. (Used colloquially.)

"Tom being *hard up*, I lent him a sovereign."—*Bradley.*

(*Hard* is often used in composition in a compound form, as *hard*-won, *hard*-fought, *hard*-hearted, &c. In nautical language it is also employed to give emphasis to words of command with which it is joined; as, *hard* a-lee! *hard* a-weather! *hard* a-port! &c.)

Hard, *n.* A kind of causeway or pier on the banks of a river, harbor, &c., used as a landing-place for boats; as, the *Hard* at Portsmouth, Eng.

—*pl.* Refuse flax; tow.

Hardanger Fjeld, (*hard'an-ger-feeld,*) a portion of the great Scandinavian chain of mountains, about 70 m. N.E. of Bergen, Norway. Average height, 4,000 ft.

Hard'-bake, *n.* A kind of confection made of baked sugar, butter, molasses, &c.; toffee. (Commonly used in England.)

Hard'beam, *n.* (*Bot.*) The Thornbeam. See CARPINUS.

Har'deeville, in *S. Carolina*, a village of Beaufort district, about 20 m. N. of Savannah.

Har'deman, in *Tennessee*, a S.W. co., adjoining Mississippi; *area*, about 550 sq. m. *Rivers.* Hatchee, and some smaller streams. *Surface*, generally level; *soil*, fertile. *Cap.* Bolivar.

Hard'en, *v. a.* [A. S. *heardian*; Icel. *hardna*; Goth. *ghardjan.*] To make hard or more hard; to indurate; to make firm, solid, or compact; as, to *harden* wood, steel, or clay. — To confirm in effrontery; to make impudent; to make obstinate, unyielding, or refractory; to confirm in wickedness, opposition, or enmity; to make obdurate, insensible, or unfeeling; as, to *harden* one's heart. "Years have not yet *hardened* me." — *Swift.*

—To make hard and strong: to strengthen; to inure; to render firm or less liable to injury by exposure or use; as, to *harden* one's muscles by constant exercise.

—*v. n.* To become hard or more hard; to become inured; to indurate, as flesh; to acquire firmness or solidity; as, clay *hardens* by exposure to the sun.

—To become strengthened, confirmed, or consolidated; used in either a good or bad sense; as, he *hardened* in vice.

Har'denberg, CARL AUGUST, PRINCE VON, a famous German statesman, born at Hanover, 1750. In 1790 he entered the service of the king of Prussia, whose minister for foreign affairs he became in 1806. At the close of the wars of the first French empire, he signed the treaty of peace at Paris, in 1814. D. at Genoa, 1822.

Har'denberg, in *Indiana*, a village of Jennings co., about 79 m. W. of Cincinnati, O., on the B. & O. Southwestern R. R. The P. O. is HAYDEN. *Pop.* about 300.

Hardened, (*härd'nd,*) *p. a.* Made hard, or more hard, solid, or compact; made obstinate, callous, insensible, unfeeling; rendered more impenetrable; confirmed in vice or error; as, a *hardened* reprobate.

Hardener, (*härd'ner,*) *n.* One who hardens or solidifies.

Harderwyk, (*har'der-vīke,*) a fortified town of Gulderland in Holland, on the Zuyder-Zee, 27 m. N.W. of Arnheim. *Manuf.* Smoked fish, and dyes, and has an extensive trade in grain, timber, and fish. *Pop.* 6,148.

Hard'-favored, Hard'-favoured, (*-fā'vord,*) *a.* Having a harsh, rugged cast of countenance; coarse-featured; without comeliness.

Hard'-favoredness, *n.* Plainness or coarseness of features.

Hard'-featured, (*-fēt'yurd,*) *a.* Hard-favored; plain; coarse-featured.

Hard'-fisted, *a.* Having hard, coarse, or sinewy hands, as from the effects of labor: as, a *hard-fisted* navvy. —Covetous; grasping; niggardly; parsimonious; close-fisted: as, a *hard-fisted* usurer.

Hard'-fought, (*-fawt,*) *a.* Obstinately contested; vigorously striven for; as, a *hard-fought* battle.

Hard'hack, *n.* (*Bot.*) See SPIRÆA.

Hard'-handed, *a.* Having hard hands, hard-fisted.

Hard'head, *n.* Clash of heads in contest or combat.

"I have been at *hardhead* with your butting citizens." — *Dryden.*

Hard'headed, *a.* Shrewd; acute; intelligent; as, a *hardheaded* lawyer.

Hard'-hearted, *a.* Having an unfeeling heart; cruel; inexorable; merciless; without mercy or pity; barbarous.

"John Bull, otherwise a good-natured man, was very *hard-hearted* to his sister Peg." — *Arbuthnot.*

Hardicanute', or HARDACANUTE, a king of England, B. 1018, was the eldest son of Canute the Great. On the death of his father, whose viceroy he was in Denmark, Harold, a younger son by Canute's marriage with Alfgiva, daughter of the earl of Northampton, assumed the crown of England, and a bloody struggle was only prevented by the eldest son accepting the sovereignty of the whole country south of the Thames — thus forming the ancient kingdom of Wessex. The chief characteristic of his bachelor life was an inordinate love of eating and drinking; and long after his death by apoplexy, his subjects continued to celebrate the event, under the title of *Hog's Tide*, or Hock Wednesday. D. at Clapham, 1042.

Hard'ihood, *n.* Quality of being hardy; boldness; firm courage; intrepidity; valor; bravery. — Firmness of body derived from laborious exercises. — Excess of confidence; effrontery; assurance.

Hard'ily, *adv.* With great boldness; stoutly; in a hardy manner; with firmness or sternness.

Hard'iment, *n.* Hardihood; courage; stoutness; firmness. (R.)

"Zeal was the spring whence flowed her *hardiment*." — *Fairfax.*

Har'din, in *Illinois*, a S. co., adjoining Kentucky; *area*, about 149 sq. m. *Rivers.* Ohio, and numerous smaller streams. *Surface*, diversified; *soil*, fertile. *Cap.* Elizabethtown. *Pop.* (1890) 7,234.

—A post-village, cap. of Calhoun co., on the Illinois river, 30 m. N.W. of Altou. *Pop.* (1897) about 450.

—A township of Pike co.

Hardin, in *Iowa*, a N. central co.; *area*, about 576 sq. m. *Rivers.* Iowa river, Tipton, and some other creeks. *Surface*, level; *soil*, fertile. *Cap.* Eldora. *Pop.* (1895) 20,576.

—A post-office of Clayton co.

—A township of Greene co.

—A village and township of Hardin co.

—A township of Johnson co.

—A township of Pottawattamie co.

—A township of Webster co.

Hardin, in *Kentucky*, a W. central co.; *area*, about 580 sq. m. *Rivers.* Salt river, Rolling Fork, Nolin, and Rough creeks. *Surface*, undulating; *soil*, fertile. *Cap.* Elizabethtown. *Pop.* (1890) 21,304.

Hardin, in *Missouri*, a post-village of Ray co., about 9 m. E. of Richmond. *Pop.* (1897) about 700.

Hardin, in *Ohio*, a N.W. central co.; *area*, about 425 sq. m. *Rivers.* Scioto and Miami, and Blanchard's Fork. *Surface*, level; *soil*, fertile. *County-seat*, Kenton. *Pop.* (1890) 28,939.

—A post-village of Shelby co., about 5 m. W. of Sidney.

Hardin, in *Oregon*, a precinct of Crook co.

Hardin, in *Tennessee*, a S.W. co., adjoining Alabama and Mississippi; *area*, about 560 sq. m. *Rivers.* Tennessee, and numerous smaller streams. *Surface*, slopes gradually downward from each side toward the river; *soil*, fertile. *Min.* Iron. *Cap.* Savannah. *Pop.* 17,698.

Hardin, in *Texas*, a S.E. co.; *area*, about 940 sq. m. *Rivers.* Neches, Pine Island Bayou, and Big Cypress. *Surface*, generally level; *soil*, fertile. *County-seat*, Kountze. *Pop.* (1897) about 5,000.

—A post-village of Hardin co., about 80 m. E. of Houston.

Hard'iness, *n.* [Fr. *hardiesse.*] Quality of being hardy; power of endurance.

"Hardness ever of *hardiness* is mother."—*Shaks.*

—Excess of confidence; assurance; effrontery; boldness.

Har'dinge, HENRY, VISCOUNT, an English field-marshal, and governor-general of India, born in Durham, 1785. He greatly distinguished himself in the war against France, became secretary of war during the administration of the Duke of Wellington, and in 1844 was sent out to replace Lord Ellenborough as governor-general of India. On the breaking out of the Sikh war, in 1845, he hurried to the scene of action, and generously postponing all questions of dignity, acted as second in command during the fierce conflicts at Moodkee, Ferozeshah, and Sobraon. In 1852 he succeeded Wellington as commander-in-chief of the British army, an office which he held till his death, in 1856.

Har'dingville, in *New Jersey*, a post-village of Gloucester co., about 24 m. S. of Camden, on the West Jersey Railroad.

Har'dinsburg, in *Indiana*, a post-town of Washington co., about 32 m. N.W. of New Albany.

Har'dinsburg, in *Kentucky*, a post-village, cap. of Breckinridge co., about 120 m. W.S.W. of Frankfort. *Pop.* (1890) 681.

Hardin Springs, in *Kentucky*, a post-office of Hardin co.

Har'dinville, in *Illinois*, a P. O. of Crawford co.

Har'dinsville, in *Kentucky*, a village of Shelby co., about 9 m. S. W. of Frankfort.

Hard'ish, *a.* Hard in a certain degree.

Hard'isons Mills, in *Tennessee*, a post-office of Maury co.

Hard Labor. (*Law.*) A punishment frequently added to imprisonment in those States where the penitentiary system has been adopted. This labor is not greater than that voluntarily performed by many free men, and the quantity required to be performed is not exaggerated.

In the penitentiaries of Pennsylvania it consists in being employed in weaving, shoemaking, and such like employments.

Hard-la'bor Creek, in *S. Carolina*, joins Stevens Creek in Edgefield dist.

Hard'-labored, Hard'-laboured, *a.* Diligently wrought; studied with care and labor; elaborate; as, "a *hard-labored* poem." — *Swift.*

Hard'ly, *adv.* With difficulty; in a hard or arduous manner.

"Recovering *hardly* what he lost before."—*Dryden.*

—Barely; almost not; not quite or wholly; scarcely; as, *hardly* enough.—Harshly; coarsely; roughly; severely; rigorously.

Hard'-mouthed, *a.* Not sensible to the bit; not easily governed by the rein; as, a *hard-mouthed* horse.

Hard'ness, *n.* Quality or property of being hard; firmness: close union of the component parts; compactness; solidity; the quality of bodies which resists impression or separation of their particles; difficulty to be understood, or to be executed or accomplished; scarcity; penury; confirmed state of impenitence or wickedness; coarseness of features; rigor; harshness; roughness, as of sculpture; niggardliness; severe labor, trials, or sufferings; a quality in some kinds of water which unfits it for washing; insensibility of heart.

(*Physics.*) That condition of the force of cohesion in solids which enables their constituent molecules to retain their relative position, and resist any physical force which tends to alter the figure of the body. *H.* is entirely different from *density:* for, although gold and platinum are denser than glass, yet glass is harder than gold or platinum. Iron and zinc are lighter, but harder, than gold or platinum. Sir Isaac Newton supposes the primary particles of all bodies to be perfectly hard, and not capable of being broken or divided by any power in nature; but, with all our extended knowledge, it is impossible to determine, with any certainty, the conditions of the elementary particles which render bodies hard, brittle, malleable, ductile, &c. Some metals are rendered hard with great readiness. This is of inestimable value in the manufacture of steel especially, which can be varied in *H.* by heating suddenly, cooling, and then tempering. *H.* is often accompanied by brittleness; but this can generally be overcome by heating and slow cooling; this process, however, often takes away from the hardness. In the production of alloys, another useful property is frequently developed. Copper and tin, neither of which is remarkable for *H.* or elasticity, possess both these qualities when combined; in which form they constitute bell-metal.

(*Min.*) The *H.* of a mineral is a valuable means of distinguishing it from others closely resembling it. It is the first property a student examines in a specimen. The relative degrees of *H.* are expressed in numbers according to a scale, the numbers of which represent the *H.* of ten well-known minerals, viz.:

1 Talc,	6 Feldspar (cleavable var.),
2 Rock Salt,	7 Rock Crystal,
3 Calc Spar (transparent),	8 Topaz (transparent),
4 Fluor Spar (crystallized),	9 Sapphire or Corundum,
5 Apatite (transparent),	10 Diamond.

In testing a mineral, if, for instance, it neither scratches nor is scratched by apatite, its hardness is 5. If it scratches apatite and is itself scratched by feldspar, its hardness is between 5 and 6, and so on. The substance known as CARBORUNDUM (*q. v.*) is one of the hardest yet discovered, ranking next to the diamond, if not surpassing it in hardness.

Hard'-run, *a.* Much pressed; in great straits; as, to be *hard-run* for time.

Hard'ship, *n.* A hard state or condition; toil; fatigue; privation; severe labor or want; injury; oppression; injustice; annoyance; grievance.

"They were exposed to *hardship* and penury."—*Bishop Sprat.*

Hard'-tack, *n.* (*Naut.*) A term applied by sailors to sea-biscuit or ship-bread; — in contradistinction to *soft-tack* (*i. e.* fresh baker's bread).

Hard'-visaged, (*-viz'ajd,*) *a.* Coarse-featured; having a harsh, rugged countenance.

Hard'ware, *n.* A generic term employed to signify such manufactures as are produced from the commoner or more useful metals; that is, iron and steel, brass and copper, zinc and tin, and occasionally certain commoner kinds of plated goods.

Hard'ware River, in *Virginia*, enters James River in Fluvanna co.

Hard'wick, in *Massachusetts*, a post-village and township of Worcester county, about 6 miles west of Boston.

Hard'wick, in *New Jersey*, a township of Warren co.

Hard'wick, in *Vermont*, a post-village and township of Caledonia co., on Lamoille River, about 20 m. N.N.E. of Montpelier.

Hard'wick Centre, in *New Jersey*, a village of Warren co., abt. 3 m. N.E. of Blairstown.

Hard'wicke Island, an island of British N. America in Charlotte Sound, between Queen Charlotte's Island and the mainland.

Hard'y, *a.* [Fr. *hardi;* Norm. *hardy;* It. *ardito*, bold, courageous, daring. See HARD.] Bold; brave; stout; daring; resolute.

"And shall not love's diviner power inspire
More *hardy* virtue, and more gen'rous fire?"—*Prior.*

—Confident; full of effrontery; having much assurance; impudent; stubborn to excess; as, a *hardy* beggar. — Strong; firm; compact; as, a *hardy* constitution.

"An unwholesome blast may shake to pieces his *hardy* fabric."
South.

—Inured to fatigue; rendered firm by exercise; as, a *hardy* explorer. — Capable of bearing exposure to cold winds and weather; as, a *hardy* plant.

—*n.* A tool used by blacksmiths.

Har'dy, in *Ohio*, a township of Holmes co.; *pop.* about 2,100.

Har'dy, in *W. Virginia*, a N.E. co., adjoining Virginia and Maryland; *area*, about 400 sq. miles. *Rivers.* South branch of the Potomac, North, Cacapon, and Lost rivers. *Surface*, broken and mountainous; *soil*, in the valleys fertile. *Min.* Iron. *Cap.* Moorefield. *Pop.* (1890) 7,576.

Har'dyville, in *Arizona*, a former post-office and village of Mohave co., on the Colorado river, about 150 miles N.W. of Prescott.

Har'dyville, in *Kentucky*, a post-office of Hart co.

Hare, *n.* [A.S. *hara;* Dan. and Swed. *hare;* Icel. *hieri, heri;* Ger. *hase;* O. Ger. *haso;* Sansk. *sasa*, a hare.] (*Zoöl.*) See LEPORIDÆ.

Hare'bell, *n.* (*Bot.*) See CAMPANULA.

Hare'-brained, *a.* Wild; unsettled; giddy; volatile; heedless.

"That *hare-brained* wild fellow begins to play the fool."—*Bacon.*

Hare'-hearted, *a.* Timorous; shy; easily scared or intimidated.

Hare'hound, *n.* Same as HARRIER, *q. v.*

Hare Island, an island of Lower Canada, in the St. Lawrence River, about 95 miles N.E. of Quebec.

Hare'lip, *n.* (*Surg.*) A congenital or natural deformity, with which children are sometimes born; the upper lip being cleft or divided, either in the centre or a little to the side of the centre, and so called from the peculiar formation of the upper lip of the hare.—This malformation is sometimes attended with a cleft or fissure along the entire arch of the palate, and in some cases there is a double harelip, the cleft existing on each side of the lip, with a double fissure in the palate, or the absence of nearly all the bony part of the roof of the mouth. In all cases there is much inconvenience in talking, and in severe cases, from the absence of one or two teeth, and the cleft in the mouth, articulation is extremely difficult. The treatment, which is quite simple, consists in cutting the uneven edge of each side of the split lip smooth by a pair of scissors or a knife, till the breach presents the appearance of the letter V reversed (∧); two or three fine silver pins or needles are then passed through each flap, and a piece of silk thread wound in the form of a figure ∞ from head to point of each pin, till the two raw edges of the flap are brought close together, where they are to be kept so for some days, till a perfect union by the first intention takes place, the patient being kept on a liquid or very soft diet till the union is perfect.—When that is the case, the threads are to be cut, the needles or pins withdrawn, and the part secured for some time longer by strips of the best adhesive plaster. This operation, to be successful, should be adopted early — as soon, in fact, as the infant's or child's strength can bear it.

Hare'lipped, (*-lipt,*) *a.* Having a harelip.

Ha'rem, *n.* [Ar. *harem*, anything prohibited, *muharram*, prohibited, from *harram*, to prohibit.] The name given to those apartments in the houses of the East, which are appropriated to the exclusive use of the females of the family. See SERAGLIO.—The collective number of wives and concubines pertaining to one man.

Haren'giform, *a.* [Fr. *hareng*, herring, and *forme*, form.] Having the shape or form of a herring.

Hare'-pipe, *n.* A trap to catch hares.

Hare's-lettuce, (*-let'tis,*) *n.* (*Bot.*) See SONCHUS.

Hare's-tail-grass, *n.* (*Bot.*) See LAGURUS.

Hare's Valley, in *Pennsylvania*, a post-office of Huntingdon co.

Hare'wood, in *New York*, a P. O. of St. Lawrence co.

Harewood, in *W. Va.*, a post-village of Fayette co.

Har'fang, *n.* [A. S. *hara*, hare, and *fangan*, to catch.] (*Ornith.*) The great snowy owl. See OWL.

Harfleur (*här'flur*), a town of France, dept. Seine-Inférieure, at the confluence of the Seine with the Lézarde, 5 m. E.N.E. of Havre, and 1 m. from the sea. Its harbor, once good, is now nearly filled up. *Pop.* 2,100.

Har'ford, in *Maryland*, a N.E. co., adjoining Pennsylvania; *area*, about 422 sq. miles. *Rivers.* Susquehanna river, Deer Creek, and smaller streams. *Surface*, diversified; *soil*, fertile. *Min.* Iron, limestone, and granite. *Cap.* Belair. *Pop.* (1890) 28,993.

—A village of Harford co., abt. 25 m. E.N.E. of Baltimore.

Harford, in *New York*, a post-township of Cortland co., about 140 miles W. by S. of Albany.

Harford, in *Pennsylvania*, a post-township of Susquehanna co., about 10 m. S.E. of Montrose.

Harford Furnace, in *Maryland*, a post-office of Harford co.

Hargreaves, JAMES, (*har'graives,*) a celebrated English mechanician, who, while working as a poor weaver at Stanhill, in Lancashire, conceived the idea of imitating, by machinery, the action of the spinner seated at her wool-wheel: by means of which the "roving" of wool could be extended indefinitely; and, after having been twisted, wound on the cope or spindle. This was the origin of the celebrated "spinning jenny;" and even at the period of its first construction (1767) it produced more work than the combined efforts of thirty spinners with the old wheel. Arkwright and others have since completed the invention: the machinery of cotton-spinning being, at the present day, among the very best and simplest of all mechanical contrivances. The cotton-spinners, who had hitherto worked by hand, imagining that their trade would be ruined by the new machine, besieged the house of the inventor, and endeavored to destroy his "jennies." *H.* removed to Nottingham, and very shortly after, his invention was superseded by the improvements effected by Sir Richard Arkwright; and he died in poverty, about 1770.

Haricot, (*hăr'e-ko,*) *n.* [Fr.] The ripe seeds of various kinds of kidney-beans, especially of *Phaseolus vulgaris.* (*Cookery.*) A kind of hash, stew, or ragout, made of meat and vegetables; as, a *haricot* of mutton.

Har'ier. See HARRIER.

Hari'ri, ABU MOHAMMED AL KASIM BEN ALI, the most brilliant and popular of Arabian poets, b. at Bassorah, about 1054, A. D. Died there about 1122. Little is known of his life, save that he was the son of a silk-merchant (whence his name Hariri — *harir*, silk). The most famous of all his writings is entitled *Makamehs* (Sittings). This may best be described as a novel, or a collection of rhymed tales, loosely strung together, the centre of which is always a certain Abu Seid from Serug, who, witty, clever, amiable, of pleasing manners, well read in sacred and profane lore, but cunning, unscrupulous, a thorough rogue in fact, turns up under all possible disguises, and in all possible places — sermonizing, poetizing, telling adventures and tales of all kinds — always amusing, and always getting money out of his audience. The brilliancy of imagination and wit displayed in these strange adventures, their striking changes, and dramatic situations, have hardly ever been equalled; but more wonderful still is the poet's power of language. The whole force of the proverbial fulness of expression, spirit, elegance, and grandeur of the Arabic idiom, *H.* has brought to bear on his subject. His work — of which one of the greatest Arabian authorities has said that it deserved to be written in gold — has indeed become the armory as well as the mine of all Arabic writers since his day. Poets and historians, grammarians and lexicographers, look upon the *Makamehs* as the highest source of authority, and next only to the Koran, as far at least as language is concerned. His book has been translated, either entirely or partially, into nearly every Eastern and European tongue, and has been the prototype of innumerable imitations, the most successful of which is the one in Hebrew, *Tachkemoni*, by Jehuda Al-Charisi. The first complete edition of the text appeared in Calcutta, 1809–1814, in 3 vols.; another by Caussin de Percival, in Paris, 1818; one much more valuable, chiefly on account of its commentary, by Silvestre de Sacy, appeared in Paris, 1821–1822, (re-edited 1847–1853.)

Hark, *v. n.* [Contracted from *hearken.*] To listen; to lend the ear; to hearken.

"Pricking up his ears to *hark.*" — *Hudibras.*

—*interj.* Listen! hear! hearken!

"*Hark, hark!* the lark at heaven's gate sings." — *Shaks.*

Hark, in *Illinois*, a village of Shelby co.

Har'ker's Corners, in *Illinois*, a P. O. of Peoria co.

Harl, *n.* [O. H. Ger. *harlup*, rope.] The filaments of flax or hemp.

Har'lan, in *Indiana*, a post-office of Allen co.

Harlan, in *Iowa*, a township of Fayette co.

—A township of Page co.

—A thriving town, cap. of Shelby co., about 48 miles N.E. of Council Bluffs. *Pop.* (1897) about 2,500.

Harlan, in *Kansas*, a post-village of Smith co.

Harlan, in *Kentucky*, a S.E. co., adjoining Virginia; *area*, about 410 sq. m. *Rivers.* Cumberland river, and numerous smaller streams. *Surface*, rugged and mountainous, the Cumberland mountain forming the S.E. boundary; *soil*, in some places fertile. *Min.* Iron and coal. *Cap.* Harlan. *Pop.* (1890) 6,197.

—A post-village, cap. of the above co.

Har'lansburg, in *Pennsylvania*, a post-village of Lawrence co., on Slippery creek.

Har'leesville, in *South Carolina*, a township of Marion co., on the Little Pedee, about 100 miles E.N.E. of Columbia.

Har'lem, in Holland. See HAARLEM.

Harlem, in *Illinois*, a township of Stephenson co.

—A post-village and township of Winnebago co., about 6 miles N.E. of Rockford.

Harlem, in *Missouri*, a post-village of Clay co.

Har'lem (old spelling HAARLEM), in *New York*, was a settlement on Manhattan Island, at the junction of East and Harlem rivers, about 7 miles from the Battery. It has been for many years a part of the city of New York, although the region named is still known as *H.*

Harlem, in *Ohio*, a village of Carroll co., about 27 m. W.N.W. of Steubenville.

—A post-village and township of Delaware co., about 16 m. N.E. of Columbus.

Harlem Springs, in *Ohio*, a post-vill. of Carroll co.

Har'lemville, in *New York*, a P. O. of Columbia co.

Harlens'burg, in *Pennsylvania.* See HARLANSBURG.

Harlequin, (*har'le-kwin,*) *n.* [Fr. The name is said to be derived from an Italian comedian who, from frequenting the house of M. de Harlay at Paris, in the reign of Henry III. of France, was called *Harlequino* or "Little Harlay." This etymology, however, is incorrect, as the word was used before that period.] (*Theatricals.*) The name of a personage who figures largely on our stage in the pantomimes, and who has been borrowed from the Italian. The origin of the personage is a matter of dispute. Probably, however, the character has been handed down from the ancient Greek or Roman dramas. Riccobini conjectures that the dress of the harlequin is no other than the *centunculus* of the old Roman *mimi*, who had their heads shaved, and were called *planipedes.* Harlequins and buffoons are also called *zanni* by the best Tuscan writers, probably from the Latin *sannio*, of which Cicero (*De Oratore*, ii. 61) gives a description applying so strongly to the harlequin as to place his derivation from the *planipedes* almost beyond a doubt. The character of the ancient harlequin was a mixture of extravagant buffoonery with great corporal agility, while his expressions were characterized by

impudence, drollery, satire, and often indelicacy. His character, however, changed about the middle of the 16th century. He became a simple, ignorant servant, who assumes all colors, and is easily induced, through fear or interest, to commit all sorts of tricks or knaveries. He excels in extempore sallies, and tries very hard to be witty, even at the expense of being malicious. In other countries, where introduced, his character has been more or less modified. — See PANTOMIME.



Fig. 1239. — HARLEQUIN.

Harlequinade, (*har'le-kwin-ād,*) *n.* (*Theatricals.*) In pantomime, the term given to the after-part of the entertainment, or that which follows the transformation scene. The four leading characters of the *H.* are *harlequin*, *columbine*, *pantaloon*, and *clown*.

Har'lequin-duck, *n.* (*Zoöl.*) The *Histrionicus torquatus*, or *Clangula histrionica*, a magnificent species of the *Anatidæ* found on both continents; it derives its name from the singularity of its markings. It is 17 inches in length, and 28 inches in extent; the bill is of a lead color, tipped with red; upper part of the head black; between the eye and bill a broad space of white, extending over the eye, and ending in reddish; behind the ear a similar spot; neck black, ending below in a circle of white; breast deep slate; shoulders marked with a semicircle of white; belly black; sides chestnut; body above, black, or deep slate; some of the scapulars white; greater wing-coverts tipped with white; legs and feet deep ash; vent and pointed tail black. It swims and dives well; flies swift and to a great height; and has a whistling note. The female lays ten white eggs on the grass; the young are prettily speckled. At Hudson's Bay, where it breeds, and is said to frequent the small rivulets inland, it is called the *Painted Duck;* at Newfoundland and along the coast of New England, the *Lord.* It is an admirable diver, and is often seen in deep water considerably out at sea.



Fig. 1240. HARLEQUIN-DUCK. (*Clangula histrionica.*)

Har'leysville, in *Pennsylvania*, a post-office of Montgomery co.

Har'lingen. [Fris. *Harus.*] A fortified town of W. Friesland, in Holland, on the Zuyder-Zee, 65 m. N.N.E. of Amsterdam. It has an active trade with the Baltic. *Pop.* 9,085.

Har'lingen, in *New Jersey*, a post-village of Somerset co., abt. 9 m. S.S.W. of Somerville.

Har'lot, *n.* [Corrupted from A.S. *horelet*, from *hyrian*, to hire. See WHORE.] A woman who prostitutes her body for hire; a strumpet; a prostitute; a whore; an abandoned woman; a nymph of the pave; a courtesau; a bona roba; a doxy.

—*a.* Lascivious; lewd; wanton; base; low.

Har'lotry, *n.* Trade or practice of prostitution; licensed fornication; habitual or customary lewdness.

Harm, *n.* [A.S. *hearm* or *harm;* Dan., Swed., and Ger. *harm*, grief, offence; Icel. *harmr*, probably akin to O. Ger. *gram*, angry, *gramiz*, sad.] Injury; hurt; detriment; damage; misfortune; moral wrong; evil; mischief; wickedness.

—*v. a.* [A.S. *hearmian.*] To hurt, injure, or damage; to impair, as soundness of body.

Har'maline, *n.* (*Chem.*) A yellow crystallizable substance obtained from the seeds of *Peganum harmala*. It is soluble in dilute acid and alcohol. The plant is found in Southern Russia, and the seeds are used in dyeing.

Har'mar, in *Ohio*, a village of Washington co., on the Muskingum river, opposite Marietta. *Pop.* (1890) 1,684.

Har'marville, in *Pennsylvania*, a post-village of Allegheny co.

Harmat'tan, *n.* [Fr.; Sp. *harmatan;* It. *armatano*] (*Meteorol.*) The dry parching wind prevailing on the coast of Africa, between Cape Nord and Cape Lopez, in the months of December, January, and February. It much resembles the *sirocco* in its character.

Har'mel, *n.* [Ar. *harmal.*] The wild rue of Africa.

Harm'ful, *a.* Full of harm; injurious; noxious; detrimental; mischievous.

"Sleepy poppies *harmful* harvests yield." — *Dryden.*

Harm'fully, *adv.* In an injurious or harmful manner.

Harm'fulness, *n.* Hurtfulness; injuriousness; quality of being detrimental.

Har'mine, *n.* (*Chem.*) A compound obtained by the oxidation of harmaline. *Form.* $C_{13}H_{12}N_2O$.

Harm'less, *a.* Not hurtful or injurious; innocuous; inoffensive; innocent; unoffending.—Not receiving damage or injury; unharmed; uninjured; not guilty of crime or wrong; as, to hold a person *harmless* with respect to consequences.

Harm'lessly, *adv.* Innocently; without fault or crime; without hurt or damage.

Harm'lessness, *n.* Quality of being harmless or innoxious; freedom from a tendency to injure; innocence.

"When in dough-baked men some *harmlessness* we see,
'Tis but his phlegm that's virtuous and not he."—*Donne.*

Harmo'dins and Aristog'iton, two Athenians, strongly attached to each other, who murdered (514 B. C.) Hipparchus, the younger brother of the tyrant Hippias, on account of an insult offered by him to the sister of Harmodius. They meant to kill Hippias also, with a view to the overthrow of the Pisistratidæ, but in this they did not succeed. *H.* was cut down by the body-guard immediately after the murder of Hipparchus; *A.* fled, but was afterwards taken and executed. As Hippias was banished from Athens a few years later, *H.* and *A.* naturally came to be regarded as patriotic martyrs; and in this light they appear in all subsequent Greek history. They received divine honors from the Athenians, and had statues raised to their memory. A very beautiful drinking-song on this subject has been handed down to us in the Greek *Scholia.*

Harmo'nia. [Gr. *Armonia.*] (*Myth.*) According to some versions, a daughter of Ares and Aphroditê. She became the wife of Cadmus, the founder of Thebes, from whom she received the fatal necklace which brought about the deaths of Amphiraos and Eriphylê.

Harmon'ic, Harmon'ical, *a.* [Fr. *harmonique;* Gr. *harmonikos.*] Having harmony; concordant; consonant; musical; as, *harmonical* sounds, an *harmonic* society.

(*Mus.*) Relating to harmony, as distinguished from melody: relating to harmonics, or the doctrine of chords, &c.—Whatever appertains to harmony; as, the *harmonic* divisions of the monochord, the *harmonic* proportions, &c.

H. Mean. (*Arith.* and *Algeb.*) The second term of the harmonic progression, whose first and third terms are given quantities, is termed the *harmonic mean* of the latter; — hence, since the reciprocals of quantities in harmonic progression form an arithmetical series, the harmonic mean is the reciprocal of one half the sum of the reciprocals of the given quantities. Generalizing this definition, the harmonic mean of any number of quantities is the reciprocal of the n^{th} part of the sum of their reciprocals. — *H. Triad.* (*Mus.*) The chord of a note consisting of a third and perfect fifth, or, in other words, the *common chord.* — *H. Progression* or *Series.* (*Arith.*) A series of numbers such that any three consecutive terms are in harmonic proportion. The principal property of this progression is, that the reciprocals of the terms form an arithmetical progression, and, conversely, the reciprocals of an arithmetic form an harmonic progression. — *H.*, or *Musical, Proportion.* Three numbers are said to be in harmonical proportion when the first is to the third as the difference of the first and second is to the difference of the second and third; — thus, 2, 3, and 6 are in harmonical proportion, because 2 : 6 : : 1 : 3. — *H. Interval.* (*Mus.*) Any interval which has definite harmonic relations between the numbers of vibrations of its constituent notes.

Harmon'ie, *n.* (*Mus.*) See HARMONICS.

Harmon'ica, *n.* [Lat. *harmonicus.*] (*Mus.*) An instrument invented by Dr. Franklin, now seldom or never used, and which derived its origin from the musical glasses. Its sounds are produced from glasses blown as nearly hemispherical as possible, each having an open neck or socket in the middle, into which a perforated cork is fitted. Near the brim the glass is about one tenth of an inch thick, but increases towards the neck, which is in the largest about one inch deep and half an inch wide within, the dimensions lessening in proportion as the glasses diminish in size, all excepting the smallest, which ought not to be less than half an inch in length. The largest glass is nine inches in diameter, and the smallest three; between these there are twenty-three different sizes. They are distinguished by painting the apparent parts of the glasses on the inside — every semitone white, and the other notes of the octave with the seven prismatic colors, so that glasses of the same color, white ones excepted, are always octaves to each other. The glasses are placed on a round iron spindle (fixed horizontally in the middle of a box, and made to turn on brass gudgeons at each end), one within the other, each leaving about an inch of its brim above that of the other. The spindle is turned by means of a foot-wheel, and the tones produced by rubbing the exposed parts of the glasses with the ends of the fingers, damped and rubbed with chalk to bring out the tone more readily. The glasses also should be occasionally wetted with a sponge and clean water. The production of the sound by means of the naked finger is said to have such an effect upon the nervous system as in some cases to have caused fainting-fits. Many attempts were made to play it by keys, but none have succeeded, no dead substance having been yet found capable of giving the same expression to the sound as the human fingers.

Harmon'ically, *adv.* With harmony; musically.

—Treating of harmony, as distinguished from *melody.*

Harmon'ics, *n. pl.* (*Mus.*) A term applied to those concomitant, accessory sounds which accompany the predominant and apparently simple tone of any chord or string, as well as to the mathematical mensuration of musical sounds. The doctrine of the ancients was divided into seven parts, viz., sounds, intervals, systems, genera, tones, mutations, and melopœia.

Harmo'nious, *a.* [Fr. *harmonieux.*] Having harmony; having the parts adapted or proportioned to each other; symmetrical.

"All the *harmonious* worlds on high." — *Cowley.*

—Concordant; consonant; symphonious; musical; melodious.

"Thoughts, that voluntary move
Harmonious numbers." — *Milton.*

—Agreeing in action or sentiment; living in peace and friendship; as, an *harmonious* couple.

Harmo'niously, *adv.* With just adaptation and proportion of parts to each other; with accordance of sound; musically; in concord; in agreement; in peace or friendship.

Harmo'niousness, *n.* Quality of being harmonious or musical; proportion and adaptation of parts; agreement; concord.

Harmoniphon, (*har-mōn'i-fōn,*) *n.* [Gr. *armonia*, harmony, and *phonē*, sound.] (*Mus.*) A wind-instrument played with keys. The air, blown from the mouth through a tube, acts on thin metallic plates to produce the sound.

Har'monist, *n.* [Fr. *harmoniste.*] One who brings together corresponding passages, as of the four gospels, to show their agreement. — (*Mus.*) One skilled in harmony; a musician; a composer of music.

Har'monists, Har'monistes, *n. pl.* (*Eccl. Hist.*) A sect founded by George Rapp, a native of Würtemberg, B. 1770. He and his followers emigrated to this country in 1803, and established themselves near Pittsburg, in Pennsylvania, where they founded what they termed the *Pure Apostolic Church*, living in a kind of social brotherhood, having all things in common, and the like times for rest and enjoyment. They subsequently removed to Indiana, but in 1824 founded the colony of Economy, 17 m. N.W. of Pittsburg, that soon became a very prosperous village. Rapp died in 1847, and was succeeded as head of the *H.* by Mr. Becker. The *H.* profess the Protestant religion and universal toleration. They admit members of both sexes, but they do not marry. They keep watch by turn at night, and observe strict morality. They cultivate the learned languages, liberal professions, and music. Offences are punished by reprimands, temporary exclusion from the church and social intercourse, and expulsion.

Harmo'nium, *n.* [From *harmony.*] (*Mus.*) An instrument which bears some affinity to the organ, but, unlike that instrument, is made upon a principle technically termed the *free vibrating reed*, which is said to have been known from an early period in China, but was invented by Grenié in 1810, and first described by Biot in 1817. The free reed consists of a brass plate containing an oblong slit, having a thin elastic tongue fixed to one end, in such a manner, and so exactly fitting into the slit, as to completely close it, but so that it will, upon the pressure of the wind on the free end, pass either inwards or outwards, without touching the end or sides. It has several advantages over the beating-reed of the organ. In the first place, its tone is of a more agreeable quality; secondly, it requires no pipe, which is an indispensable addition to the organ; thirdly, it is much less liable to get out of order; and, fourthly, it gives an entirely new property, — viz., the power of *expression.* Debain, of Paris, was the first to construct a keyed instrument upon the free-reed principle of a really useful character. Several attempts had been made, but all had more or less failed, until Debain invented the harmonium. This instrument is about 3 feet high by 3 feet 9 inches broad, its depth varying according to the number of stops. The key-board is immediately below the lid, and its compass extends five octaves, from C to C. This now, however, in the best instruments, is virtually converted into seven by the more perfect arrangement of the stops. The valves are beneath the key-board and on top of the wind-box, within which are the different rows of reeds, the pitch of which is regulated by their size, which varies from half an inch to 3½ inches in length, whilst the quality of the sound is modified by the breadth of the vibrating portion and the shape of the hole covered by the valve. The wind is supplied by means of bellows with two feeders, which the player moves alternately with his feet. For the deep bass notes the springs are heavily loaded at the loose end, to make them vibrate slowly; while for the higher notes they are made thinner at that end. Some harmoniums have only one row of reeds, others four; some also have two rows of keys. Lately, a "knee movement" has been introduced, by which a small degree of ereseendo may be produced on either base or treble.

Harmoniza'tion, *n.* The act of harmonizing.

Har'monize, *v. n.* [It. *armonizzare*, to make harmony.] To be in harmony or concord; to agree in sounds, or musical or vocal effect; as, their voices *harmonize* in a duet. — To agree in action, feeling, sense, or purport; as, the two stories *harmonize.* — To be in peace or friendship; as, how often do a man and his mother-in-law *harmonize?*

—*v. a.* (*Mus.*) To bring into harmony; to make harmonious or musical; to set accompanying parts to. — To cause to agree; to adjust in suitable proportions; to reconcile apparent discrepancy in.

Har'monizer, *n.* One who harmonizes, brings together, or reconciles; a practical harmonist.

Harmonom'eter, *n.* [Gr. *armonia*, and *metron*, measure.] An instrument for measuring the harmonic relations of sounds.

Har'monsburg, in *Pennsylvania*, a post-office of Crawford co.

Har'mony, *n.* [Lat. *harmonia;* Gr. *armonia*, from *harmozō*, to fit or adjust together, to join, from obs. *arō*, to fit, to adapt.] The just and fit adaptation of parts to each other, in any system, plan, or composition of things,

intended to form a connected whole; as, *harmony* of shape, the *harmony* of the universe, &c. — Concord; agreement; accordance in facts; agreement in opinions, interests, manners, &c.; good correspondence; peace and friendship; as, the two families live in *harmony* together.

"My heart . . . by a secret *harmony* still moves with thine." *Milton.*

—The agreement or consistency of different histories of the same events; a literary work which brings together parallel excerpts respecting the same events, and shows their agreement; — used chiefly with application to the correspondence of the several writers of different parts of the Scriptures in their respective narratives, or statements of doctrine. The earliest Harmony of the Gospels was composed by Tatian, in the 2d century, with the title *Diatessaron*. Among other works of this kind may be mentioned, Osiander's *Harmonia Evangelica;* Cartwright's *Harmonia Evangelica Commentaria Illustrata* (1647); Le Clerc's *Harmonie Evangelique* (Amsterdam, fol., 1699); MacKnight's *Harmony of the Four Gospels* (1756); Greswell's *Harmony* and *Dissertation*, (Oxford, 1830.)

(*Painting.*) The general accordance of the objects in a picture with one another, and their subordination to the principal object; so that all unite to constitute a pleasing whole. It is effected by a due combination of lights and shades, by the union and color, or by such contrasts as are sufficient to relieve the distant groups.

(*Mus.*) The agreement of two or more united sounds. It may be either *natural* or *artificial;* the former consisting of the harmonic triad, or common chord, and the latter of a mixture of concords and discords, bearing relation to the harmonic triad of the fundamental note. With the Greeks, the word *H.* was in all probability limited in its signification to that agreeable succession of sounds which is now called air, or melody; while in modern music it is not employed to designate a mere succession of unaccompanied sounds, but a union of melodies, a succession of combined sounds, composed of consonant intervals, and moving according to the stated laws of modulation. *H.* is the combiuation of sounds and the succession of chords, and may be said to combine the life and soul of music. The ancients knew very little of harmony, aud it has not yet been introduced into the music of the Chinese and other Eastern nations. It is a comparatively modern invention. The laws regulating the succession of chords were at first rather arbitrary. (See CHORD.) *H.* may be divided into simple aud compound. Simple *H.* is that in which there is no concord to the fundamental above an octave. Compound harmony is that which to the simple harmony of an octave adds that of another octave. From the union of *H.* and melody music is formed. Although melody may exist without harmony, *H.* cannot exist without the melodious arrangement of each of its several parts. Melody is distinct from *H.* in that it is a succession of musical sounds, while harmony is produced by their combination. Every chord, whether consonant or dissonant, forms harmony. All harmony in music is derived from what is called the aliquot tones. If a string be made to vibrate, the sound produced at first appears to be single; but upon a closer and more careful observation, it will be found that the fundamental sound, more especially if it be a deep one, is accompanied by others in the most perfect harmony. These accompanying sounds are exactly those on which the chords in music are formed, and on which the foundation of the whole system of harmony is built. Some of the best works on harmony are those by Albrechtsberger, Dr. Marx, and Professor Dehn.

Har'mony, in *Illinois*, a township of Hancock co.,— A post-village of McHenry co., about 55 m. N.W. of Chicago.

Har'mony, in *Indiana*, a post-town of Clay co., about 19 m. E.N.E. of Terre Haute. *Pop.* (1890) 1,020.

—A township of Union co.

Har'mony, in *Iowa*, a village of Taylor co.

Har'mony, in *Kansas*, a post-office of Pawnee co.

Har'mony, in *Kentucky*, a post-village of Owen co.

Har'mony, in *Maine*, a post-town aud township of Somerset co. *Pop.* 704.

Har'mony, in *Minnesota*, a township of Fillmore co. —A post-village of Fillmore co., on Chic., Mil. & St. Paul R.R. *Pop.* (1895) 325.

Har'mony, in *Missouri*, a village of Washington co., about 80 m. S.W. of St. Louis.

—A towuship of Washington co.

Har'mony, in *New Jersey*, a village of Monmouth co., about 14 m. N.E. of Freehold.

—A village of Morris co.

—A post-town of Warren co.

Har'mony, in *New York*, a village of Chautauqua co.

Har'mony, in *Ohio*, a village and township of Clarke co., about 7 m. E. by S. of Springfield.

—A towuship of Morrow co.

Har'mony, in *Pennsylvania*, a post-borough of Butler co., on on Conequenessiug creek, about 220 m. W. by N. of Harrisburg.

—A township of Forest co.

—A township of Susquehanna co.

Har'mony, in *Rhode Island*, a post-village of Providence co. *Pop.* (1890) 379.

Har'mony, in *South Carolina*, a post-village of York co., about 100 m. N. of Columbia.

Har'mony, in *South Dakota*, a township of Jerauld co.

—A township of Spink co.

Har'mony, in *Tennessee*, a post-village of Washington co.

Har'mony, in *Virginia*, a post-village of Halifax co., about 110 m. S.W. of Richmond.

Har'mony, in *Wisconsin*, a township of Rock co.

—A post-village and township of Vernon co., on Bad Axe river, about 10 m. W. by N. of Viroqua.

Har'mony, in *West Virginia*, a village of Roane co., about 5 m. N. W. of Spencer.

Har'mony Grove, in *Georgia*, a post-village of Jackson co., abt. 100 m. N. of Milledgeville.

Harmony of the Spheres. (*Phil.*) Many of the ancient philosophers held that the regular movements of the various heavenly bodies through space produced a kind of *H.*, which they called "*H.* of the Spheres." They attributed this music to the various proportionate impressions of the heavenly bodies on one another acting at proper intervals. Kepler wrote a work on the harmonies of the world, and particularly of the celestial bodies.

Harmony, (Pre-established.) (*Phil.*) An hypothesis invented by Leibnitz, to explain the connection that subsists between spiritual and material substances. He holds that God, before creating the soul and body of man, had a perfect knowledge of all possible souls and all possible bodies. Among this infinite variety of souls and bodies it would be impossible but that there should be souls whose series of perceptions and determinations would correspond to the series of movements which some of these possible bodies would execute. Now supposing that of such a soul and such a body God should make man, it is evident that between the two substances which constitute this man there would subsist the most perfect harmony. These would have no communicatiou, no mutual influence, the one upon the other; each would act by virtue of its own nature, like two clocks accurately regulated, which point to the same hour and minute, although the spring which gives motion to the one is not the spring which gives motion to the other. This harmony being established before the creation of man, is hence called the pre-established or pre-determined harmony. This doctrine is frequently alluded to in philosophical works; but it is needless to attempt any refutation of it, as it is at best merely an hypothesis, and was probably regarded even by the author himself more as a specimen of ingenuity than as a serious doctrine.

Har'most, *n.* [Gr. *armostēs*, from *armozō*, I fit.] (*Anc. Hist.*) A Spartan magistrate, called also, sometimes, *Sophronistes* (moderator), who was appointed to govern a conquered state. It is conjectured from Thucydides, iv. 53, that the office was annual. Other Greek States which made conquests afterwards borrowed the name. Xenophon speaks of Theban *harmostæ* in Achaia.

Har'motome, *n.* [Gr. *harmos*, joint, aud *temno*, to cut or cleave, from the manner in which its crystals divide.] (*Min.*) A silicate of alumina and baryta occurring in white crystals, sometimes gray, red, brown, or yellow, and of a vitreous lustre. The crystals are rectangular prisms, often twins, found at Strontian, Scotland, Andreasburg in the Hartz Mts., and elsewhere. Sp. gr. 2·44–2·45. *Comp.* Silica 46·5, alnuina 15·9, baryta 23·7, water 13·9.

Har'nageville, in *Georgia*, a village of Pickens co.

Har'nersville, in *Pennsylvania*, a post-village of Somerset co.

Har'ness, *n.* [Fr. *harnais;* It. *arnese;* Ger. *harnisch;* W. *harnais*, from *harn*, that which aptly closes upon or fits.] Armor; the whole accoutrements or equipments of a knight, or horseman; a horse's armor (Fig. 1241).

"A goodly knight, all dress'd in *harness* meet." *Spenser.*

—The furniture, equipments, or trappings of a carriage or draught-horse; tackling.

(*Weaving.*) Part of the machinery of a loom.

—*v. a.* To dress in armor; to equip with armor for war, as a horseman. (o.)—To put on, as the furniture or body-gear of a horse for draught.

"My horse is *harness'd* . . . to my plough." —*Hale.*

—To equip; to furnish; to accoutre.



Fig. 1241.
KNIGHT IN FULL HARNESS.

Har'ness-cask, *n.* (*Naut.*) A cask or barrel lashed or *harnessed* to a ship's deck, containing a supply of salted meats for daily consumption.

Har'nesser, *n.* One who harnesses.

Har'nett, in *North Carolina*, a central co.; *area*, about 560 sq. m. *Rivers.* Cape Fear and Little rivers, besides some smaller streams. *Surface*, uneven; *soil*, fertile. *Cap.* Lillington. *Pop.* (1890) 13,700.

Har'ney, in *Maryland*, a post-village of Carroll co.

Har'ney, in *Oregon*, a post-village, cap. of Harney co., 125 m. S.W. of Huntiugton. *Pop.* (1897) 400.

Harns, *n. pl.* [Icel. *hiarni.*] A Scotticism for brains.

Ha'ro, a town of Old Castile, Spain, 26 m. W.N.W. of Logroño, on the right bank of the Ebro. *Manuf.* Linens, woollens, and earthenware. *Pop.* 6,540.

Har'old I., king of England, succeeded his father, Canute the Great, 1035, and D. 1039.

HAROLD II, son of Godwin, earl of Kent, usurped the throne, 1066, but was vanquished the same year by William the Conqueror, and killed at the battle of Hastings.

Har'old's Cross, a suburban village of Dublin, Ireland, abt. 1 m. S. of Dublin Castle; *pop.* 2,789.

Har'oun-al-Raschid, (or AARON THE JUST.) a renowned caliph of Bagdad, contemporary with Charlemagne and the empress Irene, was B. in Media, 765, and succeeded his elder brother as fifth caliph of the Abasside dynasty, in 786. He had already acquired immense popularity by his victories over the Greeks, and had made Irene a tributary of the caliphate. He now raised the empire of the Arabs to its highest pitch of grandeur, uniting the talents of a philosopher to those of a conqueror, and, like Charlemagne in the West, making his court the centre of arts and letters, and the refuge of men of learning from all parts of the Eastern empire. The Arabs never tire of their eulogisms upon the magnificence, generosity, and wisdom of this prince, as all the world has read in the *Arabian Nights' Entertainments.* His reign was the Augustan æra of the Arabian dominion, and his imaginative subjects have celebrated it as the age of enchantment and miracle. After the death of Irene, *H.* humbled her successor, the Emperor Nicephorus, still more deeply, made immense conquests among the Turks and other tribes of Asia, and subjugated the sect of Ali in his hereditary dominions. He D. in 809, leaving his vast possessions divided under his three sons, which prepared the way for endless jealousies, and produced many civil commotions in after-years. *H.* not only promoted learning and the arts in his dominions, but he was himself a poet, and was easily moved to tears by the recital of poetry. Yet he was often cruel, because, like a true child of the East, he was impulsive, and severe because politic.

Har'pa, *n.* (*Zoöl.*) A genus of molluscs, of the WHELK family, so regularly marked with parallel longitudiual ribs on the outer surface, as to suggest at the first glance the idea of the stringed instrument to which it owes its name. The upper end of each rib is projected and pointed; spire short, last whorl large and deeply notched; outer lip thickened, and is supposed to have no operculum. The mollusc which inhabits it has the head large; month open below; destitute of a proboscis; but having two tentacula, with eyes in the middle; foot large. The principal localities of this genus are the Red Sea, and the Indian and South American oceans. There are several species, all handsome, and some rare. One of the more abundant species, *Harpa ventricosa* (Fig. 1242), is as beautiful in form and coloring as any species of this marine carnivorous genus.

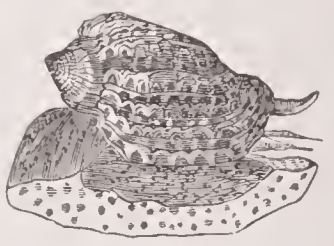


Fig. 1242.
HARP-SHELL AND ANIMAL,
(*Harpa ventricosa.*)

Harp, *n.* [A.S. *hearpa;* L. Ger. and D. *harp;* Ger. *harfe;* Dan. and Fr *harpe;* Swed. and Icel. *harpa;* It. *arpa*, from L. Lat. *harpa;* probably allied to Gr. *harpazô*, to seize or snatch away, and to Sansk. *hupra*, to beat, to strike] (*Mus.*) A stringed instrument, highly esteemed by the ancients, which may be traced, under

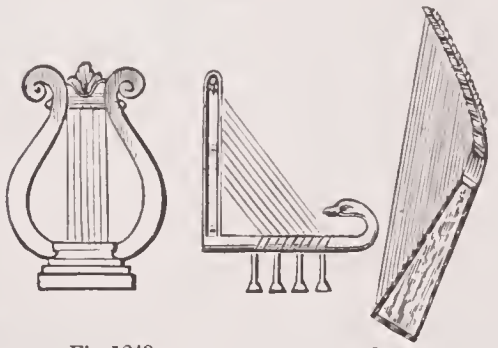


Fig. 1243. — ANCIENT HARPS OR LYRES.

various forms, to the remotest ages of antiquity. It was held in high veneration among the Celts, and its former prevalence in Irelaud (Fig. 1243) has led to its



Fig. 1244. — AN IRISH HARPER IN THE HALL, (12TH CENT.)
(From a manuscript in the Arundel collection.)

adoption as the national symbol. There is little doubt that it was brought to great perfection in Egypt, as its figure has been found drawn on buildings of the greatest antiquity; while at Thebes a fresco painting of a harp was discovered by Bruce, which he thinks was executed by order of Sesostris, who reigned between fourteen and fifteen hundred years before the Christian æra. In Holy Writ we find the harp continually mentioned, while its invention is ascribed to Jubal, seventh only in descent from Adam. There are three kinds of harps now known,—the *Italian* harp, the *Double* or *David's* harp, and the *Pedal* harp. The first of these is very imperfect, and seldom or ever used. The double harp is a better instrument, of a triangular form, having gut strings and a sounding-board; but it was not until the invention of pedals, in 1720, by Hochbrucker, that this instrument became really useful. For its present improved and nearly perfect state we are indebted to M. Sebastian Erard, of Paris, who patented a harp with seven pedals in 1794, this being a single-action harp: the pedals only effecting one change on the string, he produced, in 1808, a double-action harp, the pedals of which have two actions.



Fig. 1245.
ERARD'S HARP.

This instrument is tuned in the key of C flat, but may, by fixing the pedals in the first groove, be at once transposed to that of C natural, while, by fixing them in the second, it is transposed into that of C sharp. The compass of this instrument is from E double below the bass to E in altissimo.

Harp, *v. n.* [A. S. *hearpian.*] To play on the harp. — To dwell on tediously or vexatiously in speaking or writing; as, to *harp* on a woman's perfections.

"You *harp* a little too much upon one string."—*Collins.*

—*v. a.* To play upon, or strike sounds from, as a harp.

Harp, in *Illinois*, a growing township of De Witt county.

Harp, (Æolian.) See ÆOLIAN HARP.

Har'pax, *n.* (*Conch.*) A genus of fossil shells, oblong and somewhat triangular, the hinge being formed by two projecting teeth.

Harp'er, *n.* A player on the harp.

(*Numis.*) A coin formerly struck in the Irish mint, bearing on one side the effigy of a harp.

Har'per, JAMES, JOHN, JOSEPH WESLEY, and FLETCHER, the founders of the eminent American publishing house of "Harper Brothers," were B. at Newtown, L. I., in 1795, 1797, 1801, and 1804, respectively,— the sons of a prosperous farmer. At the age of 16, the two elder brothers were apprenticed to the printing business in New York, and being joined in that city by the two younger brothers, they, before 1825, had established themselves as publishers on an extensive scale, under the style and title before mentioned. Their establishment has since become one of the leading publishing concerns in the U. States, and one of the most important in the world. In 1850 appeared the first number of *Harpers' New Monthly Magazine*, which in a few years achieved a circulation of from 175,000 to 190,000 copies. In 1857, the firm commenced the issue of *Harpers' Weekly*, an illustrated paper, after the manner of the "Illustrated London News." A great proportion of their business lies in the publication of original works, and reprints of European authors. James was Mayor of N. Y. in 1846, D. 1869. Joseph Wesley, D. 1870, John D., 1875, and Fletcher D., 1877. The house is continued by the sons of the founders, in connection with others, under the original name.

Harper, in *Kansas*, a S. co., drained by tributaries of the Arkansas and Nescatunga rivers. *Area*, 810 sq. m. *Cap.* Bluff City. *Pop.* (1895) 9,238.

Harper, in *Ohio*, a post-village of Logan co., about 6 miles N. by E. of Bellefontaine.

Har'per's Ferry, in *West Virginia*, a post-village of Jefferson co., situated at the junction of the Shenandoah and Potomac rivers, and remarkable for the picturesque beauty of its surrounding scenery. It is 160 m. N. of Richmond, and 53 N.W. of Washington. *Pop.* (1890) 958. The U. S. Arsenal here was destroyed by the National troops, April 18, 1861, to prevent its falling into the hands of the Confederates, who occupied the village two days afterwards. On Oct. 16, 1859, *H. F.* was invaded and taken possession of by a band of 22 men under the leadership of John Brown, an old man of Ossawattomie, Kansas, who had been a daring and most resolute partisan leader of the Free State Party during the civil war in Kansas, in 1856–57. Their object was the emancipation of the slaves in the adjacent parts of Virginia and Maryland, and their plan seems to have been to seize and hold *H. F.* as a place of rendezvous for the negroes. The invaders were summoned to surrender on the 17th by a small military force, sent for the purpose from Jefferson. Upon their refusal, a fight ensued, which resulted in 20 of the whites and 3 colored men being killed, 3 whites and 2 colored men taken prisoners, while 4 escaped, who were subsequently captured in Pennsylvania, and delivered up to the Virginian authorities. After a trial before the circuit court of Jefferson co., for treason and murder, Brown was sentenced to be hung on Dec. 2, and his companions on the 16th. This enterprise was illegal and rash, but it sprung from a generous impulse, and by many John Brown is considered a hero and martyr, while the tragedy of *H. F.* may be considered as the prelude to the tremendous struggle by which the African race was raised from slavery to the citizenship of a free nation. In Aug., 1877, a monument was dedicated to the memory of John Brown, at Osawattomie, Kansas.

Har'per's Ferry, in *Iowa*, a post-village of Allamakee co.

Har'persfield, in *New York*, a post-town of Delaware co., about 60 m. W. by S. of Albany. *Pop.* (1890) 1,386.

Harperstield, in *Ohio*, a post-village and township of Ashtabula co., on Grand river, about 45 miles E.N.E. of Cleveland.

Har'per's Station, in *Ohio*, a post-office of Ross co.

Har'persville, in *Alabama*, a post-village of Shelby co., about 80 miles N. by W. of Montgomery.

Harpersville, in *New York*, a post-village of Broome co., on the Susquehanna river, about 16 m. E. by N. of Binghamton. Generally spelled HARPURSVILLE.

Harpersville, in *Texas*, a P. O. of Stephens co.

Har'peth, in *Tennessee*, a river rising in Williamson co., and flowing a general N.W. course, enters the Cumberland river between Davidson and Dickson cos. *Length*, about 100 miles.

—A post-village of Williamson co., about 25 miles S.S.E. of Nashville.

Harp'ing-iron, *n.* Same as HARPOON, *q. v.*

Harp'ings, *n. pl.* (*Naut.*) In a ship, those planks or wales, forming her outer skin, which bend in towards the bow, and are fastened in the stern; they hold the timbers of the fore-and-aft cant-bodies till the ship is planked. They are made thicker than other parts of the wales, to encounter the great resistance offered by the water as the ship cuts through it.

Cut-harpings, minor ropes between the tops and mast-heads, employed to draw the shrouds together and inwards towards the mast. They serve to tighten the shrouds, and to give freer play to the yards and sails when braced for on either tack.

Harp'ist, *n.* A harper; a performer on the harp.

Harpoc'rates, *n.* (*Myth.*) The Grecian name of the Egyptian god *Har-pi-chruti* (according to Bunsen and Lepsius) or "Horus, the child," the son of Isis, represented generally as a naked boy sitting on a lotus-flower, with his finger in his mouth, to denote (not, as is commonly supposed, silence), but the childish actions of infancy. — See HORUS.

Harponeer', *n.* Same as HARPOONER, *q. v.*

Harpoon', *n.* [Fr. *harpon*, from *harper*, to gripe, to grapple, to seize; allied to Gr. *harpazô*, to snatch, to seize.] (*Naut.*) An iron spear or javelin, shaped like a barbed arrow at one end, with a ring at the other, through which a rope is run; used for the purpose of spearing whales in the Greenland and other whale-fisheries. The *gun-harpoon*, or *harpoon-gun*, is a weapon used for the same purpose, but which is discharged from a swivel or gun, instead of being thrown by hand. This weapon is formed entirely of metal, and has a chain attached to it, to which the usual line is joined on, as in the former case. The manner in which the *H.* is used, and whales captured, will be given under the article WHALE, *q. v.* (Called also *harping-iron.*)

—*v. a.* To strike, catch, or kill with a harpoon; as, to *harpoon* a porpoise.

Harpoon'er, Harpooneer', Harponeer', *n.* One who uses an harpoon; the man in a whale-boat who throws the harpoon.

Harp'ress, *n.* A female harpist. (R.)

Harpsichord, (*harp'si-kord,*) *n.* [*Harp*, and *chord*; O. Fr. *harpechorde.*] (*Mus.*) A keyed musical instrument exactly resembling a grand pianoforte in shape, formerly much used, but now entirely superseded by the piano. The date of its invention is unknown, although it is supposed to have been about the 16th cent.; it was not, however, introduced into England until the 17th. It consists of a mahogany or walnut-wood case, within which is the belly, or sounding-board, over which the

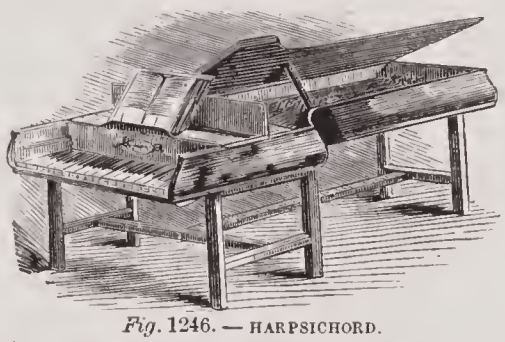


Fig. 1246. — HARPSICHORD.

strings are stretched, supported by bridges. The sound is produced by small pieces of crow-quill or hard leather, which project from the *jacks*, (small pieces of wood that stand upright between the strings,) and which, when the instrument is in use, are pushed upward by the keys till they touch the strings, causing a brilliant, but rather harsh sound. The great fault in the *H.* is its deficiency of any means of modification in respect to piano and forte notes.

Harps'well Centre, in *Maine*, a post-office of Cumberland co.

Harps'well, in *Maine*, a township of Cumberland co.

Har'py, *n.*; *pl.* HARPIES. [Fr. *harpie*; Gr. *harpyiai*, the Snatchers, from *harpazô*, to seize or snatch away by force.] (*Myth.*) One of a sort of fabulous winged monsters, ravenous and filthy, having the face of a woman and the body of a vulture, with their feet and fingers armed with short claws. — Also a name given to the Storm-winds, (Gladstone's *Homer and the Homeric Age.*) In Hesiod they are represented as the beautiful daughters of Thaumas and Electra; but in later mythology, they resume the repulsive form under which Virgil has described them, (*Æn.* iii. 211, &c.)

—A ravenous, rapacious person or animal; specifically, an extortioner; a plunderer; as, that old *harpy* of a landlady.

(*Zoöl.*) A name given to some birds of prey of the sub-family *Aquilinæ*, but more usually applied in America to the *Harpyia destructor* (Cuv.), or *Thrasaëtus harpyia* (Linn.),—an inhabitant of the great tropical forests, where it preys chiefly on quadrupeds, and to a large extent on sloths and young deer. Of all birds, it has the most terrific beak and talons. It is larger than the common eagle; is short-winged and short-legged; the upper mandible greatly hooked; the feathers of the head capable of being erected into a great ruff or crest. It has not so elegant a form as the true eagles, but is probably equal to any of them in strength and courage. When adult, it is generally of a blackish slate color, with gray head, and white breast and belly.

Harpy'ia, *n.* [Lat., harpy.] (*Zoöl.*) See HARPY.

Har'quebuse, *n.* See ARQUEBUSE.

Har'rar, Har'ar, or **Hur'rur,** a prov. of Africa, S. of Abyssinia. It formerly constituted the ancient empire of Adel. *Area*, about that of the N. E. and Middle States of the U. S. *Prod.* Grain and coffee.

Harrateen', *n.* A kind of cloth.

Har'rellsville, in *N. C.*, a p.-vill. of Hertford co.

Har'ricanaw, a river of British N. Am., rises abt. Lat. 49° 55′ N., Lon. 77° 30′ W., flows N.W. into James's Bay.

Harrico, *n.* See HARICOT.

Har'ridan, *n.* [Fr. *haridelle*, a sorry jade, a worn-out horse, probably from *aridella*, dim. of Lat. *aridus*, dry.] A decayed, used-up strumpet.

"A weak, watery, wicked old *harridan.*"—*De Quincey.*

Har'rier, Har'ier, *n.* [From *hare.*] A small hound trained for hunting the hare, remarkable for the acuteness of its sense of smell; as, a pack of *harriers.*

(*Zoöl.*) A species of hound employed in hunting the hare. This animal is supposed to be a cross between the fox-hound and the beagle, and is remarkable for its sagacity in tracing, and the boldness with which it pursues its game. According to Blaine, in his "Rural



Fig. 1247. — HARRIER.

Sports," there are three prominent varieties of the harrier, namely, the old southern hound (the *Chien couchant* of the French), (Fig. 1247), the modern harrier, and the beagle. Many subordinate divisions, however, accrue and a cross-breed is used for otter-hunting. The modern *H.* in appearance is little more than a dwarf fox-hound.

—The name of some species of Hawks, genus CIRCUS, *q. v.*

Harriette', in *Michigan*, a post-village of Wexford co.

Har'riettstown, in *Ohio*, a post-village of Noble co.

Har'riman, in *Tennessee*, a post-town of Roane co., on H. & N. and Southern R. Rs.; had a rapid growth and reached a population estimated at 3,800 in 1897, but has latterly progressed comparatively little.

Har'rington, JAMES, a celebrated political writer, born 1611, in Northamptonshire, Eng. His chief work is entitled *Oceana*, a political romance in which he defended republicanism. In 1661 he was, on a charge of treason, sent to the Tower of London, from whence he was removed to St. Nicholas's Island, near Plymouth, but was afterward released on bail. He died in 1677, after having been deranged for some years.

Harrington, a small seaport of Cumberland, Eng., on the Irish Sea, 5 miles N. of Whitehaven. It carries on an extensive trade with Ireland. *Pop.* 2,420.

Harrington, in *Delaware*, a post-village of Kent co., about 16 miles S. of Dover.

Harrington, in *Maine*, a post-town of Washington co., about 120 miles E. by N. of Augusta. *Pop.* (1897) about 1,200.

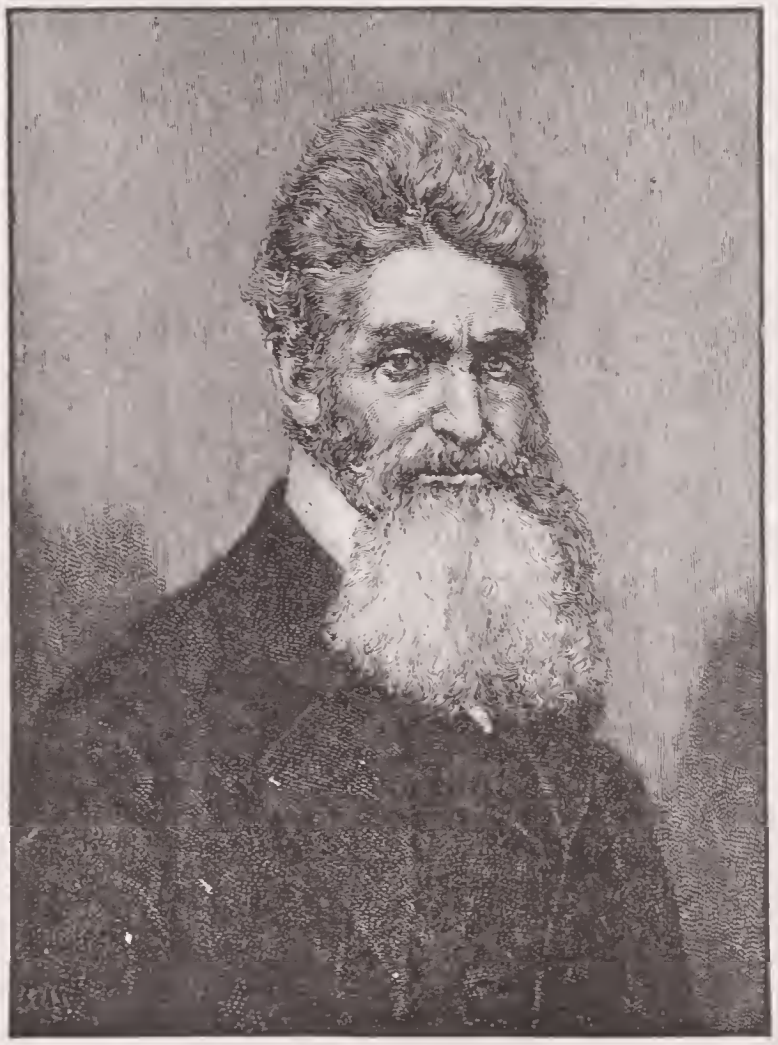
Harrington, in *New Jersey*, a post-town of Bergen co., on the Hudson river, about 7 miles N.N.E. of Hackensack. *Pop.* (1897) about 3,000.

Harrington, in *North Carolina*, a post-office of Harnett county.

Harrington, in *Washington*, a post-office of Lincoln county.

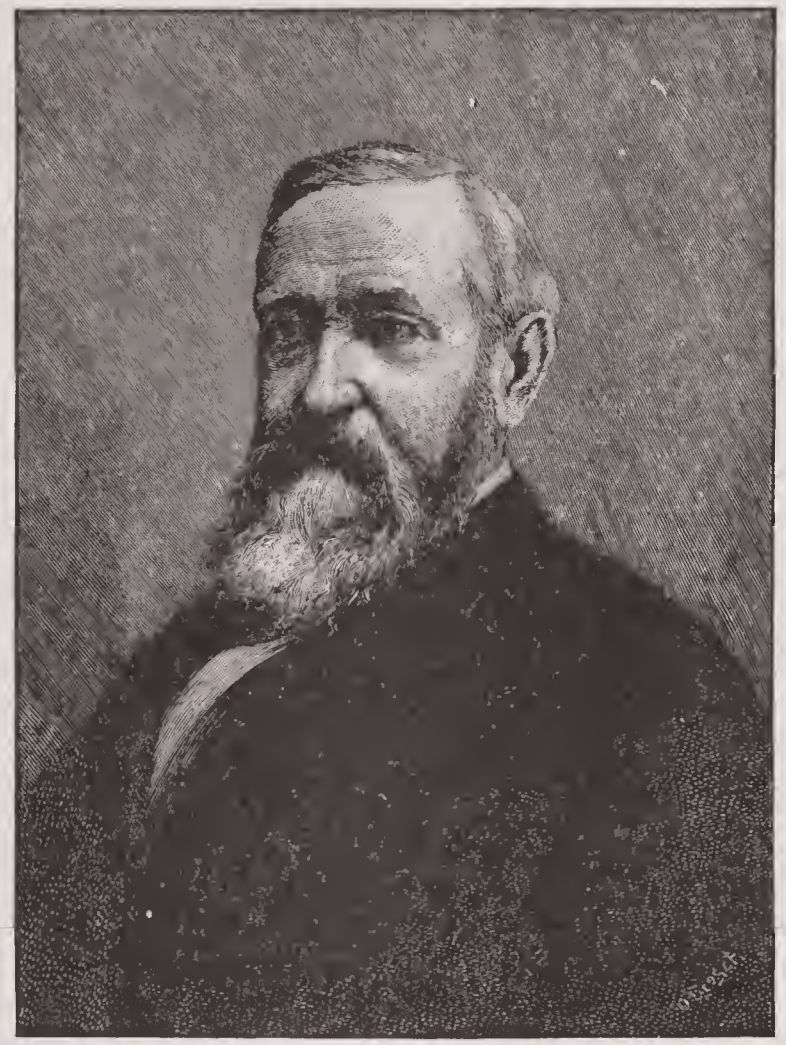
Har'ringtonite, *n.* (*Min.*) A var. of MESOLITE (*q.v.*).

Har'ris, JAMES, an English philological writer, born 1709; is author of three treaties concerning *Art, Music, Painting, Poetry, and Happiness*, 8vo.; *Hermes, or a Philosophical Inquiry concerning Universal Grammar*, and several other philological works. Died 1780.



John Brown

1800–1859



Benjamin Harrison

1833–

Har'ris, an island of Scotland. See HEBRIDES, THE.
Harris, in *Georgia*, a W. co., adjoining Alabama; *area*, about 423 sq. miles. *Rivers.* Chattahoochee river, Flat Shoal, Mountain, Mulberry, and Old House creeks. *Surface*, much diversified; *soil*, fertile. *County-town*, Hamilton. *Pop.* (1890) 16,797.
—A district of Morgan co.
Harris, in *Illinois*, a flourishing township of Fulton co.
Harris, in *Indiana*, a township of St. Joseph co.
Harris, in *Ohio*, a post-office of Gallia co.
—A township of Ottawa co.
Harris, in *Pennsylvania*, a township of Center co.
Harris, in *Texas*, a S. E. co., bordering on Galveston Bay; *area*, about 1,800 sq. miles. *Rivers.* Buffalo bayou and San Jacinto river. *Surface*, level; *soil*, very fertile. *Cap.* Houston. *Pop.* (1890) 37,249.
Harris, in *Virginia*, a post-office of Louisa co.
Harris, in *Wisconsin*, a township of Marquette co.
Har'risburg, in *Arkansas*, a post-village, cap. of Poinsett co.
Harrisburg, in *Colorado*, a post-office of Arapahoe county.
Harrisburg, in *Illinois*, a post-town, cap. of Saline co., about 65 miles N.E. of Cairo. *Pop.* (1890), 1,723.
Harrisburg, in *Indiana*, a post-village of Fayette co., about 55 miles E. by S. of Indianapolis.
Harrisburg, in *Iowa*, a township of Van Buren co., about 70 miles S. by W. of Iowa City.
Harrisburg, in *Kentucky*, a post-village of Owen co.
Harrisburg, in *Michigan*, a post-office of Ottawa county.
Harrisburg, in *Mississippi*, a village of Lee co.
Harrisburg, in *Missouri*, a post-town of Boone co., about 15 m. N.W. of Columbia.
Harrisburg, in *Nebraska*, a post-village, the capital of Banner co.
Harrisburg, in *New York*, a post-town and township of Lewis co.
Harrisburg, in *North Carolina*, a post-village of Cabarras co., about 13 m. N.E. of Charlotte.
Harrisburg, in *Ohio*, a post-village of Franklin co., about 14 m. S.W. of Columbus.
—A village of Gallia co., about 10 m. N.W. of Gallipolis.
—A village of Stark co., about 11 m. N.E. of Canton.
Harrisburg, in *Oregon*, a post-village of Linn co., on the Willamette river, about 27 m. S. of Albany.
Harrisburg, in *Pennsylvania*, a city, capital of the State and of Dauphin co., situated in Lat. 40° 16′ N., Lon. 76° 50′ W., 106 m. W. by N. from Philadelphia, and 110 m. N. by E. from Washington, on the left bank of the Susquehanna, here a mile wide, with an island in the middle, and crossed by several bridges. *H.* surrounded by magnificent scenery and fertile lands, is in itself a fine city, well built, and amply supplied with water. The Capitol, finely situated on an eminence, was a handsome brick building, 180 feet long by 80 feet wide, with a circular Ionic portico in front surmounted by a dome. This was nearly destroyed by fire early in 1897, but a new edifice is to be erected on the same site. The State Lunatic Hospital, opened in 1851, can accommodate 300 patients. *Manuf. and Ind.* Iron works, rolling mills, cotton mills, car factories, breweries, &c. *H.* carries on a large trade in lumber. It is a railroad center, and the Pennsylvania canal passes through it. In 1753, John Harris, Jr., established there a ferry over the Susquehanna, whence the name of Harris' Ferry under which *H.* was long known. It was afterwards called Louisburg, in honor of Louis XVI., and received its present name in 1791, when it was incorporated as a borough. The State government was transferred from Lancaster to *H.* in 1812. *Pop.* (1897) about 45,500.
Harrisburg, in *Texas*, a post-village of Harris co., on Buffalo Bayou, about 6 m. S.E. of Houston.
Harrisburg, in *Utah*, a post-village of Washington co., about 14 m. N. of St. George.
Har'ris City, in *Georgia*, a post-office of Meriwether county.
Harris Creek, in *Virginia*, a post-village of Amherst county.
Harris Ferry, in *Texas*, a post-office of Red River county.
Harris Grove, in *Illinois*, a post-village of Jefferson county.
Harris Grove, in *Kentucky*, a post-office of Calloway county.
Harris Hill, in *New York*, a post-office of Erie co.
Har'risite, *n.* (*Min.*) A variety of chalcocite, or sulphuret of copper, having a dark gray or blackish color, and cubical cleavage. Found at Canton Mine, Ga., and in the Polk co. copper mines, Tenn. See CHALCOCITE.
Harrison, BENJAMIN, lawyer, soldier and statesman, 23rd President of the United States, was born at North Bend, Ohio, Aug. 26, 1833; grandson of William Henry *H.*, and great-grandson of Benj. *H.* (1740–1791), who was governor of Virginia (1782–85) and one of the signers of the Declaration of Independence. He was graduated from Miami University (1852), studied law at Cincinnati, and removed (1854) to Indianapolis, where he built up a large and lucrative practice; entered the Federal volunteer army (1862) as a lieutenant; soon became colonel of the 17th Indiana infantry, and for gallantry at the battle of Peachtree creek, in the Georgia campaign, was made brevet brigadier-general, U.S.V.; remained with Sherman until the surrender of Johnston, and was mustered out of the service with the rank last named. In 1876 *H.* was Republican candidate for governor of Indiana, but was defeated; five years later (1881) he was elected U. S. Senator for the full term of six years. In 1888 he was elected President of the U. S., receiving 233 votes in the electoral college to 168 for Grover Cleveland; his administration was notable for an era of great prosperity and a substantial reduction of the national debt; but, being renominated for the presidency in 1892, he was defeated by Mr. Cleveland, who received 277 votes in the electoral college against 145 for *H.* and 22 for James B. Weaver, Populist. In March, 1893, *H.* resumed his law practice in Indianapolis. He was subsequently appointed special lecturer on law in the Leland Stanford University, California, and has contributed notable articles on national topics to leading periodicals.
Har'rison, JOHN, the inventor of the time-keeper for ascertaining the longitude at sea, was born at Foulby, Yorkshire, England, in 1693. His father, a carpenter or builder, brought him up to the same occupation; but by dint of his own ingenuity and perseverance he learned to make clocks and watches; and having turned his attention to the improvement of pocket watches, he was induced to make a time-keeper in that form, which he finished in 1759. This chronometer, in two voyages, having been found to correct the longitude within the limits required by the act of parliament, *H.* applied for the proposed reward of $100,000, which he received. *H.* was also the inventor of the *compensation pendulum*, named, from the manner of its construction, the *gridiron pendulum*, and of the *going fusee*, by means of which a watch goes while being wound up. Died in 1776.
Harrison, WILLIAM HENRY, 9th President of the U. S., born in Berkeley, Charles City co., Virginia, 1773, was the son of one of the most conspicuous among the patriots of the revolution. After receiving the customary education at Hampden-Sidney College, he studied for the medical profession; but participating in the general excitement which prevailed throughout the country against the barbarous mode of warfare at that time practised by the Indians on the north-western frontiers, he suddenly abandoned the study of Galen, and joined his brethren in arms as an ensign in the U. S. artillery, in 1791. Ten years later he was made Governor of Indiana, and held that post for more than 10 years. In 1811, in the hard-fought battle of Tippecanoe, he defeated the Indians under the command of the famous Tecumseh. After General Hull's surrender in 1812, *H.* was appointed to the command of the army on the northwestern frontier, with the rank of brigadier-general; he was made major-general in March, 1813. In 1824 he took his seat in the Senate of the U. S., and soon after was chosen chairman of the Military Committee. He was nominated, in 1836, candidate for the presidency, by the party opposed to Mr. Van Buren, and although defeated in the election of that year, became again the nominee of the Whig party in 1840; and in the subsequent election was chosen President by an overwhelming majority, John Tyler, of Virginia, being associated with him as Vice-President. *H.* was inaugurated President March 4, 1841, and from the judicious composition of his cabinet, great expectations were formed of his administration; but within a month he died, after a short illness of 8 days.


Fig. 1248.—W. H. HARRISON.

Harrison, in *Arkansas*, a post-village, cap. of Boone county.
Harrison, in *Illinois*, a post-village and township of Winnebago co.
Harrison, in *Indiana*, a S. co., adjoining Kentucky; *area*, about 470 sq. miles. *Rivers.* Ohio and Blue rivers, Indian creek, and some smaller streams. *Surface*, broken and diversified, some of the river hills and knobs rising to a height of 500 feet; *soil*, fertile. *Min.* The county is based principally upon cavernous limestone, and Pitman's Cave, in the W. part, is said to extend more than two miles underground, having apartments of great dimensions. There is also a remarkable spring in this vicinity, 60 feet in diameter and several hundred feet deep, furnishing water power sufficient for a large mill. *Cap.* Corydon. *Pop.* (1890) 20,786.
—A township of Bartholomew co.
—A township of Blackford co.
—A post-township of Delaware co.
—A village and township of Vigo co.
Harrison, in *Iowa*, a W. co., adjoining Nebraska; *area*, about 605 sq. m. *Rivers.* Missouri, Boyer, and Soldier. *Surface*, generally level; *soil*, fertile. *Cap.* Logan. *Pop.* (1895) 23,091.
—A township of Adair co.
—A township of Benton co.
—A post-township of Harrison co.
—A township of Lee co.
—A village of Louisa co., on the Iowa river, about 2 miles N.E. of Wapello.
—A township of Mahaska co.
Harrison, in *Kentucky*, a N.E. central co.; *area*, about 357 sq. miles. *Rivers.* Licking river and some smaller streams. *Surface.* undulating; *soil*, generally very fertile. *Cap.* Cynthiana. *Pop.* (1890) 16,914.
—A village of Pulaski co., about 15 m. N.W. of Somerset.
Harrison, in *Maine*, a post-township of Cumberland co.
Harrison, in *Maryland*, a post-office of Dorchester co.
Harrison, in *Michigan*, a post-village, cap. of Clare co. *Pop.* (1894) 746.
—A township of Macomb co.
Har'rison, in *Minnesota*, a P. O. of Kandiyohi co.
Harrison, in *Montana*, a P. O. of Madison co.
Harrison, in *Mississippi*, a S. co., bordering on Mississippi Sound. *Area*, about 990 sq. m. *Rivers.* Biloxi and Wolf rivers, besides numerous smaller streams. *Surface*, level; *soil*, not fertile. *Cap.* Mississippi City. *Pop.* (1890) 12,481.
Harrison, in *Missouri*, a N.W. co., adjoining Iowa. *Area*, about 730 sq. m. *Rivers.* Crooked Fork, and Big creek, affluents of Grand river, besides numerous streams. *Surface*, undulating; *soil*, fertile. *Cap.* Bethany. *Pop.* (1890) 21,033.
—A village of Crawford co., about 31 m. E.N.E. of Rolla.
—A township of Scotland co.
Harrison, in *Nebraska*, a township of Buffalo co.
Harrison, in *New Jersey*, a township of Gloucester county.
Harrison, in *New York*, a post-town of West Chester co. *Pop.* (1890) 1,485.
Harrison, in *Ohio*, an E. co. *Area*, about 400 sq. m. *Rivers.* Conotton and Stillwater creeks. *Surface*, diversified; *soil*, very fertile; wool-growing is a leading industry. *Min.* Bituminous coal in abundance. *Cap.* Cadiz. *Pop.* (1890) 20,830.
—A post-village and township of Hamilton co., on the W. border of the State, about 20 m. W.N.W. of Cincinnati.
—A township of Champaign co.
—A village of Portage co.
—A township of Van West co.
Harrison, in *Pennsylvania*, a township of Bedford co.
—A township of Potter co.
Harrison, in *Tennessee*, a post-village of Hamilton co., on the Tennessee river, about 140 miles S.E. of Nashville.
Harrison, in *Texas*, a N.E. co., adjoining Louisiana. *Area*, about 880 sq. miles. *Rivers.* Sabine river, and Big and Little Cypress bayous. Caddo lake washes its E. border. *Surface*, diversified; *soil*, fertile. *Cap.* Marshall. *Pop.* (1890) 26,721.
Harrison, in *Wisconsin*, a township of Calumet co.
—A township of Grant co.
Harrison, in *West Virginia*, a N. central co.; *area*, about 464 sq. miles. *Rivers.* West Fork of the Monongahela river, and some smaller streams. *Surface*, hilly; *soil*, fertile. *Min.* Coal and iron. *Cap.* Clarksburg. *Pop.* (1890) 21,919.
Harrison Bay, in *Alaska*, an arm of the Arctic Ocean, about Lat. 70° 30′ N., Lon. 151° 3′ W.
Har'risonburg, in *Louisiana*, a post-village, cap. of Catahoula parish, on the Washita river, about 167 miles N.N.W. of Baton Rouge.
Harrisonburg, in *Virginia*, a fine city, cap of Rockingham co., on B. & O. R. R., 68 miles S.S.W. of Winchester. *Pop.* (1897) about 2,900.
Harrison City, in *Pennsylvania*, a post-village of Westmoreland co., about 24 m. E. by S. of Pittsburg.
Harrison Creek, in *North Carolina*, a post-office of Pender co.
Harrison Jume'tion, in *Ohio*, a village of Hamilton co.
Harrison Mills, in *Ohio*, a post-office of Scioto co.
Harrison's Landing, in *Virginia*, a locality of Charles City co., on the James river, about 5 m. below City Point, to which the Union army retreated after the Seven Days' Battle.
Harrison Square, in *Massachusetts*, a former post-village of Norfolk co.; now the 24th ward of the city of Boston.
Harrison Val'ley, in *Pennsylvania*, a post-village of Potter co.
Har'risonville, in *Arkansas*, a post-office of Jackson county.
Harrisonville, in *Illinois*, a village of Macon co.
—A post-village of Monroe co., on the Mississippi river, about 28 miles below St. Louis, Missouri.
Harrisonville, or **Trin'ity Springs,** in *Indiana*, a village of Martin co., about 4 miles N.E. of Dover Hill. Its P. O. is TRINITY.
Harrisonville, in *Kentucky*, a post-village of Shelby co., about 46 m. E.S.E. of Louisville. Formerly called CONNERSVILLE.
Harrisonville, in *Missouri*, a post-town, cap. of Cass co., about 115 miles W. of Jefferson City.
Harrisonville, or **Coles'town,** in *New Jersey*, a post-village of Gloucester co., about 22 miles S.S.W. of Camden.
Harrisonville, in *Ohio*, a post-office of Meigs co.
—A village of Scioto co., about 15 m. N.E. of Portsmouth.
Harrisonville, in *Pennsylvania*, a village of Centre co., about 4 miles S.E. of Bellefonte.
—A post-village of Fulton co., about 27 miles W. of Chambersburg.
Har'ristown, in *Illinois*, a post-township of Macon county.
Harristown, in *Indiana*, a post-village of Washington co., about 4 miles E. of Salem.
Har'risville, in *Indiana*, a post-village of Randolph co., about 4 miles W. of Union City.
Harrisville, in *Michigan*, a post-village, cap. of Alcona co., on Lake Huron, 90 m. N.N.E. of Bay City.
—A township of Alcona co.
Harrisville, in *Mississippi*, a post-village of Simpson county.
Harrisville, in *North Carolina*, a post-village of Montgomery co., about 126 miles W.S.W. of Raleigh.
Harrisville, in *New Hampshire*, a post-town of Cheshire co. *Pop.* (1897) about 750.
Harrisville, in *New York*, a post-village of Lewis co.
Harrisville, in *Ohio*, a post-village of Harrison co., about 123 miles E. of Columbus.

Har'risville in *Ohio*, a township of Medina county.

Har'risville, in *Pennsylvania*, a post-village of Butler co., abt. 24 m. N N.W. of Butler.

Har'risville, in *Rhode Island*, a village of Providence co., abt. 15 m. N.W. of Providence.

Har'risville, in *Wisconsin*, a post-village of Marquette co., abt. 8 m. N.W. of Montello.

Har'risville, in *W. Virginia*, a post-village, cap. of Ritchie co., abt. 37 m. E. of Parkersburg.

Har'rodsburg, in *Indiana*, a post-village of Monroe co., abt. 12 m. S. of Bloomington.

Har'rodsburg, in *Kentucky*, a post-town, cap. of Mercer co., abt. 30 m. S. of Frankfort. It is notable as the oldest town in the State, the first dwelling having been built by Capt. James Harrod, in 1774. It is beautifully situated on an eminence, a short distance from Salt River, and contains, besides Bacon College and a military academy, numerous fine public and private edifices. The mineral springs in the vicinity have gained much celebrity. *Pop.* (1897) about 3,320.

Har'rod's Creek, in *Kentucky*, a post-village of Jefferson co., on L. & N. R. R.

Har'rogate, Harrowgate, or High Harrogate, a town and fashionable resort of Yorkshire, England, 20 miles S. W. of York, celebrated for its sulphurous and chalybeate springs.

Harrow, (*har'rō,*) *n.* [Dan. *haro;* Swed. *harf*, a harrow; Ger. *hacke*, a rake; allied to A. S. *hergian*, to lay waste, to harass.] (*Agric.*) An implement formed of bars of wood or iron, fastened together transversely, either at right angles to each other, or diagonally, with iron teeth projecting downwards from the points of intersection perpendicularly, or with a slight inclination. A *H.* with the bars set diagonally is the best, as their inclination to each other may be regulated in such a manner that each tooth marks out a separate furrow; in consequence of which the implement performs its work more effectually than it would if the bars were disposed, as in the old *H.*, at right angles to each other. There is also an expanding harrow, in which the framework of bars is fastened together by loose pins, so that the teeth can be set closer together or farther apart, as the state of the soil may require. The *H.* is used in bringing land that has just been ploughed into a proper condition for the reception of the seed, by breaking the clods of earth into smaller fragments, tearing out the roots of the weeds or stubble, and pulverizing and mixing the soil. To effect this, and to render the surface tolerably smooth and even, the land is rolled and harrowed two or three times with different *H.*, a strong, heavy *H.* being used to break the furrows made by the plough, and lighter harrows, with the teeth set more closely together, in the final stages of the process.

Har'row, *v. a.* [Swed. *harfoa;* A. S. *hergian.*] To draw a harrow over ploughed ground, for the purpose of crushing clods and levelling the surface, or for covering seed sown; as, to *harrow* a field.

"Let the Volscians plough Rome and *harrow* Italy."—*Shaks.*

—To torment; to tear; to lacerate; to worry; to harass; as, a *harrowing* tale.

"It *harrows* me with fear and wonder."—*Shaks.*

Har'row, *interj.* [O. Fr. *haran.*] Help! ho there! halloo!

"*Harrow* now, out and well-away."—*Spenser.*

Har'row, a town of England, co. Middlesex, on the highest hill in the county, hence often called *Harrow-on-the-Hill*, 10 m. W. of London. There is a celebrated public school here where Lord Byron and other celebrated men were educated. *Pop.* 6,100.

Har'rower, *n.* A person who uses a harrow. — A kind of hawk; a harrier.

Har'rowing, *n.* (*Agric.*) The process of drawing a harrow over the soil for the purpose of reducing it to a level, of covering seed, or of turning up weeds in ploughed ground, or moss in grass-lands. In agriculture the harrow is driven by horses; and in market-gardening, where a light harrow is sometimes used, by men. In either case, the more rapid the motion of the harrow, up to a certain point, the more efficient will be its operation. For meadow-lands, the object of *H.* is to disperse the little heaps of earth raised during winter and early spring by moles and worms. For this purpose the harrows are sometimes turned upside-down; while, at other times, thorn branches are tucked into a frame resembling a harrow, and dragged over the surface for the purpose of effecting the same object. This is called *bush-harrowing.* A chain-harrow is also used for the same purpose.

Har'ry, *v. a.* [A. S. *hergian;* Swed. *hærja, härja.*] To strip; to pillage; to ravage; to plunder; to lay waste; as, to *harry* an enemy's country. — To harass; to agitate; to tease; to worry.

"I repent now much that I so *harried* him."—*Shaks.*

Harrysoph, (*har'ri-sŏf,*) *n.* [L. Gr. *Crisophos.*] A term used at Cambridge University, England, to denote a student who, while competent to take the degree of B. A., announces himself a candidate for a degree in law or medicine.

Harsh, *a.* [Ger. *harsch;* Swed. *harsk:* allied to Goth. *hardus*, hard.] Sour; tart; bitter; austere to the taste. "Berries *harsh* and crude." (*Milton.*) — Rugged; rough to the touch; having asperities or inequalities of surface; as, "*harsh* sand." (*Boyle.*) — Rough to the ear; discordant; jarring; grating; as, a *harsh* voice.

"Through the *harsh* cadence of a rugged line."—*Dryden.*

—Austere in manner or disposition; crabbed; morose; peevish; rude; rigorous; severe; as, *harsh* words.

"No *harsh* reflections let remembrance raise."—*Prior.*

Har'shasville, in *Ohio*, a post-village of Adams co.

Har'shaville, in *Pennsylvania*, a P. O. of Beaver co.

Harsh'ly, *adv.* In a harsh manner; roughly; austerely; sourly; with a grating sound; unpleasantly; rudely; as, to speak *harshly.*

Harsh'man, in *Ohio*, a post-village of Montgomery co., on C., C., C. & St. L. R. R.

Harsh'ness, *n.* Quality of being harsh; roughness to the touch, taste, or ear; rudeness; severity; peevishness; as, the *harshness* of guttural sounds, *harshness* of treatment.

Hars'let, *n.* Same as Haslet (*q. v.*).

Har'son Island, an island of Ontario, in Lake St. Clair, Lat. 42° 35′ N., Lon. 82° 25′ W.

Hart, *n.* [A. S. *heort;* L. Ger. and D. *hert;* Dan. *hiort;* Swed. *hjort;* Ger. *hirsch;* O. Gr. *kirus.* The Ger. seems to be allied to *hurtig*, nimble, quick, agile.] (*Zoöl.*) The name given to a stag, or male deer, which has completed the fifth year;—opposed to *hind*, the female of the same species.

Hart, in *Georgia*, a N. E. co., adjoining South Carolina; *area*, about 381 sq. m. *Rivers.* Savannah river, and numerous smaller streams. *Surface*, hilly; *soil*, fertile. *Cap.* Hartwell. *Pop.* (1890) 10,887.

Hart, in *Indiana*, a township of Warrick co.

Hart, in *Kentucky*, a W. central co.; *area*, about 410 sq. m. *Rivers.* Greene river, Nolin and Bacon creeks. *Surface*, diversified; *soil*, generally fertile. *Cap.* Munfordville. *Pop.* (1890) 16,439.

Hart'beest, *n.* [D. *hert*, and *beest*, beast. See Hart.] (*Zoöl.*) The Antelope *caama*, a species of antelope inhabiting the plains of S. Africa.

Hart'fell, a mountain of Scotland, bet. Tweedsmuir and Moffat, in Dumfriesshire. Here are the famous chalybeate springs of Moffat. Height, 2,635 feet.

Hart'field, in *New York*, a post-village of Chautauqua co., about 1 m. N. of Chautauqua Lake.

Hart'ford, in *Connecticut*, a N. central co.; *area*, 738 sq. m. *Rivers.* It is intersected by the Connecticut river and watered by the Farmington, Stony, Sciantic, and numerous smaller rivers and creeks. *Surface*, uneven and in some places mountainous; *soil*, generally fertile, and rich in the valleys. *Products.* Tobacco as a specialty, farm and dairy produce generally; some oats and rye, but little wheat; live stock, mostly cattle. There is good water-power and much manufacturing. *County-seat*, Hartford, which is also the State capital. *Pop.* (1890) 147,180.

—A thriving city, capital of above co., and the sole capital of the State since 1875; on the Connecticut river, at the head of steamboat and sloop navigation, 50 m. from its mouth and about 40 m. N. E. of New Haven; Lat. 41° 45′ 59″ N., Lon. 72° 40′ 45″ W. *H.* was known to the aborigines as Suckiaug; was first settled in 1634 by emigrants from Massachusetts and called Newtown, the present name being given in 1637, from *Hertford*, in England. The Dutch had built a fort here as early as 1633, but by 1654 the settlement and its surroundings passed wholly into English hands. The first town meeting of *H.* was held in 1635; the first place of worship was built, and the first school established, in 1638. One year later (1639) the constitution of the colony of Connecticut was framed at *H.*, being the first colonial constitution formulated in America, and embodying all the characteristic features of those subsequently adopted by the other colonies. The first code of laws was prepared in 1650, one of the features of which was the reduction of capital offenses to 15, instead of 160 as under English law. Here was located the famous "Charter Oak," which survived until 1856. *H.* is an important manufacturing center, the industries covering a very wide range and including fire-arms, bicycles, silver-plated ware, silks, woollens, carriages, railroad equipments, all sorts of hardware specialties, &c. It is prominent for its insurance corporations, fire, marine, and life, of which there are at least a score, representing a capitalization exceeding $100,000,000. The public buildings include the handsome State-House, completed in 1878, Post-office (1883), County Court-house (1884), Board of Trade Building (1891), the new Trinity College, Deaf and Dumb Asylum, and a union railway station, besides many fine edifices occupied by the great insurance companies and other corporations. There are nearly 20 m. of street railway. *Pop.* (1870) 37,186; (1880) 42,533; (1890) 53,230; (1897) about 59,400.

Hart'ford, in *Georgia*, a village of Forsyth co.

—A village of Cherokee co.

Hart'ford, in *Indiana*, a township of Adams co.

—A village of Crawford co.

—A village of Ohio co., about 90 m. S. E. of Indianapolis.

—A village of Vigo co., about 11 m. S. of Terre Haute.

Hart'ford, in *Iowa*, a township of Iowa co.

—A post-vill. of Warren co., abt. 15 m. S.E. of Des Moines.

Hart'ford, in *Kansas*, a post-village of Lyon co., about 13 m. S. E. of Emporia.

Hart'ford, in *Kentucky*, a post-village, cap. of Ohio co., on Rough creek, abt. 160 m. S. W. of the city of Frankfort. *Pop.* (1890) 740.

Hart'ford, in *Maine*, a post-town of Oxford co., 30 m. W. of Augusta. *Pop.* (1897) about 700.

Hart'ford, in *Michigan*, a post-village and township of Van Buren co. *Pop.* of village (1894) 1,005.

Hart'ford, in *Minnesota*, a village of Todd co.

Hart'ford, in *Mississippi*, a village of Calhoun co.

Hart'ford, in *Missouri*, a post-village of Putnam co., about 100 m. N. of Booneville.

Hart'ford, in *New Jersey*, a post-village of Burlington county.

Hart'ford, in *New York*, a post-town and township of Washington co., about 55 m. N. N. E. of Albany. *Pop.* (1890) 1,470.

Hart'ford, in *Ohio*, a village of Allen co., about 11 m. W. of Lima.

—A village and township of Licking co., about 25 m. N.E. of Columbus.

—A post-township of Trumbull co.

Hart'ford, in *Pennsylvania*, a borough of Tioga co.

Hart'ford, in *Vermont*, a post-township of Windsor co. *Pop.* (1890) 3,740.

Hart'ford, in *Wisconsin*, a city and township of Washington co., about 35 m. N. W. of the city of Milwaukee. *Pop.* (1895) 1,607.

Hart'ford City, in *Indiana*, a post-township, cap. of Blackford co., on 2 railroad lines, 47 m. S. by W. of Ft. Wayne. Has glass and other important manuf. *Pop.* (1897) about 4,000.

Hart'ford City, in *W. Virginia*, a post-village of Mason co.

Hart'ford Convention. (*Amer. Hist.*) The name applied to a meeting of delegates from the New-England States, assembled at Hartford, Conn., Dec. 15, 1814. Their object was to protest against the war waged against Great Britain, which caused immense losses to the people of New England by the destruction of their commerce and their fisheries. The convention sat 20 days, with closed doors, and proposed amendments to the Constitution of the U. States, — among which were, the basing representation on free population; making the President ineligible for a second term; disqualifying persons of foreign birth to hold office; limiting embargoes to 60 days; requiring a two-thirds vote in Congress to admit new States, to interdict commercial intercourse, to declare war, or to authorize hostilities except in cases of invasion. Though guiltless of any designs which could justly be considered treasonable, the Federal party never recovered from the odium of its opposition to the govt., and almost every man implicated in the doings of the *H. C.* was afterwards excluded from political power.

Har'thegig, in *Pennsylvania*, a post-office in the N. part of Mercer co.; so named on account of an Indian of that name, the last of his tribe, having his wigwam in the neighborhood.

Har'tin, *n.* (*Min.*) A white, tasteless resin, extracted from the brown-coal of Oberhart; *sp. gr.* 1·115. *Comp.* Carbon 78·51, hydrogen 9·05, oxygen 12·44.

Har'tite, *n.* (*Min.*) A white, tasteless resin, from a species of fossil pine found in the brown-coal beds of Oberhart, near Vienna. It occurs in clefts in the coal, and in the tissues of the wood. *Comp.* Carbon 87·8, hydrogen 12·2.

Hart'land Point, in England, a lofty promontory at the S. entrance of the Bristol Channel. Lat. 51° 1′ N., Lon. 4° 31′ W.

Hart'land, in *Connecticut*, a post-township of Hartford co., about 20 m. N.W. of Hartford.

Hart'land, in *Illinois*, a vill. and twp. of McHenry co., abt. 55 m. N.W. of Chicago.

Hart'land, in *Iowa*, a post-township of Worth county.

Hart'land, in *Maine*, a post-village and township of Somerset county, about 42 miles N.E. by N. of Augusta.

Hart'land, in *Michigan*, a post-village and township of Livingston county, about 45 miles east of Lansing.

Hart'land, in *Minnesota*, a post-township of Freeborn county.

Hart'land, in *New York*, a post-town and township of Niagara co. *Pop.* (1897) about 3,000.

Hart'land, in *Ohio*, a post-township of Huron co.

Hart'land, in *Vermont*, a post-town and township of Windsor co. *Pop.* (1897) 1,410.

Hart'land, in *Wisconsin*, a township of Pierce co.

—A township of Shawano co.

—A post-village of Waukesha co., about 24 m. W. by N. of Milwaukee. *Pop.* (1895) 657.

Hart'land Four Corners, in *Vermont*, a post-village of Windsor co.

Har'tlepool, a seaport town of England, co. Durham, near the mouth of the Tees, 17 m. S. E. of Durham. *H.* has very extensive docks, and a large trade in coal. *Pop.* (1897) about 23,500.

Har'tleton, or Hart'leyton, in *Pennsylvania*, a post-borough of Union co., about 70 m. N. by W. of Harrisburg.

Hart'ley, David, an English philosopher, born in Armley, Yorkshire, author of *Observations on Man, his Fame, his Duty, and his Expectations*, a work which was the first attempt to explain psychological phenomena on physiological principles. Died in 1757.

Hart'ley, a seaport town of England, co. Northumberland, on the N. Sea, 4 m. W. of N. Shields. *Manuf.* Colliery, glass and bottle works. Its harbor accommodates vessels from 200 to 300 tons.

Hart'ley, in *Pennsylvania*, a township of Union co.

Hart'leyville, in *Ohio*, a post-village of Athens co.

Hart'lot, in *New York*, a post-village of Onondaga co.

Hart'mannite, *n.* (*Min.*) (Called also *Breithauptite.*) A beautiful copper-red mineral, composed of antimony 67·4, and nickel 32·6. It has been observed as a furnace product, and is found at Andreasburg in the Hartz Mountains. *Sp. gr.*, 9·541.

Harts'burg, in *Indiana*, a post-village of Logan co.

Hart's-clover, *n.* (*Bot.*) The melilot. See Melilotus.

Hart's Grove, in *Ohio*, a post-village of Ashtabula co.

Harts'horn, *n.* The horn of the hart, or male deer.

H., Salts of. (*Chem.*) Smelling-salts; carbonate of ammonia. This produced in an impure state on the distillation of hartshorn, or any kind of horn or bone.

H., Spirit of. (*Chem.*) The name formerly applied to Ammonia (*q. v.*), because it was obtained by the distillation of hartshorn.

Harts'horn, in *N. Carolina*, a P. O. of Alamance co.

Hart's'-tongue, *n.* (*Bot.*) See SCOLOPENDRIUM.
Harts'town, in *Pennsylvania*, a post-borough of Crawford co., 15 m. W.S.W. of Meadville.
Harts'ville, in *Indiana*, a post-town of Bartholomew co., about 50 m. S.E. of Indianapolis. *Pop.* (1890) 474.
Hartsville, in *Massachusetts*, a post-village of Berkshire co, about 125 m. W. by S. of Boston.
Hartsville, in *New York*, a village of Onondaga co. —A township of Steuben co.
Hartsville, in *North Carolina*, a P. O. of Wake co.
Hartsville, in *Pennsylvania*, a post-village of Bucks co., about 108 m. E. of Harrisburg.
Hartsville, in *South Carolina*, a post-village of Darlington co.
Hartsville, or **Hartsville Junction,** in *Tennessee*, a village of Sumner co., 45 m. E.N.E. of Nashville. On Dec. 7th, 1862, a force of 2,000 National troops was surprised at this place by the Confederate Gen. Morgan, and were taken prisoners to Murfreesboro.
Hart Village, in *New York*, a village of Dutchess co., about 16 m. E.N.E. of Ponghkeepsie.
Hart'ville, in *Missouri*, a post-village, cap. of Wright co., about 105 m. S. by W. of Jefferson City.
Hart'well, in *Georgia*, a post-village, cap. of Hart co., about 50 m. N.E. of Athens.
Hart'wellville, in *Michigan*, a post-village of Shiawassee co.
Hart'wellville, in *Vermont*, a post-village of Bennington co.
Hart'wick, in *New York*, a post-town and township of Otsego co., on the Susquehanna river, 35 m. S. by E. of Utica. *Pop.* (1897) about 1,920.
Hartwick Seminary, in *New York*, a post-village of Otsego co., about 6 m. below Cooperstown.
Hartz, (The.) [Ger. *Harz*, or *Harzgebirge.*] The most N.W. range of mountains in Germany, between Lat. 51° 35′ and 51° 57′ N., and Lon. 10° 10′ and 11° 30′ E., separating the waters of the Weser from those of the Elbe. The Hartz Mountains run in a wavy and irregular course from Mansfeld in the E. and after traversing portions of Anhalt-Beruburg, Stolburg, Hohenstein, &c., terminate on the W. at the town of Seesen, forming in their course an extreme length of 70 miles, and an average breadth of 28 miles; but comprising an extent of 1,350 sq. miles, and embracing in its sinuons line as many as forty towns of consideration, with numerous villages, and including a population of 65,000. This valuable, romantic, and most important range of Alpine scenery is divided nearly midway into two portions by a culminatiou, which, thongh not the lottiest in Germany, is the highest peak in this, its northern mountain-chain. This elevation, which divides the Hartz into east and west, or upper and lower Hartz, is called the *Brocken*, and rises to the altitude of 3,740 feet above the level of the sea; other parts reaching to 2,755 and 2,435 are here and there thrown up along its line, but the Brocken, in height and reputation, is the chief and highest top of the Hartz Mountains. The climate of the upper Hartz, or western part, is cold, and is the most elevated, extensive, and rich in minerals, all the rivers rising in this division emptying themselves into the Wescr. The frost continues till the end of April, and reappears in October; and the warm weather only lasts 3 months. The Hartz are wooded everywhere, even to the summit of the Brocken, though, by the elevation, the giant firs of the low altitudes are here reduced into gnarled and stunted dwarfs. The hills of the upper division abound in berries, truffles, and mushrooms, in medicinal plants and roots, and what is known as Iceland moss; and immense herds of cattle, goats, and horses graze npon its herbage. Oats are the only grain raised in any quantity. The lower or eastern Hartz is in every way superior in beauty of scenery and richness of soil; the woods abound in game and wild animals, from the roebuck and deer to the mountain-cat and ptarmigan. The climate is correspondingly milder, and the products of the soil more varied and abundant. The great wealth of the Hartz lies in its mineral productions. Gold was formerly procured in considerable quantities, and silver is still extracted, to some extent, from pure and compound ore. Iron, lead, zinc, copper, arsenic, and manganese are, however, its principal products, and these, with granite, porphyry, slate, marble, alabaster, and several earths, constitute the great and important wealth of the Hartz Mountains. But rich and commercially valuable as these seventy miles of wooded rock and mountain may be to the merchant and political economist, the Hartz possesses, in the imagination of the German people, and, indeed, of the civilized world, a greater wealth of romance and story than all its mineral and vegetable value twice told. There is an imperishable reputation, amounting to awe, a deathless tradition and romance, connected with the Hartz, that, when the bowels of its mountains have been rifled of their mineral wealth, will endure as long as a tree grows, or a blade of grass waves on its heathy top. The Hartz, and especially the Brocken, is united with the most cherished legends, superstitions, and histories of the German people; the vast caves and grottoes, the romantic Selkenthal, the Maiden's Leap, the Bath of Alexis, the wild Ockenthal, the horse-track of the Wild Huntsman, its profound and gloomy mines, its Spectre of the Brocken, and other wild traditions, clothe every mile of this Alpine forest with a fascinating and imperishable renown — a renown which the scientific explanations given to these phenomena in later times has as yet been incapable of obliterating.
Har'um-scar'um, *a.* [O. Fr. *harer, harier*, to stir up, and Eng. *scare*, to frighten suddenly.] Giddy; reckless; wild; rash; headstrong; precipitate; as, a *harum-scarum* fellow. (Colloquially used.)
Harus'pice, *n.* See ARUSPICE.
Harus'picy, *n.* Same as ARUSPICY (*q. v.*).
Har'vard, in *Illinois*, a post-village of McHenry co., about 63 m. N.W. of Chicago. *Pop.* (1897) about 2,000.
Har'vard, in *Massachusetts*, a post-town and township of Worcester co., about 25 m. N. by E. of Worcester. *Pop.* (1895) 1,162.
Har'vard, in *New York*, a post-village of Delaware co., about 21 m. S. by W. of Delhi.
Har'vard University, the oldest collegiate institution in the United States, situate at Cambridge, Mass. It was founded in 1638, only 6 years after the establishment of this region by the English. Afterwards, in 1639, the name, which was first Newtown, and then Cambridge, was changed to Harvard, in consequence of a liberal endowment of abt. $3,500 left to it by the Rev. John Harvard, in 1638. From time to time small grants were made to the college by the town of Cambridge, and the legislatures of the colony, province, and State of Massachusetts; but since 1814 it has received no grants from the public treasury, and it may be said that from the first year of its existence it has depended upon the generosity of private individuals. A class of pupils began a course of study in the college under Nathaniel Eaton, as soon as Harvard's bequest was made known; but the progress of the institution was slow, and it was only in 1692 that the first degree of D.D. ever granted by Harvard College was conferred upon Increase Mather, then its president. A regular *Professorship of Mathematics and Natural Philosophy* was first instituted in 1727. The *Professorship of Chemistry*, and the first laboratory, were established in 1783. The site of a *Botanic Garden* was purchased by citizens of Boston in 1807, although the corporation in 1784 applied to the Legislature for help in this direction to enable the College to accept the offer of the king of France "to furnish such garden with every species of seeds and plants, which might be requested, from his Royal Garden, at his expense." In 1805 the *Professorship of Natural*



Fig. 1249. — HARVARD CHURCH.

History was founded by the subscription of $30,000 of a few citizens of Boston. In 1816 the *Rumford Professorship of the Sciences as applied to the Arts*, was endowed out of a bequest of Benjamin Thompson, of Woburn, Mass., (better known as Count Rumford of Bavaria,) "in order to teach by regular courses of academic and public lectures, accompanied with proper experiments, the utility of the physical and mathematical sciences for the improvement of the useful arts, and the extension of the industry, prosperity, happiness and well-being of society." In 1839 an *Astronomical Observatory* was commenced by a subscription of John Quincy Adams and others, and in 1848 munificently endowed by Edward B. Phillips, in the sum of $100,000. In 1820 the *Professorship of Mineralogy and Geology* was established, and the cabinet of specimens began to assume magnitude and value. In 1846 the building of the *Lawrence Scientific School* was erected by Abbot Lawrence, who also endowed the *Professorship of Civil Engineering and Geology*, to a total amount, with his son's donation, of $150,000. In 1859 the *Museum of Comparative Zoölogy* was established on a basis of an endowment of $50,000 by William Gray, and $100,000 by the State, and of subscriptions in the sum of $71,125 by individuals, and the consecration of the genius and enthusiasm of Louis Agassiz to its inauguration, the value of which no amount of money can represent, and which has since secured over $200,000 in money, and more than that in collections for the institution. In 1862, Samuel Hooper, of Boston, gave $50,000 to establish a *School of Mines.* *The Peabody Museum of American Archæology and Ethnology* was founded in 1865, and a sum of $50,000 bequeathed in 1890 to found a *Museum of Semitic Antiquities. Memorial Hall*, built in honor of the alumni who fell in the Civil War, is the most imposing of the college edifices. It is 310 feet long, and 115 wide, and is largely occupied by an extensive dining hall, capable of accommodating 700 at table. Other edifices of note are *University Hall; Gore Hall; Holden Chapel; Divinity Hall*, &c. The buildings occupy about fourteen acres of ground, which is tastefully laid out. The external administration was formerly vested in a Board of Overseers, composed of the Governor and Lieutenant-Governor of the Commonwealth, the President of the Senate, the Speaker of the House, the Secretary of the Board of Education, and the President and Treasurer of the University, all *ex-officio*, and a body of 30 people, who are to drop out of the Board by 5 every year, the new members being chosen by the legislature. Since 1865 all State connection has ceased, by Legislative enactment. The internal government is administered by the faculty, composed of such of the college officers as are brought into immediate connection with the students by supervising their studies and conduct. There were in 1897 about 366 teachers and 3,600 students, of whom more than half are undergraduates, the others attending the professional courses, of which there are four—law, science, medicine, and theology. The academic year is divided into two terms, with vacations of seven weeks in July and August, and six weeks in January and February. The recognition of science, and its application to industry, and the increase of the agencies and resources of instruction in *H. U.*, have been slow; but since 1871–78, the standard of education has been greatly raised and extended, and this college is now one of our best literary and educational institutions. In 1897, the University library had 473,000 volumes besides several hundred thousand pamphlets. The astronomical observatory is one of the finest in the East.
Har'vest, *n.* [A. S. *hærefest, harfest;* L. Ger. *harfst;* D. *herfst;* Ger. *herbst;* Icel. *haust*, probably from Gr. *harpizō*, to pluck or gather fruit, from *karpos*, fruit.] The season of reaping and gathering in the fruits of the earth. (See REAPING.) — The ripe corn or grain, collected and secured in barns or stacks.

"Such seed he sows, such *harvest* shall he find." — *Dryden.*

—The product of labor; fruit or fruits; grain.

"Let us the *harvest* of our labour eat." — *Dryden.*

—*v. a.* To reap or gather ripe corn and other fruits of the earth, for the use of man and beast.
Har'vest-bug, *n.* (*Zoöl.*) See TROMBIDIUM.
Har'vester, *n.* One who harvests, or gathers in the ripe crops.
Har'vest-fly, *n.* (*Zoöl.*) See CICADA.
Har'vest-home, *n.* The time of harvest.

"At *harvest-home*, and on the shearing-day." — *Dryden.*

—The song sung by reapers and harvesters, and the feast given when the harvest has been gathered in; or, the feast itself.

"Come, my boys, come,
And merrily roar out *harvest-home.*" — *Dryden.*

—The opportunity of collecting treasure. — *Shaks.*
Har'vesting, *n.* The operation of pulling, cutting, rooting up, or gathering field-crops, and drying or otherwise preparing them for being stored for winter use. The first harvest which occurs in this and similar climates is that of the *forage grasses*, or other plants made into hay; the next is the harvest of *cereal grasses*, or of corn-crops; and the third the *potato harvest*, or harvest of root-crops, such as potatoes, carrots, turnips, mangold-wurzel, &c. There is also the harvest of occasional crops; such as that of hops, rape-seed, turnip-seed, dyer's wood, hemp, flax, peaches, and various other products.
Har'vest-lord, *n.* The head reaper at the harvest.
Har'vest-moon, *n.* The moon which during the autumnal months, when near its opposition, rises nearly at the same hour for several evenings. During the time that our satellite is full, and for a few days before and after, in all about a week, there is less difference between the time of her rising on any two successive nights than when she is full in any other month in the year. By this means an immediate supply of light is obtained after sunset, during the continuance of these *harvest-moons*, which is extremely beneficial to the husbandman for gathering in the fruits of the season. In order to gain an insight into this phenomenon, it must be borne in mind that the moon is always opposite to the sun when she is full; that she is full in the signs Pisces and Aries, these being the signs opposite to Virgo and Libra, which the sun passes through in September and October, our harvest months. Thus, although, whenever the moon enters the two former signs (and she does so twelve times in a year), the same circumstance takes place with regard to the time of her rising, yet it is not observed on these other occasions, just because she is not *full* at the time. The reason of there being little difference in the time at which she rises on several consecutive nights, is, that at these periods her orbit is nearly parallel with the horizon. The *H. M.* are as regular in southern latitudes as with us in a northern latitude, only they happen at different periods of the year.
Har'vest-mouse, *n.* (*Zoöl.*) *Mus messorius*, a small species of field-mouse, which abounds in England in the time of harvest.
Har'vest-queen, *n.* An image representing Ceres, goddess of corn, anciently carried about in triumph on the last day of harvest, or harvest-home.
Har'vey, WILLIAM, an English physician, and discoverer of the circulation of the blood, b. at Folkestone,

1578. He studied at the university of Cambridge, completing his medical studies and graduating M. D. at Padua. After his return to England he became fellow of the Royal College of Physicians, and physician to St. Bartholomew's Hospital. In 1623 he was named physician to James I., and he held the same post under Charles I. His great discovery, developed and completed by careful and laborious investigation, was published in 1628, in the treatise entitled *Exercitatio de Motu Cordis et Sanguinis*. It was at once generally received, and though controversy was excited and many opponents started up, many more books were written in favor of than against it. And no Englishman wrote



Fig. 1250.—WM. HARVEY. (FROM AN OLD PRINT.)

against it. The reputation of *H.* was European. The only reply he published to any of his opponents was that to Riolanus, professor of anatomy, Paris. *H.* was author also of *Exercitationes de Generatione Animalium*. He wrote other works, the manuscripts of which were mostly burnt during the civil war; two only being preserved in the British Museum. Died in 1657.

Har'vey, in *Michigan*, a post-village of Marquette co., on Lake Superior, about 4 m. S.E. of Marquette.

Harvey, in *West Virginia*, a post-village of Raleigh co., 12 m. N.W. of Raleigh.

Har'veysburg, in *Indiana*, a post-village of Fountain co. *Pop.* (1897) about 300.

Har'veysburg, in *Ohio*, a post-village of Warren co., about 41 m. N.E. of Cincinnati.

Har'vey's Five Points, in *Pennsylvania*, a village of Westmoreland co., 32 m. E. of Pittsburg.

Har'vey's Store, in *Virginia*, a village of Charlotte county.

Har'veysville, or HARVEYVILLE, in *Pennsylvania*, a post-village of Luzerne co., about 108 m. N.E. of Harrisburg.

Har'vieland, in *Kentucky*, a post-office of Franklin co.

Har'viell, in *Missouri*, a post-village of Butler co.

Harwich (*här'rij*), a town of co. Essex, England, on the German Ocean, 8 m. S. E. of Ipswich, on the estuary formed by the Stour and Orwell; Lat. 51° 56′ N., Lon. 1° 17′ E. *H.* has one of the best harbors on the E. coast of England, which is much used as a port of refuge during easterly winds. *Pop.* (1897) about 6,250.

Harwich, in *Massachusetts*, a post-township of Barnstable co., about 90 m. S.E. of the city of Boston. *Pop.* (1895) 2,734.

Har'wichport, in *Massachusetts*, a post-village of Barnstable co.

Har'wington, or HARWINTON, in *Connecticut*, a post-town and township of Litchfield co., about 23 m. W. of Hartford.

Har'wood, in *Missouri*, a post-village of Vernon co.

Harwood, in *North Dakota*, a post-office of Cass co.

Harz, in Germany. See HARTZ.

Has, (*haz,*) the 3d person singular of the verb HAVE, *q. v.*

Has'brouck, in *New York*, a post-village of Sullivan co., on Neversink River, abt. 12 m. N.N.E. of Monticello.

Has'drubal, or **As'drubal,** a name of many celebrated Carthaginians, of whom the most prominent are: 1. The son-in-law of Hamilcar Barca, who accompanied his father-in-law to Spain, B. C. 236, and for 8 years after the death of the latter continued to carry out the plans of his great kinsman. He was killed by a slave, B. C. 220. — 2. The general who defended Carthage with great energy and skill against the Romans in the third Punic war, when Carthage fell. *H.* was carried prisoner into Rome to adorn the triumph of Scipio. — 3. *H.* BARCA, brother of the great Hannibal, who bore a conspicuous part in the second Punic war, first as the opponent of the Scipios and the conqueror of Cn. Scipio in Spain, and afterwards as the commander of a Punic army in Italy. He was killed at the battle of Metaurus, B. C. 207.

Hash, *v. a.* [Fr. *hacher*. See HACK.] To chop into small pieces; to mince and mix; as, to *hash* a chicken.

—*n.* That which is hashed or chopped; particularly minced meat, or a dish of meat and vegetables chopped into small pieces and mixed; as, mutton *hash*. — Old matter remixed for use; a second preparation, or rechauffée; as, anecdotal *hash*. — Anything badly executed, or confusedly applied; as, he has made a *hash* of the affair.

Hash'ish, HASHEESH, HASCHISCH, *n.* See HEMP (INDIAN).

Has'kell Flats, in *New York*, a P.O. of Cattaraugus co.

Has'kinsville, in *Kentucky*, a village of Greene co.

Has'kinsville, in *Ohio*, a village of Huron co.

Has'kinvilie, in *New York*, a p.-vill. of Steuben co.

Has'ler, in *Michigan*, a village of Lapeer co.

Has'let, Hars'let, *n.* [Icel. *hasla*, a bundle.] The heart, liver, and lights of a hog, &c., used for food.

Hasp, *n.* [A. S. *hæps;* L. Ger. and D. *häspe, hespe;* Icel. *hespa;* Norm. *haspe.*] A clasp that passes over a staple to be fastened by a padlock. — A spindle used in winding silk thread, &c. — (*Agric.*) An implement used for scarifying the surface of grass land.

—*v. a.* To close or fasten with a hasp; as, to *hasp* a gate.

Has'san Pacha, grand vizier of the Ottoman empire, was said to be an African by birth, and, when young, served in the Algerine navy. In 1760 he went to Constantinople, and entered the Turkish service. Here he soon distinguished himself by his superior skill and bravery, and was appointed *capitan pacha*, or high admiral. He vanquished the Egyptian insurgents; took Gaza, Jaffa, and Acre; and beheaded the famous Daher, sheik of the latter city, who had for years defied the power of the Porte. He twice reduced the beys of Egypt to subjection, and carried with him vast treasures to Constantinople. In the war between Turkey and Russia, in 1788, although Hassan was then 85 years old, he was appointed to the supreme command of all the forces, and made grand vizier; but though there was no want of energy on his part, age had impaired his abilities, and the Ottoman forces were subjected to repeated discomfiture. The vizier was accordingly dismissed from his high command, and put to death in 1790.

Has'san, in *Minnesota*, a post-village and township of Hennepin county, about 25 miles north-west of St. Anthony.

Has'san, in *Ohio*, a post-office of Hancock co.

Has'se, JOHANN ADOLPH, a German musical composer, B. at Bergedorf, near Hamburg, 1699, is deservedly celebrated as one of the most natural, elegant, and agreeable composers of his time. D. in Venice, 1783. — His wife, FAUSTINA, who died in the same year, aged 90, was eminent as the inventor of a new method of singing, by running divisions with astonishing neatness and precision.

Hasse, KARL EWALD, a celebrated German physiologist and pathologist, B. 1810 in Dresden, was professor of special pathology and clinical medicine in Göttingen from 1856. His principal works are *Anatom. Beschreibung der Krankheiten der Circulations- und Respirations-Organe*, which has been translated into English and Dutch; and *Die Krankheiten des Neuen Apparats*, which forms the fourth volume of Virchow's *Handbuch der Pathologie und Therapie*.

Has'selt, a fortified town of Belgium, cap. of Belgian Limburg, on the Demer, 45 m. E. of Brussels. *Manuf.* Cloths, linen, soap, brandy, gin, chicory-coffee, &c. *Pop.* 10,780.

Has'sock, *n.* [W. *hesg*, sedge, rushes.] A thick mat or cushion on which persons kneel in a church.

—A sandstone quarried in Kent, England, and sometimes used for the interior walls of churches.

Hast, the second person singular of HAVE, *q. v.*

Has'tate, Has'tated, Has'tile, *a.* [Fr. *hasté*, from Lat. *hasta*, a spear.] (*Bot.*) Having the form of a spear or lance-head; as, a *hastate* leaf.

Hasta'ti, *n.* [Lat., from *hasta*, a spear.] (*Rom. Hist.*) One of the three grand divisions of the Roman infantry, so called because they were armed with spears. It consisted of young men in the flower of life, who were always drawn up in the first line of battle. The other two divisions were called *principes* and *triarii*, to which was added another, called *volites*, or *light* troops.

Haste, (*hāst,*) *n.* [Ger., Swed., and Dan. *hast;* Fr. *hâte;* O. Fr. *haste;* A.S. *efst;* probably allied to Lat. *festino*, to make haste, from *fero*, to bear, to carry.] Celerity of motion; speed; quickness; swiftness; dispatch; expedition; — applied to the voluntary movements of men and animals.

"And there was mounting in hot *haste*."—*Byron.*

—Hurry; sudden excitement of passion; vehemence; precipitance; precipitation; rashness.

"Married in *haste*, we may repent at leisure."—*Congreve.*

Haste, Hasten, (*hās'n,*) *v. a.* [O. Ger. *hasten;* Swed. *hasta;* A.S. *efstian.*] To press; to push on; to drive, urge, or impel forward; to precipitate; to accelerate the movement of; to expedite; to quicken; to hurry.

"To save us now, you must our ruin *haste*."—*Dryden.*

—*v. n.* To be rapid in motion; to move with quickness or celerity.

"The sprightly court
Leave their repose, and *hasten* to the sport."—*Prior.*

Hastener, (*hās'n-ér,*) *n.* One who hastens, or drives or urges forward. — A kind of tin oven, open in front, and placed behind meat while roasting, to confine and reflect the heat of the fire.

Has'tile, *n.* Same as HASTATE, *q. v.*

Has'tily, *adv.* In haste; speedily; nimbly; rapidly; with speed or celerity.

"Come hither! hither, oh, come *hastily!*"—*Spenser.*

—Rashly; precipitately; without reflection or deliberation; as, to act *hastily*.

—Passionately; vehemently; impatiently; under sudden excitement of spleen or passion; as, the words were spoken *hastily*.

Has'tiness, *n.* State or quality of being hasty; haste; speed; quickness or celerity in motion or action; rashness; precipitation. — Irritability; warmth of temper; testiness.

Has'ting-pear, *n.* A description of early pear; — sometimes called, also, *green-chissel*.

Has'tings, *n. pl.* [From *hasty*.] Fruit or vegetables matured early, particularly early peas.

"The large white and green *hastings* are not to be set till the cold is over."—*Mortimer.*

Has'tings, FRANCIS RAWDON, (MARQUIS OF,) son of the Earl of Moira, B. 1754, distinguished as a British officer in the American war, in Holland, and the East Indies, and as governor-general of India from 1812 to 1822, and governor of Malta, 1824. D. 1826.

Has'tings, WARREN, first governor-general of British India, B. 1733, at Churchill, in Worcestershire, of which parish his father was rector. He was educated at Westminster, and at the age of 17 went out to India as a writer in the Company's service. On his arrival he applied himself with diligence to the duties of his station, and at his leisure studied the Oriental languages. After 14 years' residence in Bengal, he returned to England; but in 1769 he went out as second in council at Madras, where he remained about two years, and then removed to Calcutta as president of the Supreme Council of Bengal. This was a critical period, and the state of Hindostan soon became perilous from the revolt of the native subjects, the defection of allies, and the increasing power of Hyder Ally, the sovereign of Mysore, aided by the land and sea forces of France. In this exigency the governor-general had to depend solely upon his own exertions; and he succeeded, beyond all expectations, in saving British India from a combination of enemies, and in increasing and strengthening the power of the Company at the expense of the native princes. Notwithstanding this, party spirit at home turned this merit of *H.* into a crime, and charges were brought against him in Parliament. In 1786 he returned to England, when he was accused of having governed arbitrarily and tyrannically, of having extorted immense sums of money, and of having exercised every species of oppression. An impeachment, conducted by Burke, followed, which, in contempt of all the principles of justice, lasted 9 years. He was at length acquitted, and sentenced to pay *only* the costs of the defence, above $350,000, for which the East India Company indemnified him by a pension of $20,000 for life. He lived, however, to see his plans for the security of India publicly applauded. D. 1818.

Has'tings, a maritime town of England, co. Sussex, 54 m. S.E. of London. *H.* is one of the Cinque Ports. It had formerly a good trade, now declining, but is greatly resorted to as a fashionable watering-place. Here the battle of *H.*, one of the most memorable events in the annals of English history, was fought between William, duke of Normandy, and Harold II., king of England, on the 14th of Oct., 1066. The Norman invader landed at Pevensey, on the coast of Sussex, on the 29th of Sept., and afterwards marched to *H.*, where he encamped, having with him an army of 60,000 men. Harold II., who was at that time in the north with his army, as soon as he received news of this event, hastened southward, and came in sight of the Normans on the 13th of Oct. He unwisely resolved to risk a battle the next day, and both armies were drawn up in regular lines at a place called Seulac, now Battle, near *H.* The conflict was long and bloody, lasting from sunrise to sunset; but at length the English were defeated, Harold, his two brothers, and many of the nobility being among the slain. After this event, William had little difficulty in establishing himself upon the English throne; and a memorable epoch was introduced in the annals of the country by what is known as the "Norman Conquest."



Fig. 1251.—BATTLE ABBEY, HASTINGS.

In 1607, William founded an abbey near the place where the victory was gained, which is now known as "Battle Abbey." *Pop.* (1891) 52,340.

Has'tings, an E. central co. of prov. of Ontario; *area*, about 1,325 sq. m. It is interspersed with numerous lakes and rivers. *Cap.* Belleville. *Pop.* 59,229.

Has'tings, in *Michigan*, a city, cap. of Barry co., on Mich. Cent. R.R., 40 m. W. by S. of Lansing; has various manuf. *Pop.* (1894) 3,014.

Has'tings, in *Minnesota*, a city, cap. of Dakota co., on the Mississippi river, and C., M. & St. P. R.R., 20 m. S.E. of St. Paul; has abundant water power and a fine trade. *Pop.* (1895) 3,848.

Has'tings, in *New York*, a post-village and township of Oswego co., about 20 m. N. by E. of Syracuse. *Pop.* (1890) 2,364.

Has'tings, in *Ohio*, a post-village of Richland co.

Has'ting's Sand, *n.* (*Geol.*) A name given to a division of the Wealden Beds (*q. v.*), consisting of sand, clay, shale, and calciferous grit. They are of fresh-water formation, and contain some most remarkable fossils, among which are the iguanodon and pterodactyl. These deposits are about 1,000 feet in thickness.

Has'tings-on-the-Hud'son, in *New York*, a post-village of Westchester co., about 20 m. N. N. E. of New York city. *Pop.* (1890) 1,466.

Has'ty, *a.* [Ger. *hastig;* Icel. *höstugr;* Swed. *hastig.*]

Speedy; quick; expeditious; forward; early ripe; — in contradistinction to *slow*; as, *hasty* fruit.
—Eager; precipitate; rash; easily stirred or excited; — the antithesis to *deliberate*; as, *hasty* words.
—Irritable; passionate; irascible; impetuous; as, a *hasty* temper.

Has'ty-pud'ding, *n.* A pudding made of flour stirred in boiling milk or water till it becomes stiff; the term is also sometimes applied to *oatmeal-porridge.* (England.)

"Sure *hasty-pudding* is thy chiefest dish." — *Lord Dorset.*

—Mush, or a thick batter-pudding made by mixing Indian meal with boiling water. (U. States.)

Hat, *n.* [A.S. *hat*; Gcr. *hut*; D. *hoed*; Fris. *hod*; Icel. *hattr*; Dan. *hat*; W. *het*; Ir. *hata*; Sansk. *chad*, to cover.] A covering for the head, made of various materials, and worn by men and women, both for protection of the head from the weather, and for ornament. The history of the hat is necessarily mixed up with that of head coverings generally, its leading mark of distinction from the cap or bonnet being its possession of a brim. The actual distinction between the head coverings of men and women, however, is arbitrary, and varies with the fluctuations of fashion. The hat is a direct descendant from the Greek *petasus*, which was distinguished from the *pileus*, the other form of Greek head covering, by the possession of a brim, designed to afford protection from the rays of the sun. These hats were made of felt, which seems to have been the material of ancient hats in general. The use of hats of felt first began in England about the period of the Norman conquest, probably as an importation from the continent. In the prologue to Chaucer's *Canterbury Tales*, he describes the merchant as wearing "a flaundrish bever hat." Beaver felts became common about the period of Queen Elizabeth, and fine beaver hats continued for three centuries to be worn by the richer people of Great Britain, though to-day such a thing as a genuine beaver hat is unknown. The manufacture of felt hats as a distinct trade was established in Nuremberg about 1380, and hats of this character became fashionable in France in the latter part of the reign of Charles VI., who died Oct. 21, 1422. Charles VII. is reported to have worn a white felt hat at his entry into Rouen in 1449. Hats and plumes were worn at the court of Edward III. at the institution of the Garter. The Pope of Rome was in the habit of sending "blessed hats" to princes and commanders of armies who deserved the gratitude of the Roman Catholic Church. These hats were of violet silk, lined with ermine, and embroidered with gold and jewels. They were blessed by the Pope, in solemn conclave, on Christmas Eve. The last hat of this description was given to Gen. Daun, after the capture of Hochkirchen, in 1758. The crowns of the hats worn at the commencement of the 18th century were round. The Jews of Spain were formerly compelled to wear yellow hats. In many towns in Germany, bankrupts had to wear green and yellow hats. The manufacture of felt hats began early in the American colonies, and in the later years of the 17th century the exportation of wool, raccoon, and other felting furs was forbidden in Massachusetts and Pennsylvania, while in 1722 Parliament was asked to prevent the importation of hats from the colonies, as it was injuring the trade of the English hatmakers. Colonial hat making was thereupon severely restricted, and this business did not become active again in America until after the Revolution. Napped hats, or those having a nap of beaver fur felted into a prepared "body," were widely produced in the U. S. up to 1834, when the silk, or "water-proof" hat was introduced from France. The cheapness with which these hats were made abroad drove many hat makers out of the business, and caused a later concentration of the trade of large factories, the principal centers of the business to-day being New York, Philadelphia, Danbury and Bethel, Conn., and other cities in diminishing proportion.—*Manuf.* The principal materials of which hats are manufactured are fur, wool, silk, and straw. Hats made of silk plush, drawn over a coarse stiffened textile fabric as a foundation, with hats of felted wool and fur, without any nap, that are either soft and yielding, or brought into the usual hat-shape by being blocked and stiffened with a composition prepared for the purpose, are those that are most generally worn at the present day. Straw hats are made of lengths of straw plait sewn together in the desired shape. In the making of felt hats, hair of the rabbit is now most commonly used, with smaller quantities of hare, beaver, musk-rat, vicuna, and camel hair for the finer felts, while sheep's wool is employed for the commoner felted hats. Cotton and other vegetable fibers are mixed with wool to produce hats of inferior qualities. These fibres, being smooth and non-adherent, can not be felted, but are held together by the aid of varnish, which serves also to stiffen the hat body. The hat-making demand has given rise to an extensive business in the breeding of, of domesticated rabbits in France and Belgium, where hundreds of millions are killed annually for food and for the fur they yield. The felting of hat furs was formerly performed by damping the materials and working them together with the hands, a cone-shaped "hat" being produced. At present a perforated cone of sheet copper is employed, a powerful blast of air being drawn inward through the holes and drawing in by suction the fur that is fed towards the cone. When sufficient is gathered, it is covered with a wet cloth, an outer cone slipped on, and the whole dipped into an acidulated bath of hot water, which causes the fur to cohere. They are subsequently roughly blocked into shape, then dyed, and stiffened with shellac where hard felts are to be made. A final blocking and finishing process completes **the hat.** Silk hats are made of fine silk plush, cemented on a prepared body and rim of cotton cloth saturated with varnish to make it stiff and water-proof, the plush being very carefully laid, so as to prevent the seams from being shown. Opera hats or crush hats are made with a spiral steel frame which will flatten with pressure, over which a covering of merino is stretched.—The *Panama hat* is made from fine vegetable fibers, closely interwoven, and is by far the best of the so-called straw hats. Specimens have been made weighing only 1 to 2 ounces, and the average weight is only 3 oz. These hats are exceedingly durable, but the genuine cost from $10 to $50 each, depending upon the quality.

(*Eccl.*) The distinguishing dignity of a cardinal; derived from the broad-brimmed scarlet hat which forms part of his ecclesiastical attire.

Hat'able, *a.* That may be hated; meriting hatred; odious.

Hat'-band, *n.* A band affixed around the crown of a hat; specifically, a band of crape, &c., worn as a sign of mourning.

"His coat and *hat-band* show his quality."—*Dryden.*

Hat'borough, in *Pennsylvania*, a post-borough of Montgomery co., about 16 m. N. of Philadelphia.

Hat'-box, Hat'-case, *n.* A box, or leathern receptacle for depositing or carrying a hat in:—when intended for a lady's hat, it is generally termed a *band-box.*

Hat'-brush, *n.* A small hand-brush used for brushing and dressing a hat.

Hatch, *v. a.* [Fr. *hacher.*] To cross with lines in drawing and engraving in a peculiar manner. (See HATCHING.) "Those *hatching* strokes of the pencil."—*Dryden.*

Hatch, *v. a.* [Ger. *hecken*, allied to *hägen* or *hegen*, to fence, to protect, to foster, to cherish.] To breed; to bring forth young; to produce from eggs by incubation, or by artificial heat.

"He *hatches* plenty for th' ensuing spring."—*Denham.*

—To contrive, plot, or form by brooding over, or by meditation, and bring into being; to originate and mature in silence; as, to *hatch* a conspiracy, to *hatch* mischief.
—*v. n.* To produce young; to bring the young to a matured state; as, eggs that are *hatching.*
—*n.* A brood; as many chickens as are incubated at once.
—The act of exclusion from the egg. — Disclosure; discovery; revelation; development.

"The *hatch* and the disclose will be some danger." —*Shaks.*

Hatch, *n.* [A. S. *hæca*; Dan. *hek*, a railing, a grating, a grate.] The shut or fastened part of a door, the part above being open. — A fish-weir in a river. — A bedframe; a bedstead. (*Sir W. Scott.*) — The opening in the floor of a warehouse.—(*pl.*) Flood-gates in a river to stop the current of the water.
—*v. a.* To close or secure with a hatch; as, to *hatch* the door.

Hatch'ee, or HATCHIE, a river, which, rising in Tippah co., Mississippi, passes through the S.W. part of Tennessee, and enters the Mississippi River near Randolph. It is navigable by steamboats to Bolivar, about 150 m. from its embouchure. An action occurred at Davies's Bridge on this river, Oct. 6, 1862, between a Confederate force under Gen. Van Dorn, and one of National troops under Gen. Ord, in which the former were defeated with the loss of 300 prisoners and two batteries. Gens. Ord and Veatch were wounded during this battle.

Hatch'el, *n.* See HACKLE.

Hatch'el, *v. a.* To draw through the teeth of a hatchel or hackle.
—To torment, worry, or weary by sarcastic words.

Hatch'eller, *n.* One who uses a hatchel or hackle.

Hatch'er, *n.* The person who, or thing which, hatches; an incubator; a hatching apparatus. — One who originates and brings to maturity, as treason, conspiracy, heresy, &c.

Hatch'es, *n. pl.* (*Naut.*) The coverings for the hatchways of a ship, made with ledges, and laid with oak or pine, which are, in very bad weather, battened down to keep the water which comes in upon the decks from getting below. — (*Mining.*) An excavation made in a mine.—*To be under hatches*, to be confined below; hence, to be in bondage, distress, or durance.

"Though his body 's *under hatches*, his soul has gone aloft." *Dibdin.*

Hatchet, (*hach'et,*) *n.* [Ger. *hacke*; Fr. *hachette*, a small axe, from *hacher*; A. S. *haccan*, to hack.] A small hacking or chipping instrument; a small axe with a short helve, to be used with one hand.

To bury the hatchet, to make friends again; to restore peace. — *To take up the hatchet*, to declare war; to break peace or amity. (These expressions are taken metaphorically from the practice of the N. American Indians.)

Hatch'et-face, *n.* A sharp, prominent cast of countenance, such as might be hewn out of a block of wood by a hatchet.

"An ugly beau adores a *hatchet-face*."—*Dryden.*

Hat'chettite, *n.* (*Min.*) (Called also *mountain-tallow*, and *mineral adipocere.*) A yellowish, wax-like substance, found in nodules of iron-stone in the coal-measures of Merthyr Tydvil and elsewhere. *Comp.* Carbon 85·55, hydrogen 14·45.

Hatch' Hollow, in *Pennsylvania*, a P. O. of Erie co.

Hatch'ing, *n.* (*Fine Arts.*) The practice of shading with a black lead-pencil or pen; it is done either in straight lines or zigzag strokes, such as are seen in pencil-drawings, or in pencilled backgrounds. It is used by engravers in etching.

Hatch'ing, *n.* [Ger. *hecken*, to hatch.] The incubation or lying down of an animal upon her own or another's eggs, and so communicating heat to them. By this means she maintains them at her own temperature, — a condition essential to their development. The development of the fœtus takes place in many animals after the exclusion of the egg, and while it is kept in external contact with the parent's body, as in the case of the crab and lobster tribes, beneath the caudal plates; or agglutinated to the surface of the abdomen, as in certain species of pipe-fish; or concealed in cutaneous marsupial cavities, as in other species of the *Syngnatus* and the *Hippocampus*; in the case of those cold-blooded animals, however, the protection of the ova seems to be the object, and not communication of warmth. True *H.*, or incubation, only takes place among the oviparous warm-blooded animals — namely, birds. A due degree of warmth is absolutely necessary in *H.* The mean temperature required is 100° Fahr.; it may vary from 95° to 105°, and towards the close of the process may be suspended for one or two hours, or even for a longer period, according to the amount of extraneous heat which the exposed eggs receive. The power which birds possess of communicating the proper amount of heat to their eggs depends upon a peculiar plexus of vessels distributed over the skin of the abdomen, which in most birds is connected with a derivation of blood from the internal organs of generation. The uncontrollable propensity which birds have to incubate arises from the vascular, hot, and sensitive condition of the abdomen. The eggs of the bird present several peculiarities in relation to the circumstances under which the fœtus is to be developed. By their oval form they present a large surface to the source of heat, while the hard calcareous nature and arched form of the shell protects them from injury from the incumbent pressure of the parent bird. The shell is also porous, which assists the heat and air to pass into the egg, and the germ is surrounded by a sufficient store of nutritive matter. The matter is of two kinds, — the internal part, called the *yolk*, and the external, called the *white* or *albumen*, which entirely disappears during the process of *H.* The germ is situated at the superficies of the yolk, beneath the membrane, in the circular opaque white spot usually called the *thread.* The period of incubation is generally in proportion to the size of the bird; but the degree of development at which the young bird arrives differs in various species. Many birds show wonderful instinct in the manner in which they prepare their nests, not only for the process of *H.* their young, but also for their protection and warmth after being hatched. The practice of *artificial H.* was well known in ancient Egypt and China. At the present day artificial *H.* by means of ovens, stoves, or steam, is greatly practised in the former country, and it has been calculated that nearly 93,000,000 chickens are annually hatched in the ovens of Egypt. See INCUBATOR.

Hatch'ment, *n.* [Corrupted from *achievement.*] (*Her.*) An armorial escutcheon (lozenge-shaped) suspended in front of a house, in a church, or on the hearse at funerals, to mark the decease of a member of the family. (See Fig. 965, art. ESCUTCHEON.) The *H.* is always drawn up with heraldic precision, so that from the form and accompaniments of the field, and the color of the ground of the *H.* the sex, position, and rank of the deceased may be known.

Hatch'ville, in *Massachusetts*, a P. O. of Barnstable co.

Hatch'way, *n.* (*Naut.*) A large square opening in a ship's deck for communicating with the decks below, the hold, &c.; there are the *fore*, *main*, and *after* hatchways, corresponding with the several divisions of a ship. — A square opening or aperture cut in a floor to give access to another floor, or to a cellar; a hatch.

Hate, *v. a.* [A. S. *hatian*; D. *haaten*; Ger. *hassen*; Goth. *hatjan.* Root Sansk. *att*, to despise, to hold in slight esteem.] To detest; to loathe; to abhor; to abominate: to dislike greatly; to have a great aversion to.
—*n.* Intense dislike or aversion; active antipathy; hatred.

"Haughty Juno's unrelenting *hate*." —*Dryden.*

Hate'ful, *a.* Exciting hate, or extreme dislike, aversion, antipathy, or disgust: odious; detestable; abominable; loathsome; abhorrent; as, a *hateful* wretch, a *hateful* alternative, a *hateful* presence. — That feels or expresses hatred; malignant; malevolent; as, "*hateful* eyes." —*Dryden.*

Hate'fully, *adv.* Odiously; with great dislike; malignantly; maliciously; in a hateful manner.

Hate'fulness, *n.* Quality of being hateful, or of exciting aversion or disgust; odiousness.

Hat'er, *n.* One who hates.

"I respect a good *hater*." —*Dr. Johnson.*

Hat'field, a town of England, Hertford co., 7 m. S.W. of Hertford, on the Lea. *Manuf.* Unimportant. Here is the palace where Queen Elizabeth was imprisoned during a portion of the reign of Mary. *Pop.* 3,862.

Hat'field, in *Massachusetts*, a post-township of Hampshire co., abt. 100 m. W. of Boston.

Hat'field, in *Pennsylvania*, a village of Alleghany co., on the Alleghany River, abt. 3 m. N.E. of Pittsburg.
—A post-village and township of Montgomery co., abt. 25 m. N. of Philadelphia.

Hat Island, in *Illinois*, a post-office of Jackson co.

Hat'less, *a.* Without a hat.

Hat'-money, *n.* (*Com.*) A small sum, also called PRIMAGE, paid to the captain and mariners of a vessel, over and above the freight, for their care and trouble. The amount is regulated by the custom of each particular place. — See PRIMAGE.

Hato Viejo (*hat'to ve-a'ho*), a town of the Republic of Colombia; Lat. 6° 22′ N., Lon. 73° 38′ W.

Ha'tred, *n.* Great aversion; extreme dislike; ill-will; active antipathy; enmity; malevolence; rancor; malignity; odium; detestation; loathing; abhorrence.

"Heaven has no rage like love to *hatred* turned."—*Congreve.*

Hat'ted, *a.* Wearing a hat; covered with a hat.
Hat'teutists, *n. pl.* (*Eccl. Hist.*) Formerly a religious sect in Holland, so called from the founder, Pontian Van Hattem, a minister in Zealand, and nearly allied to the Verschorists. They arose in the latter part of the 17th century, and appear to have denied the expiatory sacrifice of Christ. It is added, that they denied the corruption of human nature, and the difference between moral good and evil.
Hat'ter, *n.* A maker of hats; a vender of hats.
Hat'teras, in *North Carolina.* See CAPE HATTERAS. In the same co., an inlet of Pamlico Sound, defended by the forts Hatteras and Clark. These two Confederate forts, attacked Aug. 28, 1861, by a National naval expedition under Commodore Stringham, and the land-forces of Gen. Butler, surrendered Aug. 29.
Hat'ting, *n.* The business or practice of making hats.
Hat'ti-scheriff, *n.* [From Ar. *hatt*, a writing, and Turk. *sherif*, excellent.] A firman, edict, or decree, countersigned by the Turkish sultan.
Hat'tle, *a.* [From Lat.] An English provincialism, signifying wild, intractable, rantipole, skittish; as, a *hattle* colt.
Hat'tock, *n.* [Scot.] An English provincial term for a shock or sheaf of unthreshed grain; as, a *hattock* of barley.
Hatt's Shop, in *Georgia*, a village of Talbot co.
Hau'berk, *n.* [O. Ger. *halsberge;* A. S. *healsborg*, from *heals*, the neck, and *beorgan*, to cover.] A piece of armor, supposed to be of German origin, common in the *chain mail*, or rather *ringed mail*, of the 12th century; being a jacket or tunic, with wide sleeves reaching a little below the elbow, the hood being of one piece with it. The *H.* of ringed mail ceased to be worn about the reign of Henry III. of England, when the *Oriental chain-mail*, properly so called, came into fashion for a short period. In France, only persons possessed of a certain estate called *un fief de hauber*, were permitted to wear a *H.*, which was the armor of a knight; esquires wore only a simple coat of mail without the hood and hose.
Haub'stadt, in *Indiana*, a post-village of Gibson co., about 18 m. N. of Evansville.
Hau'erite, *n.* (*Min.*) A reddish-brown or black mineral, often in octohedral crystals, from Kalinka, Hungary; *sp. gr.* 3·463. *Comp.* Sulphur 53·7, manganese 46·3.
Haugh, (*haw,*) *n.* [A. S. *hăg*, an inclosure.] A term applied in Scotland to a *meadow* or *pasture.*
—[O. Fr. *haugh.*] A dale. See HAW.
Haughtily, (*haw'te-le,*) *n.* In a haughty manner; arrogantly; proudly; with contempt or disdain.
Haugh'tiness, *n.* Quality of being haughty; pride mingled with some degree of contempt for others; high-mindedness; loftiness; arrogance; disdain; supercilousness.
Haughty, (*haw'te,*) *a.* [O. Eng. *hautain*, from O. Fr. *haultain, hautain;* It. *alteiro*, proud, haughty, from Fr. *hault*, It. *alto*, Lat. *altus*, high. See ALTITUDE.] High; bold; lofty; prominent; hazardous; as, a *haughty* mountain, a "*haughty* enterprise." (*Spenser.*)—Proud and disdainful; having a high opinion of one's self, with some contempt for others; lofty and arrogant; supercilious; overbearing; as, "*haughty* Britain." (*Prior.*)—Proceeding from excessive pride; manifesting disdain or arrogance; proud and imperious; as, *haughty* manners.
Haul, *v. a.* [Fr. *haler*, to draw with a rope: Ger. *holen*, to fetch; probably allied to Gr. *helkō*, to draw or drag, and to Ar. *kalo*, to draw, pull, or tear out.] To drag; to draw; to tug; to compel to move or go; as, to *haul* a rope.

"The romp-loving miss is *haul'd* about."—*Thomson.*

To haul the wind. (*Naut.*) To direct a ship's course nearer to the point of the compass from which the wind blows.
—*v. n.* (*Naut.*) To change the direction of a ship's course; as, to *haul* for the land.
—*n.* A pulling or dragging with force; a violent pull.

"The leap, the slap, the *haul.*"—*Thomson.*

—A draught of a net; as, to take a thousand herrings at a *haul.*—A quantity of anything taken at once; as, the burglars made a heavy *haul* of plate.
—A quantity of yarn, about 400 threads, warped with a twist off a winch, and tarred for making a rope.
Haulage, (*haul'aj,*) *n.* Act of hauling; also, the dues or fees paid for hauling.
Haul'er, *n.* One who hauls, tugs, or drags.
Haulm, Halm, Hawm, (*hawm,*) *n.* [A. S. *healm;* Ger. *halm;* Fr. *chaume*, from Lat. *calamus*, a reed, a stalk; Gr. *kalamos;* Ar. *kalam*, a writing-reed.] The stem or stalk of grain, and other vegetable products; straw; dried stalks and leaves of plants.—A hame; a part of a horse's harness.
Haunch, (*hānsh,*) *n.* [Fr. *hanche;* It. *anca;* Gr. *angkos*, a bend or hollow.] The bend or hollow where the thigh is joined to the body; the hip; the rear; the hind part; as, a *haunch* of venison.
—*pl.* (*Arch.* and *Engineering.*) A term used to express the filling in of the masonry required to make up the horizontal line of the structure between the voussoirs of the arches and the line of the string, which is generally introduced over the whole series. The *H.* are, in fact, the horizontal filling introduced to completo the structure. The purpose of the *H.* is to bring down the pressure of the roadway, or of the superstructure, upon tho arches, and this is done in the most effectual manner by directing the line of thrust normally to the arch; in some of Smeaton's, and in the early Roman bridges, however, the *H.* of the great arches are often lightened by the introduction of a small circular arch, which is formed in the masonry of the upper structure.
Haunched, (*hānshd,*) *p. a.* Possessing haunches.
Haunt, (*hawnt,*) *v. a.* [Fr. *hanter;* Armor. *henti*, from *hent*, or *hend*, a way, a path, a coming.] To frequent; to resort to too much or often, or to be much about; to visit customarily; to come too frequently; to intrude on; to trouble with incessant visits; to follow importunately.

"Celestial Venus *haunts* Idalia's groves."—*Pope.*

—To frequent or inhabit, as a spectre or apparition; to visit, as a ghost or immaterial presence.

"Your fates, your furies, and your *haunted* town."—*Pope.*

—To make a habit of; to practise; to indulge in customarily.
—*v. n.* To be much about; to visit, or be present often.

"I've charged thee not to *haunt* about my doors. . . ."—*Shaks.*

—*n.* A place to which one frequently resorts; a place much visited or frequented; as, his favorite *haunt* is the tavern.
Haunt'ed, *p. a.* Customarily visited or resorted to, especially by apparitions; troubled by frequent visits; as, a *haunted* house.
Haunt'er, *n.* One who haunts or frequents a particular place, or is often about it.

"O goddess, *haunter* of the woodland green."—*Dryden.*

Haup'pauge, in *New York*, a post-office of Suffolk co.
Hau'pur, a town of British India, cap. of a district of the same name, 20 miles W. of Meerut. *H.* contains a breeding-stud for cavalry horses. *Pop.* 15,400, of whom two-thirds are natives.
Hau'rient, *a.* (*Her.*) A term applied to a fish placed in *pale*, and having its head in *chief*, as if rising to the surface for air.
Haus'mannite, *n.* (*Min.*) Native oxide of manganese. It occurs both massive and crystallized. Its color is brownish-black; lustre somewhat metallic. *Sp. gr.* 4·722. *Comp.* Manganese 72·1, oxygen 27·9. Found at Lebanon, Pa.
Hausse, *n.* (*Gun.*) A kind of breech-sight for a cannon.
Haussmann, (*hous'man,*) GEORGES EUGÈNE, BARON, B. at Paris, 1809. After filling various public positions, he was appointed, in 1853, Prefêt of the Seine, and under his active direction and enterprising spirit, works have been executed in Paris of such a nature as almost to transform it into a new city. In 1862 he received the Grand Cross of the Legion of Honor, and on the accession of M. Ollivier's government, early in 1870, resigned his office. Died Jan. 1, 1891.
Haus'tellate, *a.* [From Lat. *haustellum*, *q. v.*] Furnished with a sucker, as certain insects.
Haus'tellum, *n.* [Lat., a sucker.] (*Zoöl.*) The instrument of suction (in insects) contained in the *Theca.*
Hautboy, (*hō'boi,*) *n.* [Fr. *hautbois; haut*, high, from Lat. *altus*, and *bois*, wood.] (*Mus.*) A high-toned instrument, somewhat resembling a flute. See OBOE (the Italian and modern spelling).
(*Bot.*) A species of strawberry, *Fragaria elatior.*
Hautboyist, (*hō'bo-ist,*) *n.* A player on the hautboy; an oboeist.
Haute-Garonne. See GARONNE (HAUTE).
Haute-Ile, (*hōt'ēl,*) an island of British N. America, in the Bay of Fundy, abt. 8 m. S.W. of Cape Chignecto.
Haute-Loire. See LOIRE (HAUTE).
Haute-Marne. See MARNE (HAUTE).
Haute-Saône. See SAÔNE (HAUTE).
Haute-Savoie. See SAVOY.
Haute-Vienne. See VIENNE (HAUTE).
Hautes, and Basses Alpes, the names of two contiguous French departments. 1. The HAUTES ALPES, which was formed of a part of the old prov. of Dauphiné, is traversed by the chief range of tho Cottian Alps, which here rise, in Mount Pelroux, to the height of 14,000 ft., and in Mount Oran, to 13,120 feet. It is the highest dep. of France. The climate is severe, the winter long, and the barren soil yields little else than potatoes, a little rye, oats, and barley. *Area*, 2,136 sq. m.; *cap.* Gap; *pop.* 122,117.—2. The BASSES ALPES, situate south of the preceding, occupies the N.E. part of Provence, and is, for the most part, mountainous, consisting of offshoots from the Maritime Alps, which run in numerous chains toward the Rhone. In the N. the climate is cold, and the soil poor; but the S. owns a fine climate, and produces excellent fruits and wines. This dep., which is watered by the Durance, has an area of 2,680 sq. m. *Cap.* Digno. *Pop.* 143,000.
Hauteur, (*hō-tūr',*) *n.* [Fr., from *haut*, high.] Haughtiness; lofty manner or spirit; pride.
Hautgout, (*hō-gōō',*) *n.* [Fr.] High seasoning; fine taste or relish.
Haut-Rhin. See RHIN (HAUT AND BAS).
Haüy, RÉNÉ JUST, Abbé, (*hōw'é,*) a French mineralogist, B. at St. Just, in Picardy, 1743. He first studied theology, and was for 21 years professor of languages. But mineralogy was his favorite pursuit; and to him science is indebted for an admirable theory of crystallization, founded on geometrical laws. In 1783 he was admitted a member of the Academy of Sciences; and wholly devoting himself to his studies, he long remained a stranger to the revolution and all its horrors. But at length, having refused to take the oath of obedience to the constitution required of the priests, he was deprived of his place, and was arrested, in tho midst of his calculations, as a recusant priest. He was, however, released through the affectionate exertions of his pupil and friend, the celebrated Geoffroy Saint-Hilaire; and was subsequently appointed, by Bonaparte, professor of mineralogy at the Botanic Garden, and to the Faculty of Sciences, at Paris. In 1803, at the request of Napoleon, he wrote his *Traité de Physique*; and when the Emperor, after his return from Elba, visited the Museum, he said to Haüy, "I read your Physics again, in Elba, with the greatest interest;" and also decorated him with the badge of the Legion of Honor. The esteem which the Emperor showed for this distinguished man was the more honorable, both to him and to Haüy, as the latter had opposed Napoleon's elevation to the imperial dignity, by signing *nay* when the question was proposed for the ratification of the nation. D. 1822. His treatises on mineralogy, crystallography, and natural history are all highly esteemed.
Hauy'nite, *n.* [Named after *Haüy*, q. v.] (*Min.*) A blue, or sometimes greenish, mineral, called also *Haüyne*, found in rounded grains or crystals, generally in basalt or lava; *sp. gr.* 2·4–2·5. *Comp.* Silica 32, alumina 27·4, lime 9·9, soda 16·5, sulphuric acid 14·2.
Havan'a, (formerly written HAVANNA, and THE HAVANNAH.) [Sp. *Habana*, "the harbor."] A large and flourishing commercial city and seaport, cap. of the island of Cuba. It stands on the N.W. coast of the island and on the W. side of one of the finest harbors in the world; Lat. 23° 8′ 15″ N., Lon. 82° 22′ 45″ W. From its position, which commands both inlets to the Gulf of Mexico, its great strength and excellent port, *H.* is, in a political point of view, by far the most important maritime station in the West Indies. The entrance to the harbor is narrow, but the water is deep and without obstruction, and within it expands into a magnificent bay, capable of accommodating 1,000 large ships; vessels of the greatest draught of water coming close to the quays. The city lies along the entrance to and on the W. side of the bay, and is strongly fortified by the Moro and Punta castles and by works on every point commanding the city and harbor. The older portion of the city is marked by narrow and dirty streets and by smells the reverse of salubrious, drainage being very imperfectly performed. In the newer sections there are many wide and beautiful avenues, with broad macadamized drives in the center, lined with rows of stately palms and bordered with umbrageous gardens and low, solidly built stone houses of the architecture of southern Spain, with flat roofs, verandahs and barred, unglazed windows, the walls gay with hues of red, blue and yellow and with decorations in white marble. In respect to its public parks and promonades *H.* is believed to have no equal in the world. Of these the most prominent are the Plaza de Armas, facing the governor's palace; the Alameda de Paula, along the bay; the Parque de Isabel; and the Paseo de Tacon, whose magnificent drive is shaded by double rows of trees. In addition to these there are other promenades, passing through or around the city, which charm the visitor alike with their trees, flowers, fountains and statues and with their liveliness and gayety, being almost constantly crowded with open carriages and attractively-dressed promenaders. All this renders *H.* one of the most picturesque, lively and pleasing of cities, its principal drawbacks being, in the words of one writer, "its smells and its noises." It is well supplied with water from tho Chorvera, about 7 miles away, and has about 50 public fountains. Since the outbreak of insurrection in the island it has been, in the fullest sense, a military city, crowded day and night by men in uniform, whose presence adds a new and not in all respects desirable element to the throngs in the streets, particularly as their prevalence suggests the horrors of the military prisons, in which many captives languish under conditions disgraceful to a people claiming to be civilized. The prominent public buildings include the Opera House, which has few rivals in size; the Cathedral, built in 1724, and claiming to possess the remains of Christopher Columbus; and the palace of the governor-general. There is, however, nothing very striking in the architectural aspect of these buildings. Of the institutions of the city may be named its university, its botanical garden, and a number of scientific, educational and benevolent associations. The hospital "Beneficiencia" contains, in addition to its infirmary, an orphan asylum, a lunatic asylum, and a poorhouse. Yellow fever is prevalent during the summer months.—*Industries.* With the exception of tobacco, *H.* possesses no important manufactures. The cigar factories are numerous, many of them being very large. Of these, the factory of La Handradez, which occupies a whole square, produces 2,500,000 cigarettes daily. Sugar and tobacco, the chief products of the island, form the staple exports. The leading imports are rice, lard, flour, jerked beef, codfish and coal. 20 per cent. of the imports come from the U. S., which takes 90 per cent. of the exports, and provides one-third of the vessels employed, while another third fly the Spanish flag.—*History. H.* was founded by Diego Velasquez in 1515 on the south coast, but four years afterward was transferred to its present site. It was burned by a band of buccaneers in 1528, plundered by another band in 1555, and captured by a third band in 1560, and by the English in 1762. In the 17th century it was made the emporium of Spanish trade in the West Indies and the point of rendezvous for the Spanish gold fleets. Moro Castle, a strong fortification on the E. side of the bay, perfectly commands the sea approach to the city. Punta Castle lies opposite, and is also well fortified.—There have been many severe outbreaks of yellow fever in *H.* since 1751. *Pop.* (1897) about 200,000.
Havana, in *Alabama*, a post-office of Hale co.
Havana, in *Illinois*, a flourishing city, cap. of Mason co., on the Illinois river and two lines of railroad, 41 m. S.W. of Peoria. *Pop.* (1897) about 2,750.
Havana, in *Kansas*, a post-village of Montgomery co., located on the A., T. & S. Fé R. R.
Havana, in *Michigan*, a village of Saginaw co.
Havana, in *New York*, a village of Schuyler co., about 19 m. N. of Elmira. Its post-office is MONTOUR FALLS.
Havana, in *North Dakota*, a post-village of Sargent co., on the Gt. Northern R. R.

Havan'a, in *Ohio*, a post-village of Huron co., 23 miles S. of Sandusky. *Pop.* (1897) about 500.

Havana, in *Texas*, a post village of Hidalgo co., near the Rio Grande river, about 70 miles above Brownsville.

Havanese', *a.* (*Geog.*) Of, or belonging to Havana, the capital of Cuba.

Havanese', *n. sing.* and *pl.* (*Geog.*) A native, or naturalized citizen, or the people collectively, of Havana.

Have, (*hăv,*) *v. a.* (*imp.* and *pp.* HAD; *ppr.* and *vb. n.* HAVING; indic. pres. I *have*, thou *hast*, he *has*; we, ye, they *have*.) [A. S. *habban*; L. Ger. and D. *hebben*; Dan. *have*; Icel. *hafa*; Swed. *hafwa*: Ger. *haben*; Lat. *habēre*; It. *avere*; Sp. *habér*; Fr. *avoir*; probably allied to Sansk. *hu*, to seize, to grasp.] To seize and hold; to own; to possess; to hold in possession or power.

"The earth *hath* bubbles, as the water *has*." — *Shaks.*

—To receive and possess as something which concerns, affects, or belongs to one; to be attended with or united to, as an accident or concomitant.

"He that gathered much *had* nothing over, and he that gathered little *had* no lack." — *Exod.* xvi. 18.

—To hold in opinion; to regard; to esteem.

"The proud *have had* me greatly in derision." — *Psalms.*

—To take; to accept; to accept possession of; as, wilt thou *have* this woman for thy wedded wife? — To receive possession of; to obtain; hence, to beget, produce, bear, or bring forth, as young; as, they *have* quite a family of children. — To claim; to exact; to require; to cause to be. "What would these madmen *have?*" (*Dryden.*) — To take. — To cause or compel to go; as, he *had* to retire from the field. — To be impelled by duty; to be urged by necessity or obligation.

"We *have* to strive with a number of heavy prejudices." — *Hooker.*

—To act promptly; to conduct one's self, with reference to an end or object; — used reflexively, and frequently with ellipsis of the pronoun.

"Ode, epic, elegy, *have at* ye all." — *Byron.*

To have on, to wear; to carry on one's person; as, she *had on* a velvet dress. — *To have a care*, to take care; to be cautious; to be on one's guard.

"Well, sweet Jack, *have a care* of thyself." — *Shaks.*

Hav'el, a river of N. Germany, rising in Lake Woblitz, in the S.E of Mecklenburg-Schwerin, and receiving, in its S.W. course of 162 m., the Spree and Dossa, after which it falls into the Elbe, 6 m. below Havelberg.

Hav'elberg, a city of Prussia, prov. Brandenburg, on an island in the Havel, 72 m. N.W. of Berlin. *Manuf.* Tobacco, sugar, liquors, &c.

Hav'elock, SIR HENRY, K.C.B., a distinguished English general, B. in co. Durham, 1795. He entered the army at an early age, went to India in 1823, and there honorably acquitted himself in the Afghan and Sikh wars. In 1856 he commanded a division of the army which invaded Persia. In 1857, upon the breaking out of the Sepoy mutiny, *H.* made a forced march from Allahabad to Cawnpore, at the head of a column of 2,000 men, but reached the latter city too late to prevent the hideous massacre which occurred there. After defeating the rebels in three different engagements, *H.* continued his march toward Lucknow, then beleaguered by a formidable force of mutineers. After victoriously fighting eight more battles with the enemy, and having his force increased by 500 men, *H.* fought his way through the besieging army around Lucknow, and accomplished the relief of its exhausted garrison. For this service he received general rank, was created a baronet, and decorated with the cross of the Bath. Sir Henry D., universally regretted, in 1869.

Hav'elock, *n.* [From *Sir Henry Havelock*, q. v.] A light linen covering for protecting the neck and shoulders from the sun, depending from the back of the shako, or forage-cap. (Now generally worn in the European armies.)

Havelock, in *North Carolina*, a post-village of Craven co., about 17 miles S.S.E. of Newbern.

Havelock, in *Pennsylvania*, a former post-office of Washington co.

Haven (*hā'vn*), *n.* [A. S. *hæfen*; L. Ger. and D. *hafen*; Dan. *havn*; Ger. *hafen*; Icel. *höfen*; W. *hafn*; probably allied to Goth. *haban*, to hold.] A harbor; a port for ships; a bay, recess, or inlet of the sea, with sufficient depth of water to receive vessels; a station for ships. (See HARBOR.)—An asylum; a place of safety; a refuge; a shelter.

Ha'venage, *n.* Harbor-dues.

Havened (*hā'vend*), *a.* Secured or sheltered in a haven.

Ha'vensport, in *Ohio*, a village of Fairfield co., about 24 miles S.E. of Columbus.

Ha'vensville, in *Kansas*, a post-village of Pottawotomie co., on the Union Pacific R. R.

Ha'ver, *n.* [O. A. S. *havoro*; Ger. *hafer*.] In the N. of England. A denomination for oats.—*Haver-bread*, oat-cake, oaten bread.

Hav'erford, in *Pennsylvania*, a post-township of Montgomery co., about 10 miles W. of Philadelphia. Haverford College, situated in this township, is an institution of learning under the care of the Society of Friends, founded in 1833, and richly endowed. It possesses a well-selected library, a chemical laboratory, philosophical apparatus, mineralogical and geological cabinets, and an astronomical observatory.

Haverford-west (W. *Hulfordd*), a town of Pembrokeshire, Eng., on the Cleddau, 8 m. N.E. of Milford, and 270 W.N.W. of London. *Pop.* (1895) 6,560.

Hav'erhill, in *Massachusetts*, a manuf. city of Essex co., at the head of navigation of the Merrimac river, on its N. bank, 12 miles from its mouth, and 32 N. of Boston. It is connected by two bridges with Bradford, and is the seat of an active manufacturing industry in iron, woolens, hats and caps, carriages, soap and candles, tinware, leather, boots and shoes, &c. In Feb. 1882, *H.* was in large part destroyed by fire; loss, over $2,000,000. Out of over 100 shoe and leather concerns, only three escaped destruction. *Pop.* (1895) 30,185.

—In *Minnesota*, a township of Olmstead co.—In *N. H.*, a p.-t. and twp., semi-cap. of Grafton co., about 70 m. N.N. W. of Concord.—In *Ohio*, a post-village of Scioto co., on the Ohio river, about 20 miles above Portsmouth.

Hav'erhill Center, in *New Hampshire*, a village of Grafton co.

Haverhill Corner, in *New Hampshire*, a village of Grafton co., about 65 miles N.W. of Concord.

Hav'ersack, *n.* [Fr. *havre-sac.*] A strong, coarse bag, used by soldiers for carrying provisions on a march;—distinguished from *knapsack.*—A case used by gunners to carry cartridges from the ammunition chest to the gun.—In the N. of England, a sac or bag for oats or oatmeal.

Hav'erstraw, in *New York*, a post-village and township of Rockland co., on the Hudson river, about 37 m. N. of New York city. *Pop.* (1890) 5,170.

Hav'iland Hollow, in *New York*, a post-village of Putnam co.

Hav'ilandsville, in *Kentucky*, a post-village of Harrison co.

Hav'ildar, *n.* (*Mil.*) The highest rank to which a non-commissioned officer can ascend in the native regiments of India and Ceylon; consequently, the rank is somewhat analogous to that of a sergeant-major in our army.

Hav'ing, *n.* Possession; estate; fortune.

"My *having* is not much." — *Shaks.*

Hav'oc, Hav'ock, *n.* [W. *hafoc.*] Destruction far and wide; ravage; devastation; slaughter.

"As for Saul, he made *havoc* of the Church." — *Acts* viii. 3.

—*v. a.* To waste; to ravage; to destroy; to lay waste.

—*interj.* A war-cry, and the signal for indiscriminate slaughter and laying waste.

"Cry *havock*, kings." — *Shaks.*

Hav're, or LE HÂVRE, (formerly HAVRE DE GRACE,) a fortified town, and the principal seaport on the W. coast of France, dep. Seine-Inférieure, cap. arrond. on the N. bank of the Seine, at its month in the English Channel, 42 m. W. of Rouen, and 109 m. W.N.W. of Paris. This town is built on a low alluvial tract of land recovered from the sea, and is divided into unequal parts by its outward port and basins. The town has wide thoroughfares, and is clean and well-built, but presents few architectural features of interest. The port, which is the best and most accessible on the coast, consists of 3 basins separated from each other, and from the outer port, by 4 locks, and is capable of accommodating about 450 ships. Two lighthouses, 50 ft. high, 325 ft. apart, and exhibiting powerful fixed lights, stand on Cape de la Hève, N.N.W. of *H.*, and 300 ft. above sea-level. *H.* has two roadsteads; the *great*, or outer, is about a league from the port, and the *little*, or inner roadstead, about half a league. In the former (where large ships always lie) there are from 6 to 7½ fathoms water at ebb; and in the latter, from 3 to 3½. *H.* being the seaport of Paris, most of the colonial and other products destined for its consumption are imported thither. *H.* receives 7-10ths of the cotton imported into France, half the potash and indigo, and more than a third part of the sugar and coffee. As respects cotton, *H.* is to France what Liverpool is to England. *Manuf.* Chemicals, furniture, earthenware, oil, tobacco, rope, &c. Ship-building is also extensively engaged in. Lines of steamers connect *H.* with the principal English ports, and establish a mail-service between France and N. York. *Pop.* (1897) about 120,000.

Havre de Grace (*hav'er de-grass*), in *Maryland*, a city of Harford co., on the Susquehanna river, about 36 m. N.E. of Baltimore. It was burned by the British in the war of 1812. *Pop.* (1897) about 3,400.

Haw, *n.* [A. S. *hæg, hag.*] A hedge or fence. (See HAW-HAW.) — The berry and seed of the hawthorn.

(*Farriery.*) An excrescence in the eye of a horse.

Haw, *n.* [A. S. *hāga.*] A hesitation or intermission of speech.

—*v. n.* To speak slowly, with frequent intermission and hesitation; to stop in speaking with a *haw.*

"Don't prose — don't hum and *haw*." — *Chesterfield.*

—*v. n.* To turn towards the driver; — said of a horse, or team of horses; — most frequently in the imperative; as, *haw* here! *haw* up! &c., — words used by wagoners and teamsters.

Haw, in *Missouri*, a P. O. of Mercer co.

Hawaii, Hawaiian Archipelago, &c. See HAWAII in SECTION II, also SANDWICH ISLANDS.

Hawarden (*hard'n*), a town of England, in Flintshire, 7 miles W. of Chester. It has considerable potteries. *Pop.* (1897) 8,836.

Haw Creek, in *Illinois*, a township of Knox co.

Haw Creek, in *Indiana*, a township of Bartholomew co.

Haw Creek, in *Missouri*, a post-office of Pike co., about 12 m. N. of Bowling Green.

Hawesville (*hawz'vil*), in *Kentucky*, a city, cap. of Hancock co., on the Ohio river, about 124 miles below Louisville. *Pop.* (1890) 1,013.

Haw'field, in *North Carolina*, a village of Orange co., about 45 miles W. of Raleigh.

Haw'finch, *n.* (*Ornith.*) The GROSSBEAK (*q. v.*).

Haw-haw, *n.* [Duplication of *haw*, a hedge.] Same as HA-HA (*q. v.*).

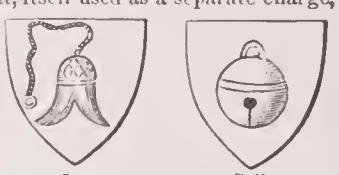
—*a.* Consequential or affected in mein or manner; as a *haw-haw* kind of man. (*Colloq.*)

Hawick (*hŏw'ik*), a town of Roxburghshire, Scotland, at the confluence of the Teviot and Slitterig, 10 m. S.W. of Jedburgh, and 53 S.E. of Edinburgh. *Manuf.* Tweeds, hosiery, yarns, and gloves.

Haw'ing, *n.* Speaking with a *haw*, or with affectation or hesitation; as, humming and *hawing*.

Hawk, *n.* [A. S. *hafoc*; D. *havik*; Icel. *haukr*; Finn. *haucka*; Swed. *hök*; W. *hebog*; Ar. *sakr*; Sansk. *hu*, to seize, to carry off.] (*Zoöl.*) A name indiscriminately applied to many birds of the Falcon family (*Falconidæ*), — indeed, to almost any bird of prey which is not a vulture, an eagle, or an owl. The beak of the Hawks resembles that of the Falcons (*Falconidæ*) in its general form, being curved from the base; but the wings are shorter, and want the pointed tips which are characteristic of that division of the family. The most powerful hawks are found in cold countries, inhabiting hilly districts where there are woods, and seeking their prey near the ground. Among the whole, none is more bold and pertinacious in pursuit of its prey than the Sparrow-hawk (Fig. 19). The other most important species will be found under their respective names.

(*Her.*) A charge that may be *belled*, *jessed*, and *var. velled*. The *hawk's bell*, itself used as a separate charge, is attached to the leg of the bird by *jesses* or thongs of leather. *Varvels* are rings attached to the end of the jesses. The *hawk's lure*, also an heraldic charge, consists of two wings, joined with a line, to the end of which is attached a ring. The line is sometimes *nowed* or knotted.


Lure. Bell.
Fig. 1253. — HAWKS.

Hawk, *v. n.* (*Sports.*) To catch, or endeavor to catch birds by means of hawks trained for the purpose, and let loose on the prey; to practise falconry, or HAWKING, *q. v.*

—To fly and strike at; to attack on the wing; — preceding *at*.

"A falcon . . . was by a mousing owl *hawk'd at* and kill'd." *Shaks.*

—[W. *hochi*; Dan. *harke*; Scot. *hawgh*; formed from the sound.] To make an effort to force up phlegm with a noisy retching.

Hawk, *v. a.* [W. *hwcw*, a cry, a scream; Armor. *ioucha*, to cry aloud; Fr. *hucher*, to halloo after one; L. Lat. *hucha*, an auction.] To offer for sale by public vendue; to sell by outcry in the street; to carry about wares for sale from place to place; to peddle; as, to *hawk* fish, to *hawk* books, &c.

Hawk, *n.* (*Masonry.*) A small square board with a handle on the under side, to hold mortar.

Hawk'-boy, *n.* A boy who attends a brick-layer or plasterer, to supply him with mortar.

Hawke Bay, an arm of the Atlantic Ocean, on the E. coast of Labrador, abt. Lat. 53° N.

Hawked, *p. a.* Crooked; curving like a hawk's bill; as, a *hawked* nose.

Hawk'er, *n.* One who hawks, or offers goods for sale by outcry in the street; a huckster; a peddler; as, a *hawker* of songs.

"I saw my labors. . . bawled about by common *hawkers*." — *Swift.*

—[A.S. *hafecere.*] A falconer.

Hawkesbury, (*hawks'ber-e,*) a village of Prescott co., prov. of Ontario, on the Ottawa river, about 60 m. E. of Montreal. *Pop.* (1897) about 2,100.

Hawkesbury Island, an island of British North America, on the Pacific coast, Lat. 53° 30′ N., Lon. 129° W.

Hawk'ey, *n.* (*Games.*) See HOCKEY.

Hawk Eye, in *Iowa*, a village of Des Moines co.

Hawk'-eyed, *a.* Having a keen, penetrating eye; possessing acute powers of vision; discerning.

Hawk'ing, *n.* (*Sports.*) The art or practice of training and flying hawks, in order to take other birds. The practice of teaching one bird to fly at and catch another is frequently called *falconry*, and is of high antiquity. Among the Asiatics the sport seems to have been practised from the earliest period; and in the time of Ctesias, foxes and hares were hunted in India by means of rapacious birds. It is not certain, but very probable, that the ancient Greeks used hawks and other birds of prey in hunting and fowling. From the East the art gradually spread over Europe, and, although scarcely known to the Romans in the days of Vespasian, was practised with enthusiasm by the ancient Britons, who maintained a considerable number of birds for the sport. In the Middle Ages, and till the end of the 17th cent., *H.* was a favorite amusement in W. Europe. A person of rank scarcely stirred out of doors without his hawk on his hand; and in old paintings and seals this is the criterion of nobility. In the Bayeux tapestry, Harold, when setting out on a most important embassy to Normandy, is represented with a bird on his hand and a dog under his arm. In olden times this diversion was the favorite amusement of all ranks of men; and while it was the privilege of the poor, was the pride of the rich. The expenses of the sport were sometimes very great. Sir Thomas Monson, in the reign of James I., is said to have given $5,000 for a cast of hawks. The laws with regard to the protection of the birds were also very rigorous. To steal a hawk was a felony; and to take its eggs was, even in a person's own ground, punishable with imprisonment for a year and a day, besides a fine at the pleasure of the lord or king. The sport of *H.* was so universally popular in the 16th cent., that a certain quality of hawk was apportioned to every one, according to his station in life. Thus the *eagle* or *vulture* was given to the emperor, the *gerfalcon* to the king, the *falcon gentle*, or the *tercel gentle*, to the prince, the *rock-falcon* to the duke, the *peregrine falcon* to the earl, the *bastard*

falcon to the baron, the *saker* to the knight, the *harrier* and the *lammaret* to the esquire, the *merlin* to the lady, the *hobby* to the young man, the *goshawk* to the yeoman, the *tercel* to the poor man, the *sparrow-hawk* to the priest, the *musket* to the holy-water clerk, and the *kestrel* to the knave or servant. The birds most generally used in *H.* were the peregrine falcon and the gerfalcon. When under a year old, hawks were styled *red hawks*, on account of their plumage being dusky red in color. When over a year old, the hawk was styled a *haggard*. Although *H.*, as an exercise, has now gone nearly out of use, several of the terms employed still hold their place in the language. Every part of the hawk has its distinct name. The legs, from the thigh to the foot, are called *arms;* the toes, the *petty singles;* the claws, the *pounces;* the wings, the *sails*. The crop is called the *gorge;* the upper part of the bill, the *beak*, the lower part, the *clap;* the yellow part between the beak and eyes, the *cere*, and the small holes in it the *nares*. The furniture, the leathers, with bells fastened



Fig. 1254. — JAMES I. OF ENGLAND IN HAWKING COSTUME. (1603–1625.)

on the legs, are called *bewits:* the leathern thong by which the hawk is held is called the *leash*, and the little straps fastening them to the legs, the *jesses*. A headcovering, in order to keep the bird in the dark, is called a *hood;* and to draw the strings, so that the hood may be in readiness to be pulled off, is called *unstriking the hood*. The *lure* is a figure or resemblance of a fowl made of leather and feathers, and the resting-place when the hawk is off the falconer's hand, the *perch*. Many of the particular actions of the hawk are also described by distinct terms. When the bird flutters on the hand or perch, it is said to *bate;* when, standing too near, hawks fight with each other, it is called *crabbing;* when the young ones quiver in obedience to the elder, it is called *cowering*. The seizure of its prey by a hawk is called *binding;* when it pulls off the feathers, it is said to *plume;* when it forsakes the proper game, and flies at magpies, crows, &c., it is called *check*. The fowl or game flown at is called the *quarry*, and the dead body of a fowl killed by the hawk, the *pelt*. The making of a hawk tame and gentle is called *reclaiming;* the bringing one to endure company, *manning;* and a hawk well enough trained to set an example to a young one is called a *make-hawk*. George, Earl of Orford, tried to revive *H.* in the latter part of the 18th cent.; and, in Yorkshire, England, Colonel Thompson had a *H.* establishment at a later period. As a general diversion, however, the sport has entirely gone out, although now and then occasional attempts have been made to revive it In Sir Walter Scott's novels there are some very graphic and interesting descriptions of this favorite sport.

Haw'kins, in *New York*, a post-office of Sullivan co.

Haw'kins, in *Tennessee*, a N.E. co., adjoining Virginia. *Area*, about 490 sq. m. *Rivers*. Holston river, and numerous smaller streams. *Surface*, much diversified; *soil*, generally fertile. *Cap.* Rogersville. *Pop.* (1890) 22,246.

Haw'kins, in *Texas*, a post-village of Wood co.

Haw'kins, in *Wisconsin*, a P. O. of Chippewa co.

Haw'kinsville, in *Florida*, a village of Lake co.

Haw'kinsville, in *Georgia*, a post-village, cap. of Pulaski co., on the Ocmulgee river, about 61 m. S. of Milledgeville. *Pop.* (1890) 1,754.

Haw'kinsville, in *New York*, a p.-vill. of Oneida co.

Hawk'-moth, *n.* (*Zoöl.*) See SPHINGIDÆ.

Hawk'-owl, *n.* (*Ornith.*) See STRIGIDÆ.

Hawk Point, in *Missouri*, a post-village of Lincoln co.

Hawk'weed, *n.* (*Bot.*) See HIERACIUM.

Hawlbow'line, or HAULBOWLINE, an island of Ireland, in Cork Harbor, about 1 m. S. of Queenstown.

Haw'ley, in *Massachusetts*, a post-township of Franklin co., about 100 m. W. by N. of Boston.

Haw'ley, in *Pennsylvania*, a post-borough of Wayne co., about 8 m. S.E. of Honesdale. *Pop.* (1897) about 2,100.

Haw'leyton, in *New York*, a post-village of Broome co.

Haw'leyville, in *Connecticut*, a post-village of Fairfield co., about 23 m. N.W. of Bridgeport.

Haw'leyville, in *Iowa*, a post-office of Page co.

Ha'worth, in *New Jersey*, a P. O. of Bergen co.

Haw'patch, in *Indiana*, a village of Lagrange co., about 160 m. N.N.E. of Indianapolis.

Haw Ridge, in *Alabama*, a post-village of Dale co.

Haw River, in *North Carolina*, rises in Rockingham co., and flowing a general S.E. course through Guilford and Alamance cos., joins the Deep river in Chatham co. to form the Cape Fear river.

Haw River, in *North Carolina*, a post-village of Alamance co.

Hawse, *n.* [A. S. *hals*, the neck.] (*Naut.*) The portion of sea immediately in front of a ship's bows, and extending from an imaginary line rising from her anchors. The cables pass through the *hawse-holes*, q. v. When a ship has two anchors down, and the cables diverge from each other, the *H.* is said to be *clear;* when crossed by the ship turning half round, there is a *cross* in the *H.*; another cross makes an *elbow*, then a *round-turn;* in the last two cases the *H.* is said to be *foul*. The process of disengaging the cables is called *clearing hawse*. The danger of a foul *H.* is, that if it comes on to blow, the cables cannot be veered from their friction against each other.—*Freshening hawse*, is veering out a little cable to expose a new surface to the friction in the hawse-hole, or across the cut-water.—*Athwart-hawse*, implies across the bows of a vessel at anchor.

Hawse'-block, Hawse'-plug, *n.* (*Naut.*) A block or stopper for a hawse-hole.

Hawse'-holes, Haw'ses, *n. pl.* (*Naut.*) Holes made in the bows of a ship, and in the hawse-piece outside, through which the cables pass.

Hawse'-pieces, *n. pl.* (*Naut.*) The timbers in the bow of a ship, whose sides are nearly parallel to the middle line.

Haw'ser, *n.* [See HALSER.] (*Naut.*) A small cable; a large rope used in warping ships, &c.

Haw'ses, *n. pl.* (*Naut.*) Same as HAWSE-HOLES, *q. v.*

Haw'thorn, Hay'thorn, *n.* [A. S. *hægthorn.*] (*Bot.*) Same as Whitethorn. See CRATÆGUS.

Haw'thorne, NATHANIEL, a distinguished American novelist, B. at Salem, Mass., 1804. He was educated at Bowdoin College, Maine, where he had among his fellow-students the poet Longfellow and Franklin Pierce, afterwards president of the United States. Leading for a time a sequestered dreamy life, he first appeared as a writer, but anonymously, in 1832. Five years later he published his *Twice-told Tales*, and in 1838 he accepted an appointment in the Custom-House at Boston, which he held for three years. In 1846 he was appointed surveyor in the Custom-House at Salem, but was removed on a change of administration in the following year. From 1853 to 1857 he filled the post of American consul at Liverpool, to which he was appointed by his early friend President Pierce. After travelling on the continent of Europe, he returned to America. His principal works are, *The Scarlet Letter; The House of the Seven Gables; The Blithedale Romance*, founded on reminiscences of his life at Brook Farm; *The Marble Faun; Life of President Pierce;* and *Our Old Home*, a volume of charming delineation of the characteristic scenery of England, and of strangely-contrasted ungenial criticism on the English people. *H.*, though a prose-writer only, is in spirit a poet. Intense love, and minute observation, and painstaking delineation of nature; glowing passion, great powers of mental analysis, vivid imagination, pure moral sentiment, and an exquisitely simple, clear, and delicate style. These are the admitted characteristics of his works. D. 1864.

Haw'thorn-fly, *n.* A kind of fly.

Hay, *n.* [A.S. *heg, hig;* Dan. *hooi;* Ger. *heu;* Swed. *ho;* Icel. *hey;* Dan. *höe;* W. Fris. *haey*. The A.S. is from *heawan* = Gr. *hauen*, to cut.] Grass cut and dried for fodder; grass prepared for preservation.

"Make *hay* while the sun shines." — *Camden.*

To dance the hay, to dance in a ring or circle.

—*v. n.* [Ger. *heuen.*] To make into hay; to dry or cure, as grass for preservation.

Hay, *n.* [A.S. *häg;* Fr. *haie*] A net set aronnd the haunt or burrow of an animal.

"Coneys are destroyed by *hays*." — *Mortimer.*

—*v. n.* To net rabbits.

Hay'-band, *n.* A band or cord of twisted hay.

Hay'-bird, *n.* (*Zoöl.*) The Spotted Fly-catcher, an European bird of the family *Muscicapidæ*.

Hay'-cock, *n.* A conical mass, heap, or pile of hay, raked together from the mow on the field.

Hay'cock, in *Pennsylvania*, a township of Bucks co.

Hay'denite, *n.* (*Min.*) A yellowish variety of Chabazite, *q. v.*, from Jones' Falls, near Baltimore.

Hay'den Row, in *Massachusetts*, a post-village of Middlesex co. *Pop.* (1897) about 550.

Hay'dentown, in *Pennsylvania*, a post-village of Fayette co., about 190 m. W. by S. of Harrisburg.

Hay'denville, in *Ohio*, a post-village of Hocking co., on C., A. V. & T. R.R. *Pop.* (1897) about 500.

Hay'denville, in *Massachusetts*, a post-village of Hampshire co., about 4 m. N.W. of Northampton.

Hay'du (*hā'du*), JOSEPH, an eminent musician, was born in 1732, in the village of Rohrau, on the borders of Hungary and Austria. He was the son of a poor wheelwright, who, having a taste for music, played the harp on Sundays, his mother accompanying with her voice,—a circumstance which accounts for the strong predilection which their son showed for the science even in his infancy. When but 8 years old, he became a chorister in St. Stephen's, Vienna, and at 10 years of age composed pieces for several voices. With his fine soprano he lost his place, and his situation was very discouraging: but he had the good fortune to become acquainted with Prince Esterhazy, who placed him at the head of his private chapel. For this prince he composed some beautiful symphonies — a department in which he excelled all other composers—and the greatest part of his fine quartets. When after a period of above 20 years, the prince reduced his court, and *H.* received his discharge, he accepted an engagement to take part in some concerts in London, composing and superintending the performances. In 1794, having made a second journey thither, he found a most splendid reception, and the university of Oxford conferred upon him the degree of doctor of music. It was during these visits to England that *H.* composed his *Twelve Grand Symphonies*. On his return from England, he purchased a small house and garden in one of the suburbs of Vienna, where he died. To the English public he is universally known by his noble oratorio of the *Creation*, first published in 1798, which is considered a *chef-d'œuvre*. Among his numerous works are, *The Seasons*, an oratorio; also, a *Te Deum*, a *Stabat-Mater*, with many concerts, marches, masses, &c. He was inexhaustible in invention and execution—always new and original — ever surprising and satisfying his enraptured hearers. D. 1809.

Hay'don, BENJAMIN ROBERT, R.A., an eminent English historical painter, B. 1786. He was a devoted apostle of what is called *high art*, and produced many pictures of extraordinary merit; among them we may refer to the *Judgment of Solomon; Christ's Entry into Jerusalem*, (now in the U. States;) *The Raising of Lazarus*, (in the Pantheon;) *The Mock Election in the King's Bench*, (belonging to Queen Victoria;) *Napoleon at St. Helena*, (painted for Sir R. Peel;) *Alexander and Bucephalus*, (in Lord Egremont's collection;) *Alfred and the Trial by Jury; Uriel and Satan; The Burning of Rome*, &c. *H.* was a candidate for furnishing the cartoons in the Houses of Parliament; but being defeated, his mind became deranged, and he committed suicide in 1846.

Hay'don, in *Nebraska*, a post-office of Phillips co.

Hayes, in *Alabama*, a post-office of Tuscaloosa co.

Hayes, in *North Dakota*, a post-office of Ransom co.

Hayes'ine, *n.* (*Min.*) A hydrous borate of lime, from Iquique, Peru. A variety of ULEXITE, *q. v.*

Hayes River, or HILL RIVER, a considerable river of British N. America, rising near Lake Winnipeg, and flowing N.E. through lakes Holy, Knee, and Swampy, enters James Bay at York. *Length*, about 300 m.

Hayes'ville, or HAYSVILLE, in *Ohio*, a post-village of Ashland co., abt. 78 m. N.E. of Columbus.

Hayesville, (*haze'vil.*) in *Pennsylvania*, a post-village of Chester co., about 67 m. S.E. of Harrisburg.

Hay'field, in *Pennsylvania*, a post-township of Crawford co., about 5 m. N.W. of Meadville.

Hayfield, in *Virginia*, a post-office of Frederick co.

Hay Fork, in *California*, a village of Trinity co., abt. 26 m. W.S.W. of Weaverville.

Hay'-knife, Hay'-slice, *n.* A large, sharp instrument used for cutting hay out of a stack.

Hay'-loft, *n.* A loft or barn for the keeping of hay.

Hay'maker, *n.* (*Agric.*) One who cuts and dries hay; one who prepares hay for fodder.

Hay'making, *n.* (*Agric.*) The operation of cutting down, drying, and preparing grasses and other forage plants for being stacked for winter use. The plants are mown down at the time when they are supposed to contain a maximum of nutritious juices, viz., when they are in full flower. Dry weather, and if possible that in which sunshine prevails, is chosen for this operation; then the mown material is spread out, and turned over two or three times; and in the evening they are formed into heaps somewhat larger than they were the day before. If the weather has been remarkably warm and dry, these heaps in the course of the third day are carted away and made into a stack; but if the weather has been indifferent, the process of opening out the heaps and exposing them to the sun is repeated on the third day, and stacking is not commenced till the fourth. The grand object in making hay is to preserve the color and natural juices of the herbage, which is best done by continually turning or *tedding* it, so as never to expose the same surface for any length of time to the direct influence of the sun. In stacking the hay, the object is to preserve this green color, and at the same time induce a slight degree of fermentation, which has the effect of rendering the fibres of the plants composing the hay more tender, and changing a part of the parenchymous matter into sugar. This sweet taste renders the hay more palatable to horses.

Hay'-market, *n.* A place where hay is sold wholesale.

Hay Market, in *Virginia*, a post-village of Prince William co., about 110 m. N. of Richmond.

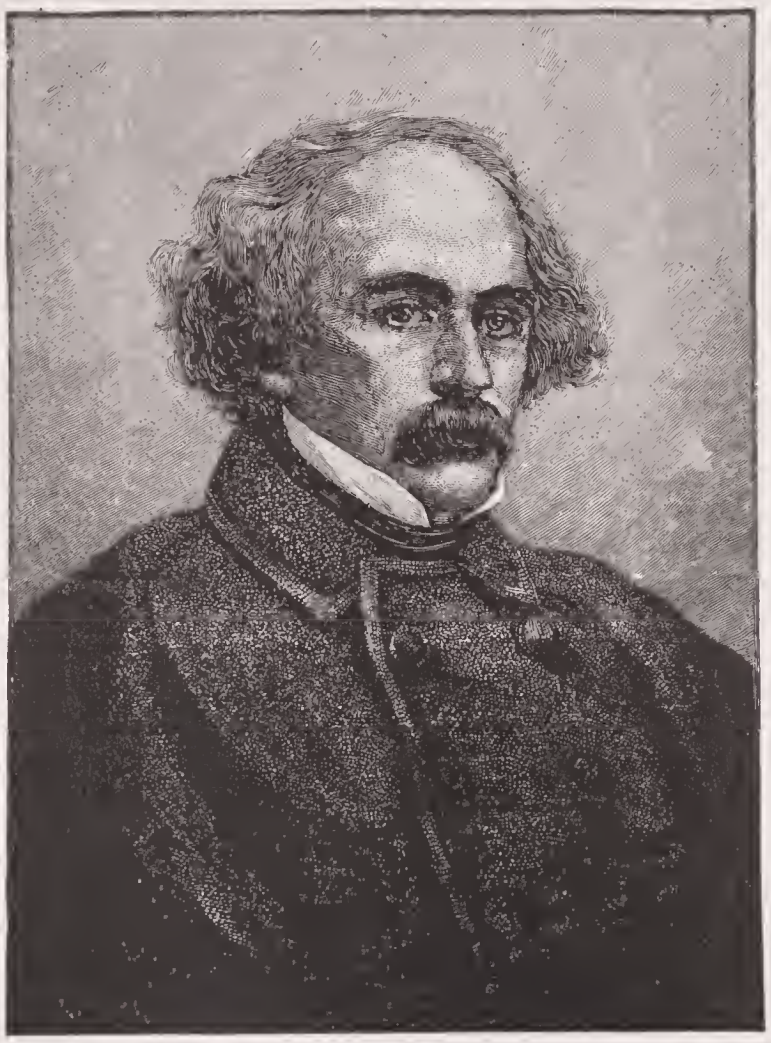
Hay Meadow, in *N. Carolina*, a P. O. of Wilkes co.

Hay'mond, in *Indiana*, a post-village of Franklin co., about 10 m. S.W. of Brookville.

Hay'-mow, *n.* A mass or heap of hay stored in a barn or loft for preservation.

Hay'-rick, *n.* Same as HAY-STACK, *q. v.*

Hayne, ISAAC, a colonel in the American army, and a martyr to the cause of Independence, B. 1745, was descended from a highly respectable family in S. Carolina. After the capitulation of Charleston, he was compelled to subscribe a declaration of his allegiance to the king



Nathaniel Hawthorne

1804–1864

of Great Britain, provided he might not be ordered to bear arms against his countrymen. He was summoned, however, after the success of Greene had changed the face of affairs, to repair immediately to the British standard. This he refused as a violation of the compact he had entered into, and hastened to the American camp. Being shortly after taken prisoner by the English, he was tried, and condemned to be hanged, "for having been found under arms, and employed in raising a regiment to oppose the British government, though he had become a subject, and accepted the protection of that government." This cruel sentence was put into execution, Aug. 4, 1781.

Hayne, PAUL HAMILTON, editor and poet, was born in Charleston, S. C., 1830. Educated in his native city, he became editor of the *South. Lit. Gazette* (1852), of the *Constitutionalist* (1865), and of *Southern Opinion* (1867). In 1872 appeared his *Legends and Lyrics*, and in 1873 he edited the *Poems of Henry Timrod*. Died July 6, 1886.

Hay'nersville, in *New York*, a post-village of Rensselaer co., about 8 m. E.N.E. of Troy.

Haynes, in *Tennessee*, a post-office of Union co.

Haynes'ville, in *Maine*, a post-township of Aroostook co.

Hayne'ville, in *Alabama*, a post-village, capital of Lowndes co.

Hays, in *Texas*, a S.W. central co.; *area*, about 680 sq. m. *Rivers.* Pedernales and San Marcos. *Surface*, undulating; *soil*, fertile. *Cap.* San Marcos. *Pop.* (1890) 11,352.

Hay'stack, *n.* A stack, or conical pile of hay in the open air, laid up for safe-keeping; a hay-rick.



Fig. 1255.—HAY-STACK.

Hay'stack, in *N. Carolina*, a post-village of Surrey co.

Hays'ville, in *Indiana*, a post-village of Dubois co., about 115 m. S.S.W. of Indianapolis.

Hays'ville, in *Kansas*, a post-office of Sedgwick co.

Haysville, in *Kentucky*, a village of Marion.

Haysville, in *Pennsylvania*, a post-village of Allegheny co., on the Ohio river, 9 m. below Pittsburg.

Hay'-tea, *n.* The extract of hay boiled in water, used as food for cattle.

Hay'thorn, *n.* See HAWTHORN.

Hay'ti, Hai'ti. [Carib., the mountainous country.] The original and now revived name of one of the W. India islands, being, next to Cuba, the largest of the Greater Antilles. Columbus gave it the name of *Hispaniola* (Little Spain), and it was frequently also called *San Domingo*, from the city of that name on its S.E. coast. The French bestowed on it the deserved epithet of *La Reine des Antilles*. It lies between Lat. 17° 40′ and 19° 38′ N., and Lon. 68° 24′ and 74° 35′ W.; having N. the Atlantic, S. the Mona Passage, separating it from Porto Rico (from which it is 76 m. distant), S. the Caribbean Sea, and W. the Windward Passage, which lies between it and Cuba and Jamaica, its N.W. point being 48 m. E. of the former, and its S.W. 112 m. E. of the latter. Its shape is somewhat triangular, the apex directed E.; but it has several considerable peninsulas and promontories, which render its outline very irregular. Greatest length, W. to E., about 400 m.; its breadth varies from 40 m. near its E. extremity, to 155 m. about its centre. The island is divided into two states; the first, the REPUBLIC OF HAYTI, having an area of 10,990 sq. m. and the other, known as the REPUBLIC OF SAN DOMINGO, with an area of 17,010 sq. m.— *Phys. Geog.* The surface of *H.* is, as its name implies, generally mountainous; but there are some extensive plains, especially in the E., or San Domingo. The mountain system is complicated, and it is difficult to give a clear idea of it without the aid of a map. A great mountain knot, the Cibao, occupies the centre of the country, from which two parallel chains, running E. and W., extend through the island in its entire length. The loftiest summits of the Cibao are considerably more than 6,000 feet in height. In the S.W. is an additional mountain-chain, which stretches W. to the extremity of the long and narrow peninsula terminating in Cape Tiburon. Between this peninsula and the N.W. promontory of the island is the spacious Bay of Gonaives, including the island of the same name, and having at its head Port-au-Prince. Tortuga is opposite the N.W. promontory. The shores of *H.* are in general bold, except on the E., where low and swampy lands prevail. They are almost everywhere surrounded by small uninhabited islands and dangerous reefs, but they have, notwithstanding, many excellent harbors, especially along the N. and W. coasts. The largest plain, called by the Spaniards *Los Llanos*, in the S.E., extends along the coast for 80 m., with a breadth varying from 20 to 25 m. It is said to be well adapted to the culture of most tropical products, but has always consisted chiefly of wide savannas, used for pasture lands. N. of it, enclosed between two mountain ranges, is the more productive plain of Vega Reale, little inferior in size to the foregoing. In the W. half of the island are the large plains of Artibonite and the Cul-de-Sac. The last-named, E. of Port-au-Prince, is from 30 to 40 m. long, by about 9 broad, and was formerly one entire sugar-garden, though now almost wholly waste. *H.* is in most parts profusely watered; it has numerous rivers, the largest being the Yague, Yuna, Nieve, and Artibonite, which disembogue on the N., E., S., and W. coasts respectively. These are navigable for great part of their course; they are generally deep, and with tolerably wide mouths. Three lakes of considerable size exist at no great distance from the S. coast of Henriquillo; the largest is about 50 m. in circuit, and has salt-water, while the adjacent lake of Azney is fresh.— *Clim.* The climate of the lowlands is very unhealthy to Europeans and N. Americans. The excessive heats of the plains are, however, tempered by fresh sea-breeze at night. The temperature of course decreases with the elevation, and in the mountains the cold is often piercing. The year, as elsewhere between the tropics, is divided between the wet and dry seasons. The change of the seasons is accompanied by tempestuous weather; but hurricanes are not so frequent as in most of the other Antilles; nor are earthquakes common, though in 1770 a convulsion of that kind destroyed the town of Port-au-Prince.— *Geol., Min., &c.* Little is known of the geology of this island. A limestone somewhat analogous to that of Cuba, containing vestiges of marine shells, is a prevalent formation. *H.* produces gold, silver, copper, tin, iron of good quality, and rock-salt. The principal copper-mine yields an ore containing a considerable admixture of gold, and the sands of many of the rivers contain a good deal of gold-dust, small quantities of which are collected. The working of gold-mines has, however, entirely ceased.— *Soil and Veget.* The soil is almost universally a deep vegetable mould, the fertility of which is scarcely equalled. The mountains, even to their summits, are, according to Mackenzie, capable of cultivation. The greater part of the island is covered with dense forests of mahogany, logwood, iron-wood, cedars, and other large and useful trees, or an impenetrable underwood. The plantain, vanilla, potato, manioc, &c., are indigenous, as is the palmetto, or cabbage-tree. The latter is truly the prop of the Haytian, who eats the upper portion of it, builds and covers his house with its various parts, and fashions his furniture out of its trunk.— *Zoöl.* Of several kinds of quadrupeds found by the first European settlers, the *agouti* is the only one remaining. Parrots and other birds of brilliant plumage, and water-fowl, are very abundant; the alligator, cayman, iguana, turtles, &c., abound in the larger rivers; several kinds of serpents are met with; and the *crustacea* and *testacea* afford a plentiful supply of food to the inhabitants of the coasts.— *Prod. and Agric. Resources.* Under the French regime, this island was cultivated with the greatest care, which was more than amply repaid by magnificent yields of produce. The growth of sugar engaged the largest share of attention, the immense capability of the soil making the average produce about 2,712 lbs. an acre, or nearly two thirds more than the general yield of the land in canes in Jamaica. The coffee-plantations were also exceedingly productive; and those of cotton, indigo, and cocoa had begun to be prolific sources of wealth to individuals, and of revenue to the state. Besides these staples, large quantities of maize, rice, pulse, and almost every description of vegetables required for domestic consumption, were grown. Cattle and hides were other articles of extensive export; and large shipments of mahogany, dye-woods, &c., found their way to foreign countries. One of the first effects of the revolution of 1800–3, which abolished negro slavery, was an enormous decrease in the amount of agricultural produce. Toussaint l'Overture (*q. v.*), however, by an enforced system of labor, partially remedied this state of things, an example followed by his successors, Dessalines and Christophe. After the accession of Pétion, however, agricultural activity ceased, the inherent idleness of the negro was allowed full scope, and the productive economy of the island settled into a semi-barbarous and deplorable condition. What is wanted to restore to this fine island its former commercial and industrial prosperity, is emphatically a strong and civilized governing power.— *Com.* The foreign trade of *H.* is entirely in the hands of American and European merchants, toward whom, however, the most restrictive policy is adopted. The coasting-trade, on the other hand, wholly belongs to Haytian citizens. The interior is usually supplied with imported goods by means of hucksters, generally females, who act as agents for the foreign merchants, with whom they balance accounts weekly. Beasts of burden are commonly used for the conveyance of goods, the roads, except in the N.W., being generally bad, and carriages few. The principal articles of export from *H.* are the agricultural products of the island, of which coffee is the most important. Other products are cocoa, cotton, tobacco, &c., while the forests yield mahogany, logwood, and other cabinet timbers, which form part of the exports. To these may be added hides, fustic, wax, honey, fruits, and orange-peel. The total value of exports in 1891 was $12,400,000; of imports, about $14,200,000. Of the latter about $5,000,000 came from the U. S., consisting of provisions, dry goods, lumber, ready-made clothing, soaps, perfumeries, &c. *H.* entered the Postal Union in 1881. Seven lines of steamers visit Port-au-Prince, the Atlas Line often carrying 8,000 boxes of oranges and 5,000 bunches of bananas on a trip. A national bank exists at Port-au-Prince, with branches at the seven open ports of the republic, and with a cash capital of $2,000,000.— *Govt.* The executive of the Haytian government is formed of a president and 5 ministerial bureaux, viz.,— 1. Foreign Affairs, Justice, and Public Instruction; 2. Finance and Commerce; 3. Interior and Agriculture; 4. General Police: and, 5. War and Marine. The legislative power rests in a Senate and Chamber of Representatives. The president, who must be 35 years of age at the time of his election, holds his office for life, commands the army and navy, makes war, peace, and treaties, subject to the sanction of the Senate, and appoints all public functionaries, &c. The Senate consists of 36 members, above 30 years of age, each chosen by the Chamber of Representatives from lists furnished by the president. The Senate sits 9 years; and its previous members are reëligible after a lapse of 3 years. The Chamber of Representatives consists of 50 members, chosen every 5 years by the electoral colleges of the respective communes. Its members must be 25 years of age; and each receives $200 a month, besides $1 per league for travelling expenses. The session of the Chambers is limited to 3 months annually. The High Court of Justice, composed of 15 judges, has jurisdiction over all charges preferred by the legislative bodies against their own members, or against the high state functionaries. There is no appeal from its decision; but the accused has the privilege of rejecting two thirds of his judges. There are 8 provincial, civil, and criminal courts. The legal code is a modification of the French colonial laws. St. Domingo is governed by a president, under whom is a vice-president and a cabinet of 4 ministers, viz., of Justice, Foreign Affairs and Agriculture, War, and Finances and Commerce. It has, like Hayti, a Senate and Chamber of Representatives, and a similar constitution.— *Religion.* The Roman Catholic is the established religion; but all other sects are tolerated both in *H.* and San Domingo.— *Finances.* Civil wars and the struggles between *H.* and San Domingo have long kept Haytian finances in very precarious shape, though of late years there has been some improvement. In 1890 the Republic of *H.* had a national debt of $13,500,000; and a revenue of $7,322,076, nearly all of which was made up from customs receipts.— *Chief towns.* In Hayti: Port-au-Prince, Cape Haytien, Gonaives, St. Marc, Leogane, Jeremie, Aux Cayes, Jacmel, and Miragoane; all of which, excepting the latter, are seaports. In San Domingo are, St. Domingo (the cap.), Porto Plata, and Samana; the latter offered in 1870 to the U. States.— *Hist.* The island of *H.* was discovered by Columbus, Dec. 5, 1495, at which time it is said to have been divided into 5 states. Having taken possession of it in the name of Spain, Columbus founded the town of La Isabella on the N. coast, and established in it, under his brother Diego, the first colony founded by Europeans in the New World. The city of St. Domingo, which subsequently gave its name to the entire island, was founded in 1498. The aboriginal inhabitants were soon eradicated; and their place was at first very inadequately supplied by Indians forcibly carried off from the Bahama Islands, and adventurers from Spain and other European countries, and in the following century by the importation of vast numbers of negroes from Africa. The Spaniards retained possession of the whole island till 1665, when the French obtained a footing on its W. coast, and laid the foundation of that colony which afterwards became so flourishing. In 1691 Spain ceded to France half of the island, and, in 1776, the possessions of the latter were still further augmented. It was not, however, till 1722, that the French part of the island began rapidly to advance to wealth and population. From 1776 to 1789 the colony had attained the acme of its prosperity; and its produce and commerce were then equal or superior to those of all the other W. India islands. Unhappily, however, this prosperity was as brief as it was signal; and the ruin that has overwhelmed the island may be said to be complete. To attempt to give any intelligible sketch, how slight soever, of the events by which this destruction was brought about, and by which the negroes of *H.* emancipated themselves from the dominion of the whites, and founded an independent state, would far exceed our limits. At the time of the French revolution, the negro element in the French part of St. Domingo were estimated at about 500,000. That a good deal of dissatisfaction existed among them is certain; but there was no disposition to revolt, and the rash and injudicious proceedings of the mother country, the debates and cruel administration of the colonial govt., and the deep-rooted animosities of the whites and mulattoes, were the prominent causes of the revolution. The proscriptions, ruin, bloodshed, and atrocities by which it was accompanied and brought about, are, perhaps, hardly to be paralleled. In 1800 *H.* was proclaimed independent; and its independence was consolidated by the final expulsion of the French in 1803. This was effected by Dessalines (*q. v.*), who erected the French or W. part of the island into an empire, of which he became emperor, with the title of James 1. His despotism and cruelty soon rendered him universally detested. He was slain in an insurrection in 1806, and the island was then divided among several chiefs, the principal of whom were Christophe (*q. v.*) in the N.W., and Pétion in the S.W. In 1811 the former made himself be proclaimed king, under the title of Henry 1. Pétion continued to act as president of the republic till his decease in 1818, when he was succeeded by Boyer (*q. v.*), who, after the suicide of Christophe in 1820, took possession of his dominions; and the Spanish portion of the country having, in 1821, voluntarily placed itself under his govt., he became master of the whole island. Boyer was deposed in 1843, when the state of San Domingo separated from

Hayti, and formed itself into a separate republic, electing Gen. Santana president in 1844. The next change was into that of an empire, President Soulouque (*q. v.*) assuming the title of Emperor Faustin I. in 1849. Forced to abdicate in 1858, *H.* became once more a republic under the presidency of Fabre Geffrard, in 1859; while the state of San Domingo gave itself up to Spain in 1861. In Sept., 1863, however, the Dominicans rose in insurrection, expelled the Spanish authorities, and again proclaimed a republic, this time under the presidency of Col. Palengo. In 1867, an insurrection broke out in Hayti, under Gen. Salnave, and in March of the same year, President Geffrard resigned office, being succeeded by Salnave, who was elected for a term of 4 years in the following June. In Nov., however, he, in his turn, had to encounter an insurrectionary crisis, and three rival presidents divided the island; Gen. Domingue in the S., and Gen. Nissage Saget in the N., while Salnave had command of Port-au-Prince (the cap.) and the centre. After a sanguinary civil war lasting over twelve months, Salnave succeeded, in 1869, in overthrowing his opponents, only to be himself overthrown in Jan., 1870, by a fresh insurrection headed by General Saget, which succeeded in capturing his last stronghold, together with himself, who, after an impromptu trial, was summarily shot. Saget was proclaimed president in the following March. Events in San Domingo during these years showed but little improvement over Hayti; after a three months' lease of power, Palengo was supplanted, in June, 1865, by Gen. Pimentel, who was himself in Aug. forced to make way for Gen. Cabral, who was, in turn, succeeded, in Dec., by Gen. Buenventura Baez. In 1868, a revolt broke out against his authority, and Laperon was proclaimed president by the insurgents, who, however, were eventually crushed out. In Feb., 1870, a treaty was entered into between the U. States and Dominican govts., and a special envoy was dispatched by the latter to offer to the U. States a lease of the Bay of Samana, on the E. coast of the Dominican territory. This proposition was subsequently rejected by the U. S. Under Hippolyte (1889–96) the condition of Hayti improved; he was succeeded (1896) by Gen. Sam. In the same year Gen. Hereaux became president of the Dominican Republic.

Haytian (*hā'shi-an*), *a.* Relating to the Island of Hayti, West Indies. (Written also *Haytien.*)

—*n.* A native or inhabitant of Hayti. (*Haitian* is also used.)

Hay'ton, in *Wisconsin*, a post-village of Calumet co., on the C. M. & St. P. R.R. *Pop.* (1897) about 400.

Hay'torite, *n.* (*Min.*) Quartz under the form of Datolite (*q. v.*). Quartz sometimes alters or replaces crystals of other minerals and appears in their forms. *H.* is thus a pseudomorph of datolite.

Hay'ward, *n.* [Fr. *haie*, hedge, and A. S. *ward.*] A keeper of the common herd of cattle of a town or village; also a person appointed in the lord's court to take care of the cattle, hogs, &c., of his manor and prevent them from injuring the hedges or fences. The aristocratic patronymic of *Howard* (dukes of Norfolk, &c.) is said to be a corruption of the more common surname of *Hogward, Hayward.* (English.)

Hay'ward, in *Minnesota*, a post-township of Freeborn county.

Hay'wood, or Haywarn's, formerly San Lorenzo, in *California*, a post-village of Alameda co., about 20 m. E. S.E. of San Francisco. *Pop.* (1897) about 1,500.

Haywood, in *North Carolina*, a W. county, adjoining Tennessee; *area*, about 590 sq. m. *Rivers.* Big Pigeon river and some smaller streams. *Surface*, diversified, the Iron or Great Smoky Mountains bounding it on the N.W.; *soil*, generally fertile. *Cap.* Waynesville. *Pop.* (1890) 13,346.

—A post-village of Chatham co., 31 m. W.N.W. of Raleigh.

Haywood, in *Tennessee*, a W. county; *area*, about 570 sq. m. *Rivers.* Hatchee and the S. Fork of Forked Deer river. *Surface*, level; *soil*, very fertile. *Cap.* Brownsville. *Pop.* (1890) 23,558.

Haz'ael, (*Script.*) an officer of Benhadad king of Syria, whose future accession to the throne was revealed to the prophet Elijah (1 *Kings* xix. 15). Many years afterwards he was sent by Benhadad to consult Elisha, then at Damascus, as to his recovery from sickness, and on the next day smothered the king with a wet cloth (2 *Kings* viii. 7–15), B. C. 885. Having usurped the throne, he reigned forty years; and by his successful and cruel wars against Judah and Israel justified the forebodings of Elisha (2 *Kings* viii. 28; x. 32; xii. 17; xiii. 3, 7; 2 *Chr.* xxii. 5).

Haz'ard, *n.* [Fr. *hasard*; It. *azzardo, azzardáre*, L. Lat. *azardum*; probably from Fr. *as*, ace at dice and cards; Hind. *harjeet*, to venture in a game at dice.] Chance; accident; casualty; that which comes fortuitously, unexpectedly, or suddenly; hap.

"I will stand the *hazard* of the die."—*Shaks.*

—Risk; venture; jeopardy; exposure; liability; peril; danger.

—A game at dice.

To run the hazard, to risk; to take the chance.

"*The hazard* I have *run* to see you here."—*Dryden.*

—*v. a.* [Fr. *hasarder.*] To risk; to venture; to expose to chance or luck.

"They . . . *hazard* greatly their own estates."—*Hooker.*

—To incur, or bring on: as, he *hazarded* the loss of his life.—To put in danger of loss or injury.

"He *hazards* his neck to the halter."—*Fuller.*

—*v. n.* To try the chance; to adventure; to run the risk or danger.

Haz'ard, in *Kentucky*, a post-village, cap. of Perry co., abt. 94 m. S.E. of Lexington.

Haz'ardable, *a.* Uncertain; indefinite; resting upon chance; liable to hazard; as, a "*hazardable* determination."—*Browne.*

Haz'arder, *n.* One who hazards, or puts to chance.

Haz'ardous, *a.* Containing hazard; that exposes to peril or danger of loss or evil; perilous; dangerous; daring; adventurous; venturesome; precarious; uncertain; as, a *hazardous* step, a *hazardous* attempt.

Haz'ardously, *adv.* In a hazardous manner; with peril; with danger of loss or evil.

Haz'ardousness, *n.* State or quality of being hazardous.

Haz'ard-table, *n.* (*Games.*) A table for playing hazard, and other games of chance.

Haz'ardville, in *Connecticut*, a post-village of Hartford co., abt. 18 m. N.N.E. of Hartford.

Haze, *n.* [Armor. *aezen*, vapor, exhalation; Hind. *kohasa*, a haze.] Vapor which renders the atmosphere thick, though not so damp as in foggy weather.

—*v. n.* To be thick or opaque with haze.

Haze, *v. a.* To frighten or intimidate; to annoy by playing practical jokes upon; to irritate with captions or needless reproof; to punish by inflicting the performance of a disagreeable or irksome duty;—chiefly used in a slang sense, by sailors, students, &c.

Hazebrouck, (*haz'brook,*) a town of France, dept. Nord, 25 m. W. of Lille. *Manuf.* Thread, cloth, leather, tobacco, linen, &c. *Pop.* 8,310.

Hazel, (*hā'zl.*) [A. S. *hæsl.*] (*Bot.*) The common name of the genus of plants *Corylus*, order *Corylaceæ*, of which the fruit is a nut in a leafy and laciniated cup, the enlarged involucre of the female flower. The male flowers are in cylindrical catkins (Fig. 1256); the female flowers appear as mere clusters of colored styles at the extremities of buds; the male flowers are pretty conspicuous, the female flowers are very small.—The Common *H.* (*C. avellana*) is a large shrub or low tree, with a bell-shaped fruit-cup, which is somewhat two-leaved, open, and spreading. It is a native of Europe, and much resembles *C. Americanus*, which grows in thickets and borders of fields, throughout the United States. Hazel-nuts yield, on pressure, about half their weight of a bland fixed oil, often called *nut-oil* in England, the hazel-nut being popularly known by the term *nut* alone. But in France and in Germany it is walnut-oil which is usually called nut-oil. Hazel-nut oil has drying properties, and is much used by painters; it is also used by perfumers as a basis with which to mix expensive fragrant oils; and it has been employed medicinally in coughs. The wood of the hazel, although seldom large enough for the purposes of the carpenter, is very tough and flexible, and hazel-rods are therefore much used for making crates, hurdles, hoops for small barrels, &c. The thicker stems of *H.* are used for making charcoal, which is in great request for forges, is much esteemed for the manufacture of gunpowder, and is the kind preferred by artists for crayons. Most of the cultivated varieties of the hazel-nut are known by the names of *cob-nuts* and *filberts* (*c, d*, Fig. 1256); the former generally of a roundish forms; the latter characterized by the greater elongation and laciniation of the fruit-cup; the name filbert being indeed regarded as a corruption of full-beard. The *Red Filbert*, or *Lambert's Nut*, is remarkable for having the pellicle which surrounds the kernel of a crimson-red color. The finer kinds of *H.* are propagated by grafting and by layers. Rods of hazel wood have been long credited with magical properties by the credulous, it being believed that by the use of a *divining rod* made of them the location of water, minerals, or buried treasure could be discovered in the earth.

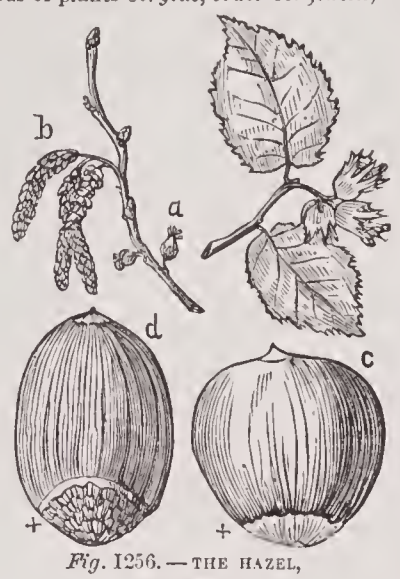


Fig. 1256.—The Hazel,
(*Corylus Americanus.*)
a, female flower; *b*, male flower; *c*, cob-nut; *d*, filbert.

Ha'zel, *n.* Pertaining to the hazel, or resembling it; of a light-brown color like the hazel-nut; as, *hazel* eyes.

Ha'zel, in *Pennsylvania*, a township of Luzerne co.

Ha'zel Dell, in *Illinois*, a post-office of Cumberland co.

Hazel-earth, Ha'zel-mould, *n.* An earth adapted to the hazel; a fertile loam.

Ha'zelgreen, in *Alabama*, a post-vill. of Madison co.

Hazelgreen, in *Kentucky*, a post-village of Wolfe co.

Hazelgreen, in *West Virginia*, a post-office of Ritchie county.

Ha'zel Green, in *Wisconsin*, a post-village and township of Grant co., about 12 m. N. of Galena.

Ha'zelhurst, in *Georgia*, a post-town of Appling co., on Southern R. R. *Pop.* (1897) 320.

Ha'zelly, *a.* Of the color of the hazel-nut; light brown.

Ha'zel-nut, *n.* The nut or fruit of the hazel.

Ha'zelton, in *Kansas*, a post-village of Barber co., located on the A., T. & S. Fé R. R.

Hazelton, in *Michigan*, a post-township of Shiawassee co., about 40 m. N.E. of Lansing.

Ha'zelwood, in *Minnesota*, a post-village of Rice co., about 16 m. N. of Faribault.

Ha'ziness, *n.* State or circumstances of being hazy; mental torpidity; forgetfulness.

Ha'zle Grove, in *Missouri*, a village of Saline co.

Ha'zlehurst, in *Mississippi*, a post-village of Copiah co., about 40 m. S. by W. of Jackson. *Pop.* (1890) 1,745.

Ha'zle Patch, in *Kentucky*, a post-vill. of Laurel co.

Ha'zleton, in *Indiana*, a post-village of Gibson co., on White river, about 13 m. S. of Vincennes. *Pop.* 608.

Hazleton, in *Iowa*, a post-town of Buchanan co. *Pop.* (1897) about 1,500.

Hazleton, in *Missouri*, a post-office of Texas co.

Hazleton, in *Pennsylvania*, a thriving post-borough of Luzerne co., on Lehigh Val. R. R., 22 m. S. of Wilkesbarre; mines and ships anthracite in large quantities and has other important industries. *Pop.* (1897) about 13,500.

Haz'lettville, in *Delaware*, a post-village of Kent co.

Ha'zlewood, in *Kentucky*, a post-office of Ballard co.

Hazlewood, in *Minnesota*, a village of Redwood co., on the Minnesota co., about 70 m. W. of Glencoe.

Hazlewood, in *Missouri*, a village and township of Webster co., about 22 m. E. of Springfield.

Hazlewood, in *Ohio*, a post-village of Hamilton co.

Hazlewood, in *S. Carolina*, a township of Chester co.

Haz'litt, William, an English author and critic, b. 1778. Educated for the clerical profession, *H.*, after a brief attempt at an art career, decided to enter the paths of literature, and in 1805 produced his *Principles of Human Action.* This was the germ of a long and successful literary career, during which he gave to the world his *Lectures on the Literature of the Elizabethan Age; Table Talk; Lectures on the English Poets; The Spirit of the Age*, and his well-known *Life of Napoleon Bonaparte*, (4 vols. 8vo., 1828.) D. 1830.—His son William is also distinguished as a man of letters; and the hereditary tendency is further exemplified in *his* son, William Carew, b. 1834, author of the *History of the Venetian Republic; British Columbia and Vancouver's Island; The Gold Fields of Cariboo*; and *Remains of the Early Popular Poetry of England.*

Ha'zor. (*Script.*) A chief city of northern Canaan, whose king, Jabin, at the head of an allied host, was defeated by Joshua, (*Josh.* xi. 1–13.) Hazor revived, however, and for a time oppressed the Israelites; but was subdued by Barak, fortified by Solomon, and remained in the possession of Israel until the invasion of Tiglathpileser, (*Josh.* xix. 36; *Judg.* iv. 2; 1 *Kings* ix. 15; 2 *Kings* xv. 29.) It lay not far from Lake Meron.—It was also the name of cities in Judah and Benjamin, (*Josh.* xv. 2–3; *Neh.* xi. 33;) and of an unknown region in Arabia, laid waste by Nebuchadnezzar.

Ha'zy, *a.* Thick with vapor, but not so damp as in foggy weather; as, a *hazy* morning.

"The *hazy* North."—*Thomson.*

—Forgetful; having but a dim idea or recollection of; intellectually dull: as, a man of *hazy* opinions.

He, (*hē,*) (*pron.* of the third person; *nom.* he; *poss.* his; *obj.* him.) [A.S.; D. *hij*; Fris. *hi*; Dan. and Swed. *han*; Heb. *hu*: Ar. *hû*; Ir. *é*; Gael. *o*; Armor. *hé*: Hind. *yih.*] A substitute for the third person, masculine gender, representing the man or male person named before.

"Adam spoke; so cheered *he* his fair spouse."—*Milton.*

—Any man; the man;—used indefinitely for any person, and generally preceding a relative pronoun.

"*He* that is down can fall no lower."—*Butler.*

—Man: a male; any male person or animal; as, a *he*-goat.

"Mantua's law is death to any *he* that utters them."—*Shaks.*

Head, (*hĕd.*) *n.* [A.S. *heafod*; Ger. *haupt*; D. *hoofd*; Dan. *hoved*; Goth. *haubith.* The A.S. is probably connected with *hebban*, Goth. *hafjan*, to raise, to elevate.] The uppermost part of the human body, or the foremost part of the body of prone or creeping animals.—See Brain, Skull, Tongue, &c.

—The principal, chief, upper, or foremost part of a thing; the top or extremity of a thing, especially when larger than the other part or parts; as, the *head* of a mast, of a spear, cabbage, nail, cane, &c.—The fore or front part, or the place where the head should go; as, the *head* of a bed, the *head* (or hood) of a carriage.—A chief; a principal person of any organized body; a leader; a commander; as, the *head* of the Church, the *head* of an army, the *head* of a State or family, a *head*-cook, &c.

"The *heads* of the chief sects of philosophy."—*Tillotson.*

—The first place; the place of honor, command, or responsibility; the front; the most important position; as, the *head* of troops, the *head* of the class, &c.

"They made room for the old knight at the *head* of them."
Addison.

—Countenance; presence.

"All the stars hide their diminished *heads*."—*Milton.*

—An individual; each one among many; as, a thousand *head* of cattle, a certain rate per *head*, &c.—The brain; the seat of the intellect; the understanding; mental faculties; as, he has a good *head* for figures, that is, of good arithmetical ability; of his own *head*, of his own idea or free-will; voluntary; it never enters his *head*, it does not occur to him.

"We laid our *heads* together, to consider what grievances the nation had suffered."—*Addison.*

—The principal source, spring, or beginning, as of a river or stream of water; as, the *head* of the Niger;—hence, the height of the surface, as of water; also the quantity in reserve, and the pressure resulting from either; as, a good *head* of water, the *head* of a gulf, &c.—A topic of

discourse: chief point or subject of argument, disquisition, &c.; a chapter or division: as, the *heads* of a sermon.

"'Tis our duty . . . to satisfy ourselves on this *head*." *Atterbury.*

—Crisis; pitch; culminating point; height; force; as, this evil has now grown to a *head*.

"I have married her: the very *head* and front of my offending." *Shaks.*

—State of a deer's horns by which his age is known.

"A buck is called the fifth year a buck of the first *head*."—*Shaks.*

—The frothy effervescence which rises on a glass of ale or pot of porter, or other liquor in a state of ebullition; as, give me a pint of beer with a *head*. — Mode of dressing the hair; head-dress, or covering; as, a *head* of hair.

"Ladies gain a point when they have teased their husbands to buy them a laced *head*."—*Swift.*

—Power; military force; material strength; influence; as, one's apprehensions gain *head*.

"My lord, the French have gathered *head*."—*Shaks.*

—Resistance; successful opposition; spontaneous will or resolution.

"Making another *head* to fight again."—*Shaks.*

—Liberty; license; freedom from restraint or control.

"He gave his able horse his *head*."—*Shaks.*

(*Naut.*) The forward part, or fore extremity of a ship. It is generally applied to the cutwater, which is adorned with a figure or billet.

—*pl.* (*Building.*) Tiles laid at the eaves of a house.

Head of Water. (*Civ. Engineering.*) The height which a column of water is submitted to; it is measured from the upper surface of the lower stream to the upper surface of the reservoir producing the pressure. The effective pressure will be that indicated by this height, diminished by the friction that the column of water undergoes in the pipes, and through any change of direction that may take place in them. — *By the head.* (*Naut.*) A term implying that a ship's head is depressed in the water; as, she draws 16 feet *by the head*. — *Head-sails, head-yards.* (*Naut.*) The sails and yards applying to the foremast of a ship. — *Head and ears*, deeply; completely; entirely; with the whole being; as, he is *head and ears* in love. — To be altogether submerged; as, they are *head and ears* in debt, to be soused *head and ears* in water, &c. — *Head and shoulders*, by forcible means; violently.

"They bring in every figure of speech, *head and shoulders*, by main force." — *Felton.*

In a great degree; much; by far; exceedingly; as, they are *head and shoulders* above me. — *To come to a head*, to mature; to reach its full limit; as, a boil *comes to a head*. — *Head or tail*, one side or the other; this side or that; used in determining anything by the tossing of a coin into the air, *head* bearing the effigy, and *tail* the other side; as, *head or tail*, two out of three? — *To his head*, point-blank; before his face. — *Neither head nor tail*, neither one thing nor the other; indistinct; indefinite; as, I can make *neither head nor tail* of it. — *To make head*, or *to make head against*, to advance; to move onward in face of resistance; as, "Henry Bolingbroke *made head against* my power." (*Shaks.*)

To turn head, to show the face; to turn the front.

"The ravishers *turn head*, the fight renews." —*Dryden.*

Head, *v. a.* To form a head to; to fit or furnish with a head; as, to *head* an arrow.

"A spear upright, *headed* with piercing steel." — *Dryden.*

—To lop; to cut off the head of, as trees.

—To lead; to direct; to act as leader to, or commander of, as a company; as, to *head* an expedition, to *head* a riot, to *head* a clique, to *head* the opposition, &c.

"This lord had *headed* his appointed bands." — *Prior.*

—To go in front of; to get into the front of, in order to stop; to oppose; to run round and blow in opposition to; as, contrary winds *headed* the ship, to *head* a drove of sheep, &c. — To set on the head; as, to *head* a barrel.

To head off, to get before; to intercept; to interpose one's self; as, to *head off* a fugitive.

—*v. n.* To spring; to have its source or origin, as a stream.

—To go; to move toward; to tend; as, the ship *heads* N. W. by N. — To form a head; to come to maturity; as, how does your asparagus *head*?

Headache, (*hĕd'āk,*) *n.* [Sax. *heafod*, head, *ace*, ache.] (*Med.*) *H.*, or pain in the head, is a complaint of very common occurrence, and may result from so many different causes, that it is impossible to lay down many special directions regarding it. There are few diseases with which it does not occur symptomatically, and it is a prominent symptom in all fevers and inflammations, and in many nervous complaints. It occurs idiopathically, either from weakness or exhaustion of the nerve-power of the brain, or from a disordered state of the digestive apparatus. Sometimes it is an obtuse pain extending over the whole head, with a sense of heaviness, and a general torpitude of the sensorial power, disqualifying the person for continued mental effort. The sight is often dim, the hearing dull, and the memory defective. This arises from some weakness or exhaustion of the brain, and is produced by irregular circulation of blood in the head, by great mental exertion, or by violent mental passions. When it arises from an overloaded condition of the blood-vessels of the brain, there is usually a bloated countenance, full red eye, and a dull inanimate expression. Cold applications to the head, leeches to the temples, or cupping on the back of the neck, with spare diet and active aperients, are the proper means to be adopted in this case. Where it proceeds from nervous exhaustion or nervous irritability, soothing and strengthening measures are to be adopted, and stimulants, as much as possible, avoided. Tonics ought to be employed, and such other means as out-door exercise, sea-bathing, &c., as tend to strengthen and invigorate the system. Bilious headache, or such as arises from a disordered state of the digestive organs, usually affects one side of the head only, or but a portion of it, most commonly over one eye, and increasing to an acute and often throbbing pain. It is commonly accompanied with a feeling of sickness, often leading to vomiting, and producing extreme languor and depression of spirits. This kind of *H.* seldom lasts more than a few hours at a time, and may generally be removed by taking a blue pill at bed-time, with a colocynth pill, or other aperient, in the morning. In rheumatic *H.*, which is commonly caused by exposure to cold, the pain is of a remittent, shifting, nature, shooting from point to point, and is felt most at night, when the patient is warm in bed. — See RHEUMATISM.

Head'-band, *n.* A fillet or band for the head. — The band at each end of a bound book.

Head'-block, *n.* (*Sawing.*) The movable cross-piece of a timber-carriage for holding the log.

Head'borough, (*-bŭr'ro,*) *n.* (*Old Eng. Law.*) See BORS-HOLDER.

(*Mod. Eng. Law.*) A constable in a country district.

Head'-cheese, *n.* (*Cookery.*) Same as BRAWN, *q. v.*

Head'-dress, *n.* The dress of the head or hair; the covering or ornaments of a woman's head or hair; head-gear. — See HAIR-DRESS.

—The crest on a fowl's head.

"Among birds . . . a most beautiful *head-dress*."—*Addison.*

Head'ed, *a.* Furnished with a head; — used in composition; as, double-*headed*, thick-*headed*, long-*headed*, clear-*headed*, &c. — Having a top or head matured by growth; as, a *headed* cauliflower, — led; directed; as, a *headed* mob.

Head'er, *n.* One who heads, as nails, casks, &c.

—A plunge head foremost into deep water; as, I went down to the shore to take my morning *header*.

—One who leads or directs a clique, party, or mob.

(*Building.*) In masonry, stones extending over the thickness of a wall; and, in bricklaying, the bricks which are laid lengthwise across the thickness of the wall are called *headers*.

Head'-fast, *n.* (*Naut.*) A rope or hawser to fasten a ship's head to a wharf, &c.

Head'-first, *a.* With the head foremost.

Head'ford, a market-town of Ireland, co. Galway, abt. 9 m. S.W. of Tuam; *pop.* about 1,600.

Head-gargle, (*-gar'gl,*) *a.* A disease among cattle.

Head'-gear, *n.* Same as HEAD-DRESS, *q. v.*

Head'ily, *adv.* Hastily; rashly; so as not to be governed.

Head'iness, *n.* Quality of being heady; rashness; precipitation. — Obstinacy; stubbornness; having no disposition to submit to control. — Effervescence; ebullition; as, *headiness* of liquor.

Head'ing, *n.* That which appears or stands at the head; title; as, the *heading* of a petition. — Act of furnishing with a head; construction of a head; as, *heading* of a cask. — Staves, &c., for the heads of casks.

Heading-courses. (*Arch.*) The horizontal courses, consisting entirely of *headers*, in opposition to *stretchers*, or *stretching-courses*. — *Heading-joint.* (*Carp.*) A joint of boards, &c., meeting at right angles to the grain of the wood.

Head'land, *n.* (*Geog.*) A cape; a promontory; a point of land projecting into the sea.

(*Agric.*) A ridge or border, commonly 10 or 12 feet broad, which is continued round a field in some cases, and which in others is only formed at the two opposite sides, for the purpose of affording space for the horses to turn on while ploughing. (Also called *head-ridge.*)

Head'-ledges, *n. pl.* (*Ship-building.*) The thwartship pieces which frame the hatchways of a ship.

Head'less, *a.* Beheaded; decapitated; having no head. — Without a chief, leader, or guide.

"They made the empire stand *headless* about seventeen years." *Raleigh.*

Head'lee, in *Indiana*, a post-village of White co., 20 miles N. of Logansport.

Head'-light, *n.* (*Steam-engineering.*) A light with a powerful reflector, placed in front of a locomotive-engine, to illuminate the track at night.

Head'-line, *n.* (*Typog.*) The top line of a page in which the running title and folio are given.

—*pl.* (*Naut.*) Those ropes attached to the sails which lie nearest to the yards.

Head'-lining, *n.* Lining of the head or hood of a carriage, or other vehicle; also, the lining of the roof of a railroad-car. (Used in the U. States.)

Head'long, *adv.* With the head foremost; as, to fall *headlong*.—Rashly; thoughtlessly; precipitately; without reflection. — Suddenly; hastily; without delay or respite.

"Dragged *headlong* from thy cradle to thy tomb."— *Dryden.*

—*a.* Steep; precipitous; abrupt.

"Like a tower upon a *headlong* rock."—*Byron.*

—Rash; precipitate; heedless of consequences; as, *headlong* folly.

Head'-lugged, (*-lugd,*) *a.* Lugged or dragged by the head.

Head'-main, *n.* The main channel by which water is drawn from a river, lake, &c., for irrigation, by dispersion through minor channels.

Head'-man, *n.; pl.* HEADMEN. A chief; a leader; a superintendent; an overlooker; a foreman.

Head'-master, *n.* The principal of a school; the chief of a body of masters in an academy.

Head'-mastership, *n.* Office of a principal or head-master of a school: as, the *head-mastership* of Eton.

Head'-money, *n.* A tax levied on each head or individual, in proportion to his rank or fortune; a capitation- or poll-tax.

Head'most, *a.* Most advanced or forward; first in a line or order of progression; as, the *headmost* files of a regiment.

Head'mould-shot, *n.* (*Med.*) An affection of the skulls of infants, consisting in the overlapping of the edges of the sutures.

Head of Grassy, in *Ky.*, a post-village of Lewis co.

Head of Island, in *Louisiana*, a post-village of Livingstone co.

Head of Sas'safras, in *Maryland*, a vill. of Kent co.,

Head'-piece, *n.* Armor for the head; a helmet; a morion; a casque.

—The head. — Understanding; force of mind.

"Eumenes had the best *head-piece* of all Alexander's captains." *Prideaux.*

—*pl.* (*Typog.*) Ornaments placed at the top of the first page, and of the pages beginning with books, chapters, &c., and which are therefore called *head-pages*. The *H.* of the old MSS. and some of the early printed books were beautifully illuminated; but in course of time wood-engraving, cast-metal ornaments, flowers, and brass rules were made available for working with the types. *H.* have been revived of late years; they are mostly copied from old works, but engraved in a finer style.

Head'-quarters, *n. pl.* The quarters or place of residence of the commanding officer of an army, or any military force; the residence of any chief, or place from which orders are issued; hence, the centre of authority; as, dated from *head-quarters*.

"The brain is the *head-quarters* or office of intelligence."— *Collier.*

Head'-rope, *n.* (*Naut.*) That part of a bolt-rope which is sewed up to the upper edge or head of the principal sails.

Head'-sail, *n.* (*Naut.*) Any sail set forward of a ship's foremast.

Head'-sea, *n.* (*Naut.*) A sea that meets the head of a ship, or strikes her over the bows.

Head'-shake, *n.* A shake of the head, significatory of a negative.

Head'ship, *n.* Office of a head or principal; authority; chief place.

Heads'man, *n.; pl.* HEADSMEN. One who decapitates; a public executioner.

Head'spring, *n.* Source of a spring; fountain; origin.

Head'stall, *n.* That part of a bridle which covers the horse's head.

Head'-stocks, *n.* (*Mach.*) The frames which support the centres of a lathe; viz., the mandril-frame and the poppet-head, or back centre-frame; also, the framings used for supporting the gudgeons of a wheel.

Head'-stone, *n.* The chief or principal stone in a foundation; the corner-stone.—The stone placed at the head of a grave.

Head'strong, *a.* Resolute: self-willed; obstinate; violent; ungovernable; unruly; venturesome; as, a *headstrong* youth.

—Proceeding from obstinacy, or invincible determination.

"Your father's folly took a *headstrong* course." — *Dryden.*

Head'-tin, *n.* (*Mining.*) A preparation of tin ore towards the fitting it for working into metal.

Head'-tire, *n.* Head-dress, covering, or gear; attire for the head.

Head'way, *n.* Progress of a ship's advancing motion; hence, progress or advancement of any kind; as, they are making *headway* with the building.

(*Arch.*) Clear, open space under an arch, or over a stairway, &c.

Head'-wind, *n.* (*Naut.*) A wind that blows in direct opposition to a ship's course.

Head'-work, *n.* Mental or intellectual labor.

(*Arch.*) A decoration for the keystone of an arch.

Head'-workman, *n.* A foreman or chief of a body of workmen.

Head'y, *a.* Apt to affect the head; inflaming; exhilarating; intoxicating; strong; as, a *heady* liquor.

—Rash; hasty; precipitate; headstrong. — Impetuous; violent; rapid; as, "a *heady* current." — *Shaks.*

"*Heady*, rash, provok'd with raging ire." — *Shaks.*

Heal, *v. a.* [A. S. *hælan, gehælan*, from *hælu, hæl*, health, care, safety; Goth. *hailjan*, to hail. See HEALTH and WHOLE.] To make hale, sound, or whole; to cure of a sickness or wound; to cause to close up, as a wound; to restore to a sound state of body. — To remove, diminish, or subdue; — said of a hurt or wound. — To restore to an original state of integrity.

"Our Saviour *healed* the sick, and raised the dead." — *Addison.*

—To remove, as differences or dissension; to reconcile, as parties at variance; to cure, as moral disease, and restore soundness to.

"I will *heal* their backsliding." — *Hos.* xiv. 4.

—*v. a.* To grow whole or sound; to recover; to return to a sound state; sometimes followed by *up* or *over*; as, the sore *heals up*, the wound has *healed over*.

Heal'able, *a.* Susceptible of being healed.

Healds, (*heeldz,*) *n. pl.* The harness for guiding the warp threads in a loom.

Healds'burg, in *California*, a city of Sonoma co., 16 miles N.N.W. of Santa Rosa. *Pop.* (1897) about 1,600.

Heald'ville, in *Vermont*, a post-village of Rutland co.

Heal'er, *n.* He or that which heals, cures, or restores to soundness.

Heal'fang, *n.* [A. S., a catching of the neck.] The old English name for the punishment of the pillory. The term was also applied to the fine paid in order to commute this punishment.

Heal'ful, *a.* Healing; having a tendency to heal.

Heal'ing, *a.* Tending to cure; mild; modifying; assuasive: as, a *healing* salve.

Heal'ing, *n.* (*Building.*) The covering a roof with lead, tin, slates, &c.

Heal'ingly, *adv.* In a curative manner.

Heal'ing Process, *n.* (*Surg.*) The means by which nature repairs an injury in the human body are of the most simple, yet efficacious character; and if the vitality of the part has not been destroyed by the accident, and there is sufficient health and strength in the patient, all the surgeon has to do is to cleanse the part of all irritating or foreign substances, such as grains of gunpowder, sand, stones, splinters of wood, &c., lay the parts smoothly together, and, enjoining perfect rest, leave nature to effect the cure. This, in the skin and flesh of the body, is effected by the vessels from the cut or lacerated part throwing out a thin fluid called *coagulable lymph*, which, as it hardens, has the effect of gluing the parts together. Into this lymph, after a short time, minute arteries shoot, and begin laying down new muscular fibre, till either the breach is filled up, or the two severed sides intimately unite. The simplest form of this process is when a clean cut is made through the skin or flesh by a sharp knife, and the two sides, being brought exactly together, and so retained, heal with surprising rapidity, leaving no trace of the injury inflicted. This process is called by surgeons, *union or healing by the first intention*, and which, being the most satisfactory and rapid in its result, is always eagerly sought for in practice. The other form of the *H. P.* may be illustrated by a wound inflicted by some weapon that actually cuts *a piece out of the flesh* and cuticle, leaving a cavity of more or less extent to be closed up. As the edges of such a wound cannot be brought together for the intervening gap, there is no hope of effecting union by the *first intention;* reparation must consequently be effected by the production of new matter, and the filling up of the cavity from the bottom by fresh granulations, till the excavation, having been filled up to the level of the adjacent parts, begins to film over from the edges, and the whole is covered with a new and healthy skin, leaving, however, a scar or *cicatrix;* this process is called *union by the second intention.* The repairing power of nature is so active, that if a portion of flesh is cut out, a nose or finger severed from the body, and either fitted into its place, and securely retained there for some time, it will become once more as firmly united as if it had never been parted from the body. This is no theory, but a fact, and one that should never be lost sight of by those who may be called upon to act as a friend in need, or on emergency in cases of accident. — See WOUNDS.

Health, (*hĕlth,*) *n.* [A. S. *hælu;* Ger. *heil.*] That condition of the living body in which all the vital, natural, and animal functions are performed easily and perfectly, and unattended with pain. It consists in a natural and proper condition and proportion in the functions and structure in the several parts of which the body is composed. From physiology we learn that there are certain relations of these functions and structures to each other, and to external agents, which are most conducive to their well-being and permanency, which constitute the condition of health. States which are deviations from the due balance between the several properties or parts of the animal frame constitute disease. The most perfect state of health is generally connected with a certain conformation and structure of the bodily organs, and well marked by certain external signs and figures, a well-proportioned body, calm and regular circulation of the blood, free and full respiration, easy digestion, &c. There are, however, few persons who can be said to enjoy perfect health; and hence, in ordinary language, when we speak of health, we imply merely a freedom from actual disease. In this sense, the standard of health is not the same in every individual, that being health in some which would be disease in another. The healthy pulse in adults averages from 70 to 80 per minute, yet there are some in whom 90 or a 100 is a healthy pulse. Muscular strength and activity, nervous sensibility, and the sensorial powers, vary exceedingly in different individuals, yet all within the limits of health. There is scarcely any earthly blessing men hold so lightly as health, and yet there is none they so deeply deplore the loss of when deprived of it. In order to preserve health, it is necessary to be temperate in food, exercise, and sleep, and pay strict attention to bodily cleanliness, besides abstaining from spirituous liquors and the over-indulgence of sensual gratifications.

—Sound state of the mind; natural vigor of the faculties; moral purity; goodness; salvation.

"The best preservative to keep the mind in *health* is the faithful admonition of a friend." — *Bacon.*

—Wish of health and happiness; — used in drinking.

"Come, love and *health* to all;
I drink to th' general joy of the whole table." — *Shaks.*

To drink a health, to drink with the utterance of a wish for the health, happiness, and prosperity of another; as, gentlemen, let us *drink* the Queen's *health.*

Bill of health. See BILL.

Health, (*Public.*) See SANITARY SCIENCE.

Health'ful, *a.* Full of health; being in a sound state; free from disease; well; healthy; hale.

"Nature was his physician, and kept him *healthful.*" — *South.*

—Serving to promote health; salubrious; wholesome; salutary; as, *healthful* diet.

"Pour upon them the *healthful* spirit of thy grace."
Book Com. Prayer.

—Indicating health and soundness; resulting from a hale or wholesome condition; as, a *healthful* life.—Well-disposed; favorable; propitious.

"Such an exploit have I in hand,
Had you a *healthful* ear to hear it." — *Shaks.*

Health'fully, *adv.* In health; soundly; wholesomely

Health'fulness, *n.* A state of being healthy or well; wholesomeness; salubrity; state or qualities that promote health and vigor; as, the *healthfulness* of the air.

Health'ily, *adv.* In a healthy manner; without disease; soundly.

Health'iness, *n.* State of being healthy or in health; wholesomeness; soundness; freedom from disease.

Health'less, *a.* Without health; weak; sickly; infirm. —Not conducive to health; unwholesome.

Health'lessness, *n.* State of being healthless.

Health'-officer, *n.* A person charged with the sanitary supervision of a town, &c.

Health'y, *n.* Being in health or in a sound state of body; enjoying health; vigorous; hale; hearty; as, a *healthy* constitution.—Conducive to health; healthful; salubrious; wholesome; as, *healthy* exercise, a *healthy* climate.

Heam, *n.* [A. S. *hama, hame,* the womb.] The afterbirth in beasts.

Hea'nor, a town of Derbyshire, England, 9 miles N. of Derby; *pop.* 7,100.

Heap, *n.* [A. S., from *hebban,* to raise; Dr. *hoop;* Ger. *haufe.* See the verb.] A pile or mass; a collection of things laid in a body so as to form an elevation; as, a *heap* of stones, a *heap* of rubbish. — A crowd; a concourse; a cluster; a throng; — used in application to persons. (Colloq. and vulgar.)

"The sailors run in *heaps,* a helpless crowd." — *Dryden.*

—*v. a.* [A. S. *heapian;* Ger. *häufen;* O. Ger. *hûfôn, gahufôn,* to heap up, to accumulate.] To heave, raise, or lift up, as in heaps; to pile; to throw or lay, as in a heap; — often before *up;* as, to *heap up* sand, — or *on;* as, to *heap on* coals.

"*Heap* on wood, kindle the fire."—*Ezek.* xxiv. 10.

—To amass; to accumulate; to lay up; to collect in great quantity; to add something else, in large quantities; generally followed by *up;* as, to *heap up* riches. — To add till the mass takes a roundish or conical form, or till it rises above the usual quantity; as, *heaped* measure.

Heap'er, *n.* One who heaps, masses, or accumulates.

Heap'y, *a.* Lying in heaps.

"O'er the mud pavements, *heapy* rubbish grows."—*Gay.*

Hear, *v. a.* (*imp.* and *pp.* HEARD.) [A. S. *hyran, ahyrian, geheoran;* D. *hooren;* Gr. *ous,* the Lat. *audire,* the parent of the It. *udire,* and Fr. *ouïr,* seem connected with the Sansk. *oui,* to hear.] To perceive by the ear; to feel, as an impression of sound, by the proper organs; to experience the sense of sound.

"To *hear,* to see, to feel, and to possess."—*Byron.*

—To give audience to, or allowance to speak: to attend; to listen to; to heed; to attend to or examine judicially; to try in a court of law or equity.

"Romans, countrymen, and lovers; *hear* me for my cause; and be silent that you may *hear.*"—*Shaks.*

—To obey; to attend favorably; to regard; to grant, as an answer to a prayer or request; to accede to the wishes of. — To acknowledge or take as a title. (A Latinism.)

"Or *hear'st* thou rather pure ethereal stream."—*Milton.*

To hear say, to hear another person say; to receive by rumor; to be informed by common report or talk. (Colloquially used.)

"Have you not *heard* it *said* full oft,
A woman's nay doth stand for naught? "— *Shaks.*

—*v. n.* To enjoy the sense or faculty of perceiving sound by the ear. "The *hearing* ear." (*Prov.* xx. 12.) — To listen; to hearken; to attend. — To be told; to receive by report or rumor; to be informed by oral means.

"I have *heard,* sir, of such a man."—*Shaks.*

Heard, in *Georgia,* a W. co., adjoining Alabama; *area,* about 286 sq. m. *Rivers.* Chattahoochee River, and the Whitewater and Sundalhatchee creeks. *Surface,* uneven; *soil,* fertile. *Min.* Gold, lead, and iron. *Cap.* Franklin. *Pop.* about 8,500.

Hear'er, *n.* One who hears; one who attends to what is orally delivered by another; an auditor; one of an audience.

Hear'ing, *n.* (*Physiol.*) One of the external senses; the function of the ear by which we are made cognizant of the different sounds which reach that organ, or the faculty by which we perceive and translate sounds. The air, set in motion by the voice of a speaker, the fall of a hammer, or by any other cause, comes in waves or undulations to the ear, where they are collected by the cartilage of the ear, and the vibrations transmitted to the middle ear, causing the small bones to strike the tympanum, from whence they are taken up and conveyed by louder vibrations to the internal apparatus of the inner ear; where the sounds, undulating through the semicircular canals, vestibule, and cochlea, are reverberated where every filament of the auditory nerve, or nerve of hearing, is expanded, and receives the impression of the word or sound carried by the undulating air, to be transmitted by the nerves to the *sensorium,* or brain, where the educated faculty gives a meaning or translation to the sound heard. Anatomy makes us familiar with the machinery by which this function is performed, but *how* we are enabled only to hear one sound by two ears, and can with such velocity interpret sounds into words, and words into ideas, is but a part in the chain of that inexplicable mystery which shrouds so many of the intellectual attributes of man. — See EAR; DEAFNESS.

—Act of auricular perception; as, she's hard of *hearing.*

—Audience; attention to what is orally delivered; opportunity to be heard; judicial trial or examination; as, the second *hearing* of the case came on yesterday.

—Reach or scope of the ear; extent within which sound may be heard.

"You have been talked of . . . and that in Hamlet's *hearing.*"
Shaks.

Hear'ing-trumpet, *n.* (*Acoustics.*) See EAR-TRUMPET.

Hearken, (*härk'n,*) *v. n.* [A. S. *heorcnian, hyrcnian,* from *heoran,* to hear; L. Ger. *harken;* Ger. *horchen* — *hören,* to hear.] To lend the ear; to listen; to attend to what is uttered with attention or curiosity; to regard; to give heed to what is uttered; to observe or obey; to attend; to grant or comply with; to pay regard to.

"He *hearkens* after prophecies and dreams."—*Shaks.*

Hearkener, (*härk'ner,*) *n.* One who hearkens; a listener; an auditor.

Hear'say, *n.* Anything heard to be said; report; common talk; rumor; fame; gossip; scandal; as, I had it from *hearsay.*

H. Evidence, (*Law.*) is that kind of evidence in which a witness speaks not from his own knowledge, but from what he heard another person say. As a general rule, such evidence is inadmissible in a court of law, as the person by whom the statement was first made cannot be sworn, neither can he be cross-examined; and the full truth or entire meaning of the statement may not have been carried away. But there are some cases in which such evidence is received; as in proof of any general custom, or matters of common tradition or repute; or an account of what deceased persons have said in their life-time.

Hearse, (*hĕrs,*) *n.* [O. Fr. *herce,* a harrow; a kind of portcullis with sharp pikes, like a harrow; afterward a sort of candle-stick resembling a harrow, placed with candles at the head of graves or cenotaphs: hence the word came to be used for a grave or cenotaph, for a coffin, and for a funeral carriage.] An ornamental car or carriage for conveying the dead to the grave.

(*Venery.*) A hind of the second year. (England.)

Hearse'-cloth, *n.* A pall; a covering for a hearse.

Hearse'-like, *a.* Befitting a funeral or obsequies.

Heart, (*härt.*) *n.* [A.S. *heort;* Fris. *hert;* Dan. *hjærte;* Swed. *hiorta;* Ger. *herz;* Icel. *hiarta;* Lat. *cor;* Gr. *keatos,* for *keardos;* Sansk. *hrid;* also *hridapa,* the heart, knowledge, science.] (*Anat.*) The reservoir of the blood, and the great central organ of the circulation, is a hollow muscular organ in the form of an irregular cone, and placed obliquely in the lower or front part of the thorax, inclined most to the left side (Fig. 1257).

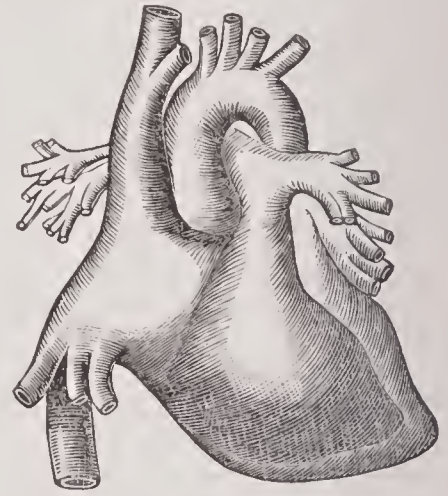


Fig. 1257. — THE HEART, (RIGHT SIDE.)

The base is directed towards the spine, and corresponds with the fourth and fifth dorsal vertebræ, while the apex points between the cartilages of the fifth and sixth ribs on the left side. It rests upon the diaphragm, having the lower surface somewhat flattened. It is inclosed in a membranous bag, called the *pericardium,* but loosely, so as to allow free motion. Though forming one muscle, there are two distinct hearts, each side being divided from the other by a *septum* or wall. It contains (see Fig. 201) four cavities — two at the base, termed *auricles,* and two at the apex, termed *ventricles.* The right auricle has four apertures — one from the superior vena cava, by which the blood is returned from the upper portion of the system; one from the inferior vena cava, returning the blood from the lower parts of the system; one from the coronary vein, by which the blood is returned from the heart itself; and one into the right ventricle. The left ventricle has its walls much thicker than the right, and forces the blood into the aorta for distribution over the entire system. At the commencement of the aorta there are three sigmoid or semilunar valves, as in the pulmonary artery, for preventing the blood from returning. The heart of a fœtus differs from that of an adult in having a foramen ovale, through which the blood passes from the right auricle to the left. The exterior fibres of the heart are longitudinal, the middle transverse, and the interior oblique. The contraction of the heart is termed *systole;* its dilatation *diastole.* Each of the four cavities of the heart contains between from 2 to 3 oz. of blood; the whole quantity of blood in an adult man varies from 25 to 30 pints or lbs. The heart contracts 4,000 times in an hour; there consequently passes through the heart every hour 8,000 oz., or 700 lbs. of blood; in other words, every drop of blood in the system passes through the heart 28 times in one hour, or once every two minutes. See CIRCULATION OF THE BLOOD.

Diseases of the Heart. (*Med.*) The heart, from the important part which it plays in the animal economy, is subject to various, serious, and often fatal diseases. Like the other viscera, it is removed from the eye, so

that little knowledge of its condition can be obtained by inspection; and hence we must have recourse to other means. The ear is the principal means of obtaining a knowledge of the state of the heart, and by *auscultation* and *percussion* (q. v.) we are enabled to detect the existence of various diseases. The heart gives out two sounds, known as the *first* and *second*, which are distinguished from each other. The first sound is longer than the second, and the interval between the first and second sounds is shorter than that between the second and first. They have been compared to the two syllables *lupp, dupp*. Any manifest alteration in these sounds is indicative of the existence of disease. They may be high or low, clear or dull, muffled, rough, intermittent, &c. Murmurs or regurgitant sounds may arise from disease of the valves. The power of distinguishing between the normal and abnormal sounds of the heart, and of the causes producing the latter, can only be obtained by lengthened experience. Diseases of the heart are usually divided into two classes: 1. functional, or *nervous;* and 2. structural, or *organic*. Chief among the former are *palpitations, syncope*, or fainting, and *angina pectoris*, (q. v.) They are chiefly to be met with in persons of a naturally nervous temperament, more especially women suffering from hysteria or other like complaints, and may be induced by great mental excitement. In such cases great attention should be paid to the general health, and by means of tonics, sea-bathing, and gentle open-air exercise, the system is to be strengthened. Violent exertion and strong mental excitement are particularly to be avoided. Among the principal organic diseases to which the heart is subject are *pericarditis, carditis, endocarditis, atrophy, hypertrophy, dilatation*, and *valvular disease*.—*Pericarditis*, or inflammation of the pericardium, may be induced by exposure to damp or cold, or by other causes, which give rise to inflammation in other parts. It is characterized by great tenderness over the region of the heart, amounting, when pressed, to sharp cutting pains, which prevent one from lying upon the left side. If, as is usually the case, the pleura is involved, there will be acute pain, or coughing, or drawing a deep breath. Sometimes the attack is not so severe, and but a slight pain is felt, or only a sense of heaviness and oppression. Generally the action of the heart is increased, sometimes so much so as to constitute palpitation. Frequently there is a considerable quantity of fluid effused into the cavity of the pericardium, which is sometimes externally visible by the bulging out over that part. It is a frequent attendant of acute rheumatism, (*q. v.*) Its mode of treatment depends very much upon the particular circumstances of each case. Where the disease is rapid and violent, bleeding may be of great service; in other cases tonics, and in some cases stimulants, are employed.—*Carditis*, or inflammation of the heart itself, sometimes occurs, but it is usually accompanied with inflammation of the pericardium; the symptoms in both cases are the same, and the treatment will consequently be similar in both. The like remarks also apply, in great measure, to *endocarditis*, or inflammation of the interior lining membrane of the heart, which is usually accompanied by one or both of the above. In this case there is more or less of fever and anxiety, and a peculiar sound of the heart is heard upon auscultation.—*Atrophy*, or a wasting of the heart's substance, arises from a deficiency in the supply of nutritive matter. It is usually accompanied by general emaciation, and will be pretty sure to terminate in death. When the heart is examined after death, its tissues are found to have undergone a change, and, instead of a striped, to present a homogeneous appearance. This is called *fatty degeneration*. The treatment is to strengthen the system by tonics, wholesome and nutritious diet, open-air exercise, sea-bathing, and the like.—*Hypertrophy*, on the other hand, is the result of an excess of nutrition, the nutritive process appearing to go on more rapidly than the absorbent. In this way the heart is often greatly enlarged in bulk, and its operation seriously interfered with. It is usually distinguished into three kinds,—1. single, when the walls of the heart, or its divisions, are thickened, without any diminution in the capacity of the cavities; 2. eccentric, or *aneurismal*, when the walls are thickened, and the cavities likewise enlarged; and, 3. *concentric*, when the cavities are diminished in proportion to the thickening of the walls. The first of these is the least common, and the second the most frequent; and any of them may afflict a single cavity or the whole heart. From the force with which the blood is propelled in such cases being greatly increased, the tendency is to produce hæmorrhages, aneurism of the aorta, apoplexy, &c. The pulsations are frequently regular but strong, sometimes even visibly raising the bedclothes, and the chest is bulged out over the part. Rest, abstinence, and more or less depletion, according to circumstances, are the proper means to be employed in such a case, and usually, with care and perseverance, the symptoms will be much alleviated.—*Dilatation* of the heart is when one or more of the cavities are enlarged in size without the substance of the heart itself being increased. It is sometimes caused by increased action of the heart, and may be produced by excessive exercise or strong excitement of any kind; it also frequently arises from want of sufficient muscular strength in the heart itself, or from some obstruction to the free passage of the blood. It is characterized by want of vigor in the circulation, and by feebleness and inability for exertion in the patient; he will often be exhausted by the loss of even a small quantity of blood, and may be even carried off during a trifling hæmorrhage. Attention to the general health, so as to strengthen the patient and restore the circulation, while all exciting causes are to be avoided, are the means to employ in such circumstances.—The *valves* of the heart are subject to a variety of diseases which interfere with their proper action; these are among the most easily detected of the organic diseases, on account of the sounds produced by them. The valves frequently become thickened, or even cartilaginous and osseous, so that they do not act freely, or close imperfectly, leading to obstruction or regurgitation of blood. Being connected with the endocardium, or internal lining membrane, diseases of the valves often result from repeated attacks of *endocarditis*. These obstructions tend to produce oppression of the breath, apoplectic fits, sanguineous and serous congestion,—as, hæmoptysis, albuminuria, dropsy, &c. The mode of treatment in such cases will depend upon the particular symptoms present, otherwise the general mode of treatment indicated above, of strengthening the tone of the system and equalizing the action of the heart, is to be followed.

—The seat of the affections and passions; the seat of moral life and character, and, rarely, the seat of the understanding or will.

"With *heart* to *heart*, and mind to mind."—*Scott.*

—Courage; spirit; pluck; indomitable purpose; as, to take *heart*.

"Faint *heart* ne'er won a lady fair."—*Burns.*

—Strength; vigor; fertility; efficacy; activity.

"That the spent earth may gather *heart* again."—*Dryden.*

—The chief part; the inner part of anything; the middle part or interior; the seat or source of life; the vital part; the centre of action or motion; as, the *heart* of a country, the *heart* of a mystery, the *heart* of a population, the *heart* of a tree or vegetable, &c.—That which has the shape or form of a heart; particularly, a playing-card bearing a symbol of the heart; as, *hearts* are trumps.—Secret intention, purpose, or design; hidden thoughts; recesses of the mind.

"I will . . . then shew you the *heart* of my message."—*Shaks.*

—Disposition of mind; design; purpose; intention; as, I have the *heart* to do well.

At heart, in the true character or case; as regards the heart; really; truly.

"Every woman is *at heart* a rake."—*Pope.*

By heart, thoroughly; in the closest and most comprehensive manner; as, to learn a lesson *by heart*.—*For my heart*, if my life was at stake.

"I could not *for my heart* deny it him."—*Shaks.*

To break the heart of. To bring to hopeless grief, misery, or despair; to afflict beyond redemption.—To bring almost to completion; to have finished the greater portion; as, he has *broken the heart of* the work.—*Hardness of heart.* Callousness of feeling; want of sensibility; cruelty of disposition.—*To find in the heart.* To be willing or disposed; to be not wholly averse.

"I could *find in my heart* to ask your pardon."—*Sidney.*

To have the heart in a nutshell. To be mean-spirited, vacillating, or sordid.—*To heart.* In the inmost recesses of the heart; as, to take *to heart*, that is, to be concerned or anxious about, to sorrow for, to grieve over; as, she *took* her husband's death so much *to heart* that she soon followed him.—*To set the heart at rest.* To be unconcerned about; to be at ease.—*To set* or *fix the heart upon.* To desire or long for earnestly; to entertain fond inclination for.

"Nor *set thy heart*, thus over-fond, on that which is not thine." *Milton.*

To speak to one's heart. To give spiritual comfort to; to console with kind words; to fortify with hope.

NOTE.—*Heart* is used in many compound words which are self-explanatory; as, *heart*-ache, *heart*-broke, *heart*-chilled, *heart*felt, *heart*-piercing, *heart*-rending, *heart*-thrilling, &c.

Heart'-ache, (*-āk,*) *n.* Mental sorrow; anguish, or trouble of mind.

Heart'-blood, Heart's'-blood, *n.* The fluid of the heart;—hence, vitality, essence.

Heart'-bond, *n.* (*Masonry.*) A stone which forms a bond by overlapping two others.

Heart'-break, *n.* Overpowering sorrow or grief.

Heart'-breaker, *n.* A woman's curl; a love-lock; a loose tress. (Colloq.)

Heart'-broken, *a.* Overcome with sorrow; deeply afflicted.

Heart'-burn, *n.* (*Med.*) The *cardialgia*, an affection of the stomach, erroneously attributed to the heart, which is a mere derangement of the digestive organs—an excess of acidity in the stomach, either proceeding from too acid a state in the gastric juice, from some crude and indigestible substance in the stomach, from a piece of gristle, fragment of bone, or some irritating body which, as said in the art. DIGESTION, attempts to pass the pyloric orifice of the stomach, and, after vain appeals, is turned back till more completely digested, causing heat, pain, and inconvenience; or it is the result of worms in the bowels, irritating the whole alimentary tube. The treatment depends upon the cause.

Heart'-burned, *a.* Having the heart inflamed.

"How tartly that gentleman looks! I never can see him but I am *heart-burned* an hour after."—*Shaks.*

Heart'-burning, *a.* Occasioning discontent.

—*n.* Discontent; secret enmity; jealousy.

(*Med.*) Same as HEART-BURN, *q. v.*

Heart'-dear, *a.* Fondly prized by the heart. (R.)

"Your own Percy, . . . my *heart-dear* Harry."—*Shaks.*

Heart'-deep, *a.* Fixed or rooted in the heart.

Heart'-ease, *n.* Quiet; tranquillity of mind: (also written *heart's-ease.*) (R.)

Heart'-easing, *a.* Bestowing ease or quiet; as, "*heart-easing* mirth."—*Milton.*

Heart'-eating, *a.* Feeding or preying on the heart.

Heart'ed, *a.* Having a heart.—Formed like a heart; cordate. (R.)—Laid up or seated in the heart:—chiefly used in composition; as, faint-*hearted*, warm-*hearted*.

Heart'edness, *n.* Heartiness; sincerity; warmth; zeal. (R.)

Hearten, (*härt'n.*) *v. a.* To give heart or courage to; to encourage: to animate; to incite or stimulate the courage of; as, to *hearten* troops.

Heart'ener, *n.* He who, or that which, heartens or stimulates.

Heart'felt, *a.* Deeply felt; deeply affecting, whether as sorrow or happiness.

Heart'-grief, *n.* Anguish or affliction of the heart.

Hearth, (*härth.*) *n.* [A.S. *heorth*, said to be from *Hertha*, Earth, worshipped as a goddess by northern nations, whose name was given to the place on which the home-fire was kindled, and also to the house itself; Ger. *herd;* O. Ger. *hert;* D. *haard*. Perhaps, however, the true derivation is from Goth. *hauri*, a coal, akin to Icel. *hyr*, fire, to the Sansk. of the Vedas, *hâras*, a flame, and to Heb. *ār*, to shine, to kindle.] A pavement or floor of brick or stone in a chimney, on which a fire is made; as, a cricket on the *hearth*.

"Fires unraked, and *hearths* unswept."—*Shaks.*

—A house or dwelling-place, as the abode of comfort to its inmates, and of entertainment to guests; as, a hospitable *hearth*.

(*Metallurgy.*) That part of a smelting-furnace where the metal accumulates, and where it is finally separated from the impurities which may be present in the ores; it is situated at the bottom of the furnace a little above the mouth and the tuyeres. The term is also applied to part of an open furnace, where the metal is exposed to the action of fire.

Heart'-hardness, *n.* Insensibility of heart.

Heart'-heaviness, *n.* Dejection of spirits; melancholy.

Hearth'-money, Hearth'-penny, *n.* A tax formerly levied on hearths in England.

Hearth'-stone, *n.* The stone forming the hearth; the fireside.

Heart'ily, *adv.* From, or with all the heart; with sincerity; really: cordially; as, you are *heartily* welcome.—Actively; zealously; diligently; vigorously; with zeal: as, they oppose us *heartily*.—Freely; largely; eagerly; with desire; as, to feed *heartily*.

Heart'iness, *n.* Quality or state of being hearty; zeal; sincerity; ardor; vigor; earnestness; eagerness of appetite.

Heart'less, *n.* Without a heart.—Lacking heart or courage; spiritless; faint-hearted; without feeling or affection; cruel; as, a *heartless* parent.

Heart'lessly, *adv.* In a heartless manner; faintly; timidly; feebly; without feeling or affection.

Heart'lessness, *n.* Quality of being heartless; want of courage or spirit; feebleness; destitution of feeling or sympathy.

Heart'let, *n.* A little heart.

Heart'-pea, *n.* Same as HEART-SEED, *q. v.*

Heart Prairie, in *Wisconsin*, a post-village of Walworth co., about 40 m. S.W. of Milwaukee.

Heart'-rending, *a.* Breaking the heart; overpowering with anguish; crushing with affliction; as, *heart-rending* news.

Heart'-rising, *n.* Opposition rising in the heart.

Heart'-robbing, *a.* Ecstatic; depriving of thought; as, "*heart-robbing* gladness." (*Spenser.*)—Winning the heart; captivating the affections; as, a *heart-robbing* beauty.

Heart's Content, or HEART'S CONTENT COVE, a small harbor on the E. side of Trinity Bay, Newfoundland; Lat. 47° 50′ N., Lon. 53° 20′ W.

Heart's'-ease, *n.* Same as HEART-EASE, *q. v.*

(*Bot.*) See VIOLA.

Heart'-seed, Heart'-pea, *n.* (*Bot.*) The plants of the genus *Cardiospermum* are so called, in allusion to their round seeds, which are marked with a spot like a heart.

Heart'-shaped, *a.* (*Bot.*) Cordate; possessing the form or shape of a heart.

Heart'-shell, *n.* (*Conch.*) A shell shaped like a heart.

Heart'-sick, *n.* Sick at heart; pained in mind; deeply afflicted, discouraged, or depressed.

Heart'-sickening, *a.* Disposed to sicken or deject the heart.

Heart'-sickness, *n.* Heaviness or depression of spirits.

Heart'some, *a.* Brisk; gay; lively; cheerful; buoyant. (Used in Scotland and the N. of England.)

Heart'-sore, *n.* An object of pain to the mind.

"His only *heart-sore*, and his only foe."—*Spenser.*

Heart'-stirring, *a.* Moving the heart; exciting the sensibilities.

Heart'-strike, *v. a.* To touch or affect at heart.

Heart'-string, *n.* A nerve or tendon supposed to brace and sustain the heart.

Heart'-struck, *a.* Driven to the heart; infixed in the mind; as, "*heart-struck* injuries." (*Shaks.*)—Shocked with fear or dismay.

"Adam, at the news, *heart-struck* stood."—*Milton.*

Heart'-swelling, *a.* Rankling in the heart; as "*heart-swelling* hate."—*Spenser.*

Heart'-throb, *n.* A pulsation of the heart.

Heart'wellville, in *Vermont*, a post-village of Bennington co.; generally spelled HARTWELLVILLE (*q. v.*).

Heart'wheel, *n.* (*Mach.*) The name given to a well-known mechanical contrivance for converting a circular motion into an alternating rectilinear one, which is generally adopted in the machinery of cotton mills. It

consists of an ellipse turned either on an axle, or by means of a winch and handle in one of its foci, or its centre, or whose edge a movable point or circle presses; the latter receives an alternating motion from the circumference of the ellipse, which in its motion presses it to different distances from the centre of motion. The practical disadvantages of this contrivance are, the inequality of pressure and of moving force which will be required at different parts of the rotation of the ellipse, and the consequent wearing of some parts of it before the remainder.

Heart-whole, (*härt'hōl,*) *a.* Not affected with love; not touched with the tender passion; having unbroken spirits or good courage; with the heart free and unfixed.

Heart'-wood, *n.* (*Bot.*) The English term for DURAMEN, (*q. v.*) It is the central part of the trunk of a tree hardened by the deposition in its tissue of various secretions which clog up the passages, and forbid the passage of anything through them.

Heart'-wounded, *a.* Wounded with love or sorrow; deeply moved or affected with some engrossing passion.

Hearty, (*härt'ĭ,*) *a.* Having the heart engaged in anything; sincere; warm; ardent; zealous; cordial; real; unfeigned; earnest; energetic; as, a *hearty* support; a *hearty* reception; a *hearty* shake of the hands, &c. — In full health; robust; strong; vigorous; hale; sound-bodied; durable; as, a *hearty* man, a *hearty* laugh. — Producing or promoting strength; invigorating; nourishing, as food; abundant in quantity; having a keen appetite; as, a *hearty* dinner, a *hearty* digestion, a *hearty* meal.

A hearty eater, one who eats largely and heartily; one who plies his knife and fork well; a good feeder.

Heat, (*hēt,*) *n.* [A.S. *hætu, hato;* L. Ger. and D. *hitte;* Ger. *hitze;* Dan. *hede;* Icel. *hita, hiti;* Goth. *heito,* a fever, akin to Gr. *aithō,* to burn or blaze, to Ar. *harārat,* heat, and to Hind. *hurārut,* heat.] The sensation caused by the approach or contact of a hot body, and the cause of that sensation. (See below, § *Physics.*)

The sensation produced by the vicinity, presence, or touch of fire or of heated matter, or of anything warm: — correlative of *cold.* — High temperature; degree of temperature to which any body is raised, as distinguished from low temperature, or cold; as, the *heats* of summer, *heat* of the weather, fever *heat,* &c.

"Great *heats* will follow, and large crops of grain." —*Dryden.*

—Indication or effects of high temperature; high color of the face or body; redness; flush; efflorescence; as, a white *heat,* a sparkling *heat,* a blood-red *heat.*

"It has raised . . . *heats* in their faces." —*Addison.*

—State of being once hot or incandescent; exposure to heat; as, to give a bar of steel another *heat.* — A violent action unintermitted; a course at a race; a single effort in running; as, three *heats* and a distance.

"In the last *heat,* plain dealing won the race.' —*Dryden.*

—Violent action or agitation of the system; utmost violence: rage; vehemence; ardor; agitation of mind; inflammation or excitement; exasperation; party spirit; as, the *heat* of passion, the *heat* of play, the *heat* of the moment, &c.

"We have spilt no blood but on the *heat* of the battle." —*Atterbury.*

—Fervency; animation in thought or discourse; ardor of expression or elocution.

"Plead it to her with all the strength and *heat* of eloquence. *Addison.*

—Fermentation; effervescence.

Blood-heat, the natural temperature of the human body, or about 98° Fahr.

(*Physics.*) The *material theory* of *H.* which was formerly maintained supposed it to be a form of matter subtle, imponderable, and pervading all bodies, this imponderable substance being called *caloric.* Its particles were supposed to mutually repel each other, and to be attracted by the particles of other bodies, thus producing the phenomena of expansion and contraction. Its entrance into our bodies were thought to cause the sensation of heat or *warmth,* and its departure that of *cold.* It accounted for the heat evolved by compression or percussion—as when iron is heated by rapid blows—on the supposition that the spaces between the atoms being contracted, the capacity of the body for heat was diminished, and a portion of it is therefore forced out and made manifest. This theory has been abandoned, and what is known as the *mechanical* or *dynamical* theory accepted in its place. According to this theory, *H.* is not a material, but a *form of motion,* a vibration or other mode of activity of the ultimate particles or atoms of matter. It is held that this motion may be generated by friction, percussion, and compression, as well as by combustion. Without further examining the theories of *H.,* we will proceed to consider its most important phenomena. The sun is the great source of *H.,* as well as light to the earth. It is estimated that the total amount of solar heat received by the earth in a year, if evenly distributed over its surface, would melt a layer of ice covering the whole earth to a depth of 100 feet; or it would heat an ocean of fresh water 66 miles deep, from the temperature of melting ice to the boiling-point. Faraday estimated that the amount of heat radiated from the same during a summer's day upon an acre of ground in the latitude of London, is not less than that produced by the combustion of 18,000 lbs. of coal. By concentrating the rays of the sun by means of large burning-glasses, a most intense *H.* may be produced, sufficient to easily melt the most refractory metals. A natural temperature of 120° Fahr. has been observed, and arctic navigators have experienced a cold of 70° below zero. The greater *H.* produced by the sun in summer is due to two causes. It is longer above the horizon, and its rays are more direct; that is, in winter, the rays falling obliquely upon the earth's surface are diffused over a much greater space than in summer, and their heating power is weakened in proportion. Recent experiments with the thermo-electric pile prove that even the distant fixed stars are sources to the earth of an appreciable amount of *H.* The internal fires of the earth are not supposed to affect the temperature at its surface to any considerable extent, but their influence becomes perceptible as we descend toward the centre. (See EARTH.) Electricity is also counted one of the sources of *H.* The most intense *H.* known is produced by the agency of the electric current, and, on the contrary, as in the case of the *thermo-electric pile* (see THERMO-ELECTRICITY), electricity may be produced from *H.* From the connection between these two agents, Prof. Tyndall remarks that "we have every reason to believe that *H.* and electricity are both modes of motion." — *Chemical action* is always attended with the production of *H.* When water is added to lime, or when about 4 parts of sulphuric acid and 1 of water are mixed, a great degree of heat is produced. The combustion of coal, wood, &c., to which we principally resort for the production of artificial *H.,* is only the chemical union of the oxygen of the air with the fuel. *Animal H.* is also the result of a chemico-vital process. The oxygen of the air is absorbed into the lungs, and carried by the blood to all parts of the system. In the little capillary vessels it combines with carbon and hydrogen, forming carbonic acid and water, which are expelled in the breath. The process then is a form of combustion, in which the fuel is the waste matter of the body. People inhabiting very cold countries consume great quantities of oily and fatty matter, the carbon and hydrogen of which are doubtless needed for the production, by oxidation or combustion, of the necessary heat of the body. (See RESPIRATION.) Heat is produced by all varieties of *mechanical action,* as friction, compression, percussion, &c. Fire may be kindled by rubbing together two pieces of dry wood, or by the rapid revolution of wheels upon their axles. Particles of steel from a knife-blade, held upon a rapidly revolving, dry grindstone, are heated to redness and fly off in a shower of sparks. By rubbing two pieces of ice together, Sir H. Davy caused them to melt, an experiment that proved that *H.* cannot be material. *H.* is evolved by *compression,* as when any substance is subjected to the action of a powerful press. If a piece of tinder be placed in a tube closed at one end and the air suddenly compressed by means of a piston working air-tight, the tinder will be ignited by the heat produced. *Percussion* produces heat. The use of the flint and steel is an example of this: the heat evolved by the collision of the two being sufficient to fuse the small particles of steel that are driven off by the blow. A piece of cold iron may be heated to redness by rapid and skilful blows of a hammer. The experiments of Joule (see JOULE'S APPARATUS) and others demonstrate that whenever force is exerted *H.* is produced; that the same amount of force under all circumstances generates the same quantity of heat; and that *H.* and force are mutually convertible into each other. The general effect of imparting heat to bodies is to increase their volume, and, if continued, to change solids to liquids, and liquids to gases or vapors. For a full description of these effects, see EXPANSION, LIQUEFACTION, and VAPORIZATION. Bodies expand and contract under the influence of *H.* with an apparently irresistible force, and advantage is taken of this in drawing together, by means of iron rods, walls of buildings that have spread apart, in putting tires on wheels, and in many other mechanical operations. Experiments have shown that Bunker Hill Monument is caused to vary from the perpendicular by the expansion from the heat of the sun of the sides that are successively exposed to its rays. The expansion of bodies may be taken as the measure of the heat that produces it, and on this principle are constructed heat-measuring instruments. (See THERMOMETER and PYROMETER.) — *Communication of H.* Heat is communicated by *conduction, convection,* and *radiation.* Conduction is the method by which the heat is transmitted from particle to particle of a body, as from the end of a metallic rod placed in a fire, to all other portions of the rod. All bodies may be divided into two classes respecting their power of heat: *conductors* and *non-conductors.* If we hold the ends of two rods, one of iron and one of wood, in a fire, we soon become aware that the metal conducts the heat much more readily to the hand than the wood; *ergo,* metals are the best conductors. The following table shows the relative conducting power of the different metals:

Silver	100	Iron	12
Copper	74	Lead	9
Gold	53	Platinum	8
Brass	24	German silver	6
Tin	15	Bismuth	2

Refrigerators and fire-proof safes are constructed with double sides, and the space between them is filled with some non-conductor of heat, as alum, charcoal, or plaster of Paris. Liquids and gases are almost perfect non-conductors of *H.* Water may be boiled in the upper part of a tube over ice without melting the ice, and if a quantity of alcohol be inflamed on the surface of water, the water will not be warmed below the surface. Common air is almost an absolute non-conductor. The air retained in the meshes and between the layers of clothing prevents the heat of the body from being conducted away, and thus keeps us warm. The same substance that proves the best *defence* against the cold also protects the body from the effects of great external heat. Workmen and firemen exposed to intense heat protect themselves by woollen garments, and we wrap ice in flannel to keep it from the heated air without. Double doors and windows render apartments warmer by enclosing a quantity of air which does not convey away the heat as readily as the solid walls. — Liquids and gases are heated by *convection.* If *H.* be applied to the surface of a liquid, we have seen that the lower portions remain unaffected by it. If the heat, however, be applied to the lower part of a vessel containing a liquid or gas, the heated particles become expanded, and rising, give place to colder ones, which are heated in their turn. In this manner all portions of the liquid are heated alike. Fig. 1258 illustrates how the heat applied to the bottom of a vessel of water is diffused through the whole mass. It will be seen that two sets of currents are established, the hot particles rising to the top, and the cold ones sinking to the bottom. On the same principle the air of a room is warmed, and for this reason the heat should enter the apartment as near the floor as possible. Liquids and gases cool from the surface; as the particles become cold they contract and sink, while warmer ones rise and take their places. Thick liquids, as soup, oils, molasses, tar, &c., retain their heat longer, since their particles do not so readily move among themselves on account of their greater cohesion. — *Radiation of H.* By this is understood the passage of *H.* from one body to another, either through a vacuum, the air, or even through a solid. Prof. Tyndall defines radiation as "the communication of motion from the particles of a heated body to the ether in which these bodies are immersed." Substances differ very much in their power of emitting *H.,* and the radiating power of the same body varies greatly, according to the nature of its surface. Highly polished surfaces are poor radiators, while dark, dull bodies are generally good radiators. It is proved, however, that color alone has no effect on radiation. If a metallic cube, having its sides coated with different coloring-matters, be filled with hot water, it will be found that the radiation from each will be the same. Vessels designed to retain the heat of their contents should have clean, polished surfaces, while stoves, or bodies intended to impart *H.,* should be somewhat rough, or not highly polished. Radiant *H.* is thrown off in straight lines, and is reflected, absorbed, transmitted, and refracted, in obedience to the same laws that govern light. It is also susceptible of polarization. That it is reflected, may be proved by placing a hot ball of iron in the focus of a concave reflector, while some gunpowder is placed in the focus of a similar reflector, a number of feet distant from the ball. The powder will be ignited, though, placed at any other point much nearer the ball, it would remain unaffected. If we stand with our back to a bright fire, and hold a mirror in such position that we may see its reflected light, the face receives at the same time the sensation of heat. By an arrangement of mirrors, Archimedes, in his famous defence of Syracuse, was enabled to fire the fleet of Marcellus by the concentrated and reflected heat of the sun's rays. Radiant heat is absorbed readily by surfaces that are good radiators, and but imperfectly by those surfaces that are good reflectors. Dark, rough bodies absorb readily and become sooner heated than smooth and polished ones; for instance, water is sooner heated in a kettle whose outside is covered with soot, than in one that is bright and clean. In the experiment above described, with the hot ball, the mirror is not heated, though within a few inches of the hot iron, so perfectly does its polished surface reflect the rays of heat. The air is a poor absorber of *H.* The sun's rays pass through it without sensibly increasing its temperature; and it becomes warmed principally by convection from the heated surface of the earth. The sun's heat passes through the air and transparent bodies without loss, but heat from other sources is more or less absorbed by bodies that allow light to pass readily through them. Bodies allowing a free passage of *H.* through them are called *diathermanous,* and those that absorb the most of the *H.* they receive are called *athermanous.* Rock-salt and air transmit the rays from sources of heat of all kinds, but all other bodies absorb a portion of the heat-rays in the same manner that colored glasses intercept or absorb some of the rays of light. The facts in this connection are very remarkable; we can give space for but few. If we take, as a source of heat, a kettle filled with boiling water, a thin plate of transparent rock-salt will transmit 92 out of 100 rays, while rock-crystal, plate-glass, transparent alum, and clear ice, all of the same thickness, will not transmit any. With the exception of rock-salt, the transmissive power of different bodies varies with the quality of the heat, and it differs in the same body with the intensity of the heat. Thus, plate-glass which transmits none of the heat from a copper ball heated to 212°, transmits 6 per cent. of that from

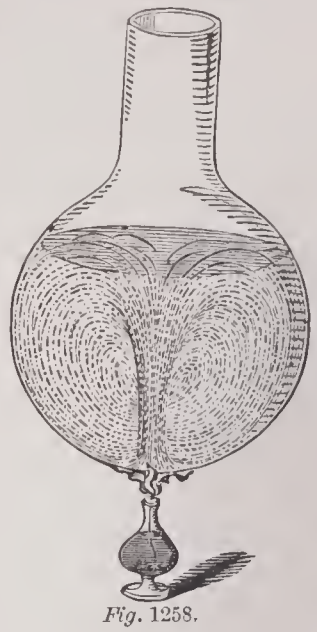


Fig. 1258.

the same ball at a temperature of 750°. The facts of radiation and absorption afford an explanation of the interesting phenomena of Dew (*q. v.*), of frost which is frozen dew, of land and sea breezes, and of winds. (See Winds.) — *H.* tends to diffuse itself until all neighboring bodies have acquired a uniform temperature. If a hot ball of iron be placed in a room, it parts with its heat until the objects in the room and itself have the same temperature. If a block of ice at 32° be introduced into a room having a temperature lower than its own, it radiates *H.*, and thus *warms* or elevates the temperature of the room. — *Latent H.* Whenever a solid is changed into a liquid, a certain amount of heat *disappears*, or becomes insensible to the thermometer. To melt ice at 32° requires 143 degrees of heat, and yet the water produced has a temperature of only 32°. The latent *H.* of water is then said to be 143°, and this amount of heat reappears when it is re-frozen. A similar effect is produced when a solid or liquid is changed to a vapor or gas. To change water at 212° into steam of the same temperature, 967 degrees of *H.* are required. The latent heat of steam, then, is 967°, which becomes sensible, or reappears on its condensation into water. Cold is produced when solids are liquefied by slow chemical action, as in the case of a mixture of ice and salt. This is the principle of *Freezing Mixtures*, q. v. — *Specific H.* Bodies differ greatly in the amount of *H.* required to effect the same changes of temperature in them. The specific *H.* of a substance is the quantity of *H.* required to raise its temperature one degree, as compared with the quantity required to raise the same weight of some other substance taken, as a standard, one degree. For instance, if we subject a pound each of water, mercury, copper, and oil to the action of a uniform source of heat, we shall find that to increase the temperature of each, say 5 degrees, the times required will be as follows: for the water, 30; mercury, 1; copper, 10·6; oil, 15; that is, the water will absorb 30 times as much heat as the mercury, before indicating as high a temperature, the copper 10·6, and the oil 15 times as much. Having heated these substances to the same degree, the water will be 30 times as long in cooling as the mercury, the copper 10·6, and the oil 15 times as long. The water evidently contained 30 times as much heat as the mercury, or, which is the same thing, its *specific H.* is 30 times greater than that of mercury, that of copper 10·6 times, &c. Water is adopted as the standard of comparison. — *Calorimetry* is the art of determining the specific *H.* of bodies. Different methods are resorted to for this purpose. Equal weights of different substances are heated to the same degree, and the time which they require to cool is noted, or, when heated, they are plunged into cold water, and the gain of *H.* on the part of the water and its loss by the body noted; or, the quantity of ice is observed which they will liquefy in falling a given number of degrees in temperature. The same facts are ascertained also in the case of liquids, by mixing equal weights of two liquids at different temperatures, and noting the resulting temperature of the mixture. It is an interesting fact that the less the *atomic* weight of a body, the greater its specific *H.*; and in most cases the product of the atomic weight and the specific *H.* is a constant quality. These experiments prove that different bodies have different *capacities* for heat; thus water, at a temperature of 100°, contains much more *H.* than mercury, copper, or oil, at the same temperature. Its great capacity for *H.* renders the ocean a great regulator of heat upon the earth's surface. In the summer it absorbs and holds great quantities of *H.* which is slowly given off in the winter, and tends to modify the cold of islands and countries adjacent to it. *Cold* is a term used to express the absence of a degree of *H.* and not a fixed temperature. Our sensations may impart to us no true idea of real temperature. A traveller from the summit of the Andes, on descending half-way to the plain, will find the heat oppressive, while his friend who has come from the plain below to meet him, requires a fire to warm himself. If we place one hand in warm water and the other in ice-water, and then plunge both into common spring water, to the one it will be cold and to the other warm. Cold is produced by evaporation from the conversion of sensible *H.* into latent heat. A volatile liquid, as ether, dropped on the skin, causes the sensation of cold. The *cryophorus*, or frost-bearer, illustrates the production of cold by quick evaporation. It is a sealed glass tube having a bulb at one end, and contains a small quantity of water, the rest of the space being filled with the vapor of water only. When the water is turned into the bulb, and the empty end plunged into a freezing mixture, as ice and salt, the condensation of the vapor causes such quick evaporation from the surface of the water in the bulb, that it is speedily frozen. On allowing a jet of liquefied carbonic acid to issue into the air, such an intense degree of cold is produced by the vaporization of a portion of it that the remainder is frozen to a solid. By mixing this solidified carbonic acid with ether, and by analogous methods, very low temperatures are obtained.

Heat, *v. a.* [A.S. *hætan.*] To make hot; to communicate heat to, or cause to be warm; to endue with the quality of caloric; applied — 1. To inanimate objects; as, to *heat* an oven, to *heat* iron, to *heat* water, or the like. 2. To animal bodies; — hence, to excite; to make feverish; to rouse to action; as, to *heat* the blood.

"When he was well *heated*, the younger champion could not stand before him." — *Dryden.*

3. To the passions; — hence, to kindle; to inflame; to warm to excess, as with desire; to make ardent or fervent.

"A noble emulation *heats* your breast." — *Dryden.*

—*v. n.* To grow warm or hot by the action of fire, or the application of caloric; as, the rooms need *heating*.

—To grow warm or hot by fermentation, or chemical evaporation; as, grain *heats* in a ship's hold.

Heat, *imp.* and *pp.* of Heat. Formerly used for *heated*, and occasionally employed, colloquially, at the present day.

Heat'er, *n.* He or that which heats.—Any contrivance used to impart heat, or to hold something else to be heated, as a tongue of iron made hot, and put into a box-iron to smooth and plait linen, the feed-*heater* of a steam-engine, &c.

Heath, *n.* [A. S. *hæth*, heath, thyme; Ger. *heide*, a place overgrown with heather.] (*Bot.*) The common name of the plants of the genus *Erica*. In Great Britain, (chiefly in Ireland and Scotland,) the heath or heather covers vast tracts of land; it is unknown in N. America. — See Ericaceæ.

—A place overgrown with heath; a moor; a common; as, the *heaths* of Staffordshire. (*Temple.*) — A place covered with shrubs of any kind; as, *heaths* of rosemary. (*Bacon.*) —A desert; a wild waste, or cheerless tract of country; as, "this blasted *heath*." — *Shaks.*

Heath, in *Massachusetts*, a post-town and township of Franklin co., about 100 m. W. N. W. of Boston, and 17 m. from Greenfield.

Heath, in *Michigan*, a prosperous township of Allegan county.

Heath, in *New York*, a P. O. of Ulster co.

Heath, in *Ohio*, a P. O. of Belmont co.

Heath, in *Pennsylvania*, a township of Jefferson co.

Heath'-clad, *a.* Clothed or clad with heath.

Heath'-cock, Heath-Game, Heath-Fowl, *n.* (*Zoöl.*) See Grouse.

Heathen, (*hē'thn,*) *n.* [A. S. *hæthen*; Du. *heiden*; Ger. *heide*; Goth. *haithn*; probably from Gr. *ethnikos*, from *ethnos*, a nation.] A pagan; a Gentile; one who worships idols, or is unacquainted with the true God; a rude, illiterate, barbarous person. As applied in the Scriptures, the *heathen* signified all people except the Jews; it is now used of all nations except the Christians and Moslems.

—*a.* Gentile; pagan; barbarous; as, a "*heathen* author." *Addison.*

Hea'thendom, *n.* That part of the world where the people profess heathenism. — The heathen nations spoken of, or considered collectively.

Hea'thenish, *a.* Belonging or relating to Gentiles or pagans; as, "the laws of *heathenish* religion." (*Hooker.*)

—Idolatrous; pagan; rude; illiterate; wild; uncivilized; barbarous; savage; cruel; rapacious; as, *heathenish* ignorance.

Hea'thenishly, *adv.* After the manner of heathens.

Hea'thenishness, *n.* State of being heathenish; a profane state, like that of the heathens.

Hea'thenism, *n.* Gentilism; idolatry; paganism; ignorance of the true God. — Ignorance; barbarism; rudeness; savagery.

Hea'thenize, *v. a.* To render heathen or heathenish.

Hea'thenry, *n.* Heathendom; condition or character of heathens.

Heather, (*hĕth'er,*) *n.* Heath. (Scottish.)

Heath'er-bell, Heath'er-flower, *n.* In Scotland, the blossom of the heather.

Heath'ery, *a.* Abounding in heather; as, a *heathery* glade.

Heath'-game, *n.* See Heath-cock.

Heath'-pont, *n.* See Heath-cock.

Heaths'ville, in *N. Carolina*, a post-village of Halifax co., about 82 m. N.E. of Raleigh.

Heaths'ville, in *Virginia*, a post-village, cap. of Northumberland co., about 92 m. N.E. of Richmond.

Heaths'ville, in *Pennsylvania*, a village of Jefferson co., abt. 8 m. S.W. of Brookville.

Heathy, (*hĕth'ĭ,*) *a.* Full of heath; abounding with heath; as, *heathy* hills.

Heat'ing, *a.* Having a tendency to impart heat to; promoting warmth or heat; stimulating; exciting; as, a *heating* beverage.

Heat'ingly, *adv.* In a manner to cause or promote heat.

Heat'less, *a.* Without heat; cold.

Heave, (*hēv,*) *v. a.* (*imp.* heaved or hove; *pp.* heaved, hove, formerly hoven.) [A. S. *hefan, hebban*; Du. *heven*; Ger. *heben.*] To lift; to raise; to move upward; as, the "arch-fiend . . . *heav'd* his head." (*Milton.*) To raise; to exalt; to elevate; — generally before *high*.

"One *heav'd* on *high*, to be hurl'd down below." — *Shaks.*

—To cause to swell; to raise or force from the breast, as a groan; as, to *heave* a sigh.

"She *heav'd* the name of father pantingly forth." — *Shaks.*

—To cast; to send; to throw; as, to *heave* the lead at sea. — To raise forcibly by turning a windlass; to hoist; to turn, as a windlass or capstan with bars or levers; as, to *heave* the anchor.—To force from or into any position; to throw off.

To heave a cable short. (*Naut.*) To heave taut on the cable. — *To heave down.* (*Naut.*) To pull a ship over on her broadside, to get at a leak or to careen her bottom. — *To heave taut.* (*Naut.*) To turn the capstan until the rope or chain-cable attached to it becomes tight. — *To heave a ship ahead.* To warp a ship ahead by means of cables, &c., when not under sail. — *To heave astern.* (*Naut.*) Said of a ship when moved backward. — *To heave a ship to.* To bring a vessel's head to the wind, and stop her course. — *To heave a strain.* (*Naut.*) To use extraordinary exertion in working a windlass or capstan. — *To heave out a sail.* To unfurl it. — *To heave a ship in stays.* To place her on the other tack. — *To heave up.* To give; to abandon; to relinquish; as, he *heaved* the thing *up* in disgust. — To vomit forth; to eject from the stomach; to puke; to spew out. (Colloquially used.) — *To heave up anchor.* (*Naut.*) To raise or detach it from the bottom; to lift the anchor aboard before sailing.

—*v. n.* To rise; to be lifted or thrown up. — To rise in billows; to swell, as the sea; to rise and swell; to expand, distend, or dilate; to pant; to breathe with labor or pain.

"Frequent for breath his panting hosom *heaves*." — *Prior.*

—To keck; to retch; to make an effort to vomit.

To heave in sight. To appear; to come within view; as, a sail *hove in sight*. — *To heave up.* To vomit; to throw up; to spew.

—*n.* A rising or swell; an exertion or effort upward; a raising up; a distension, as of the breast; as, the *heave* of an earthquake. — An effort to raise; a struggle to bring up, as the contents of the stomach.

"But after many strains and *heaves*,
He got up to his saddle eaves." — *Hudibras.*

—A fling; a cast; a throw; an onslaught.

"I'll have another *heave* at him." — *Shaks.*

(*Geol.*) An horizontal dislocation which takes place at the intersection of a metallic with another lode.

—*pl.* (*Farriery.*) A disease of horses, characterized by difficult breathing and a peculiar cough.

Heaven, (*hĕv'n,*) *n.* [A. S. *heofan, heofen*, which seems to be for *heafen*, the pp. of *hebban*, to raise; O. Ger. *heven.* See Heave.] That which is heaved up, raised aloft, or elevated; particularly the region or expanse which surrounds the earth, and which appears above and around us like an immense arch or vault, in which are seen the sun, moon, and stars; the firmament; the sky; the atmosphere; — frequently used in the plural.

"You blue *heaven* above us bent." — *Tennyson.*

—The mansion or abode of God and his angels; the state and place of blessedness in the life to come. As we can have no conception of those joys which never have been and never will be experienced by us here in their full extent, we have of course no words in human language to express them, and cannot therefore expect any clear description of them even in the Holy Scriptures; hence, the Bible describes this happiness sometimes in general terms, designating its greatness, and sometimes by various figurative images and modes of speech, borrowed from everything which we know to be attractive and desirable.

—The residence of the celestial gods, in a pagan sense.

"Yes, love indeed is light from *heaven*!" — *Byron.*

—The Supreme Power; the Sovereign of heaven; God; Jehovah; the Omnipotent.

"*Heaven's* best treasures, peace and health." — *Gray.*

—Elevation of state; sublimity; supreme felicity; exalted happiness.

"The brightest *heaven* of invention." — *Shaks.*

Note. — *Heaven* is much used in the construction of compound words; as, *heaven*-aspiring, *heaven*-guided, *heaven*-directed, *heaven*-taught, &c.

—*v. a.* To place in a state of bliss, like that of heaven; to beatify; to make felicitous. (R.)

"The bird whose nest
Is *heavened* in the hush of purple hills." — *Gerald Massey.*

Heav'en-born, *a.* Born from heaven; native of heaven; sprung from the celestial regions; as, "*heaven-born* sisters." — *Pope.*

Heav'en-bred, *a.* Produced or cultivated in heaven; as, "*heaven-bred* poesy." — *Shaks.*

Heav'en-bright, *a.* Possessing celestial brightness.

Heav'en-built, *a.* Built by the agency of the gods.

Heav'en-dar'ing, *a.* Defiant to the divine will or authority.

Heav'en-direct'ed, *a.* Raised toward, or pointing to the sky. — Taught by celestial powers; as, "*heaven-directed* hands." — *Pope.*

Heav'en-fallen, *a.* Fallen from a celestial state.

Heav'en-kiss'ing, *a.* Apparently touching the sky; as, a "*heaven-kissing* hill." — *Shaks.*

Heav'enliness, *n.* Exalted grace; supreme excellence.

Heav'enly, *a.* Resembling heaven; pertaining to heaven; celestial; divine; godlike; angelic; inhabiting heaven; as, the *heavenly* regions, *heavenly* bliss, and the like. — Appropriate to heaven or things celestial; perfect; pure; supremely excellent; as, "*heavenly* eloquence." — *Dryden.*

—*adv.* In a manner resembling heaven.

"Where *heavenly* pensive contemplation dwells." — *Pope.*

—By the agency or influence of heaven.

"Our *heavenly* guided soul shall climb." — *Milton.*

Heav'enly-minded, *a.* Having the mind or affections centred on heaven, or on spiritual things.

Heav'enly-mindedness, *n.* State of being heavenly-minded, or of having one's aspirations placed on heavenly things.

Heav'enward, *a.* and *adv.* Toward heaven; looking to heaven.

Heave'-offering, *n.* (*Script.*) An offering made among the Jews (*Numb.* xv. 19), — so called because it was to be heaved or raised.

Heav'er, *n.* He or that which heaves or lifts.

(*Naut.*) An iron bar, used as a lever.

Heaves, *n. pl.* (*Farriery.*) See Heave.

Heavily, (*hĕv'ĭ-lĭ,*) *adv.* With heaviness; with great weight; as, to be *heavily* laden. — With great burden of grief; sorrowfully; grievously; afflictively; with an air of sorrow or dejection; oppressively.

"Why looks your grace so *heavily* to-day?" — *Shaks.*

—With difficulty; slowly and laboriously; as, to walk *heavily*.

Heaviness, (*hĕv'ĭ-nes,*) *n.* Quality of being heavy or ponderous; weight; gravity; burden; oppression; lassitude; sadness; gloom; dejection of mind or of spirits.

sluggishness; torpidity; languor; dulness of mind.—That which creates labor or difficulty; thickness; moistness, as of earth or air; deepness, as of earth.

Heav'ing, *n.* A rising, swell, or distension; a panting, surging, or palpitating; as, *heavings* of the heart.

Heavisome, (*hĕv'ĭ-sum,*) *a.* Dull; torpid; drowsy; gloomy.

Heavy, (*hĕv'ĭ*) *a.* [A.S. *hefig, hæfig;* D. *hevig,* violent; Ger. and Dan. *heftig,* violent, vehement. The A.S. *hefig* is akin to *heffan,* Goth. *huffar,* to raise; the idea of great weight being produced by the difficulty of raising a large body.] That is heaved or lifted with labor or force; weighty; ponderous; large in amount; thick; dense; bulky; difficult to move; as, a *heavy* rock, a *heavy* shower, a *heavy* load, *heavy* timber, &c. — Sad; sorrowful; dejected; grievous; afflictive; depressed in mind; burdensome; oppressive; as, *heavy* care. *heavy* spirits, &c.

"A light wife makes a *heavy* husband."— *Shaks.*

—Cumbersome; burdensome; hard to sustain, endure, attempt, or accomplish; difficult to bear; as, *heavy* tidings, *heavy* expenses, a *heavy* tax, a *heavy* yoke, &c. — Dull; drowsy; wanting spirit or animation; destitute of life, or rapidity of volition or action; indolent; slow; tedious; sluggish; wearisome; dilatory; stupid; as, a *heavy* manner, a *heavy* gait, a *heavy* book, *heavy* eyes, a *heavy* sermon.

"A *heavy,* dull, degenerate mind."— *Dryden.*

—Great; strong; forcible; violent; tempestuous; abundant; copious; swelling or rolling with great force; as, a *heavy* gale, a *heavy* sea, a *heavy* fire of artillery. — Lying with weight on the stomach; not easily digested; —used in application to food: as, a *heavy* dinner. — Moist; deep; soft; miry; cloggy; clayey; — said of earth; as, a *heavy* soil, a *heavy* road, &c. — Low; deep-toned; loudly resonant; as, a *heavy* clap of thunder, a *heavy* report of cannon. — Not light; improperly raised; solid; clammy; tenacious; adhesive; as, *heavy* bread, *heavy* pastry, and the like. — Of a strong body; potent; ardent; — said of liquors, &c.; as, a *heavy* wine. — Gloomy; overcast with clouds; dark; threatening; as, a *heavy* day, a *heavy* sky. — Pregnant; enceinte; big in the family-way. (R.)

Heavy fire. (*Mil.*) A discharge of cannon, small arms, &c., kept up with but brief intermission.

Heavy metal. (*Mil.*) Guns of large calibre, dischargiug balls of proportionately large size.

(NOTE. *Heavy* is often used in composition to form a compound; as, *heavy*-laden, *heavy*-hearted, *heavy*-eyed.)

Heav'y, *adv.* With great weight. (Used in composition.)

"Come unto me all ye that labour and are *heavy*-laden." *Matt.* xi.

Heavy, (*hĕv'e,*) *a.* Suffering from the heaves; as, a *heavy* horse.

Heav'y-armed, *a.* Carrying heavy arms, as a soldier.

Heav'y-handed, *a.* Awkward; clumsy; not adroit or dexterous.

Heav'y-headed, *a.* Stupid; dull; obtuse; slow of comprehension.

Heav'y-hearted, *a.* Oppressed with sorrow; sad.

Heav'y-laden, *a.* Laden with a heavy burden.

Heav'y-spar, *n.* (*Min.*) Native sulphate of baryta; called also barite, from Gr. *barus,* heavy. It is found in crystals that are usually tabular, also massive. Its color is white, but sometimes tinged yellow, red, blue, or brown. Some varieties, from the presence of carbonaceous matters, are fetid when rubbed. *Sp. gr.* 4·3–4·8. *Comp.* Sulphuric acid 34·3, baryta 65·7. *H. S.* occurs commonly with the metallic ores, and is found in many parts of the U. S., as Cheshire, Conn., Hatfield, Mass., Perkiomen, Pa., Pillar Point, N. Y., &c. At Dufton, Eng., fine crystals are found, one of which weighed 100 lbs. It is largely used in the adulteration of white lead. When very white, the baryta improves the color of the lead and likewise preserves it from the action of vapors of sulphur which speedily blacken it.

Heazy, (*hē'zĭ,*) *a.* [A. S. *hâs.*] An English provincialism for hoarse; wheezing.

Heb'bardsville, in *Kentucky,* a post-village of Henderson co.

Hebbardsville, in *Ohio,* a post-village of Athens co., about 70 m. S.E. of Columbus.

Hebdom'adal, Hebdom'adary, *a.* [L. Lat. *hebdomadalis,* from Gr. *hebdomai,* seven days, from *hepta,* seven; Fr. *hebdomadaire.*] Consisting of seven days; occurring every seven days; weekly.

Hebdom'adary, *n.* [Fr. *hebdomadier.*] (*Eccl.*) In the Roman Catholic Church, a member of a chapter or convent, whose week it is to officiate in the choir.

Hebe, (*hē'bē*) (*Myth.*) The Greek goddess of youth, the fair daughter of Jupiter and Juno — answering to the Latin goddess *Juventas.* She was originally the cupbearer to the gods, but being superseded by Ganymede, she was employed to harness her mother's peacocks, and prepare Juno's chariot. She subsequently became the wife of Hercules, and the mother of Alexiares and Aniatus.

He'ber. Eber. (*Script.*) The son of Salah, and father of Phaleg, B. 1281, B. C.; D. at the age of 464. The name of *Hebrews* given to the Jewish nation, is derived from him.

He'ber, in *Utah,* a city, cap. of Wahsatch co., about 45 m. S. E. of Salt Lake City. *Pop.* (1895) 1,682.

Hébert, JACQUES RENÉ, one of the Jacobin leaders of the French revolution, commonly called *Père Duchêne,* from the name of his journal, B. at Alençon towards 1755, and executed on the 24th of March, 1794. He was the most brutal journalist of the period, and played a leading part in every conspiracy against the establishment of law and order, and in the detestable massacre of September, 1792. On the 10th of August preceding he had been installed among the magistrates of the people at the Hôtel de Ville, and from this period he labored to exalt the municipal authority above that of the convention. The Girondins were sacrificed in the struggle which ensued, but Robespierre and the Committee of Public Safety only awaited a proper opportunity, and arrested the party of Hébert at the very moment they were threatening a new insurrection. The followers of Hébert and Chaumette, generally called "Hebertists," were atheists, and their leaders were as obscene and cruel in outward conduct as they were irreligious in heart. The charge on which they were executed was that of endeavoring to destroy the republic by immorality.

Heb'etate, *v. a.* [Lat. *hebetare;* Fr. *hébéter.*] To dull; to blunt; to make obtuse; to stupefy; as, to *hebetate* the understanding.

—Obtuse; blunt; dull; deadened.

Hebeta'tion, *n.* [Lat. *hebetatio.*] Act of making obtuse, dull, blunt, or stupid. — State of being bluuted, dulled, or stupefied.

He'betine, *n.* (*Min.*) Same as WILLEMITE, *q. v.*

Hebra'ic, Hebra'ical, *a.* [Fr. *Hébraïque,* from L. Lat. *Hebraicus.*] Relating or pertaining to the Hebrews; denoting the language of the Hebrews.

Hebra'ically, *adv.* After the manner of the Hebrew language.

He'braism, *n.* [Fr. *Hébraisme.*] A Hebrew idiom, or peculiarity of speech.

He'braist, *n.* One versed in the Hebrew language or literature.

Hebrais'tic, *a.* Pertaining to, or resembling, Hebrew.

He'braize, *v. a.* To make Hebrew or Hebraistic; to render into the Hebrew tongue.

—*v. n.* To speak Hebrew; to conform to Hebraic speech, manners, or customs.

Hebrew, (*hē'bru,*) *n.* [Fr. *Hébreu;* Heb. *Eber,* both a proper name and a name denoting region, opposite region, or country beyond the Euphrates.] One of the descendants of Heber, or Eber; a Jew; an Israelite. — See JEWS.

—*a.* Belonging, or having refereucc to the Hebrews; as, the *Hebrew* rites and ceremonies.

He'brewess, *n.* A female Israelite; a Jewess.

He'brew Language and Literature. The Hebrew is one of the oldest and most remarkable of known languages, and is of especial interest to us, as being that in which the Old Testament Scriptures were originally written. It belongs to the so-called Canaanitish branch, or chief division of the Semitic family of languages, the other branches being the Aramaic and Arabian. It is a matter of dispute whether the *H.* language, as found in the earliest books of the Old Testament, is the dialect which Abraham brought with him into Canaau, or whether it is the common tongue of the Canaanitish nations, which Abraham only adopted from them, and which was afterwards developed to greater fulness under the peculiar moral and political influences to which his posterity were exposed. There is every reason to believe, however, that Abraham, on his entrance into Canaan, found the language then prevailing among the different tribes inhabiting that country to be in, at least, dialectical affinity with his own. For a long time, down to very recently, *H.* was universally regarded as the original language of the human race, coeval with its beginning; and that traces of it were discoverable in all subsequent tongues. The origin and progress of the Hebrew language, until it became the language of Scripture, in the time of Moses, it is impossible to determine. According to some, the veruacular dialect of Abraham himself was Aramaic, and became gradually changed by the influx of Egyptian and Arabic words, to the time of Moses. From the time of Moses down to the Captivity, a period of a thousand years, notwithstanding the existence of some isolated, but important archaisms, as in the form of the pronoun, &c., it underwent but little change. So far is this the case, that it has been used as an argument against the received antiquity of the Pentateuch. The causes, however, are to be sought in the isolated and stationary character of the Hebrews themselves, and the genius of the language, as little susceptible of change. In even the earliest canonical books of this period, the language appears in a state of mature development, with precision of syntactical arrangement and great regularity of formation. One of the most remarkable features in the later language of this period is the difference which distinguishes the diction of poetry from that of prose. The language of simple narration and history limits itself to the forms necessary to common purposes; the poets, on the other hand, made use of universal words and flexions, and harmonic arrangement of thoughts, as seen in the parallelism of members in a single verse, and in the strophic order of longer periods. The rhetorical language of the prophets moves in a more free rhythm of thought, and in longer sentences than the poets, but, in other respects, especially in its palmy state, falls in very much with it. The decline and corruption of the Hebrew language dates from the Babylonish captivity. From the time of the Assyrians, the Aramaic made great inroads upon the Hebrew; and after the power of the Israelites had been broken by long wars and captivity, the Aramaic, owing to the influence of foreign authority and foreign colonists, spread rapidly. After their return from the Captivity, Ezra and Nehemiah took care that the Hebrew, in its ancient form, should be made more familiar to the people; and they both wrote in Hebrew. Among the more strict Jews, the Hebrew was still retained, although within narrow limits, as appears from Daniel and the Maccabees. Still the progress of the Aramaic was not to be repressed; and if the ancient language was occasionally imitated, there was always a considerable admixture of the foreign idiom. From the second century on, the Hebrew was known only to the learned, while the Aramaic became the vernacular of the country. Yet, after it ceased to be the language of the people, it did not become unknown to them, as it was read in the Bible in the synagogue, and also frequently made use of by the learned among them to communicate information to those of their own faith. The earliest known character in the Hebrew writing bears a very strong resemblance to the Samaritan, both being evidently derived from the Phœnician. During the Babylonish captivity, they received from the Chaldees the square character in common use, and in the time of Ezra the old Hebrew MSS. were copied in Chaldee characters. The origin of the vowel-points is usually assigned to the 7th cent. of our era, and arose from the efforts made by the learned Jews to preserve the pronunciation of their language, when it ceased to be a spoken tongue. The minute and complex system which we now possess was gradually developed, from a few indispensable signs, to its present elaborateness. There are three kinds of Hebrew alphabets now in use, —the *square,* or Assyrian, that commonly used in print; the *rabbinical,* or mediæval, that used chiefly in commentaries and notes; and the *cursive,* which is employed in writing. There are no capital letters, and the writing is from right to left. The alphabet consists of twenty letters, or consonants, the vowels being expressed by marks above or below the letters. Five letters have a separate final form. The accents and marks of punctuation are very numerous. The Hebrew is deficient in grammatical technicalities, especially in moods and tenses of the verb, and, consequently, also somewhat in precision; but in euphony, simplicity, brevity, variety of signification, and power of poetical expression, it is hardly excelled by any tongue. The Hebrew literature is of considerable antiquity, and has claimed a high degree of attention on account of its connection with our religion. With the Hebrews, as with every other people, poetry was cultivated before prose; and in the songs of Moses and Deborah we have the earliest specimens of poetry. The Jews were preëminently a musical people. Everything calculated to excite the multitude was expressed in song; and young men and maidens emulated each other in beautiful odes at their festive gatherings. The art of poetry was taught in the schools, and their religious exercises, and worship was always conducted with singing and instrumental performances. Hebrew poetry is remarkable for its wealth of imagery, not only in the way of illustration, but also of metaphor, substituting the image for the object to be described. There is also a great desire for the symbolic, giving to abstract ideas a concrete form, and investing even inanimate objects with thoughts, feelings, and speech. Hebrew poetry is sententious, each stanza or couplet being complete in itself; so that they would admit of increase or diminution, or of a different arrangement, without destroying the unity of the whole. The poetry of the Hebrews formed so much the groundwork of their higher thinking, that it gave coloring to their historical writings, and affected their philosophical speculations. Hence arose those anthropomorphisms which to us are frequently so offensive, but which naturally connect themselves with the religious views of the Hebrews. One peculiarity of their poetry is *parallelism,* or the regularly placing beside each other symmetrically constructed propositions. The symmetry, however, is not so much external as ideal, being the same thought repeated several times in other words, or apprehended antithetically from opposite sides. All attempts to discover rhyme or metre in ancient Hebrew poetry have failed; but this may probably arise from our ignorance of the ancient pronunciation. Lyric poetry probably prevailed under David, to whom are ascribed numerous examples of song and elegy. Strong religious feelings distinguish the spirit and subject of these poems. On the other hand, Solomon, if he was the author of the writings which bear his name, inclined to a philosophic and even worldly spirit, very remote from the Jewish character. After the division of the kingdom, religion and literature alone preserved a residue of national vigor, and the prophets now became the instructors and comforters of this morally and politically degraded people. Before the unfortunate period of the Babylonish captivity, under the kings lived Jonah, Joel, Amos, Hosea, Isaiah, Micah, Obadiah, Nahum, and Habakkuk. During the captivity flourished Jeremiah, Ezekiel, Daniel, Zephaniah; and after the return, Haggai, Zechariah, and Malachi. That much must have been lost from the treasures of Hebrew literature, which was very rich, particularly in the age of Solomon, is evident from passages in the Old Testament itself. Of many of the works of the prophets, particularly those known as the minor prophets, we evidently possess only fragments. The period immediately after the return from the Babylonish captivity was of the highest importance to Hebrew literature. Learned men were appointed to make collections of the ancient writings, and the sacred Scriptures were authenticated, and arranged into a canon. When Judea was a province, under the successors of the Macedonian hero, Greek refinement, science, and philosophy spread among the Jews, and a number of errors crept into their religion, and led to the formation of different sects among them; as the Pharisees, Sadducees, Essenes, &c. The Greek language became common in Judea, and the Septuagint was used in the synagogues. During this period, and under the Romans, their literature made great progress, from the influence of the great successive schools, the most famous of which was that of the great Hillel, president of the Sanhedrim. The philo-

sophical book of Ben Sirach, and the first book of the Maccabees, are the products of the earlier part of this period; and a number of the other apocryphal writings, whose date is unknown, may probably be referred to the same time. The simultaneous literary activity of the Jews in Africa is evinced by their numerous contributions to Hellenistic poetry and history (Jason, Alexander, Polyhistar, Ezekiel, &c.), and especially to Platonic philosophy, (Aristobulus, Philo, &c.) The Roman conquest, and the persecutions which naturally followed exerted a very pernicious influence upon literature. After the desolation of Jerusalem, various other places in Palestine became distinguished for their schools of religious science, principally under the lead of the presidents of the Sanhedrim. The work of collecting, elucidating, systematizing, and further developing the decisions of the oral law, was also carried on; and these were finally converted into a written code, or compendium of teachings (*Mishna*), by the patriarch Jehudah the Holy, and his school, during the mild reign of the Antonines. To these were added the partly supplementary, partly explanatory works, Tosefta, Mekhilta, Safra, and Sifre. These works became the basis of religious study in the subsequent three centuries, in Palestine, as well as in Babylonia, where various flourishing schools existed. After new persecutions by the Christian emperors, which destroyed the schools (353) and the patriarchate (429) of Palestine, — and by the Persian kings in the latter part of the 5th century, which destroyed the schools of Babylonia, — the results of these studies were collected, though in chaotic disorder, in the two Gemaras or Talmuds (*q. v.*), — the Palestinian and Babylonian; other extant products of the time were various ethical treatises; historical, legendary, and cosmogonal writings; stories, prayers, &c. The Chaldee, often with an admixture of Hebrew, was now generally used in literary works, while the people used the various languages of the countries in which they lived. Under Mohammedan rule, particularly under the later caliphs, who favored science, the Jews enjoyed comparatively mild treatment, and their schools revived, particularly in Babylon. Numerous works, historical and ethical, were composed: the critical notes of the Masora, and the Targum of Jerusalem elaborated; Talmudical compendiums written: and medical, astronomical, and linguistic studies pursued. Scientific and literary pursuits also flourished among the Jews in Africa, who, with slight interruptions, enjoyed peace under the Saracenic princes. The Arabic was the language generally used by scholars. In the feudal states of Europe, the Jews generally enjoyed but few privileges, and were frequently subjected to the most cruel persecutions. In Spain, however, under the Moorish princes, they enjoyed civil rights, and nearly to the same extent under the Christian kings; and here they made great progress in literature and science. The most distinguished man of this time was Moses Maimonides, renowned as a philosopher, as well as a writer on law. Since that time the Jews have advanced with the surrounding nations, and have produced a number of distinguished men in almost every department of literature and science.

He'brews, (Epistle to the.) (*Script.*) One of the canonical books of the New Testament, the object of which was to prove to the Jews, from their own Scriptures, the divinity, humanity, atonement, and intercession of Christ, particularly his preëminence over Moses and the angels of God; to demonstrate the superiority of the gospel to the law, and the real object and design of the Mosaic institution; to fortify the minds of the Hebrew converts against apostasy under persecution, and to engage them to a deportment becoming their Christian profession. In this view, the epistle furnishes a key to the Old Testament Scriptures, and is invaluable as a clear elucidation and an inspired, unanswerable demonstration of the doctrine of the great atoning Sacrifice as set forth in the Old Testament institutions. The name of the writer of this epistle is nowhere mentioned. The majority of critics, however, refer it to the apostle Paul. It is also believed to have been written in Greek, at Rome, in about A. D. 63.

Hebrician, (*hē-brish'an,*) *n.* A Hebraist; one learned in the Hebrew language.

Hebrid'ean, Hebrid'ian, *n.* (*Geog.*) A native or inhabitant of the Hebrides.

—*a.* Relating or pertaining to the Hebrides.

Hebrides, (*hĕb'ri-dēs,*) or WESTERN ISLANDS. [Lat. *Ebudes Insulæ.*] A cluster of rugged and mountainous islands, on the W. coast of Scotland, in the Atlantic, extending about 180 m. in length, with an average width of 10 to 13 m. from the Butt of Lewis on the N., to the small isle of Sana, on the coast of Cantire. The various tracts or clusters of rocks, thus detached from the mainland, number in all over 300, of which 86 are inhabited. Lat. 55° 35 to 58° 34′ N., Lon. 5° to 8° W. *Area*, 2,750 sq. m. The principal of these islands are Lewis, Harris, N. Uist, S. Uist, Benbecula, Skye, Eig, Muck, Coll, Mull, Lismore, Staffa, Iona, Scalpa, and Colonsay. *Manuf.* Kelp, whisky, and cotton stuffs. The ancient Gaelic is still spoken in these islands, and it is certain that they were ruled by their own Pictish princes until the 8th century, from which time they were, during four ensuing centuries, the haunts of pirates who infested the neighboring mainland. By the gradual consolidation of the royal power, they were, though long lawless and turbulent, gradually brought under control, and the abolition of heritable jurisdictions, in 1748, finally overthrew the influence of the independent chieftains. *Pop.* 118,500.

He'brides, (New,) a group of islands in the S. Pacific, discovered by Quiros, in 1506. Capt. Cook, who surveyed most of them in 1773, gave them their name, as being the most W. of the islands of the Pacific. They extend N.W. and S.E. over 375 m., from Lat. 13° to 20° S., and Lon. 166° to 170° E. *Area*, 4,200 sq. m. The soil in the valleys is fertile, but the islands are mostly mountainous, and some have active volcanoes. Aurora, one of the most fertile, disappeared in 1871, leaving no trace. They were made a British coaling-station in 1880, practically an annexation to that kingdom. *Pop.* 130,000, mostly Papuans.

He'bron, (*Anc. Geog.,*) a town of Palestine, in the tribe of Judah, built, according to Scripture, "seven years before Zoan in Egypt" (*Num.* xiii. 22), and called originally Kirjath-arba (*Judges* i. 10), was a well-known town when Abraham "came and dwelt in the plain of Mamre, which is in Hebron," B. C. 1917 (*Gen.* xiii. 18). It was the scene of the death of Sarah, B. C. 1859 (*Gen.* xxiii. 2), and of her sepulchre in the cave of Machpelah, purchased by Abraham, of Ephron the Hittite, for 400 shekels of silver (*Gen.* xxiii. 3–20). Hebron was taken by Joshua, who "destroyed it utterly, and all the souls that were therein," B. C. 1450 (*Josh.* x. 36, 37), and bestowed its fields and neighboring villages upon Caleb, "because that he wholly followed the Lord God of Israel," B. C. 1444 (*Josh.* xiv. 13–15), but gave the town to the Levites for a city of refuge, B. C. 1443 (*Josh.* xxi. 13). David established his government here, B. C. 1047, and ruled here "seven years and six months" (2 *Sam.* v. 5). Hebron, rebuilt after the Captivity, B. C. 536, was seized by the Edomites, from whom it was wrested by Judas Maccabæus, B. C. 163–160. It was burned by an officer of Vespasian soon after the capture of Jerusalem, Sept. 8, 70, and was taken early in the 12th century by the Crusaders, from whom it reverted to the Moslems in 1187.

Hebron, in *Connecticut*, a post-town and twp. of Tolland co., 20 m. S.E. of Hartford. *Pop.* (1897) about 1,100.

Hebron, in *Georgia*, a post-village of Washington co., about 20 miles S.E. of Milledgeville.

Hebron, in *Illinois*, a post-township of McHenry co., about 60 miles N. W. of Chicago.

Hebron, in *Indiana*, a post-town of Porter co., about 14 m. S.W. of Valparaiso. *Pop.* (1897) about 750.

Hebron, in *Iowa*, a post-village of Adair co., about 45 m. S.W. of Des Moines.

Hebron, in *Kentucky*, a post-town of Boone co.

Hebron, in *Maine*, a post-township of Oxford co., about 40 m. N.W. of Portland. *Pop.* (1897) about 620.

Hebron, in *Minnesota*, a village of Nicollet co., on the Minnesota river, about 14 m. S.W. of St. Peter.

Hebron, in *New Hampshire*, a post-town of Grafton co., about 30 m. N.N.W. of Concord. *Pop.* (1890) 245.

Hebron, in *N. Y.*, a post-town and township of Washington co., 54 m. N.N.E. of Albany. *Pop.* (1897) 2,140.

Hebron, in *Ohio*, a post-village of Licking co., about 27 m. E. of Columbus.

Hebron, in *Pennsylvania*, a post-township of Potter co., about 6 miles N. of Coudersport.

Hebron, in *South Carolina*, a P. O. of Spartanburg co.

Hebron, in *West Virginia*, a post-office of Pleasants co.

Hebron, in *Wisconsin*, a post-township of Jefferson co.

He'bronville, in *Mass.*, a post-village of Bristol co.

Hec'ate. (*Myth.*) A goddess, not mentioned in Homer, but by later writers spoken of as a daughter of Perses and Asteria. Her name is the feminine form of Hecatos (the Far-shooter), applied to Phœbus, Apollo, and Helios (the Sun). In the Homeric Hymn, she aids Demeter (Ceres) in her search for Persephonê (Proserpine); in other versions of the myth she remained with the latter in the nether world. Statues were set up to her in market-places, and especially at cross-roads. In works of art she is represented sometimes as a single being, sometimes as a three-headed monster.

Hec'atolite, *n.* [Gr. *hekata*, the moon.] (*Min.*) Moonstone, a variety of OLIGOCLASE, *q. v.*

Hecatomb, (*hek'a-tōōm,*) *n.* [Gr. *hekatombe*, from *hekaton*, a hundred, and *bous*, an ox.] (*Antiq.*) A sumptuous or magnificent sacrifice, — originally consisting of the sacrifice of a hundred beasts of the same kind, at a hundred altars, by a hundred priests or sacrificers. Pythagoras is said to have sacrificed a hecatomb of a hundred oxen to the Muses, in joy and gratitude for his having discovered the demonstration of the 47th proposition of the first book of Euclid. Although a true hecatomb consisted of a hundred oxen, yet, in the time of Homer, the word had lost its real etymological meaning; it merely meant a great public sacrifice. Thus, in the *Iliad*, an allusion is made to a hecatomb of twelve oxen; to another of oxen and rams; and to another of fifty.

—In modern language, any public sacrifice of a large number of victims.

Hecatom'pedon, *n.* [Gr. *ekatompedos.*] (*Arch.*) A temple one hundred feet in length. (R.)

Hecaton'stylon, *n.* [Gr. *hekaton*, hundred, and *stylos*, pillar.] (*Arch.*) A temple with a hundred pillars.

Heck, *n.* [A.S. *häca*; Scot. *hack*; Swed. *häck*, a manger.] A kind of lobby, divided from the fireplace of old houses. (Prov. Eng.) — In some parts of England, a latticed door; also, the latch of such door. — A rack or crib for cattle, &c., to feed at. — A contrivance of lattice-work for catching fish. — An English archaism for the bend or sinuous turn of a river.

(*Weaving.*) An apparatus through which the threads of warps pass from the bobbins to the warping-mill, and by means of which they are separated into sets for the heddles.

Half-heck, the lower half of a door. (Prov. Eng.) — *Heck-board*, the board laid in a cart's bottom. — *Heck-frame*, the frame-work which holds the heck in warping.

Heck'er, FRIEDRICH, B. 1811, was one of the principal leaders in the Badish insurrection of '48, and member of the provisional govt., afterwards colonel in the U. S. A. during the late Civil War. D. 1881.

Heck'er, in *Illinois*, a post-village of Monroe co.

Heckle (*hĕk'l*), *n.* and *v. a.* See HACKLE.

Heck'sherville, in *Pennsylvania*, a post-village of Schuylkill co., about 6 m. W. of Pottsville.

Heck'town, in *Pennsylvania*, a post-village of Northampton co., about 55 m. N. of Philadelphia.

Hecla, (*hek'la.*) a volcanic mountain in the S. of Iceland, about 20 m. from the coast, is of a conical shape (Fig. 1259), and stands isolated. Its snow-clad summit is 5,110 feet high. The principal crater, when visited by Sir George Mackenzie, was about 100 feet deep, and contained a large quantity of snow in the bottom. There are many small secondary craters near the summit. The sides of the mountain are broken by numerous deep ravines, forming channels for mountain-torrents which are produced by the melting of the snow. The principal rocks are lava and basalt, covered with the loose stones, scoriæ, and ashes ejected from the volcano. The



Fig. 1259. — MOUNT HECLA, (ICELAND.)

view from the summit is very desolate and wild. "Fantastic groups of hills, craters, and lava, leading the eye to distant snow-covered joknls; the mist rising from a waterfall; lakes embosomed amid bare, bleak mountains; an awful and profound slumber; lowering clouds; marks all around of the furious action of the most destructive of the elements, give to the region a character of desolation scarcely to be paralleled." There are nearly fifty recorded eruptions of this volcano, the one of 1783 being the most terrible; the matter then thrown out filled up mountain-glens 600 feet deep, as well as many lakes and river-courses. In the eruption of 1845–6, a stream of lava from the large crater was 50 feet deep and 1 mile wide; stones of enormous size were also ejected, and the ashes borne as far as the Orkney Isles.

Hec'la (or HECKLY) **Works,** in *N. York*, a post-village of Oneida co., about 105 m. W. by N. of Albany.

Hec'tare, *n.* [Fr., from Gr. *hekaton*, hundred, and Lat. *area*.] A French land-measure = 100 sq. metres = 11,960 yards = 2,471 acres.

Hec'tic, Hec'tical, *a.* [Gr. *hektikos* — *hexis*, habit of body, from *echō*, *hexō*, to have.] Habitual; constitutional; pertaining to hectic; as, a *hectic* fever. — Affected with hectic disease or fever.

"No *hectic* student scares the gentle maid." — *Taylor.*

—*n.* (*Med.*) A protracted or habitual fever, but generally applied to that intermittent fever which usually occurs in the latter stages of consumption. It is commonly characterized by morning and evening paroxysms, with intermediate remissions; but the evening paroxysm is usually the most marked. Towards evening, as the paroxysm comes on, the listless, languid manner which prevailed during the day becomes changed, the eyes brighten, the conversation becomes animated, and the cheeks assume a beautiful flush. This may continue for five or six hours, when the manner and appearance of the patient become entirely changed, the hectic flush passes away, and a chill spreads over the entire frame; followed by a profuse perspiration, which leaves the patient utterly prostrate. Day after day the sad story is repeated, the patient is gradually reduced in body and strength, and at length dies exhausted. — See CONSUMPTION.

Hec'tically, *adv.* Habitually; constitutionally; in a hectic manner.

Hec'togram, Hec'togramme, *n.* [Fr. *hectogramme*, from Gr. *ekaton*, and *gramma*, a gramme.] A French measure of weight = 100 grains = 1,543·4 English grains.

Hectolitre, (*hek-to-lē'tr,*) *n.* [Fr., from Gr. *hekaton*, and *litra*, a pound. See LITRE.] A French measure of volume = 100 litres = 6,102·8 English cubic inches.

Hectome'ter, Hectom'eter, *n.* [From Gr. *hekaton*, and *metron*, measure.] See HECTOMETRE.

Hectometre, (*hĕk-to-mā'tr,*) *n.* [Fr., from Gr. *hekaton*, and *metron*, measure. See METRE.] A French measure of length = 100 metres = 3,937 English inches.

Hec'tor, the bravest of the Trojans, the son of Priam and Hecuba, and husband to Andromache. During the Trojan war he fought gloriously against the most redoubtable of the Greek warriors, Ajax and Diomede, and killed a number of their best leaders; among others Patroclus, the friend of Achilles, who was roused into

activity in order to avenge his death, and who, after chasing *H.* three times around the walls of Troy, pierced him with his spear. His body was thrown to the dogs to be devoured, but his father supplicating Achilles, it was given up to him, and was buried in Troy, where funeral sacrifices were offered to him as a hero.

Hec'tor, *n.* [From *Hector*, the son of Priam, and leader of the Trojans.] A bully: a swash-buckler; a blusterer; a noisy, turbulent fellow; one who worries, browbeats, or annoys.

"We 'll drink to this celestial *hector*." — *Prior.*

—*v. a.* To threaten; to bully; to browbeat; to act toward with insolence; hence, to torment by irritating words; to tease; to worry; to annoy.

"Fortune 's a drudge, when *hector'd* by the brain." — *Dryden.*

—*v. n.* To play the bully; to be insolent; to bluster; to act in a browbeating manner.

"Don Carlos made her chief director
That she might o'er the servants *hector*." — *Swift.*

Hec'tor, in *Indiana*, a post-village of Jay co., on the L. E. & W. R.R.

Hec'tor, in *New York*, a post-town and township of Schuyler co., on the Lehigh Valley R. R. and bordering on Seneca Lake, about 15 m. W. of Ithaca.

Hec'tor, in *Pennsylvania*, a post-township of Potter co.

Hec'torism, *n.* Practice of a bully or hector.

Hec'torly, *a.* Blustering; bullying; resembling a hector.

Hectostere (*hĕk'to-stēr*), *n.* [Fr. from Gr. *hekaton*, and *stereos*, solid.] A French measure of capacity or bulk = 100 cubic metres = 3531·741 English cubic feet.

Hed'dings, in *New York*, a P. O. of Tompkins co.

Hed'dle, *n.*; *pl.* HEDDLES. (*Weaving.*) One of the sets of parallel double threads which are arranged in sets, and, with their mounting, compose the harness employed to guide the warp threads to the lathe or batten; heald. *Heddle-eye*, is the eye or loop formed in each heddle to receive a warp thread.

Hed'enbergite, *n.* (*Min.*) A variety of Pyroxene, *q. v.*, containing lime and protoxide of iron.

Hedeo'ma, *n.* [Gr. *hedus*, sweet.] (*Bot.*) A genus of plants, order *Lamiaceæ*. The species *H. pulegioides*, the Pennyroyal, is a small, strong-scented herb, half a foot high, common in dry pastures in the N. and Middle States, and flowering all summer. It is much used as an emmenagogue, and also occasionally as a stimulant and carminative.

Hed'era, *n.* [Lat., ivy.] (*Bot.*) The Ivy, a genus of European plants, order *Araliaceæ*. *H. helix* is the well-known climbing evergreen which grows over old trees and walls. The gardeners of the last century frequently trained it into fanciful shapes, as of human figures and birds, on skeletons of wire-work. Its black berries increase during the winter, and ripen in April, furnishing food for wild pigeons and song-birds in the spring. Sheep eat the leaves in severe weather. Medicinally, the ivy is reputed to be diaphoretic, and its berries are emetic and purgative. There are several varieties in our gardens.



Fig. 1260. — THE COMMON IVY, (*Hedera helix.*)

Hederacious, (*hĕd-er-ā'shus,*) *a.* Resembling, relating to, or producing ivy.

Hed'eral, *a.* Pertaining to, or composed of ivy.

Hederif'erous, *a.* [Lat. *hedera*, ivy, and *ferre*, to bear.] Producing ivy.

Hed'erose, *a.* Belonging to ivy; abounding in ivy.

Hedge, (*hĕj.*) *n.* [A.S. *hege.*] The best class of fence that we have, with the exception of a stone or brick wall, and one of the most lasting safeguards against trespassers. A hedge is constructed of most kinds of trees and shrubs, but the best is, undoubtedly, one which is made of shrubs of a thorny nature, and of these, *holly* is the best plant for the purpose. The method of procedure by which hedges are formed is very simple, and consists, after the trees or shrubs have been planted, in cutting off their tops, and shortening their side-branches, by which means an undergrowth of smaller branches is obtained, and the hedge made thick and spreading; a compact mass of vegetation spreading in every direction, and nearly impenetrable. With *holly hedges*, however, more pains must be taken, as the ground has to be carefully prepared by manuring and trenching; the holly-shoots must also be judiciously planted after midsummer, when the soil is moist from recent rain-falls, and a convenient space must be left between the plants, in order to enable them to spread their roots, and derive ample nourishment from the soil. On account of its slow growth, holly takes a long time to mature into a good hedge, and consequently it is not so often used for the purpose as it would otherwise be. Yew forms a close and durable hedge, when well and carefully clipped, and for gardens and nursery-grounds, where shade is required as well as protection, a yew hedge is preferable to any other. Beech, lime, and hornbeam are used when high hedges and strong fences are required; also elder, which is such a rapid grower, that a complete hedge is soon obtained after planting; it has also got another merit, and that is, that cattle do not eat its branches. In gardens, *privet hedges* are more common than those composed of other shrubs, and in fields and grounds, the Osage orange, and after it the hemlock, and arbor vitæ, are the hedges which are by far the most generally adopted. In France and Holland, hedges are often trained along stakes and rods, which have been placed for the purpose; these hedges have a very light and pleasing effect, from their neatness and regularity.

Hedge, *v. a.* To inclose with a hedge; to fence with a thicket of shrubs, thorns, or small trees; to separate by a hedge; as, to *hedge* a garden. — To obstruct with a hedge, or to hedge in any manner; to interpose, as with a barrier. — To fortify; to guard; to protect; to encircle for defence; to hem in.

"There 's such divinity doth *hedge* a king." — *Shaks.*

—To inclose for preventing escape; — often before *in*.

"That is a law to *hedge in* the cuckoo." — *Locke.*

To hedge a bet. (*Sports.*) To bet for and against; that is, after making a bet on one side, to make a counter bet on the other side, thus guarding against much loss, let the result be what it may.

—*v. n.* To hide one's self, as in a hedge; to skulk; to slink out of sight.

(*Sports.*) To bet on both sides; as, I have *hedged* on the race.

Hedge'-bill, Hedg'ing-bill, *n.* A bill-hook; a cutting-hook used in topping and dressing hedges.

Hedge'-born, *a.* Of low birth, as if born under a hedge; obscure; outlandish; as, "a *hedge-born* swain." *Shaks.*

Hedge'-bote, *n.* Materials for the repairs of hedges allowed to a tenant.

Hedge'-creeper, *n.* One who skulks under hedges for evil purposes.

Hedge'hog, *n.* (*Zoöl.*) The common name of the genus of insectivorous quadrupeds *Erinaceus*, all the species of which belong to Europe and Asia. The common *H.*, though having a formidable appearance, is one of the most harmless creatures in existence. It may be thus described: — The back covered with sharp, strong spines, about an inch long, with the power of rolling itself up in a ball by means of appropriate muscles; muzzle pointed; tail short; and each foot five-toed, and armed with robust claws; the head is very conical; the ears short, broad, and rounded; the eyes prominent; the body oblong, and conical above; and the legs short, almost naked, and of a dusky color. It is about 10 inches in length, and its color is generally a gray-brown. Its close covering of sharp spines, which are firmly fixed in its tough skin, and sufficiently elastic to bear great violence without breaking, protects it from falls or blows, and as effectually secures it from the attacks of an enemy; for when molested, it instantly rolls itself into a kind of ball, and presents nothing but its prickles to the foe; and the more the animal is irritated and alarmed, the more firmly does it contract itself, and the more stiff and strong does its bristly panoply become. Thus rolled up, it patiently waits till the danger is past. The cat, the weasel, the ferret, and the marten soon decline the combat; and though a well-trained wire-haired terrier, or a fox, may now and then be found to open a *H.*, it generally remains impenetrable and secure. From this state of security, in fact, it is not easily forced, scarcely anything but cold water obliging it to



Fig. 1261. — THE HEDGEHOG.

unfold itself. — The usual food of the *H.* is beetles, worms, slugs, and snails; it is also said to devour fruit, the roots of plants, and certain other vegetable substances, while it shows itself not so restricted as has been thought in its choice of animal food — eggs, frogs, toads, mice, and even snakes occasionally, serving for its repast. The *H.* is strictly nocturnal, remaining coiled up in its retreat during the day, and wandering about nearly all the night in search of food. It generally resides in small thickets, in hedges, or in ditches covered with bushes, making a hole about 6 or 8 inches deep, which it lines with moss, grass, or leaves. The hibernation of the *H.* is undoubted; although it lays up no store for the winter, it retires to its hole, and in its warm, soft nest of moss and leaves it lies secure from the rigors of the frost and the violence of the tempest, passing the dreary season in a profoundly torpid state. The female produces from 2 to 4 young ones early in the summer, which at their birth are blind, and covered with soft white spines, which in 2 or 3 days become hard and elastic. The flesh of these animals, though generally rejected as human food, is said to possess a very delicate flavor.

(*Bot.*) See MEDICAGO.

—A kind of dredging-apparatus.

Hedge-hys'sop, *n.* (*Bot.*) See GRATIOLA.

Hedge'less, *a.* Without a hedge or hedges.

Hedge'-marriage, *n.* A clandestine marriage.

Hedge'-note, *n.* A term of contempt for mean writing.

Hedge'-pig, *n.* A young hedgehog.

"Thrice and once the *hedge-pig* whined." — *Shaks.*

Hedge'-priest, *n.* A low, illiterate priest.

Hedg'er, *n.* One who makes or repairs hedges.

Hedge'row, *n.* A row or series of shrubs, trees, or bushes, planted to form an inclosure.

Hedge'-school, *n.* In Ireland, a school kept at the side of a hedge, or in the open air.

Hedge'-sparrow, *n.* (*Zoöl.*) See ACCENTOR.

Hedge'-stake, *n.* A stake driven through a hedge as a support.

Hedg'esville, in *New York*, a P. O. of Steuben co.

Hedg'esville, in *W. Virginia*, a post-village of Berkeley co.

Hedge'-writer, *n.* A low, mean author; a poctaster; a grub-street writer.

Hedg'ing-bill, *n.* Same as HEDGE-BILL, *q. v.*

Hedg'man's River, in *Virginia*, joins Thomson's River in Culpepper co. to form the N. Fork of the Rappahannock River.

Hedjaz, (*hed'jas,*) or EL HE'JAZ, one of the five grand divisions of the peninsula of Arabia, bounded N. by the desert of Syria, E. by the Nedjd, S. by Yemen, W. by the Red Sea, and on the N.W. by Egypt. *Area*, 95,000 sq. m. *H.* is mountainous, and has on the N. the celebrated mountains Horeb and Sinai. No rivers, but some springs and wells, which dry up during the summer. *Prod.* Balm, myrrh, and frankincense, and the finest Arabian horses are raised in *H.* It is especially famous as containing Mecca and Medina, the two great objects of Mohammedan pilgrimage.

Hedon'ic, *a.* [Gr. *hedonikos.*] Belonging to pleasure.

Hedonic Sect. (*Philos.*) Same as CYRENAICS, *q. v.*

Hed'onism, *n.* (*Philos.*) The doctrines enunciated by the CYRENAICS, *q. v.*

Hed'onist, *n.* One of the Hedonic sect.

Hedyo'tis, *n.* [Gr. *hedus*, sweet, and *otos*, the ear; said to cure deafness.] (*Bot.*) The Ear-worts, a genus of plants, order *Rubiaceæ*. They are herbs, many species of which are American, and among them *H. cærulea*, the Innocence, or Dwarf Pink, an elegant little plant, found in moist grounds, fields, and road-sides. Its blossoms appear early, and are usually found in patches of considerable extent, covering the surface of the ground with a *cerulean* hue. The cauline leaves are small, opposite, lance-ovate. Stems very slender, forked, 3–5′ high, each branch bearing a flower. Corolla pale blue, yellowish at the centre.

Hed'yphane, *n.* (*Min.*) A variety of MIMETITE, *q. v.* It is mainly composed of arseniate of lead, with some phosphate and arseniate of lime.

Hedys'arum, *n.* [Gr. *hedus*, sweet, and *aroma*, smell; some of the species being fragrant.] (*Bot.*) A genus of herbaceous plants, order *Fabaceæ*.

Heed, *v. a.* [A. S. *hedan*; D. *hoeden*; Dan. *hytle*; Ger. *hüten*, to look after, to guard; Icel. *hallda*, guardianship: probably allied to Gr. *kēdomai*, to be concerned for; Sansk. *chad*, to cover.] To guard; to watch; to look to or after; to mind; to regard with care; to take notice of; to attend to; to observe.

"With pleasure Argus the musician *heeds*." — *Dryden.*

—*n.* Care; attention; caution; notice; circumspection; observation; regard.

"Thou must take *heed*, my Portius." — *Addison.*

—Fearful attention; close watch for danger; cautious scrutiny. — Serious regard; respectful notice or observation.

"No *heed* is given to what he says." — *L'Estrange.*

—*v. n.* To mind; to consider; to pay attention to.

Heed'ful, *a.* Giving heed; attentive; observing; watchful; wary; cautious; circumspect; as, *heedful* of advice, *heedful* care.

Heed'fully, *adv.* Attentively; carefully; cautiously; watchfully.

Heed'fulness, *n.* Quality of being heedful; attention; caution; watchfulness; circumspection; vigilance; wariness.

Heed'less, *a.* Inattentive; careless; remiss; negligent; thoughtless; regardless; unobserving.

Heed'lessly, *adv.* In a heedless manner; carelessly; negligently; inattentively.

Heed'lessness, *n.* Quality of being heedless; inattention; carelessness; thoughtlessness; negligence.

Heel, *n.* [A.S. *hel*; *Du. hiel*; probably allied to Gr. *hēlos*, a nail, a knot, a protuberance.] The part of the foot which protuberates behind; the hinder part of the foot, and, sometimes, the whole foot; — in man and quadrupeds. — The hinder part of a shoe, stocking, sock, &c. — Something shaped like the human heel; protuberance; a swelling; a knob; a projection. — The closing or latter part of anything, as of a legislative session. — A spur, in application to its being adjusted to the heel of a boot; as, to ply a horse with the *heel*.

(*Naut.*) The after extremity of a ship's keel. — The foot of a mast, boom, bowsprit, &c.

(*Arch.*) A cyma reversa, so called by workmen. (*Gwilt.*) — That part of a rafter which rests on the wall-plate.

To heel over. (*Naut.*) To incline to one side; as, the ship *heeled over* to port. — *Neck and heels*, the entire length of the body; as, he fell *neck and heels*. — *To go heels over head*, to turn over after the manner of a somerset; hence, to go about anything rashly or unadvisedly. — *To have the heels of*, to be the swifter of in running. — *To beat the heels of*, to follow hard upon; to pursue closely.

"Want! ugly want is *at my heels*, and chases me in view." *Otway.*

To lay by the heels, to fetter; to shackle; to imprison. — *To be out at the heels*, to wear ragged stockings on one's feet; hence, to be poverty-stricken, or in bad condition.

"A good man's fortune may grow *out at heels*." — *Shaks.*

To cool the heels, to wait; to dance attendance. — *To show the heels*, or *a pair of heels*, to flee; to escape or run from. — *To take to the heels*, to run away; to make one's escape; to betake to flight.

Heel, *v. a.* To add a heel or heels to; to furnish with heels; as, to *heel* a pair of boots. — To perform by exercise of the heels.

"I cannot sing, nor *heel* the high lavolt." — *Shaks.*

(*Sports.*) To arm with a gaff for fighting; as, to *heel* a cock.

—*v. n.* (*Naut.*) To lean over, as a ship.

Heel'er, *n.* (*Sports.*) A cock that strikes well with his heels.

Heel'-piece, *n.* A patch of leather on the heel of a boot or shoe. — Armor for the heels. — The end; as, the *heel-piece* of a book.

Heel'-post, *n.* (*Naut.*) In a steam-ship, the post which supports a screw-propeller.

Heel'-tap, *n.* A small piece of leather fixed to the heel of a boot or shoe. — A small residuum of liquor left at the bottom of a glass after drinking.

—*v. a.* To add a piece of leather to the heel of a boot or shoe.

Heel'-tool, *n.* A tool used by turners for roughing out a piece of iron, or turning it to somewhat near the intended size; it has a very acute cutting edge and an angular base or heel.

Heer, *n.* The length of two cuts of threads, linen or woollen.

Heerlen, (*hare'len,*) a town of the Netherlands, 14 m. N. of Maestricht. *Manuf.* Needles, linen, and beer; a trade of considerable extent in cattle is also carried on. *Pop.* 4,780.

Heft, *n.* [Icel. *hofgi*, weight.] Weight; ponderosity of substance. (Used as Provincial English, and colloquially in the U. States.) — The bulk of anything. (An American colloquialism.)

—*v. a.* To heave or raise up; to elevate. — To prove the weight or bulk of by lifting. (Used provincially in England, and colloquially in the U. States.)

Heft'ed, *a.* Lifted; raised; — hence, by implication, agitated; perturbed. (Used in composition.)

Hegarty's Cross Roads, in *Pennsylvania*, a post-office of Clearfield co.

He'gel, Georg Wilhelm Friedrich, a German thinker, and the founder of a new school of philosophy, b. at Stuttgart, 1770. He was professor successively at Jena, Heidelberg, and Berlin. He was at first the disciple of Schelling, with whom he was associated in the conduct of a philosophical journal in 1802–3. But his opinions gradually took a different turn. He rejected Schelling's intellectual intuition as an unwarrantable assumption, although he continued to maintain its leading idea,— the unity of the subjective or ideal, and the objective or real; and in this idea endeavored to establish that absolute cognition and absolute truth, which alone, according to this school, can satisfy the demands of the philosophical spirit. *H.* seems not to have perfected his system; and as he had no power of exposition, or of lucid expression of his thoughts, it is impossible to give a clear view of his philosophy. Indeed, it would appear that he himself had the same notion; for he is said to have remarked, that, "of all his numerous disciples, only one had ever understood him, and even he had understood him falsely." Be this as it may, his system is at present the centre of nearly all philosophical interest in Germany, chiefly from the widely discrepant deductions, political and religious, which his friends and enemies draw from it; some maintaining it to be favorable to the present order of things in Church and State, others founding upon it conclusions at variance with all ordinary notions of religion or morality. His most important works are his *Phenomenology of the Mind*; *Logic*; and *Encyclopædia of Philosophical Sciences*. D. of cholera, at Berlin, 1831.

Hege'lian, *a.* Relating, or belonging to the philosophy of Hegel.

—*n.* An adherent of Hegel's philosophical system.

Hege'lianism, He'gelism, *n.* The philosophical doctrines propounded by Hegel.

He'gins, in *Pennsylvania*, a post-township of Schuylkill co.

Hegi'ra, Heji'ra, *n.* [Ar. *hidjirah*, departure.] (*Chron.*) The æra from which Mohammedan nations compute all chronological events subsequent to the flight of Mohammed from Mecca to Medina, on the night of the 15th of July, 622. The first day of the first year of the *H.* is, therefore, the 16th of July in that year. As there are only 354 days in the Mohammedan year, it follows that 33 of their years are very nearly equivalent to 32 years according to our system of reckoning. We must, therefore, in bringing any date reckoned from the *H.* to its corresponding date according to the Christian æra, subtract 3 years from every 100 years contained in it, or, to speak more accurately, one year for every 33 years, and then add to the result the number of the year of our Lord in which the *H.* took place, less one; and in converting a date of the Christian æra into its corresponding date reckoning from the *H.*, we must reverse the process, subtracting the number of the year in which the *H.* took place, less one from it, and adding to the result one year for every 32 years contained in it. Thus, if we require the year of our Lord in which the year of the *H.* 1230 commences, we must subtract 38 from it, or 1 for every entire 33 years, and add 621 to the result, 1242, which gives 1863. If, on the other hand, we require the year of the *H.* that commences in 1863, we must subtract 621 from this amount, and to the result, 1242, add one year for every entire 32 years contained in it, which gives 1280.

Heidelberg, (*hī'del-berg,*) a celebrated city of S. Germany, in the grand-duchy of Baden, at the foot of the Kaiserstuhl, on the Neckar, abt. 12 m. above its confluence with the Rhine at Mannheim, 30 N. of Carlsruhe, and 48 m. S. of Frankfort-on-the-Main. The city is picturesquely situated in the valley of the Neckar, and is an ancient, but gloomy and ill-built place. The Schloss, or palace of the electors-palatine, is, perhaps, excepting the Alhambra, the most picturesque ruin in Europe, exhibiting as it does many varieties of mediæval architecture. In one of the cellars of this palace is the famous *tun of Heidelberg*, (constructed in 1751, and empty since 1769,) which is said to be capable of holding 283,200 bottles. The terrace and gardens command fine views, extending as far S. as the dusky outline of the Vosges. The university of *H.* is, excepting that of Prague, the oldest in Germany, having been founded by Rupert II., elector-palatine of the Rhine, in 1386. *H.* has no trade of any importance. The date of the foundation of this city is not known. The period between 1382 and the opening of the Thirty Years' War, appears to have been the æra of its greatest prosperity, for it then displayed all the splendor arising from a flourishing trade, and the residence of the court of the electors-palatine. *H.* was taken and plundered by the Bavarians in 1622; sacked by Turenne in 1674, and ravaged by the French in 1689 and in 1693. The electors removed their residences to Mannheim in 1719. *Pop.* (1895) 32,900.

Hei'delberg, in *Pennsylvania*, a township of Berks co.

—A township of Lebanon co.

—A township of Lehigh co.

—A township of York co.

Heid'lersburg, in *Pennsylvania*, a post-village of Adams co., abt. 26 m. S.S.W. of Harrisburg.

Heifer, (*hĕf'er,*) *n.* [A. S. *heafre, heafore;* probably akin to Heb. *para*, a heifer, fem. of *par*, a young bullock.] A young cow.

"No thirsty *heifers* seek the gliding flood."—*Pope.*

Heigh-ho, (*hī'hō,*) *interj.* An exclamation indicating some degree of langnor or uneasiness.

"*Heigh-ho!* an't be not four by the day, I'll be hanged."—*Shaks.*

Height, (*hīt,*) *n.* [A. S. *healtho, heatho — heah*, high. See High.] Elevation above the ground; any indefinite distance above the earth; eminence. — The altitude of an object; the distance which anything rises above its foot, basis, or foundation; as, the *height* of a spire, the *height* of a mountain. "I know she is about my *height*." (*Shaks.*) — An eminence; a summit; an elevated part of anything; a hill or mountain; any elevated ground; as, the *heights* of Abraham, Alpine *heights*. — Elevation of rank or dignity; elevation in power, learning, fame, reputation, &c.; preëminence; advanced station of social rank: prominence; distinction; as, the *height* of fame. — Furthest exertion; utmost degree of extent or force; full completion; as, the *height* of a crisis, the *height* of happiness, misery, folly, good-breeding, &c., the *height* of a gale, *height* of a fever.

"Despair is the *height* of madness."—*Sherlock.*

—Advance; degree; progress toward elevation or perfection; grade.

"Social duties are carried to greater *heights* . . . by the principles of our religion."—*Addison.*

(*Geom.*) See Altitude.

Height'en, *v. a.* To raise higher; to elevate; to make high; as, to *heighten* a house by the addition of a story. — To advance in progress toward a better state; to ameliorate; to improve; to increase in excellence; as, to *heighten* a poetical description. — To aggravate; to augment in violence, as distress; to intensify; to advance towards a worse state.

"Foreign states used their endeavors to *heighten* our confusions." *Addison.*

—To make prominent by means of contrast; to set off to advantage by touches of light or brilliant colors; to make brighter; as, to *heighten* a tint.

"O fair undress! it *heightens* ease with grace."—*Thomson.*

Height'ener, *n.* One who, or that which, heightens.

Heil, *v. a.* [A. S.] To cover; to tile. (o.)

Heilbronn, (*hīl'bron,*) a town of South Germany, in Würtemberg, near the Neckar, 25 m. N. of Stuttgart. In the outskirts of the town is a square tower, in which Götz von Berlichingen (the hero of one of Göthe's dramas) was confined in 1525. *Manuf.* Woollen cloths, hats, brandy, paper, white-lead, tobacco, &c.

Hei'ligenstadt, a town of Prussia, in Saxony, on the Leine, at its confluence with the Gaislade, 47 m. N.W. of Erfurt.

Heil'ing, *n.* See Heling.

Hei'ne, Heinrich, a celebrated German poet and litérateur, was b. of Jewish parents, in Düsseldorf, in 1800. Intended for a mercantile career, he was sent to Hamburg for the necessary training, but after several years' trial he preferred to study law, and went to the new university of Bonn, where he became a pupil and friend of August W. Schlegel. He afterwards studied at Berlin and Göttingen; became acquainted with the philosophy of Spinoza and Hegel; associated at Berlin with Varnhagen von Ense and his gifted wife, with Chamisso, Grabbe, and other leading literary characters of the day; graduated LL.D, and in 1825 renounced Judaism and professed Christianity. The change, however, was merely formal, as he had apparently no religious faith, and ridiculed all forms alike. He led an unsettled life for some years, irritated and depressed by the failure of his first literary ventures. After the French revolution of July, 1830, he settled at Paris, frequently, however, travelling in various parts of Europe. About 1835 he married a French lady, whose faithful ministrations alleviated the bitter sufferings of his last years. By an attack of paralysis in 1847 he lost the sight of one eye, and the following year he became totally blind, and subject to the severest bodily pains. From that time he was confined to his room, but endured all with singular fortitude, and continued his literary labors to the last. His best works



Fig. 1262. — HEINRICH HEINE.

are the *Buch der Lieder*, published in 1827; *Neue Gedichte*, 1844; *Romanzero*, 1851; and the *Reisebilder*, his first successful book, which appeared in 4 vols. between 1825 and 1831. Among his other writings are, *Kahldorf über den Adel; Der Salon;* the bitter personal satire *Ueber Börne; Deutschland, ein Winter-Märchen;* and *Atta Troll*. *H.* will probably be longest remembered for his songs, many of which are of exquisite beauty, and are even thought by some to rival in their delicacy and finish the earlier songs of Gœthe. *H.* D. at Paris, 1856. An English translation of his songs, by Wallis, appeared the same year. His literary remains, edited by Adolph Strodmann, were published in one vol., 1870.

Heinous, (*ha'nus,*) *a.* [Fr. *haineux — haine*, hatred, malice, from *haïr*, to hate, from obs. Lat. *odire*, pr. infin. of Lat. *odi, odisse*, to hate.] Hateful; odious; — hence, characterized by great wickedness; flagrant; enormous; aggravated; monstrous; abominable; flagitious; atrocious; as, a *heinous* sin, *heinous* sacrilege.

Hei'nously, *adv.* In a heinous manner; hatefully; monstrously; flagrantly.

Hei'nousness, *n.* State or quality of being heinous; hatefulness; odiousness; enormity; as, the *heinousness* of a crime.

Hein'tzelman, Samuel P., an American general, b. in Pennsylvania, 1807, was admitted as a cadet at West Point in 1822. After passing through the subordinate grades until he became captain, he served during the Mexican war, obtained the rank of major in 1847, and served in California. In 1861 he was brevetted lieut.-colonel for meritorious services against the Indians, and was ordered to Washington, to take the position of inspector-general of the forces. In May, 1861, *H.* was commissioned colonel of the 17th regular infantry, and commanded a division of Gen. McDowell's army at Bull Run, July 21st, where he was wounded. Afterwards promoted brig.-general of volunteers. *H.*, during the organization of the army in the winter of 1861–2, held command of a division. On the moving of the army of the Potomac in March, 1862, the third army corps was placed under Gen. *H.*'s command. In the same year he was promoted to the rank of maj.-general of volunteers for his gallantry at the battle of Seven Pines, and commanded his corps during the battles of the latter days of Gen. Pope's unsuccessful campaign in Virginia. *H.*'s corps formed the right wing of Pope's army at the second battle of Bull Run, Aug. 30, 1862. During the Maryland campaign he held command of the defences at Washington, and was afterwards appointed to the command of the Department of Washington, and of the 22d army corps, which he held during the battles of Chancellorsville and Gettysburg, in May and July, 1863. Retired in February, 1869, with the rank of major-general, U. S. A. Died May 1, 1880.

Heir, (*ār,*) *n.* [O. Fr. *heir, here;* Lat. *heres.*] (*Law.*) He who is born or begotten in lawful wedlock, and upon whom the law casts the estate in lands, tenements, or hereditaments immediately upon the death of his ancestor. — *Heir-apparent*, he who (by law or custom) must succeed, by descent, to the hereditaments, if he survive the present holder. — *Heir-presumptive*, he who stands nearest in succession in the present circumstances, but whose rights may be defeated by the contingency of some nearer heir being born.

—One who inherits or takes from an ancestor; or who receives anything from another, in the manner of an heir; as, the *heir* of a glorious race, the *heirs* of shame.

—*v. a.* To inherit; to take possession of an estate or inheritance after the death of the ancestor. (R.)

Heir-appar'ency, *n.* State or position of being an heir-apparent.

Heir'dom, *n.* State of an heir; succession by inheritance.

Heir'ess, *n.* A female heir, or a female who inherits an estate.

Heir'less, *a.* Without, or wanting an heir.

Heir'loom, *n.* [*Heir*, and A. S. *loma*, *geloma*, a loom, household stuff, furniture, utensils, &c. See LOOM.] (*Law.*) A term applied to such goods and persoual chattels as, contrary to the nature of chattels, go by the special custom of a particular place to the heir, together with the inheritauce, and not to the executors or administrators.

Heir'ship, *n.* The state, character, or privileges of an heir; right to succeed to au inheritance.

Heis'ter, LORENZ, a German surgeon, B. at Frankfort-on-the-Main, 1683. He became physician-general to the Dutch military hospital; and in 1710 was professor of anatomy and surgery at Altorf. From thence he removed to Helmstadt, where he died, 1758. *H.* was the founder of the new German system of surgery, in which through him great improvements were made. His chief work is the *Chirurgie* (Nuremb., 1718), which was the standard work for many years, and was translated into all the languages of Europe.

Heis'tersburg, in *Pennsylvania*, a P. O. of Fayette co.

Heji'ra, *n.* See HEGIRA.

Hel'amys, *n.* [Gr. *hellos*, a fawn, and *mys*, mouse.] (*Zoöl.*) The *Jumping-hare*, an animal which constitutes a genus of mammalia of the ord. *Rodentia*, allied to the Jerboas. The head is large, the tail long, the fore-legs are very short in comparison with the hinder. They have four molars, each composed of two laminæ; their lower incisors are truncated; the fore-feet have five toes, furnished with long pointed nails; the hind-feet have four toes, which are separated as far as the bones of the metatarsus, and furnished with large claws, almost resembling hoofs. The species *Helamys caffer* is pale fulvous, with a long tufted tail, black at the tip. It is as large as a rabbit, and, liko it, inhabits deep burrows. Figure 1263 exhibits one about to spring, while another is at the mouth of its burrow.



Fig. 1263. — AFRICAN JUMPING-HARE. (*Helamys caffer.*)

Held, *imp.* and *pp.* of HOLD, *q. v.*

Hel'der, (The,) a maritime town of Holland, on a spit of land opposite the Texel, 40 m. N. by W. of Amsterdam; Lat. 52° 57′ 42″ N., Lon. 4° 44′ 55″ E. Being important from its position, commanding the *Mars-Diep*, or channel to the Zuyder-Zee, and having almost the only deep-water harbor on the Dutch coast, it is strongly fortified. It has some manufactures, and connects with Amsterdam by the Helder canal, the finest in Holland. The famous Van Tromp was killed in a sea-fight off The *H.* in 1653, and the British captured it in 1799. *Pop.* (1897) about 23,500.

Hel'derbergs, in *New York*, a ridge of the Catskill Mountains, in Schoharie and Albany cos. The Helderberg rocks of the Upper Silurian geological period take their name from formations found in this range. See GEOLOGY; HELDERBERG FORMATION.

Hel'en. (*Myth.*) The daughter of Jupiter and Leda, of Jupiter and Nemesis, or of the king Tyndarens and Leda, his wife, according to the various statements of the poets, was the most beautiful woman of her time, and married to Menelaus, king of Sparta. Her guilty elopement with Paris, one of the sons of Priam, king of Troy, who had been sent to Lacedæmon as ambassador, led to the Trojan war, and the destruction, after a 10 years' siege, of Troy. Upon the death of Paris, she married his brother Deiphobus, and when the city was at last sacked, returned to Sparta with her husband Menelaus. Being banished from Sparta on the death of Menelaus, she retired to the island of Rhodes, where, having excited the envy of Polyxo, the queen of the isle, she was tied to a tree and strangled.

Hel'en, in *Minnesota*, a township of McLeod co.

Hele'na, *n.* (*Meteor.*) See CASTOR AND POLLUX.

Hele'na, (St.,) the mother of Constantine the Great, was of obscure birth in Bithynia. Constantius Chlorus fell in love with her, and married her, while in that country; but when he became associated with Diocletian in the empire, he divorced Helena, and married Theodora, daughter of the Emperor Maximianus. Constantine, at his accession, paid due honors to his mother, and conferred on her the title of Augusta. At the age of 80 she went to Palestine, where, it is said, she assisted in the discovery of the Holy Cross; soon after which she died.

Hele'na, (St.,) a precipitous and lone island in the Atlantic Ocean, belonging to Great Britain, and lying 800 m. from the island of Ascension, 1,200 m. from the coast of Bengnela, South Africa, and 2,000 m. from the coast of S. America, in 15° 55′ S. latitude, and 5° 43′ W. longitude. Saint Helena occupies an area of 47 sq. m., and is almost everywhere surrounded by rugged, perpendicular rocks, rising from 600 to 1,200 feet, here and there broken through by chasms extending to the seashore. The most important of these rifts is St. James' Valley, on the north-west, terminating in James Town, the only port or harbor in the island, and the residence of all the authorities. The town is so strongly defended, both by nature and art, that it may defy invasion. The interior is fertile, and covered with gardens, orchards, and plantations, and the climate so remarkably healthy, that invalids from India retire to it for the benefit of their health. Diana's Peak, the highest point in the island, is 2,693 feet above the sea. The total population, including Europeans, the garrison,



Fig. 1264. — JAMESTOWN, (ST. HELENA.)

Chinese, and negroes, is about 5,000. St. Helena derives its only importance from its being on the direct route from the E. Indies to Europe; but its imperishable celebrity is due to its having been the place of confinement in which Napoleon I., under the guard of England, agonized from 1815 to 1821. Longwood, where he died, is at the E. part of the island, and situate 2,000 feet above sea. His remains lay here, also, till 1849, when, by permission of the English government, they were conveyed to France.

Hele'na, in *Arkansas*, a city, cap. of Phillips co., on the Mississippi river, 80 m. below Memphis, and 700 m. above New Orleans. *Pop.* about 3,500. A battle took place here, July 4, 1863, between a force of 8,000 Confederates, under Gen Holmes, and one of Nationals, commanded by Gen. Prentiss, in which, after some hours of desperate contest, the former retreated with a total loss of 1,696 men. *Pop.* (1897) about 5,300.

Hele'na, in *Kentucky*, a post-village of Mason co., about 10 m. S.E. of Maysville.

Hele'na, in *Minnesota*, a post-township of Scott co., about 15 m. S. of Shakopee.

Hele'na, in *Montana*, a thriving city, cap. of the State, on the Nor. Pac. and Gt. Northern R.Rs., 115 m. N. of Virginia City, and 17 m. W. of the Missouri river. Here are rich gold mines, also silver and iron: quartz-crushers, flour and lumber mills. *Pop.* (1890) 13,834; (1897) about 20,000.

Hele'na, in *New York*, a post-village of St. Lawrence co., on St. Regis river, about 33 m. N.E. of Canton.

Hele'na, in *Texas*, a post-village of Karnes co., on the San Antonio river, about 56 m. S.E. of San Antonio.

Hel'en Furnace, in *Penna.*, a P. O. of Clarion co.

Hele'nium, *n.* (*Bot.*) A gen. of plants, ord. *Asteraceæ*. The American Sneeze-wort, *H. autumnale*, is a very little plant, in damp places, with a stem 2 to 3 feet high, branching; leaves tapering to each end; flowers large, numerous, terminal, with drooping rays, each ending in 3 obtuse teeth, and longer than the larger, globose disc.

Hel'en's, (St.,) a town of England, in Lancashire, 3¼ m. E.N.E. of Prescot. *Manuf.* Plate-glass, bottles, watch-movements, chemicals, and earthenware.

Hel'enville, or HELENSVILLE, in *Wisconsin*, a post-village of Jefferson co., about 6 m. E. of Jefferson.

He'liac, Heli'acal, *a.* [Lat. *heliacus*, from Gr. *hēliakos*—*hēlios*, the sun, akin to *hēlē*, splendor, brightness.] (*Astron.*) When a star appears above the horizon, and becomes visible a short time before sunrise, its rising is said to be heliacal. In the case of a star which is close to the sun's orbit when the sun, by reason of its course along its orbit, is approaching the star, the sun rises after the star, and sets after it; but when the sun has passed the star, and is receding from it, the star begins to rise before the sun, and sets before it. When the sun is close to the star in its rising and setting, or when both bodies rise and set nearly at the same time, the latter cannot be seen on account of the superior brilliancy of the former. When, therefore, the sun is approaching the star, and the star becomes visible at its setting, just after sunset, it is said to be set heliacally; but when the sun has passed the star, and it is visible at its rising shortly before sunrise, it is said to rise heliacally.

Heli'acally, *adv.* In an heliacal manner.

Heli'ades, *n. pl.* (*Gr. Myth.*) Daughters of the Sun, who wept amber tears on the death of Phaëton.

Helian'themum, *n.* [Gr. *helios*, sun, and *anthemon*, flowers.] (*Bot.*) A genus of plants, order *Cistaceæ*. The Frost-weed or Rock-rose, *H. Canadense*, found from Canada to Florida, in dry fields and woods, is distinguished by its flowers with large bright-yellow petals, in a terminal corymb.

Heliantho'ida, *n.* (*Zoöl.*) An order of *Polyps*, embracing those which have a well-developed abactinal region, conical or cylindrical tentacles around the mouth, and the ambulacral square always open.

Helian'thus, *n.* [Gr. *helios*, the sun, *anthos*, flower.] (*Bot.*) The Sun-flower, a gen. of plants, order *Asteraceæ*. The species *H. annuus* is a well-known annual. It is appropriately named the sun-flower, as its large circular head of florets, surrounded by golden rays, forms a complete ideal representation of the sun; moreover, it never ceases to adore the sun while the earth is illuminated by his light; for when he sinks in the west, the flowers of *Helianthus* are turned towards him, and when he rises in the east, they are ready to be cherished by his first beams. Some writers on botany deny that the flowers turn with the sun; but their observations do not agree with popular experience. There are varieties of *H. annuus* with double flowers, the tubular florets being all changed into ligulate ones, like those of the ray. The pith of the stem contains nitrate of potash, and is sometimes used in the preparation of moxas. The fruits have lately been employed as an ingredient in a kind of soap called sunflower-soap. The species *H. tuberosus* produce the tubers known as *Jerusalem artichokes*, which are much eaten, like potatoes. The word Jerusalem is merely a corruption of the Italian *girasole*.

Hel'ical, *a.* [From Gr. *helix*. See HELIX.] Pertaining or relating to a helix; spiral; winding; coiled in a spiral form.

Helichry'sum, *n.* [Gr. *helios*, sun, and *chrysos*, gold.] (*Bot.*) A genus of plants, order *Asteraceæ*, and the type of that group of flowers which are called Everlastings or Immortelles. These "everlasting flowers" are in fact the flower-heads of the species of *Helichrysum* and of plants allied to it, which at one time or other have been separated. The ornamental part consists of the involucral scales, which in addition to their dry scarious durable character have acquired colors of more or less brilliancy. The common *H. bracteatum* of gardens has given rise to various Everlastings of distinct and showy colors.

Helicform, (*hē-lis'i-form,*) *a.* [Lat. *helix*, and *forma*, form.] Helical; having the form of a helix.

Helic'idæ, *n. pl.* [Gr. *helix*, a spiral.] (*Zoöl.*) The Land-snail family, containing terrestrial gasteropodous molluscs. They have a spiral shell, into which the body of the animal can be withdrawn (Fig. 1265). Most of the species pretty much resemble the common snails in their habits, feeding on vegetable substances of various kinds, and often proving troublesome to the farmer and gardener. There are 4,000 living species, and 300 fossil.

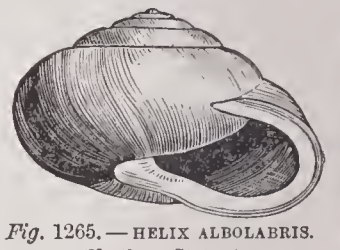


Fig. 1265. — HELIX ALBOLABRIS. (Northern States.)

Hel'icin, *n.* (*Chem.*) A compound produced by the action of dilute nitric acid upon *salicin*, q. v. It is white, slightly bitter, and soluble in hot water.

Hel'icoid, *n.* [Gr. *helikoeidēo*. See HELIX.] (*Geom.*) There are two surfaces of this name: the *developable helicoid* or *screw-surface*, whose generators are the tangents to a common helix: and the *skew helicoid*, generated by a line which moves so as always to rest on the helix and cut its axis perpendicularly. The former is simply the developable osculatrix of the helix — a developable surface, therefore, of which the helix is the cuspidal edge; the latter is a conoid having the helix for its directing curve; it is, in fact, the focus of the principal normals of the helix. The developable helicoid is circumscribed to the skew helicoid, the helix itself being the curve of contact. Every plane perpendicular to the axis of the helix cuts the developable helicoid in the involute of the circular section of the cylinder on which that helix is traced. The developable helicoid is also the *cyclifying surface* of the helix; that is to say, when the surface is unfolded into a plane, the helix becomes a circle.

Hel'icoid, Helicoid'al, *a.* Spirally curved or involuted.

Helicoid Parabola. (*Math.*) See PARABOLIC SPIRAL.

Helicom'etry, *n.* [Gr. *helikos*, a spiral, and *metron*, measure.] (*Geom.*) The art of measuring spiral lines on a plane.

Hel'icon, a mountain of Bœotia, between Lake Copais and the Corinthian Gulf. It was celebrated by ancient poets as the favorite seat of the Muses. The loftiest summit (now called *Paleovúri*) is about 5,000 feet high. At the bottom of *H.* stood the village of Askra, the residence of Hesiod, and the seat of the earliest school of poetry in Greece. In ascending the mountain from Askra (now *Pyrgáki*), the traveller passes the famous fountain of Aganippe, the waters of which were fabled to bestow inspiration. The Grove of the Muses is supposed to have been situated in a hollow at the foot of Mount Mirandáli, one of the summits of Helicon. Twenty stadia above this was the fountain of Hippocrene, probably the modern Makariotissa, where there is still a fine spring.

Helico'nian, *a.* Relating, or pertaining to Helicon.

He'liers, (St.,) a fortified seaport-town, and cap. of the island of Jersey, in the English Channel, 90 m. S. of Portland Bill, Eng., and 39 N.W. of St. Malo, on the French coast. The town stands on St. Aubin's Bay, on a slope between two rocky heights, and is tolerably well-built. *Manuf.* Unimportant. *Pop.* 32,480.

He'ling, Heil'ing, *n.* [From Icel. *hylia.*] That which covers, as a coverlet, a roof, &c. (o.)

Hel'igoland, HELIGOLAND, [anc. *Hertha,*] a strongly fortified island belonging to Germany, in the North Sea 46 m. N.W. of the mouths of the Elbe and Weser. *Area,* 5¼ sq. m. It consists of a bare, precipitous rock, without tree or shrub, and is only valuable as being an important naval station, and as commanding the N.W. coast of Germany. *H.* possesses two good harbors, and a lighthouse. The inhabitants are mostly engaged in the haddock and lobster fisheries, which are extensive.

H. was taken by the British from Denmark in 1807, and ceded to Germany in 1890. *Pop.* (1897) about 2,000.



Fig. 1266. — HELIGOLAND.

Helioeen'tric, Helioeen'trieal, *a.* [Gr. *helios*, and *kentron*, eentre.] (*Astron.*) Pertaining to, or appearing to be seen from, the sun's centre; as, the *heliocentric* place of a planet.

Heliocentric parallax. See PARALLAX.

Heliocentric place, the latitude, longitude, &c. of a planet or heavenly body. The *heliocentric latitude* of a planet is the angle of the sun's eentre, formed by the projection of its radius vector on the elliptic and the straight line drawn from the centre of the sun to the first point of Aries. Similarly, the *heliocentric longitude* of a planet is the angle formed by the straight line which joins the eentres of both planet and sun, with the plane of the eeliptic. The greatest *heliocentric latitude* is consequently equal to the inclination of the planet's orbit.

Helioeen'tric System *n.* (*Astron.*) The system which regards the sun as the eentre of our solar system. This theory was first propounded by Aristarchus of Samos, and afterwards established by Copernicus. As put forth by him, it needed only Newton's hypothesis of gravitation to complete the system of modern astronomy.

He'liochrome, *n.* [Gr. *helios*, and *chroma*, color.] A colored photograph.

Heliochrom'ic, *a.* Relating or belonging to heliochromy.

Helioch'romy, *n.* The art of produeing colored photographs.

Heliodo'rus, a native of Emesa, in Phœnieia, and who lived near the end of the 4th eentury, was bishop of Tricea, in Thessaly, but deposed towards the elose of his life. His youthful work, *Æthiopica*, a story of the loves and surprising adventures of Theagenes and Chariclea, in poetical prose, is distinguished by its strict morality from the other Greek romances. It has been frequently republished, and translated into many languages.

Heliogab'alus. See ELAGABALUS.

Heliograph, (*hē'li-o-graf,*) *n.* [See below.] A picture taken by the process of heliography.—The name given to several instruments, all of which, though differing in eonstruetion and in method, are designed to reflect solar rays with ease and quickness in any required direetion; to preseve them eonstantly in that direetion notwithstanding the (apparent) motion of the sun, and, by slightly ehanging and restoring the inclination of the mirror, to make the flashes appear and disappear in rapid sueeession to a distant observer, and so to indieate words. A HELIOTROPE, (*q. v.*) is a kind of Heliograph.

Heliograph'ie, *a.* Pertaining to heliography.

Heliog'raphy, *n.* [Gr. *helios* and *graphein*, to write.] A general name given to the art of fixing images of objeets by means of PHOTOGRAPHY, *q. v.*

Heliol'ater, *n.* [Gr. *latres*, servant.] A sun worshipper.

Heliol'atry, *n.* Worship of the sun.—See SABIANISM.

He'liolite, *n.* (*Min.*) A variety of OLIGOCLASE, *q. v.*

Heliom'eter, *n.* [Gr. *helios*, the sun, and *metrein*, to measure.] (*Astron.*) An instrument invented by the astronomer and mathematieian Bougner, about the middle of the 18th eent., for the purpose of determining the diameter of the sun, moon, and stars. It eonsists of a conical tube, fitted with two objeet-glasses of the same focal length, or a single object-glass divided into two equal parts, which are made to slide along each other in the line of seetion, by micrometer screws, in conneetion with graduated scales. The glasses are eontrived to move in a direction at right angles to the axis of the tube. When the *H.* is directed towards any heavenly body, two images are formed in the eye-glass of the instrnment, which may be made to separate entirely from each other, or coincide, at pleasure, by moviug the object-glasses by the micrometer screw. When the images coineide, the angle subtended by the diameter of the heavenly body under observation is equal to that which is subtended by the distance between the centres of the object-glasses; and as this angle and the distance between the eentres of the glasses are determinable by the graduated scales attaehed to the instrument, the diameter of the heavenly body can be determined when its distance from the observer is known, or, *vice versa*, its distance can be determined if its diameter be known.

Heliop'olis. [Gr., city of the sun.] (*Anc. Geog.*) A celebrated city of Egypt, ealled in Coptic, Hebrew, and the English version, ON, *sun*, *light*. The Seventy mention expressly that On is *H.* Jeremiah calls this city Beth-shemesh, that is, house or temple of the sun. In Ezekiel the name is pronounced *Aven*, which is the same as On. The Arabs ealled it *Ain-Shems*, fountain of the sun. All these names come from the eireumstance that the city was the ancient seat of the Egyptian worship of the sun. It was in ruins in the time of Strabo, who mentions that two obelisks had already been earried away to Rome. At present its site, 6 m. N.N.E. of Cairo, is marked only by extensive ranges of low mounds full of ruinous fragments, and a solitary obelisk formed of a single bloek of red granite, rising about sixty feet above the saud, and covered on its four sides with hieroglyphies.

Heliop'olis Syriæ. See BALBEC.

Heliop'sis, *n.* [Gr. *helios*, and *opsis*, appearance.] (*Bot.*) A genus of plants, order *Asteraceæ*. *H. lævis*, the Ox-eye, is the most conspicuous American species. It is a large, symmetrieal plant, found in hedges and thickets. Its stem is 3–5 feet high, with braneles thickened at the summit, eaeh terminating with a large, solitary, yellow head.

He'lioscope, *n.* [Gr. *helios*. and *skopein*, to view.] (*Astron.*) The name given by Scheiner to an instrument of his own invention for observing the sun without hurting the eyesight. The ordinary method is to place a disc of colored glass before the eye-piece of the teleseope.

He'liostat, *n.* [Gr. *helios*, and *statos*, standing.] (*Optics.*) An instrument invented by Gravesande for the purpose of obviating in optical experiments the inconvenienee arising from the continual change of direetion of the solar rays, by reflecting them in the same straight line. It is easy to eontrive a mechanism by which this object may be aecomplished. Snppose a elock to be placed within its dial parallel with the equator, or the axis of the index-hands parallel with the axis of the earth; and suppose further, a rod connected with the extremity of the hour-hand to meet the axis produeed and make with it the proper angle; then a mirror fixed perpendicularly to the rod will have the motion required. The *H.* is now extensively used in connection with the STEREOSCOPE, *q.v.*

He'liotrope, *n.* [Fr.; Gr. *heliotropion*, a flower which turns to the sun.] (*Bot.*) See HELIOTROPIUM.

(*Geodesy.*) An instrument by which the sun's rays ean be reflected to a considerable distance. It is used in trigonometrical surveys to transmit signals from one station to another, and to make distant stations distinguishable when they are many miles apart, that the surveyor may be enabled to determine his angular measurements with accuracy.—See GEODESY.

(*Min.*) A deep green, slightly translucent stone, eontaining spots of red jasper resembling blood, and ealled also *blood-stone*. It is a variety of quartz, containing a small pereentage of alumina and oxide of iron. In the royal collection at Paris is a bust of Christ, so earved out of this stone that the red spots represent drops of blood.

He'liotroper, *n.* The person who has charge of the heliotrope at a geodetic station.

Heliotro'pium, *n.* [Gr. *helios*, and *tropol*, I turn.] (*Bot.*) The Heliotrope, or Turnsole, a genus of plants, order *Boragineæ*. *H. Peruvianum* and *Europæum* are popular plants. They have a delieious odor, not unlike that of new hay.

Helispheric, Helispherical, (*hē-li-sfer'ik.*) *a.* [Fr. *helicospheric*, from Gr. *helios*, and *sphairikos*, spherical.] Spiral; as, a *helispherical* line.

He'lix, *n.*; *pl.* HELICES. [Gr. *helix*, a spiral, from *helissō*, to turn round or about.] A spiral line, as of wire in a coil; a circumvolution, or something that is spiral, as a winding staircase.

(*Arch.*) The curling stalks, or volutes, under the flowers in each face of the abacus of the Corinthian capital.

(*Anat.*) A term applied to the refleeted margin of the external ear.

(*Zoöl.*) See HELICIDÆ.

(*Geom.*) A non-plane enrve, whose tangents are all equally inclined to a right fixed line.—See HELICOID.

Hell, *n.* [A.S. *hyll*; D. *hel*; Fris. *hol*; Icel. *helia*, death; Ger. *hölle*; Heb. *sheol*, Orcus, the lower world.] The place or state of punishment for the wicked after death; the abode of the devil and his angels; the infernal powers.—The place of the dead, or of souls after death; the lower regions, or the grave; Hades. — A gambling-house. — A place, in certain out-door games, whither those who are caught are carried. — A place into which a tailor throws his shreds, or a printer his broken type. — Used in composition, to denote any place or sitnation of mental torment.

"Jealousy . . . the injured lover's *hell*." — *Milton.*

—A dungeon, prison, or cell; a place of durance.

Gates of Hell. (*Script.*) A metaphor, employed allusively to the power of Satan, and his infernal instruments.

Hel'lada, a river of Greece, which after a course of 50 m. enters the Gulf of Zeitoun.

Helladothe'rium, *n.* [Gr. *Hellas*, Greece, and *therion*, beast.] (*Pal.*) A fossil mammalian resembling the Giraffe, but devoid of horns. It is found in the old pliocene of France and Greece.

Hel'lam, in *Pennsylvania*, a post-township of York co.; *pop.* about 3,002.

Hellanod'ie, *n.*: *pl.* HELLANODICÆ. [Gr. *Hellanodikai*.] (*Greek Hist.*) A judge in the Olympic games; also, the title given to a judge of the court-martial in the Lacedæmonian army.

Hel'las, the original home of the Hellenes, according to the received opinion, was first a town, and afterwards, under the name of Phthiotis, a well-known district of Thessaly. The ancients, also, sometimes applied this name to the whole of Thessaly. With the spread of the Hellenic people southward, the term embraced a gradually increasing territory, until it eame to denote the whole of Middle Greece, or Greece Proper (modern *Livadia*). At a still later period, the Peloponnesus itself was included under the designation; and, finally, *H.* eame to be used, in the broadest sense, as comprehending the whole of Greece, with its islands and colonies. The HELLENES, or Greeks, as distinguished from the more ancient Pelasgians, received this name in the belief that they were deseended from a certain Hellen. This mythical personage, a son of Deucalion and Pyrrha, or, according to others, of Zens and Dorippe, and the father of Æolus, Dorus, and Xuthus, was said to have been king of Phthia, and to have ruled over all the country between the rivers Peneius and Asopus.

Hell'-bender, *n.* (*Zoöl.*) See SALAMANDRIDÆ.

Hell'-black, *a.* Black as hell; as, "*hell-black* night." *Shaks.*

Hell'-born, *a.* Born in hell.

Hell'-bred, *a.* Produced in hell; hellish; as, "the *hell-bred* beast." — *Spenser.*

Hell'-broth, *n.* A eomposition boiled up for infernal purposes.

"Like a *hell-broth* boil and bubble."—*Shaks.*

Hell'-cat, *n.* A witch; a hag; a harridan; a crone.

Hell'-doomed, *a.* Predestined, or consigned to hell. *Milton.*

Hel'le, (*Gr. Myth.*) A daughter of Athamas, and sister of Phrixus. She fell from the golden-fleeeed ram, and was drowned in the strait which, aeeording to the legend, thus received the name of Hellespont.

Hel'leborism, *n.* A preparation of hellebore, used as medicine.

Helleb'orus, *n.* [Lat., from Gr. *helleboros.*] (*Bot.*) The Hellebore, a genus of plants, order *Ranunculaceæ*, consisting of perennial European herbs, with palmately or pedately-divided leaves, of a paler green, and more rigid than in most other plants of the order. The most important speeies is *H. niger*, the black hellebore, so ealled from the color of its roots. It is a native of the shady woods of the lower mountains in many parts of Europe.



Fig. 1267. — THE HELLEBORE.

It flowers in winter, and on this account is sometimes called the White Christmas-rose. Hellebore-root is imported in bags and barrels from Hamburg, and is used medicinally as a drastic purgative. The species *H. officinalis viridis* and *fœtidus*, the Bear's-foot, possesses similar properties. The derivation of the term is from the Gr. *helein*, to destroy, and *boru*, food for cattle, — because on aeeount of its poisonous qualities it is unfit to be eaten by eattle.

Hel'leflin'ta, or **Hälleflinta,** *n.* [Swedish.] (*Min.*) False flint; a name applied to both *Albite* and *Orthoclase*, q. v.

Hel'len, the son of Deucalion and Pyrrha. See HELLAS.

Hel'len, in *Pennsylvania*, a post-village of Elk co., about 170 m. N.W. of Harrisburg.

Helle'nian, Hellen'ie, *a.* [Gr. *Hellēnikos*, *Hellēnios.*] Pertaining to the Hellenes, or inhabitants of Greeee; Greek; Greeian.

Hellen'ie, *n.* The name given to the common dialect which prevailed very generally among the Greek writers after the time of Alexander. It was formed, with very slight variations, from the pure Attie of the age preceding its introduetion.

Hel'lenism, *n.* [Gr. *Hellēnismos.*] A phrase in the idiom, genius, or construetion of the Greek language; a Greecism.

Hel'lenist, *n.* [Fr. *Helléniste*; Gr. *Hellenēstēs.*] A follower of the Greeks in language, manners, &e.; a Grecian Jew.

—A Greeian; one versed in the Greek language.

—*pl.* The name given to those Jews who, from their foreign birth or travel, used the Greek (Hellenic) language, and who are distinguished under this appellation in the Acts of the Apostles. There were great numbers of Jews scattered throughout the Roman empire at this period, more especially in the Asiatic and E. African provinces, where the Greek was the enrrent language. From their long sojourn in foreign eouutries, they were distinguished from the *Hebraists*, or native Jews, by the greater liberality of their views with respeet to the

nature of the promises in the Old Testament. It appears from *Acts* vi. 1, that these Jews retained the distinctive name of Hellenists after their conversion to Christianity, and that there continued to subsist some jealonsy between them and the native Christians.

Hellenis'tic, *a.* [Fr. *Hellénistique*] Pertaining to the Hellenists; as, *Hellenistic* Greek, *i. e.*, Greek intermingled with Hebraism.

—*n.* The name given to that dialect of the Grecian language which was used by the Jewish writers. Its peculiarities consisted in the introduction of foreign words very little disguised, but more especially of Oriental metaphors and idioms; but not at all in the inflexions of words, which were the same as in the Hellenic.

Hellenis'tically, *adv.* According to the Hellenic idiom.

Hel'lenize, *v. a.* [Gr *Hellenizein.*] To use or practise the Greek language.

Hel'lertown, in *Penna.*, a post-borough of Northampton co., on P. & R. R. R., 52 m. N. of Philadelphia.

Hel'lespont. See DARDANELLES.

Hellespon'tine, *a.* [Lat. *Hellesponticus;* Gr. *Hellespontios.*] Having reference, or pertaining, to the Hellespont.

Hell Gate, in *Montana*, a township of Missoula co. *Pop.* (1890) 5,433.

Hell Gate, or HURL GATE, in *New York*, a narrow, rocky pass in the East River, about 7 m. N.E. of the Battery. The name is a corruption of the old Dutch word HORLL-GATT, signifying *whirl-passage*, or *whirlpool strait*, which was applied to the place on account of the dangerous eddies formerly produced here at certain tides. The rocks which caused these eddies have been removed and navigation rendered safe. For full account of this operation, see HELL GATE, in SECTION II.

Hell'-hag, *n.* A hag of hell; an infernal old witch.

Hell'-hated, *a.* Abhorred as hell; as, "the *hell-hated* lie." — *Shaks.*

Hell'-haunted, *a.* Haunted by the devil, or infernal spirits.

"Bound to the fate of this *hell-haunted* grove." — *Dryden.*

Hell'hound, *n.* A dog of hell; an agent of hell. *Shaks. Milton.*

Hellin, (*hel'lan,*) a town of Murcia, in Spain, 35 m. S.E. of Albacete. *Manuf.* Hats, woollens, and linens. *Pop.* 10,814.

Hell'ish, *a.* Pertaining to hell; partaking of the infernal qualities of hell; infernal; abhorrent; wicked; detestable; as, a *hellish* deed.

Hell'ishly, *adv.* Infernally; in a manner suggestive of hell; with extreme malignity; detestably; wickedly.

Hell'ishness, *n.* The qualities of hell or of its occupants; enormity of wickedness; malignity; impiety.

Hell'-kite, *n.* A kite of an infernal breed. — *Shaks.*

Hello'ro, a range of mountains in N. Greece, being a spur of the ancient Mons Pindus; height, 5,570 ft.

Hells' Skerries, a cluster of small islands belonging to the Hebrides, 10 m. S.W. of Uist, and having an extremely rapid current running betweeu them.

Hell'ward, *a.* Toward hell. "*Hellward* turn their face." — *Pope.*

Hell'y, *a.* Having hellish characteristics.

Helm, *n.* [A.S. *helma;* Ger. *helm*, a helve, a handle, probably from *halten*, to seize, to hold; allied to *haben*, to have, to hold.] (*Naut.*) The mechanism of the steerage of a ship, comprising three distinct portions — the *rudder*, the *tiller*, and the *wheel;* though in small craft the last item is commonly wanting. To put the helm *a-starboard*, is to put the tiller over to the right side; *a-port*, to the left (or larboard) side; *up*, to the weather side; *down*, to the lee side.

—Station of government; place of direction or management.

"Patriots mann'd the ship of state.
With Chatham at the *helm.*" — *Davies.*

—The stalk of grain. See HAULM.

—*v. a.* To cover with a helmet; as, "*helmed* cherubim." *Milton.*

Helm'age, *n.* Direction; guidance; steerage. (R.)

Hel'met, or **Helm,** *n.* [A.S. *helm;* Icel. *hialmr.*] A piece of defensive armor for the head, which seems to have been worn by the soldiers of all nations from the earliest ages. The ancient casque, head-piece, or helm, was formed of various materials, but chiefly of brass, iron, or the tanned skins of beasts. The helmets of the Greeks and Romans were mostly open, and not unlike skull-caps in shape. Some had a contrivance to protect the nose, and a bar or bars from the forehead to the chin, to guard against the transverse cut of a sword. A close helmet entirely covers the head, face, and neck, having perfora-



Fig. 1268.

1 a barred helmet; 2, a morion; 3, an open head-piece; 4, an iron hat or pot.

tions in front for the admission of air, and slits through which the wearer may see the objects around him. This part, which is styled the *visor*, lifts up by means of a pivot behind each ear. The *beaver* (from *bevere*, to drink), used to enable the wearer to eat and drink, is sometimes attached to a close helmet. It covers the mouth and chin when closed, and either lifts up by revolving on the same pivots as the visor, or lets down by means of two or more pivots on each side near the jaws. Over the top of the helm rose an elevated ridge called the *crest*, which usually represented a lion, a wolf, or some other device to make the warrior appear taller and more terrible. In heraldry, the helmet is placed above and upon the shield, and usually bears the crest. For the various forms used to denote the bearer's rank or station, see art. HERALDRY.

—Anything resembling a helmet in form, situation, &c.; as, (1.) The upper part of a retort; (2.) The heavy cap of clouds hanging on the summit of a mountain, (used in some parts of England;) (3.) The hooded upper sepal of certain flowers.

Hel'me, a river of Prussia, prov. Saxony, rising in the Hartz Mountains, and falling, after a N.W. course of 45 m., into the Unstrut near Artern.

Helm'et-shaped, *a.* (*Bot.*) Having the appearance of a helmet; galeate, as certain flowers.

Helm'et-shell, *n.* (*Conch.*) A family of shells, of which there are several species, mostly found on tropical shores. They are inhabited by molluscous animals (genus *Cassis*), some of which grow to a very large size, requiring of course a corresponding magnitude of shell. The back of the Helmet-shell is convex, and the under part flat; the mouth is long and narrow; the lip is strongly serrated, and rises into a high thick border or ledge on the back; and the pillar is generally strongly toothed, and beset with small asperities. The shells of the *Cassis rufa* and other species are beautifully sculptured by Italian artists in imitation of antique cameos, the different layers of coloring-matter resembling the onyx and other precious stones formerly used for this purpose.



Fig. 1269.
HELMET-SHELL.
(*Cassis decussata.*)

Helm'holtz, HERMANN LUDWIG FERDINAND, one of the most distinguished German physiologists of the present day, born 1821, in Potsdam, is professor of physiology at Heidelberg. His scientific reputation was founded on his pamphlet, *Ueber die Erhaltung der Kraft*, (Berlin, 1847.) He is the discoverer and inventor of the Ophthalmoscope, for the examination in the ball of the eye, (1851.) His most important works are, *Handbuch der Physiol. Optik* (1856–66), and *Die Lehre von den Tonempfindungen* (1862)—two works which have created a great revolution in their departments.

Hel'mick, in *Ohio*, a post-office of Coshocton co.

Hel'minth, *n.; pl.* HELMINTHES. [Gr. *helmius*, a worm.] (*Zoöl.*) An intestinal worm. The *Helminthes* correspond to the Entozoa, or NEMATOIDS, *q. v.*

(*Min.*) A variety of *Procolorite*, q. v., occurring in slender, worm-like crystals.

Helmin'thagogue, *n.* [Gr. *helminthos*, a worm, and *agein*, to drive.] (*Med.*) Whatever destroys or expels worms.

Helminthi'asis, *n.* [From Gr. *helminthos.*] (*Med.*) A disease in which worms, or the larvæ of worms, are bred under the skin, or some external part of the body.

Helmin'thic, *a.* [Fr. *helminthique*, from Gr. *helminthos.*] Having reference to worms; tending to evacuate worms.

—*n.* A vermifuge; an anthelmintic.

Helmin'thoid, *a.* [Gr. *helmius*, worm, and *eidos*, shape.] Worm-like in structure; belonging to worms.

Helminthologi'ic, *a.* [Fr. *helminthologique.*] Belonging to worms; having reference to the history of worms.

Helminthologi'ical, *a.* (*Zoöl.*) Pertaining to worms, or their history; helminthologic.

Helminthol'ogy, *n.* [Gr. *helmius*, and *logos*, treatise.] The natural history of worms.

Helm'less, *a.* Without a helm. —Wanting a helmet.

Hel'mont, JEAN BAPTISTE VAN, a celebrated alchemist, b. at Brussels, 1577. Being rendered independent by his marriage with a lady of property in 1609, he displayed his benevolence by practising his profession gratuitously, and devoted his leisure to the studies of which his name has become such a famous representative. It is admitted that he was a great pioneer in chemical discovery, but there is also a fund of valuable truth under the obscure terms which are generally regarded as the mere conceits of his imagination. The *archeus*, for example, which makes a conspicuous figure in his works, is the mover of all the functions in the animal economy, and may be regarded as the *vital aura* which was in this century the subject of so much popular curiosity, and the ridicule of so many learned professors. It was from the archeus that Barthez derived his idea of a vital principle, and operated a revolution in physiology. The same element, or spiritual essence of life, is recognized by nearly all the old philosophers under different names, and there is now every prospect of its coming within the pale of experimental philosophy. Of course, it is not pretended to deny that Helmont's works abound in crude notions, and wild fantastic theories, but even in these cases the imaginative may often find the road to some true, and now forgotten principle, from which the author wandered away in the ignes-fatui with which he surrounded himself. Apart from all this, he was a perfect master of his art, and there is evidence of the astonishing cures he performed as a physician. He died in 1644, and in 1648 his collected works were published by his son, Francis Mercure Van Helmont, who was also a speculative writer, and lived 1618–1699.

Helms'ley, a town of England, in Yorkshire, near the Rye, 12 m. from Thirsk. *Manuf.* Cottons and linens. In its vicinity are the remains of the famous abbey of Rivaulx. *Pop.* 4,000.

Helms'man, *n.; pl.* HELMSMEN. (*Naut.*) The man at the helm of a ship; a steersman.

Helm'stadt, a town of Prussia, 21 m. E.N.E. of Brunswick. *Manuf.* Soap, alum, vitriol, chickory, tobacco-pipes, &c. *Pop.* 7,420.

Hel'mund, a river of Afghanistan, which rises 35 m. N.E. of Cabul, at a height of 11,500 feet above the level of the sea, and after a S.W. course of 400 miles, falls by several mouths into Lake Hamoun.

Helm'-wind, *n.* A wind blowing from a certain kind of cloud.—See HELM.

Heloïse, abbess of the Paraclete. See ABELARD.

Helo'nias, *n.* [Gr. *helos*, a marsh — where some species grow.] (*Bot.*) A genus of plants, order *Melanthaceæ*. They are bulbous herbs, having leaves mostly radicle, narrow, often gramineous, sheathing at base, and flowers in a terminal simple raceme. *H. dioica*, the Unicorn-root, found in low grounds from Canada S. to Georgia, is distinguished by its small, numerous greenish-white flowers, in long terminal spicate racemes.

Hel'otism, *n.* The servitude of the Helots; slavery.

Hel'otry, *n.* The Helots taken collectively; any similar class of slaves.

Hel'ots, *n. pl.* (*Gr. Hist.*) The inhabitants of the town of Helos, in Laconia, captured by the Spartans, B. C. 700, were employed either as domestic slaves, cultivators of the land, or in the public works; and, being cruelly treated, often rose in rebellion. This was the case during the great earthquake, B. C. 464, and in the Peloponnesian war, B. C. 420. The term was afterwards applied to all captives condemned to servitude.

Help, *v. a.* [A.S. *helpan;* Ger. *helfen;* Icel. *hialpa;* Goth. *hilpan;* Lith. *szelpju;* Sansk. *klep*, to become the cause of; in one of its forms *kalpayûmi.*] To lend strength or means towards effecting a purpose; to assist; to aid; to support; as, to *help* another in his work; to *help* one in the acquisition of knowledge. &c. — To succor; to relieve: as, to *help* a fellow-creature in distress, to *help* a person out of difficulty. — To cure, or to mitigate pain or disease; — frequently with *of* before the denomination of the sickness or hurt; as, "The true calamus *helps* cough."; — *Gerard.*

"Love doth to her eyes repair, to *help* him *of* his blindness." *Shaks.*

—To remedy; to change for the better.

"Cease to lament for that thou canst not *help.*" — *Shaks.*

—To hinder; to prevent; as, he cannot *help* his infirmities. —To forbear; to avoid.

"He cannot *help* believing that such things he saw and heard." *Atterbury.*

To help over, to enable to surmount.

"*Help* them presently *over* the difficulty." — *Locke.*

To help a lame dog over a stile, to assist or support one when in a difficult position, or critical emergency. (Colloq.)

To help forward, to promote by assistance rendered.

"And they *helped forward* the affliction." — *Zech.*

To help off, to remove by help. — *To help on*, to forward; to advance by aid or support, as, to *help* a deserving man *on*. — *To help up*, to raise, as after a fall; to sustain, or assist to restore; as, after his bankruptcy his friends *helped* him *up*. — *To help to*, to supply, equip, or furnish with; as, we *helped* them *to* their outfit, allow me to *help* you *to* wine. — *To help out*, to render aid in extricating from a trouble or difficulty, or in furthering a design.

—*v. n.* To lend aid; to render assistance or support; to contribute means; to furnish strength or sustenance.

"Discreet servants *help* much to reputation." — *Bacon.*

To help out, to bring a supply; to furnish succor.

Help, *n.* [A.S. *help, helpe;* Ger. *hülf, hülfe.*] Aid; assistance; succor; that which gives assistance; he or that which contributes to advance a purpose.

"His ready *help* was always nigh." — *Johnson.*

—Remedy; relief; cure. — "Something between a hindrance and a *help.*" — *Wordsworth.*

—One who helps or assists; particularly a hired laborer or domestic servant. (Used in the U. States.)

Help'er, *n.* One who helps, aids, or assists; an auxiliary; an assistant; as, a *helper* in a stable. — One who furnishes or administers a remedy, or supplies with anything wanted.

Help'ful, *a.* That gives help, aid, or assistance; that furnishes means of promoting an object; useful; auxiliary; wholesome; as, "*helpful* medicines." — *Sir W. Raleigh.*

Help'fulness, *n.* Assistance; usefulness.

Help'less, *a.* Without help in one's self; destitute of the power or means to succor or relieve one's self; destitute of support or assistance; weak; feeble; inert; as, a *helpless* infant. — Irremediable; incapable of, or beyond help. — Bringing no help. — Unsupplied; void of; destitute.

Help'lessly, *adv.* In a helpless manner: without succor.

Help'lessness, *n.* State of being helpless; want of strength or ability.

Help'mate, Help'meet, *n.* A companion who helps; an assistant; a helper; a wife.

Hel'singborg, a seaport of Sweden, on the Sound, opposite Elsinore, 33 m. N.N.W. of Malmö. *Manuf.* Earthenware and iron goods. The Sound being at this point little over three miles in width, *H.* forms the great ferry between Denmark and Sweden.

Hel'singfors, a seaport-town and cap. of Finland, on a peninsula in the Gulf of Finland, 100 m. E.S.E. of Abo; Lat. 60° 11′ N., Lon. 24° 57′ E. It has a good harbor, which can accommodate line-of-battle ships, and is defended by the almost impregnable citadel of Sweaborg, standing on a cluster of rocky islands. The town is regularly built, and possesses a university, brought hither from Abo in 1827, a library of 80,000 volumes, also from Abo; a museum, observatory, state-house, churches, and a botanical garden. *Manuf.* Sail-cloth and linens; it also carries on a trade in corn, timber, &c.

Hel'stone, a town of Cornwall, England, 15 m. S.W. of Truro, and 242 S.W. of Loudon, on the Looe. *Manuf.* Shoes, with a considerable trade in iron, coal, and tinber.

Hel'ter-skel'ter, *adv.* [Du. *holder-de-bolder*, topsy-turvy, in confusion.] A cant term denoting in hurry and confusion. (Colloquial.)

Hel'tonville, in *Indiana*, a post-village of Lawrence co., abt. 8 m. N.E. of Bedford.

Helve, *n.* [A. S. *helf*, from *healdan*, to hold.] The handle of an axe or hatchet; as, "The slipping of an axe from the *helve*." — *Raleigh*.

—*v. a.* To furnish or fit with a helve, as an axe.

Hel'vellyn, one of the highest mountains of England, on the border between Westmoreland and Cumberland, 3,313 feet above the sea.

Hel'ver, *n.* Among miners, the handle of a tool.

Hel'vetan, *n.* (*Min.*) A mineral from the gneiss rocks of the Alps, of a waxy lustre, and gray, reddish, or greenish color. It is micaceous in composition. *Sp. gr.* 2.7–3.

Helve'tia, the country inhabited by the *Helvetii*, q. v., now Switzerland.

Helve'tia, in *Penna.*, a post-office of Clearfield co.

Helve'tia, in *W. Virginia*, a post-vill. of Randolph co.

Helvet'ic, *a.* [Lat. *Helveticus.*] Pertaining to Switzerland (ancient *Helvetia*); as, the *Helvetic* Confederation.

Helvetii, *n. pl.* (*hĕl-ve'she-i,*) the name of a Celtic people, who, according to Cæsar, occupied the country between the Jura on the west, the Rhone and Lake Leman on the south, and the Rhine on the east and north. Their country thus correspouded pretty closely with the limits of ancient Helvetia, or modern Switzerland. It was divided into four districts, or *pagi*, and had twelve towns and 400 villages. Incited by one of their chiefs, Orgetorix, they determined to leave their country; burned their towns and villages; and taking with them provisions for three months, appointed a general rendezvous at Geneva, in the spring of B. C. 58. Cæsar, who was then at Rome, hurried off as quickly as possible to intercept them, and, arriving at Geneva, destroyed the bridgo over the Rhone. The *H.* sent to him soliciting a passage; but, demanding some time to consider of it, he employed the interval in raising a wall or rampart on the south side of the river. Having given a denial to their request, the *H.* attempted to break through the wall; but in this they failed. They then took another route through the country of the Sequani and Ædui, followed by Cæsar. When within eighteen miles of Bibracte (Autun), he left the rear of the *H.* and moved toward the town, in order to get supplies. On this, the *H.* faced about and attacked him, and a general engagement was the result. The *H.* fought with desperate valor, but they were at length defeated with great slaughter. Of 368,000 of the *H.* who left their homes, of whom 92,000 were fighting-men, only 110,000 returned to their own country, the rest being slain in battle, or afterwards massacred. Numerous Roman castles and colonies were planted in their land, which was known as the *Ager Helvetiorum*, until it was attached to Transalpine Gaul. Having refused to acknowledge Vitellius as emperor, they suffered severely from his generals; and after that time they almost disappear as a people.

Helve'tius, Claude Adrien, (*hel-ve'she-us,*) a French philosopher of Swiss origin, B. in Paris, 1715. The celebrity he at one time enjoyed rests on his work *De l'Esprit*, a treatise on theoretical and practical morality, in which he endeavors to prove feeling (*sensibilité*) to be the source of all intellectual activity, and that the grand lever of all human conduct is self-satisfaction. But he admits, at the same time, that self-satisfaction assumes different forms; *e. g.*, the self-satisfaction of a good man consists in the subordination of private to more general interests — first, to the circle among which he lives; then to the community; and, finally, to the world at large. *H.* was a good and keen observer; hence, the saying of Madame du Deffand, "C'est un homme qui a dit le secret de tout le monde." Besides his *Esprit*, he wrote a treatise *De l'Homme*. They are loose and wearisome in the main; and before recommending their perusal even to a student with fullest leisure, it would be fair to say, that everything good in them may be obtained at a much cheaper rate. D. 1771.

Hel'vite, Hel'vine, *n.* [Gr. *helios*, the sun, from its yellow color.] (*Min.*) A yellow mineral of vitreous lustre, from Schwartzenberg, Saxony. It is composed of the silicates of manganese, glucina, and iron, and the sulphuret of manganese. *Sp. gr.* 3·1–3·3.

Helvoetsluys, (*hel'rōōt-slois.*) a fortified city and port of Holland, on the S. shore of the island of Voorn, 16 m. S.W. by W. of Rotterdam. *H.* has an excellent harbor, and extensive dock-yards. *Pop.* 3,143.

Helwingia'ceæ, *n.* (*Bot.*) An order of plants, alliance *Garryales*. Diag. Fascicled flowers, and alternate leaves with stipules. There is but one known species in this order, *H. ruscifolia*, a shrubby plant found in Japan, where its leaves are employed as an esculent vegetable.

Hem, *n.* [A. S. *hemme;* probably akin to Gr. *hamma*, a tie, a bond, a fastening.] The border of a garment, doubled and sewed to strengthen it, and prevent the ravelling of the threads. — Edge; border; margin; confine; as, the "*hem* of the sea." — *Shaks.*

—*v. a.* To form, as a hem or border; to fold and sew down, as the edge of cloth to strengthen it; as, to *hem* a handkerchief. — To border; to edge.

To hem around, in, or *about,* to inclose; to surround; to enviror; to confine.

"*Hemmed in* to be a spoil to tyranny." — *S. Daniel.*

Hem, *n.* A particular sound uttered by the human voice, and expressed by the word *hem*, indicative of hesitatiou, incredulity, or indifference.

"I would try if I could cry *hem*, and have him." — *Shaks.*

—*v. n.* To make the sound expressed by the word *hem.*

"First he *hemm'd*, and next he haw'd." — *Davies.*

—*interj.* An exclamation whose utterance is a sort of voluntary half-cough, loud or subdued, as the emotion may suggest.

Hem'achate, *n.* [Gr. *aima*, blood, *achates*, agate.] (*Min.*) A name given by Pliny to a variety of agate, probably light colored with spots of red jasper.

Hemadrom'eter, *n.* [Gr. *aima*, blood, *dromus*, course, and *metron*, measure.] (*Physiol.*) An instrument for measuring the velocity with which the blood moves in the arteries.

Hemadynamom'eter, *n.* [Gr. *aima*, blood, *dunamis*, power, and *metron*, a measure.] (*Physiol.*) An instrument for ascertaining the presence of the blood in the arteries and veins by meaus of a graduated scale.

He'mal, *a.* [Gr. *aima*, blood.] Having reference, or pertaining to the blood, or blood-vessels.

He'mans, Felicia Dorothea, an English poetess, B. at Liverpool, 1796, D. 1845. Her chief works are, *The Forest Sanctuary; Records of Women; Scenes and Hymns of Life; The Vespers of Palermo; National Lyrics*, and *Songs for Music.* She was for a time very popular in this country, where her works have been frequently reprinted.

Hemastat'ic, Hemastat'ical, *a.* [Gr. *aima*, and *statos*, fixed.] (*Med.*) That relates to the weight of the blood.

Hemastat'ics, Hæmastatics, *n. pl.* (*Med.*) The statics of the blood and blood-vessels.

Hemateme'sis, *n.* [Gr. *aima*, and *emeo*, to vomit.] (*Med.*) A vomitiug of blood.

Hem'atherm, *n.* [Gr. *aima*, and *therma*, heat.] An animal which has warm blood.

Hem'atine, *n.* [Fr., from Gr. *aimatikos*, of the color of blood.] (*Chem.*) Tho coloring-matter of the blood.— Also the coloring principle of logwood; Hematoxylin, *q.v.*

Hem'atite, Hæmatite, *n.* [Gr *aima*, blood, from the color of its powder.] (*Min.*) The native sesquioxide of iron, Fe_2O_3. Its color varies from dark-gray to black. *Sp. gr.* 4·5–5·3. Its streak and powder are blood-red. *Comp.* Oxygen 30, iron 70. *Specular* iron is a var. of *H.* often found in fine crystals of brilliant colors. *Clay, iron, stone,* or *argillaceous H.* consists of *H.* mixed with clay, saud, and other impurities; and when of a red color and oölitic structure it is called *lenticular iron ore. Red chalk* is an earthy variety of *H.* mixed with clay. *H.* is often found in columnar or stalactitic forms and in radiated, fibrous masses. It is a valuable iron ore, requiring a stronger heat to reduce it than other ores, but yields a good quality of iron. Its powder is nsed as a coloring material, and for polishing metals. *H.* is widely diffused and yields much of the iron made in some countries. Vast quantities of it are found in the U. States, especially in northern Michigan and in Missouri, where the two mountains Pilot Knob, 650 feet high, and Iron Mountain, 200 feet high, are composed chiefly of this ore. — *Brown H.* See Limonite. — *Black H.* See Psilomelane.

Hem'atite, in *Missouri*, a post-village of Jefferson co., abt. 36 m. S. by W. of St. Louis.

Hematit'ic, *a.* Pertaining or relating to hematite; composed of or resembling hematite.

Hemat'oecle, *n.* [Fr., from Gr. *aimatos*, blood, and *kēle*, tumor.] (*Med.*) Hernia from extravasation of blood.

Hematol'ogy, *n.* [Gr. *aimatos*, and *logos*, treatise.] (*Med.*) That part of medical scieuce which pertains to or treats of the blood.

Hemat'osine, *n.* [Fr., from Gr. *aimatos.*] (*Chem.*) The red coloring-matter of the blood.

Hemato'sis, *n.* [Gr.] (*Physiol.*) The transformation of the venous blood and chyle into arterial blood by respiration.

Hematox'ylin, *n.* (*Chem.*) The coloring principle of logwood. When pure it yields transparent straw-colored crystals, which dissolve in hot water, alcohol, and ether. The aqueous solution yields with ammonia a deep reddish-purple color. With various metallic oxides it yields blue and red colors. *Form.* $C_{16}H_{14}O_6$.

Hematu'ria, *n.* [Gr. *aima*, and *ourein*, to make urine.] (*Med.*) Hemorrhage from the mucous membrane of the urinary passages, proceeding from the kidneys, bladder, or urethra. The essential symptoms are: blood, evacuated by the urethra, preceded by pain in the region of the bladder or kidneys, and accompanied by faintness. *H.* is generally ascribed to exhalation. *Active H.* requires general or local blood-letting; diluent and cooling drinks; absolute rest; and an horizontal posture. The *chronic* kind is more troublesome. It requires acidulated or aluminous drinks; chalybeates and tonics in general.

He'mel-Hemp'stead, a town of England, co. Herts, 22 m. N.W. of London, and 16 W. of Hertford. *Manuf.* Paper and straw plait; an extensive agricultural trade also prevails. *Pop.* abt. 4,500.

Hemely'tra, *n.* [Gr. *hēmi*, and *elytron*, a sheath.] The name given to the superior wings or wing-covers of Tetrapterous insects, when they are coriaceous at the base and membranous at the extremity, as in the snb-order *Hemiptera.*

Hemeralo'pia, *n.* [Gr. *hēmera*, day, and *opsis*, sight.] (*Med.*) Night-blindness. A peculiarity in the sight, in which persons see in broad daylight, but not in the evening; it is said to be endemic in some parts of Europe, and of the W. Indies. The pupil is generally more dilated and less sensible than in healthy eyes. It is sometimes relieved by tonics and gentle stimulants, with the occasional application of blisters behind the ears.

Hemerobap'tists, *n. pl.* [Gr. *hēmera*, and *baptizō*, I baptize.] (*Eccl. Hist.*) An ancient sect among the Jews, so called from washing themselves as a religious solemnity every day. It is thought by some that the Christians of St. John, or *Sabians*, descended from them.

Hemerocal'lis, *n.* [Gr. *hēmera*, the day, and *kallos*, beautiful, — flowers beautiful, but lasting only a day.] (*Bot.*) The Day-lily, a genus of perennial plants, order *Liliaceæ*, having a perianth with a bell-shaped limb, and snb-cylindrical, and globose seeds with sott *testa*. Several species are cultivated in our flower-gardens, especially the fragrant Yellow Day-lily, *H flava*, a native of Hungary and Siberia.

Hemi-. [Gr. *hēmi.*] A Greek prefix, denoting the half of anything; used in a similar sense as the Lat. *semi*, and Fr. *demi.*

Hem'icarp, *n.* [Gr. *hēmi*, and *kartos*, fruit.] (*Bot.*) A half-fruit of *Apiaceæ;* same as *Mericarp.*

Hemicra'nia, *n.* [Gr. *hēmi*, and *kranion*, the skull.] (*Med.*) A pain that affects only one side of the head. It is generally nervous or hysterical, sometimes bilious; and in both cases sometimes comes at a regular period, like an ague. When it is accompanied by a strong pulsation like that of a nail piercing the part, it is denominated *clarus.*

Hem'icycle, (*-sī'kl,*) *n.* [Gr. *hēmikyklos;* Lat. *hemicyclus.*] A semi-circle; a half-circle.

Hemidac'tyl, *n.* [Gr. *hēmi*, and *dactyl*, q. v.] (*Zoöl.*) Having an oval disc at the base of the toes, as is the case with some species of Saurian reptiles.

Hemides'mus, *n.* [Gr. *hēmi*, half; *desmos*, a bond.] (*Bot.*) A genus of plants, ord. *Asclepiadaceæ.* The root of *H. Indicus*, the Indian sarsaparilla, is used in medicine, and considered in India as an efficient substitute for true sarsaparilla in the treatment of scrofulous, syphilitic, and cutaneous affections.

Hemig'amous, *a.* [Gr. *hēmi*, and *gamos*, marriage.] (*Bot.*) A term employed in speaking of grasses, when, of two florets in the same spikelet, one is neuter and the other unisexual, whether male or female, as in *Ischæmum.*

Hemiglyph, (*hĕm'i glif,*) *n.* [Gr. *hēmi*, and *glyphē*, a piece of carving.] (*Arch.*) The half-channel at the edge of the triglyph tablet in the Doric entablature.

Hemihe'dral, *a.* [Gr. *hēmi*, and *edra*, base.] (*Crystallog.*) Applied to a crystal which has only half the number of faces required by the general law of symmetry.

Hemihe'drally, *adv.* In an hemihedral manner.

Hemihe'dron, *n.* (*Crystallog.*) A solid hemihedrally derived, as the tetrahedron.

Hemimorphic, (*hĕm-i-mor'fik,*) *a.* [Gr. *hēmi*, and *morphē*, form.] (*Crystallog.*) Said of a crystal, the two ends of which are modified with unlike plants.

Hem'ina, *n.* [Lat., from Gr. *hēmisus*, half.] (*Antiq.*) A Roman measure = the half of a sextarius = three quarters of a pint.

(*Med.*) About ten fluid ounces.

Hemioctahe'dron, *n.* [Gr. *hēmi*, and *octahedron*, q. v.] (*Crystallog.*) A tetrahedron.

Hemiolog'amous, *a.* [Gr. *hēmi*, *olos*, entire, and *gamos*, marriage.] (*Bot.*) Applied to grasses, when in the same spikelet one of two florets is neuter, and the other hermaphrodite, as in several species of *Panicum.*

Hemio'pia, Hemiop'sia, *n.* [Gr. *hēmi*, and *ōps*, the eye.] (*Med.*) A disordered vision, in which objects appear divided.

Hemiplegia, Hem'iplegy, (*hem-i-plē'je-a,*) *n.* [N. Lat. *hemiplegia, hemiplexia;* Gr. *hēmiplexia*, from *plēssu*, I strike.] (*Med.*) Paralysis of one side of the body.

Hemiprismat'ic, *a.* Half-prismatic.

(*Crystallog.*) Relating or pertaining to a half-prism.

Hemip'tera, *n. pl.* [Gr. *hēmi*, and *pteron*, a wing.] (*Zoöl.*) A sub-order of haustellated insects having their wing-covers formed of a substance intermediate between the elytra of beetles and the other ordinary membranous wings common to most insects. When the Hemiptera quit the egg, they have the appearance of small hexapod larvæ, differing but little from the perfect insect, save in the absence of wings; and before these latter are acquired, the skin is shed several times, and the larva acquires a much larger bulk. *Cicada canicularis* (Fig. 598), and the Bed-bug, *Cimex lectularius*, are examples of the family of Hemiptera.

Hemip'teral, Hemip'terous, *a.* (*Zoöl.*) Pertaining, or having reference to the hemipterans.

Hemisphere, (*hem'i-sfēr,*) *n.* [Lat. *hemispharium:* Gr. *hēmispharion.*] (*Geom.*) The half of a sphere cut off by any plane passing through the centre.

(*Astron.* and *Geol.*) The field of the heavens and the earth is divided into tho northern and southern hemispheres, by a plane passing through the equator; and the latter is also divided into the eastern and western hemispheres, by a plane passing through the 30th meridian W. of Greenwich.

(*Geog.*) A map or projection of half the terrestrial or celestial sphere on a plane.

—*pl.* (*Anat.*) The two moieties of which the cerebrum is chiefly composed; in man and mammalia they approach

the hemispheric form; but in most of the lower vertebrata, where the cranial cavity affords more room for the small brain, both moieties are spherical.

Hemispher'ic, Hemispher'ical, *a.* [Fr. *hémisphérique.*] Pertaining to, or containing a hemisphere; as, a *hemispheric* figure, a *hemispherical* body.

Hemispheroid'al, *a.* With a form or figure resembling that of a hemisphere.

Hemisphernle, (*hem-i-sfĕr'ul.*) *n.* A half-spherule.

Hemistich, (*hĕm'i-stik,*) *n.* [Gr. *hēmistichion — stichos,* a verse.] (*Lit.*) In poetry, half a verse. The unfinished verses in Virgil's *Æneid*, concerning which it is not known whether they were purposely left in that state, or are owing to the incompleteness of the poem, are usually called *hemistichs.* The *Alexandrine*, or French hemi-verse, requires a regular pause at the end of the first hemistich.

Hemistichal, (*he-mis'tik-al.*) *a.* Pertaining or relating to hemistichs; written in hemistichs.

Hem'itone, *n.* [Lat. *hemitonium;* Gr. *hemitonion.*] (*Mus.*) Same as SEMITONE, *q. v.*

Hemit'ropal, Hemit'ropous, *a.* Half-inverted; turned half-round.

(*Bot.*) Applied to an ovule, the rhaphe of which terminates about half-way between the chalaza and orifice.

Hem'itrope, *a.* [Gr. *hēmi,* and *trepō,* I turn.] Hemitropal; half-turned round.

—*n.* That which has an hemitropous structure.

(*Crystallog.*) A term applied by some crystallographers to what are usually called *twin crystals*, from their being generally conceived to result from the cutting, as it were, a crystal in half, and then turning one of the halves half-round upon the other. The plane common to the two portions of the crystal is called the *twin-plane.* These crystals are often distinguished by the presence of notches or *re-entering angles.*

Hemit'ropy, *n.* (*Crystallog.*) Twin-construction in crystals.

Hem'lo, in *Illinois*, a village of Whitesides co.

Hem'lock, *n.* [A. S. *hemleac.*] (*Bot.*) See CONIUM.

Hem'lock, in *Pennsylvania*, a village of Cambria co.

—A township of Columbia co.

Hem'lock, in *Wisconsin*, a a post-office of Clark co.

Hem'lock Grove, in *Ohio*, a post-village of Meigs co. *Pop.* (1897) about 100.

Hem'lock Lake, in *New York*, a small lake between Ontario and Livingston cos. It covers an area of about 7 sq. m.

—A village of Livingston co. (Post-office HEMLOCK).

Hem'lock Spruce, *n.* (*Bot.*) The *Abies Canadensis*, a species of tree, genus *Abies*, which forms a great part of the forests of our Northern States and of Canada, extending northward as far as Hudson's Bay. Its timber is not much esteemed, as it splits very obliquely, and decays rapidly in the atmosphere; but its bark is valued for tanning. The leaves are two-rowed, flat, and obtuse. The cones are scarcely longer than the leaves. The young trees are of very graceful appearance, but the older ones are generally much disfigured by remaining stumps of their lower branches.

Hem'mel, *n.* [Scot. *hammel.*] An English provincialism for a shed of cattle.

Hem'mingford, a post-village of Quebec, co. of Huntingdon.

Hem'ming's Safe'ty-jet, *n.* (*Phys.*) An arrangement for burning mixtures of combustible gases without danger of explosion. It consists of a brass tube, about 4 inches long, filled with closely packed straight pieces of fine brass wire. By this arrangement a series of long, narrow metallic tubes is formed, which absorbs the heat and prevents the passage of the flame to the reservoir of gas.

Hemop'tysis, *n.* (*Med.*) See HÆMOPTYSIS.

Hem'orrhage, *n.* (*Med.*) See HÆMORRHAGE.

Hem'orrhoids, *n. pl.* (*Med.*) See HÆMORRHOIDS.

Hemp, *n.* [A. S. *hænep;* Ger. *hanf;* Gr. *kannabis.*] (*Bot.*) The common name of the genus *Cannabis*, (q. v.) *Cannabis sativa*, the only species, yields the valuable fibre called *hemp*, which has been known for more than 2,500 years as a material for cordage, sacking, and cloth. In England the plant grows to the height of about 6 ft., but in warmer climates it has occasionally been found 18 feet high. The principal supplies of the fibre are derived from Russia. The fruits, commonly termed *hemp-seed*, are oleaginous and demulcent, and are used for feeding birds. When submitted to pressure, they yield about 25 per cent. of a fixed oil, which is used for making varnishes. In the sap of the hemp-plant there exists a resinous substance which has extraordinary narcotic properties. In the northern climates the proportion of this resin in the several parts of the plant is so small as to have escaped general observation; but in the warmer regions of the East the resinous substance is sufficiently abundant to exude naturally from the flowers, leaves, and young twigs. The Indian hemp, which is so highly prized for its narcotic virtues, is considered by some botanists to be a distinct variety, and is distinguished by them as *C. sativa*, var. *Indica.* This herb, and the resin obtained, are largely employed in Asia, and in some parts of Africa and S. America, for the purposes of indulgence. The whole plant dried is known by the name of *gunjah* in the markets of Calcutta. The largest leaves and seed-capsules separated from the stalks are called *bang*, *subjee*, or *sidhee.* The tops and tender parts of the plants, collected just after the flowering-time, are in some places sold under the name of *hashish.* The dried flowers, called *kief* in Morocco, contain so much of the narcotic principle that a small pipe filled with them, if smoked, will suffice to intoxicate. The dried pistils of the flower enter into the composition of the Turkish *madjoun.* The resin which naturally exudes from the leaves and flowers, when carefully collected by hand, is known as *momeea;* the same, when beaten off with sticks, is sold under the name of *churrus.* An extract obtained by the use of butter, when mixed with spices, forms the *dawamese* of the Arabs, and is the foundation of the *hashish* of many Eastern countries and districts. The dried plant is smoked, and sometimes chewed. Five or ten grains reduced to a powder are smoked from a common pipe along with ordinary tobacco, or from a water-pipe with a peculiar variety of tobacco called *tombeki.* The resin and resinous extract are generally swallowed in the form of pills or boluses. The hemp-plant and its preparations appear to have been used from very remote times. The effects of the natural resin, or *churrus*, have been carefully studied in India by Dr. O'Shaughnessy. He states that when taken in moderation it produces increase of appetite and great mental cheerfulness,



Fig. 1270. — HEMP, (*Cannabis sativa.*)
A, male infloreseenee; B, female infloreseenee.

while in excess it causes a peculiar kind of delirium and catalepsy. The effect produced by hemp in its different forms varies, like that of opium, both in kind and in degree, with the race of men who use it, and with the individual to whom it is administered. Upon Orientals its general effect is an agreeable and cheerful character, exciting them to laugh, dance, and sing, and to commit various extravagances. It, however, renders some excitable and quarrelsome, disposing them to acts of violence. It is from the extravagant behavior of individuals of this latter temperament that the use and meaning of our word "assassin" have most probably arisen, the word having been derived from *haschischin*, a hashish-eater. As a medicine, Indian hemp was tried by Dr. O'Shaughnessy in rheumatism, hydrophobia, cholera, and tetanus. In the last such wonderful cures were effected, that the hemp was pronounced an anticonvulsive remedy of the greatest value. Pereira calls it an exhilarant, inebriant, phantasmatic, hypnotic or soporific, and stupefacient or narcotic. The extract made in India, and then imported, has been found to be much stronger than that made in this country. This fact seems to prove that the plant is materially injured by the voyage. — Hemp-culture requires a rich, kindly soil, in good heart, free of weeds, and capable of enduring extremes of wet and also dry seasons, to find which the sub-soil must be examined as well as the surface. Millions of acres of fertile corn-lands in the Western States have surface-soils entirely suited to hemp-culture, but, from the retentive nature of their clayey sub-soils, hemp cannot be successfully cultivated year by year without thorough under-draining. Favorable soils are found in great perfection on the alluvial bottoms of the Mississippi and the Missouri rivers, and some of their branches. If the ground is rich, does not hold water standing on the surface after heavy rains, and in drought does not bake and crack, but has moist earth within 2 or 3 inches of the surface, it possesses the subsoil for hemp-culture. The hemp crop, which once amounted to 30,000 tons in Missouri and Kentucky, has fallen to 7,500 tons.

Hemp'-ag'rimony, *n.* (*Bot.*) The *Eupatorium Cannabinum*, a species of rough, perennial plant, genus EUPATORIUM, *q. v.*

Hemp'en, *a.* Made of hemp.

"About his neck a *hempen* rope he wears." — *Spenser.*

Hemp'field, in *Pennsylvania*, a village of Lancaster co., about 40 m. S.E. of Harrisburg.

—A township of Mercer co.

—A township of Westmoreland co.

Hemp'hill, in *Georgia*, a post-village of Fulton co.

Hemp'hill, in *Texas*, a post-village, cap. of Sabine co. *Pop.* (1897) about 335.

Hemp'ridge, in *Kentucky*, a post-office of Shelby co.

Hemp'-seed, *n.* The seed of hemp, used either as seed, or for crushing for oil, or as food for fowls.

Hemp'stead, in *Arkansas*, a S.W. co.; *area*, about 742 sq. m. *Rivers.* Red and Little Missouri rivers, and Bois d'Arc creek. *Surface*, generally level; *soil*, fertile. *Cap.* Washington. *Pop.* (1890) 22,796.

Hemp'stead, in *Georgia*, a post-office of Colquitt co.

Hemp'stead, in *New York*, a post-village and township of Queen's co., bordering on the Atlantic Ocean, 21 m. E. of New York City. *Pop.* of village (1897) 5,600.

Hempstead, in *Texas*, a city, cap. of Walker co., on on the H. & T. C. R.R., 51 m. N. of Houston. *Pop.* (1897) about 2,000.

Hemp'stead Bay, in *New York*, an arm of the Atlantic Ocean in Queen's co.

Hempstead Branch, in *New York*, a village of Queen's co., about 10 m. E. of Brooklyn.

Hempstead Harbor, in *New York.* See ROSLYN.

Hemp'y, *a.* Resembling hemp. (R.)

Hem'stitch, *n.* [*Hem* and *stitch.*] To ornament with cross-threads in clusters; as, to *hemstitch* a shirt.

Hen, *n.* [A. S. and D. *hen;* Swed. & Goth. *hona;* Ger. *henne;* Icel. *hæna*, allied to Lat. *cano*, to sing, to sound; Ar. *ghanna*, to sing.] The female of any kind of fowl; particularly, the female of the domestic fowl of the gallinaceous family.

Hen'ault, CHARLES JEAN FRANÇOIS, a French president of the parliament of Paris, historian and poet, B. 1685. *H.* is chiefly known for his *Abrégé Chronologique de l'Histoire de France*, which has been translated into most modern languages. D. 1770.

Hen'bane, *n.* [*Hen* and *bane.*] (*Bot.*) See HYOSCYAMUS.

Hen'bit, *n.* (*Bot.*) See LAMIUM.

Hence, (*hens,*) *adv.* [A. S. *heona*, *heonca*, hence; Scot. *hyne*, hence; Ger. *hin;* D. *heen*, away; Lat. *hino*, hence, from *hic;* Sansk. *hina*, this.] From this place to another.

"Discharge my followers; let them *hence* away." — *Shaks.*

—From this time; in the future; as, a year *hence.* — From this cause, ground, or reason, as a deduction or result inferred.

"*Hence* may be deduced the foree of exereise in helping digestion." *Arbuthnot.*

—From this source, origin, or cause.

"All other faees borrowed *hence* their light." — *Sir J. Suckling.*

From hence, is a pleonastic and vicious expression, but is sanctioned by the usage of various good authors.

"An ancient author prophesied *from hence.*" — *Dryden.*

(NOTE. *Hence* is used elliptically and in an imperative sense for *go hence; begone; depart hence; away; off with you*, &c.)

"*Hence*, horrible shadow! Unreal mockery, *hence!*" — *Shaks.*

Hence'forth, *adv.* From this time forth or forward.

"Be *henceforth* among the gods, thyself a goddess." — *Milton.*

Hencefor'ward, *adv.* From this time forward; henceforth.

Hen'-coop, *n.* A coop or cage for enclosing domestic fowls.

Hendec'agon, *n.* [Gr. *hendeka*, eleven, *gōnia*, angle.] (*Math.*) In geometry, a plane rectilineal figure of eleven sides. The area of a *regular* or equilateral and equiangular hendecagon is, approximately, equal to 9·36564 times that of the square on one of its sides.

Hendecasyllab'ic, *a.* Pertaining to, or consisting of a line of eleven syllables.

Hendecasyl'labic, Hendecasyl'lable, *n.* [Greek *hendeka*, and *syllabē*, a syllable.] (*Pros.*) A verse of eleven syllables. The Latin hendecasyllabic, of which the principal examples are left to us from the pen of Catullus, consists of a spondee, dactyl, and three trochees — *Passer deliciæ meæ puellæ.* The Italian heroic verse, and those of England and Germany, when increased by the addition of a final short syllable, are *iambic hendecasyllabics.* The license of adding an eleventh syllable (and sometimes also a twelfth) is more frequently admissible in English dramatic than epic versification.

Hen'derson, in *Georgia*, a post-village of Houston co.

Hen'derson, in *Illinois*, a W. co., adjoining Iowa; *area*, about 380 sq. m. *Rivers.* Mississippi and Henderson rivers, and Honey and Ellison creeks. *Surface*, undulating; *soil*, fertile. *Cap.* Oquawka. *Pop.* (1890) 9,876.

—A post-village and township of Knox co.

Hen'derson, in *Iowa*, a post-village of Mills co.

Hen'derson, in *Kentucky*, a W. co., adjoining Indiana; *area*, about 472 sq. m. *Rivers.* Ohio and Green rivers, besides some smaller streams. *Surface*, uneven; *soil*, fertile. *Cap.* Henderson. *Pop.* (1890) 29,536.

—A thriving city and R.R. center, cap. of Henderson co., on Ohio river, 12 m. below Evansville, Ind. *Pop.* (1897) about 11,200.

Hen'derson, in *Minnesota*, a post-borough and township, cap. of Sibley co., on the Minnesota river, about 55 m. S.W. of St. Paul. *Pop.* (1895) 1,006.

Hen'derson, in *Missouri*, a post-village of Webster co.

Hen'derson, in *North Carolina*, a S.W. co., adjoining South Carolina; *area*, about 360 sq. m. *Rivers.* French Broad river, and some smaller streams. *Surface*, mountainous, the Blue Ridge bounding it on the S.E.; *soil*, in some parts fertile. *County-town*, Hendersouville. *Pop.* (1890) 12,580.

—An important town, cap. of Vance co., on S. A. L. and Southern R.Rs., 44 m. N.E. of Raleigh; an extensive tobacco market. *Pop.* (1890) 4,191.

Hen'derson, in *New York*, a post-village and township of Jefferson co., on Lake Ontario, about 6 m. S.W. of Sackett's Harbor.

Hen'derson, in *Penna.*, a post-village of Mercer co.

Hen'derson, in *Tennessee*, a W. central co.; *area*, about 530 sq. m. *Rivers.* Beach and Big Sandy rivers. *Surface*, level; *soil*, fertile. *Cap.* Lexington. *Pop.* 16,336.

Hen'derson, in *Texas*, a N.E. co.; *area*, about 960 sq. m. *Rivers.* Neches and Trinity rivers. *Surface*, generally level; *soil*, fertile. *Cap.* Athens. *Pop.* 13,285.

—A post-town, cap. of Rusk co., on I. & Gr. Nor. R.R., 40 m. S.W. of Marshall. *Pop.* (1890) 1,536.

Hen'derson Har'bor, in *New York*, a post-village of Jefferson co., on Hungry Bay, an arm of Lake Ontario, about 60 m. N. of Syracuse. (See HENDERSON, in *N.Y.*)
Henderson's Cross Roads, in *Tennessee*, a post-office of Wilson co.
Henderson Springs, in *Tennessee*, a post-village of Sevier co.
Henderson Station, in *Tenn.*, a P. O. of Madison co.
Hen'dersonville, in *North Carolina*, a post-town, cap. of Henderson co., 21 m. S.E. of Asheville.
Hendersonville, in *Pennsylvania*, a village of Mercer co., about 12 m. E.N.E. of Mercer.
Hendersonville, in *S. C.*, a post-vill. of Colleton co.
Hendersonville, in *Tennessee*, a post-village of Sumner co., about 16 m. N.E. of Nashville.
Hendi'adys, *n.* [N. Lat.] (*Gram.*) A figure of speech wherein the same idea is expressed by two words or phrases.
Hend'ley, in *Nebraska*, a post-office of Furnas co.
Hen'dricks, in *Indiana*, a W. central county; *area*, about 400 sq. m. *Rivers.* Eel and White Lick rivers. *Surface*, level; *soil*, fertile. *Cap.* Danville. *Pop.* (1890) 21,498.
Hen'dricksburg, in *Pennsylvania*, a post-village of Luzerne co.
—A post-village of Montgomery co.
Hen'drick's Head, in *Maine*, a promontory and light-house at the mouth of Sheepcott River. It exhibits a fixed light 30 ft. above the sea-level.
Hen'-driver, *n.* A kind of hawk.
Hen'drysburg, in *Ohio*, a post-village of Belmont co., about 100 m. E. of Columbus.
Hen'gist, the first Saxon king of Kent, towards the end of the 5th century, was a descendant of Woden, whom the Saxons deified. *H.* and his brother Horsa, being called in by Vortigern, king of the Britons, to assist him in expelling the Picts, took with him his daughter Rowena, whom Vortigern became enamoured of, and married. *H.* then obtained the kingdom of Kent, one of the seven of the Saxon heptarchy, and in which were included Kent, Middlesex, Essex, and Surrey. D. 488.
Heng-ki'ang, a river of China, falling from the N.W. into the Yang-tse-kiang. In its course of 300 m. it has several large cities on its banks.
Hen'-harrier, Hen'-harm, *n.* (*Zoöl.*) A species of hawk, *Circus cyaneus.*
Hen'-hearted, *a.* Pusillanimous; timorous; cowardly; dastardly.
Hen'-house, *n.* A house or shelter for fowls; a hennery.
Hen'-hussy, *n.* Same as COTQUEAN, *q. v.*
Hen'le, FRIEDRICH GUSTAV JACOB, German physiologist and anatomist, born in 1809 at Fürth; was professor of anatomy and director of the anatomical institute in the University of Göttingen. As a pathologist, *H.* belonged to the so-called Physiological or Rational school. His principal work in this relation was *Handbuch der rationellen Pathologie.* Of his anatomical works may be mentioned *Handbuch der Allgemeinen Anatomie;* and chiefly his excellent *Handbuch der systematischen Anatomie des Menschen.* Died May 13, 1885.
Henley-on-Thames, a town of England, county Oxford, on the W. bank of the Thames, 22 m. S. E. of Oxford and 35 W. of London. *Manuf.* Malt. *Pop.* (1897) about 4,900.
Hen'ly, in *California*, a post-village of Siskiyou co., on the Klamath river, about 21 m. N. of Yreka.
Hen'na, *n.* (*Bot.*) See LAWSONIA.
Hennebon (*hen-bawng*), a town of France, dep. Morbihan, on the Blavet, 5 m. from L'Orient. *Pop.* 5,057.
Hen'nepin, in *Illinois*, a post-village and township, cap. of Putnam co., about 15 m. N. of Springfield. *Pop.* of village (1890) 574.
Hennepin, in *Indian Territory*, a post-office of Chickasaw Nation.
Hennepin, in *Minnesota*, an E. county; *area*, about 580 sq. m. *Rivers.* Mississippi, Crow, and Minnesota or St. Peter's rivers. *Surface*, undulating; *soil*, fertile. *Cap.* Minneapolis. *Pop.* (1895) 217,798.
Hen'nery, *n.* A place or building set apart for fowls.
Hen'niker, in *New Hampshire*, a post-town of Merrimac co., 10 m. W. by S. of Concord. *Pop.* (1890) 1,385.
Hen'ning's Mills, in *Ohio*, a post-village of Clermont co.
Hen'-peck, *v. a.* To domineer over, worry or control a husband.
"But—oh! ye lords of ladies intellectual!
Inform us truly have they not *hen-pecked* you all?"—*Byron.*
Hen'-pecked, *a.* Governed by his wife. (See the *v.*)
Henri, the French spelling of HENRY (*q. v.*).
Hen'rico, in *Virginia*, a S.E. cent. county; *area*, about 255 sq. m. *Rivers.* James and Chickahominy rivers. *Surface*, diversified; *soil*, not very fertile. *Min.* Coal in abundance. *Cap.* Richmond. *Pop.* (1890) 103,394.
Henriet'ta, ANNE, daughter of Charles I. and Henrietta Maria, born 1641. She was married to the Duke d'Orleans, and died suddenly 1669. It was then rumored that she had been poisoned at the instigation of the Chevalier de Lorraine, a favorite of her husband, who had been exiled at her request. Her funeral oration, delivered by Bossuet, is perhaps the most splendid piece of elegiac eloquence of modern times.
Henriet'ta Island, in Arctic Circle, Lat. 77° 8′ N., Long. 157° 32′ E. Discovered and named by Lieutenant De Long, U. S. N., of the *Herald* expedition, in 1881.
Henriet'ta, in *Mich.*, a post-township of Jackson co.
Henrietta, in *Missouri*, a post-office of Johnson co.
Henrietta, in *New York*, a post-township of Monroe co., about 7 m. S. of Rochester.
Henrietta, in *Ohio*, a post-township of Lorain co.
Henrietta, in *Wis.*, a post-township of Richland co.

Henriet'ta Maria, daughter of Henri IV. of France, B. 1609, married to Charles I. of England, escaped after his execution to France, and D. 1669.
Hen'-roost, *n.* A resting-place at night for domestic fowls.
Hen'ry, the name of several sovereigns of Castile, England, France, and Germany.

CASTILE.

Henry I., B. 1205, reigned 1214–1217.—HENRY II., Count de Trastamara, B. 1333, maintained a contest for the throne, which he obtained 1366–1368, D. 1379.—HENRY III., reigned 1390–1406.—HENRY IV., B. 1423, succeeded his father John II. 1454, D., and was succeeded by his sister, Isabella of Castile, 1474.

ENGLAND.

Henry I., surnamed, on account of his superior education, BEAUCLERC, was the youngest son of William the Conqueror, and was B. at Selby in Yorkshire, in 1068. Jealousies and dissensions early broke out between him and his elder brothers, Robert and William (the Red), and on the sudden, mysterious death of William II. in the New Forest, in 1100. Henry, who was hunting with him, immediately seized the crown and the public treasures, his brother Robert being not yet returned from the crusades. To strengthen his hold on the affections of his subjects, he granted a charter re-establishing the laws of the Confessor, abolished the curfew, professed a reform in his own character and manners, and married the Princess Maud, daughter of Malcolm, king of Scotland, and niece of Edgar Atheling; thus uniting the Norman and Saxon races. When Robert invaded England, in 1101, war was prevented by negotiations and the grant to Robert of a pension of 8,000 marks. In the same year began the quarrel between the king and Anselm, archbishop of Canterbury, respecting investitures. *H.*, ambitious of the crown of Normandy, invaded that country in 1105, and took Caen, Bayeux, and several other places. He completed the conquest in the following year by the defeat and capture of Robert, at the battle of Trenchebrai. In 1109 the Princess Matilda (Maud) was betrothed to the Emperor Henry V., but, in consequence of her youth, the marriage was deferred for several years. Troubles in Normandy and in Wales, and war with the king of France, occupied Henry in the next few years. In 1118 he lost his queen, Maud, and two years later his only legitimate son, the Prince William, who, with his retinue, perished by shipwreck, on the passage from Normandy to England. It is said that the king was never seen to smile again. In 1121 he married Adelais, or Alice, daughter of Geoffrey, duke of Louvain, and on the failure of his hope of offspring, he had his daughter, the Empress Maud, then a widow, acknowledged heiress to the throne. Henry died at Rouen, from the effects of gluttony, December 1, 1135.

HENRY II., first of the Plantagenet line, was the eldest son of Geoffrey, earl of Anjou, and his wife, the ex-Empress Maud, daughter of Henry I., B. at Mans, 1133. On the death of his father, 1151, he succeeded to the earldoms of Anjou, Touraine, and Maine, and in the following year, by his marriage with Eleanor of Aquitaine, the divorced wife of Louis VI. of France, he became possessor of the duchy of Aquitaine or Guienne. The same year he invaded England, but a treaty was concluded in 1153, by which it was agreed that he should succeed to the throne of England on the death of Stephen. This event took place in October, 1154, and *H.* was crowned without opposition at Westminster, in December. His first measures were directed to the redress of the disorders and anarchy which had prevailed in the reign of Stephen. He seized and destroyed most of the baronial castles; dismissed the foreign troops; renewed the charter granted by Henry I.; and resumed most of the lands which had been alienated from the crown by Stephen. On the death of his brother Geoffrey, he claimed and got possession of Nantes, and was thus master of the whole western coast of France. His attempt on Toulouse, in 1159, involved him in a war with the king of France, which was only terminated two years later. In 1162, Thomas à Becket was elected archbishop of Canterbury, and the great struggle between the civil and ecclesiastical powers began, which resulted in the Constitution of Clarendon, the exile and murder of Becket, war with France, the king's penance at Becket's tomb, and the repeal of the constitution. In 1171, *H.* invaded Ireland, and, under the authority of a bull of Pope Adrian IV., which had been published in 1156, effected the conquest of that island. The remaining years of his reign were embittered by the numerous revolts of his sons, instigated by their mother. Eleanor, whose jealousy being excited by the king's affection for Fair Rosamond, attempted to follow her sons to the court of France, but was seized and imprisoned during Henry's life. The king of Scotland, who supported the rebellion of the young princes, was taken prisoner at Alnwick, in 1174, but was released after a few months, on doing homage to *H.* A formal reconciliation with the princes took place, but was followed by a fresh revolt and civil war. Prince Henry, who as heir-apparent had been crowned in 1170, died in France, 1183. Geoffrey was killed at a tournament, two years later; and John joined his brother Richard in a new rebellion against their father, in which they were aided by Philip Augustus. The old king was prostrated by sickness, and the revolt of his youngest son John was the last and fatal blow from which he could not recover. D. at Chinon, 1189, and was buried at Fontevrault. Notwithstanding the conflicting estimates of the character and measures of Henry II., viewed as the champion of state supremacy, it is evident that he was a man of powerful intellect, superior education, great energy, activity, and decisiveness, and also of impetuous passions. Ruling almost despotically, he greatly diminished the power of the nobles, and thus relieved the people of their intolerable tyranny. Good order and just administration of the laws were established, and the practice of holding the "assizes" was introduced.

HENRY III., eldest son of King John and Isabella of Angoulême, was B. at Winchester in 1207. He succeeded his father in 1216. The regency was intrusted to William Marshal, earl of Pembroke, who, in 1217, defeated the French army at Lincoln, and compelled the dauphin Louis to retire to France. On Pembroke's death, in May, 1219, Hubert de Burgh and Peter des Roches, bishop of Winchester, became regents; but mutual jealousies and dissensions disturbed their administration and weakened their power. *H.* was crowned a second time, in 1220, and two years later was declared of age, but his feebleness of character unfitted him to rule, and the real power remained with his ministers. His fondness for foreign counsellors, his unsuccessful wars with France, and his attempts to govern without parliaments, excited much ill-humor in the nation. This was increased by the heavy impositions on his subjects, made necessary by his acceptance of the crown of Sicily for his son Edmund. At length, in 1258 he was virtually deposed by the "Mad Parliament," which assembled at Oxford, and a council of state was formed under the presidency of Simon de Montfort. The popular leaders quarrelled among themselves, while the king was a prisoner in their hands. But in 1262 civil war began, the king being compelled to employ foreign mercenaries. In 1264 the battle of Lewes was fought, at which the king, Prince Edward, Earl Richard, king of the Romans, and his son Henry, were made prisoners by the barons. Soon after, De Montfort, now virtually sovereign, summoned a parliament, which met in January, 1265, and was the first to which knights of the shires and representatives of cities and boroughs were called; thus constituting the first *House of Commons.* In August of that year, De Montfort was defeated and killed by Prince Edward, at the battle of Evesham, and the king regained his liberty. But the war lasted two years longer. In 1270 Prince Edward set out on the crusade, and before his return *H.* died at Westminster, Nov. 16, 1272.

HENRY IV. (called BOLINGBROKE), Duke of Hereford, and eldest son of John of Gaunt, Duke of Lancaster, born at Bolingbroke, in Lincolnshire, 1366. Having impeached Thomas Mowbray, Duke of Norfolk, of treason, a day was set aside for the two rivals to decide their feud by single combat. Richard, however, dreading the consequences that might arise from the resort to arms of such powerful barons, on the day of trial forbade the battle, and banished both nobles from the realm; Norfolk for life, and Bolingbroke, as Hereford, his cousin, was called, for ten years. The death of his father, and the discontent of the people at the bad government of Richard, gave Hereford an excuse to return to England long before the expiration of his term, on the double plea of obtaining the dukedom of Lancaster, and to assist Richard to rule with greater discretion. The people, weary of the arrogance of the court favorites, who monopolized all the authority of the state, hailed the return of Bolingbroke with every demonstration of delight, and flocked round him in thousands; so that, by judiciously taking advantage of the tide of public opinion, Bolingbroke was carried by universal acclaim to the crown for which his ambition so eagerly panted; and, after having deposed his cousin, Richard II., in 1399 ascended the throne as Henry IV. This usurpation gave rise to the civil war between the houses of York and Lancaster, which broke out under the sway of Henry VI. His reign was disturbed by a rebellion headed by the Duke of Northumberland and his son Percy, surnamed "Hotspur." After subduing all opposition, *H.* died overwhelmed with remorse for many of his unscrupulous deeds, 1413.

HENRY V., (surnamed MONMOUTH,) was one of the most illustrious of the line of English sovereigns, and whose early life of riot and dissipation gave but little promise of his after virtues, B. 1388, ascended the throne on the death of his father, Henry IV. In obedience to the dying advice of his parent, to give the public mind employment, he declared war against France, laying claim to that throne in right of his ancestors, and at once led a powerful army to the invasion of that kingdom; and after taking Harfleur and devastating the northern provinces, fought and won the glorious battle of Agincourt. To check Henry's further progress and avert the total ruin of his country, the French monarch concluded a truce with *H.*, who, to ratify the arrangement, espoused Charles's daughter, the Princess Catherine. No king ever sat on the English throne who was more beloved and honored than the gallant Harry "Monmouth," whose reign was prematurely cut short at Vincennes in 1422, after a career of foreign triumph and domestic peace unprecedented in the history of the country.


Fig. 1271.—HENRY V.

HENRY VI., the only son of the above, born 1421, was but ten months old at the death of his father, and was pro-

claimed king on the day after that event. His grandfather, Charles VI., king of France, died soon after, and the Duke of Orleans assumed the title of king by the name of Charles VII. This renewed the war between England and France, and the English, for a while, were successful. Henry was crowned at Paris, and the great duke of Bedford, his guardian, obtained several important victories. But the raising of the siege of Orleans by Joan of Arc gave a new turn to affairs, and the English power declined, and was, in the end, quite subverted. The death of the duke of Bedford was a fatal blow to the cause of *H.*; and, to add to his misfortunes, the York party in England grew strong, and involved the country in a civil war. They adopted the white rose as their badge of distinction, and the Lancastrians the red. Hence the title given to the struggle — *the War of the Roses*. After various contests, the king was defeated and taken prisoner. However, his wife, Margaret of Anjou, carried on the war with spirit, and for some time with considerable success. Richard, Duke of York, was slain at Wakefield, and *H.* recovered his liberty; but Edward, Earl of March, son of Richard, laid claim to the crown, and routed the queen's forces at Ludlow, but was himself afterwards defeated at St. Alban's. At length the York party prevailed, and Henry was sent to the Tower, where, it is believed, he was slain by Richard, Duke of Gloucester. Found dead in the Tower, 1471.

HENRY VII., (TUDOR,) son of Edmund, earl of Richmond, and of Margaret, of the house of Lancaster, B. 1456. By the assistance of the duke of Brittany, he landed in Wales with some troops, and laid claim to the crown in 1485. The people, disgusted at the cruelties of Richard III., joined him in such numbers that he was enabled to give the usurper battle at Bosworth Field, where Richard was slain, and *H.* crowned on the spot. He united the houses of York and Lancaster by marrying Elizabeth, daughter of Edward IV. His reign met with little disturbance, except from two impostors, set up by Lady Margaret, sister to Edward IV. One was a joiner's son, called Lambert Simnel, who personated Richard, duke of York, who had been murdered by the duke of Gloucester in the Tower. On being taken prisoner, *H.* made him a scullion in his kitchen. The other was Perkin Warbeck, who said he was the duke of York; but he was soon taken, and hanged at Tyburn. *H.* reigned 24 years, and greatly increased trade and commerce; but his avarice was excessive. D. 1509.

HENRY VIII., B. 1491, succeeded his father, Henry VII., at the age of 19. The first years of his reign were very popular, owing to his great generosity; but at length his conduct grew capricious and arbitrary. The emperor Maximilian and Pope Julius II., having leagued against France, persuaded *H.* to join them, and he, in



Fig. 1272. — HENRY VIII., (after Holbein.)

consequence, invaded that kingdom, where he made some conquests. About the same time, James IV., king of Scotland, invaded England, but was defeated and slain at Flodden Field. Cardinal Wolsey succeeded in bringing Henry over from the imperial interests to those of the French king. When Luther commenced his reformation in Germany, *H.* wrote a book against him, for which he was complimented by the Pope with the title of "Defender of the Faith." But this attachment to the Roman see did not last long; for, having conceived an affection for Anne Boleyn, he determined to divorce his wife, Catharine of Aragon, to whom he had been married eighteen years. His plea for the divorce was, that Catharine was his brother Arthur's widow. The divorce being refused by the Pope, Henry assumed the title of Supreme Head of the English Church, put down the monasteries, and alienated their possessions to secular purposes. His marriage with Anne Boleyn followed; but he afterwards sent her to the scaffold, and married Lady Jane Seymour, who died in childbed. He next married Anne of Cleves; but she not proving agreeable to his expectations, he put her away, and caused Cromwell, earl of Essex, the projector of the match, to be beheaded. His next wife was Catharine Howard, who was beheaded for adultery; after which he espoused Catharine Parr, who survived him. He was a man of strong passions and considerable learning; but it is truly said of him, "that he never spared man in his anger nor woman in his lust." D. 1547.

FRANCE.

Henry I., B. 1004, succeeded his father, Robert I., in 1031, and died 1060, after a reign of 23 years, frequently disturbed by civil and foreign wars.

HENRY II., son of Francis I. and his queen, Claude, born 1518. His marriage with Catharine de Medicis was celebrated at Marseilles, in 1533, by her uncle, Pope Clement VII. Henry succeeded his father in 1547, and at once made a complete change in the court and ministry. The most influential persons in his reign were the cardinal of Lorraine and his brother Francis, duke of Guise, the constable de Montmorenci, the marshal de St. André, and Diana of Poitiers, the king's favorite mistress, whom he made duchess of Valentinois. He carried on war with England, and recovered Boulogne for France; war with the Pope and with Spain; fighting for the Protestants in Germany, while he persecuted them in France; acquired by conquest Metz, Toul, and Verdun, and retained them under the treaty of Chateau-Cambresis, which closed the war in 1559. By the same treaty Calais was confirmed to France. The siege of Metz by Charles V., and its defence by the Duke of Guise; the battle and siege of Renti; the great victory of the Spaniards at St. Quentin; and the battle of Gravelines, are the chief military events of this reign. Mary, the young queen of Scots, was brought to France about 1549, and betrothed to the dauphin François. *H.* D. in July, 1559, from the effects of a wound accidentally inflicted by the count of Montgomery at a splendid tournament a few days before. He left four sons and three daughters, three of the former reigning after him in succession.

HENRY III., third son of Henry II. and Catharine de Medicis, was B. in 1551. He was first known as duke of Anjou, and distinguished himself as a soldier at the battles of Jarnac and Moncontour. He was elected king of Poland in 1573, but being proclaimed king of France on the death of Charles IX., in 1574, he escaped, not without risk, from Poland, and returned to France. The country was distracted with conflicting factions, and wasted with civil war; and the king, feeble in character, and self-indulgent, was governed by ignoble favorites. The famous Catholic *League* was formed, with the duke of Guise at its head; Henry of Navarre put himself at the head of the Huguenots, and won the battle of Coutras; Paris fell into the power of the League in 1588, and the king fled to Chartres and Rouen; later in the same year he convoked the states-general at Blois, and there had the two Guises assassinated, a crime which excited the revolt of Paris and the principal cities of the kingdom. The duke of Mayenne was named by the League lieutenant-general of the royal estate and crown of France, and Henry, roused at last to action, joined his rival, Henry of Navarre, and advanced to besiege Paris. At St. Cloud, which he made his headquarters, he was stabbed by a fanatic, Jacques Clement, and D. the day after, Aug. 1, 1589. Henry III. left no children, and was the last sovereign of the Valois line.

HENRY IV., (QUATRE,) called THE GREAT, king of France and Navarre, was B. in 1553 at Pau, in Béarn. His father, Anthony of Bourbon, was descended from a son of Louis IX.; his mother was Jeanne d'Albret, daughter of Henry, king of Navarre. He was brought up in the simple and hardy manner of the peasantry of Béarn, and thus laid the foundation of a vigorous constitution and temperate habits. He was placed under the tuition of Florent Chrétien, a learned man and zealous Protestant. In 1569 he accompanied his mother to Rochelle, and learned the art of war under Admiral Coligni. When the perfidious design of destroying the Huguenot chiefs by a massacre was formed by Charles IX. and his mother, Catherine, one of their means to lull suspicion was, to propose to Queen Jeanne a marriage between Henry and Margaret of Valois, the king's youngest sister. While preparations were making for the marriage festival, Henry's mother died at Paris, not without strong suspicions of poison. Having assumed the title of *King of Navarre*, his marriage took place, Aug. 18th, 1572. Then followed the horrible scenes of St. Bartholomew, Aug. 24th. *H.* was obliged to make a profession of the Catholic faith to save his life; but Catherine of Medicis endeavored to dissolve the marriage just celebrated. As she was unsuccessful in this, she adopted the plan of corrupting the noble youth by the pleasures of a licentious court; and he did not escape the snare. In 1576, however, he took advantage of a hunting excursion to quit the court, and professed himself again of the Protestant Church. Catherine, who after the decease of Charles IX. administered the government in the name of his successor Henry III., now thought it advisable to conclude a treaty of peace with the Huguenots (1576), securing to them religious freedom. Exasperated by this event, the Catholics formed the celebrated League, which Henry III. was obliged to confirm; and the religious war was recommenced. In 1587 *H.* obtained a victory over the Catholics at Coutras, in Guienne. In 1589, on the assassination of Henry III., *H.* of Navarre succeeded to the throne; but he had to secure his claim by hard fighting and by the profession of the Catholic faith. The same year he won the victory of Arques, and the following year that of Ivry, over the forces of the League, headed by the duke of Mayenne. After a protracted and obstinate struggle, convinced that he should never enjoy quiet possession of the French throne, without professing the Catholic faith, *H.* at length yielded to the wishes of his friends, was instructed in the doctrines of the Roman Church, and professed the Catholic faith, July 25th, 1593, in the church of St. Denis. He happily escaped an attempt to assassinate him; was solemnly anointed king at Chartres in 1594; and entered the capital amid the acclamations of the people. Peace was not fully reëstablished till 1598, when the treaty of Vervins was signed. *H.* made use of the tranquillity which followed to restore the internal prosperity of his kingdom, and particularly the wasted finances; and in this design he was highly successful, with the aid of his prime minister, Sully. To his former brothers in faith and in arms, the Protestants, he granted a certain measure of religious freedom and political security, by the edict of Nantes, in 1598. In 1610, while riding through the streets of Paris, his coach was obstructed in the Rue de la Feronnerie by two wagons. A fanatic named Ravaillac took advantage of the moment to perpetrate a long meditated deed; and the king received a fatal stab from the hand of this assassin, in the 52d year of his age, and 22d of his reign. His character is thus summed up by Henault: — "He united to extreme frankness the most dexterous policy; to the most elevated sentiments a charming simplicity of manners; to a soldier's courage an inexhaustible fund of humanity." The eulogists of *H. IV.* draw a veil over his private character, yet are compelled to acknowledge that it was stained by great vices, especially by extreme licentiousness and fondness for gambling. His first wife, Marguerite, bore him no children; by his second, Mary of Medicis, he had six, one of whom was Henrietta Maria, afterwards queen of Charles I. of England. He had also children by his mistresses. A new and valuable French *History of the Reign of Henry IV.*, by A. Poirson, has appeared in 3 vols., 1857–65.

GERMANY.

Henry I., surnamed *the Fowler*, emperor of Germany, B. 876, was the son of Otho, duke of Saxony, and elected to the imperial dignity in the year 918. He reunited the German princes, and subdued the Hungarians, formed good laws, and built several cities. He vanquished the Bohemians, the Sclavonians, and the Danes, and conquered the kingdom of Lorraine. D. 936.

HENRY II., great-grandson of the preceding, B. 972. He succeeded his father as duke of Bavaria, and in 1002 was elected king of Germany, and crowned at Mentz and at Aix-la-Chapelle. Two years later he was crowned king of Lombardy at Pavia, his rival, Hardouin, avoiding a combat with him. He was engaged in frequent wars, in Italy, in Bohemia, Bavaria, &c. In 1014 he received the imperial crown at Rome, his wife Cunegunde being crowned with him. They were both distinguished for their piety and devotion to the Church, and were canonized. D. 1024. He was the last emperor of the house of Saxony.

HENRY III., son of the Emperor Conrad II., B. 1017, succeeded his father in the imperial dignity, 1039. Nature had given him the talents, and education the character, suitable for an able ruler. In everything he undertook he displayed a steady and persevering spirit; the clergy were compelled to acknowledge their dependence on him, and the temporal lords he held in actual subjection. He deposed three popes, and raised Clement II. to the vacant chair; and he was as successful in his wars as in his administration. D. 1056.

HENRY IV., son of the preceding, was born in 1050, and at the death of his father was only five years old. His mother, Agnes, was made regent, and on her death the chief power was seized by his uncles, the dukes of Saxony and Bavaria. Henry made war on them, and threw off their yoke. He, however, offended his subjects, by the licentiousness of his manners, and quarrelled with the pope, Gregory VII., about investitures. The latter being appealed to in a subsequent dispute between Henry and the duke of Saxony, cited Henry to his tribunal, who then deposed the pope, to be in turn excommunicated by him. The emperor was compelled to submit, went to Canossa, where the pope then was, and after being kept three days in the court-yard, received absolution. The quarrel was soon renewed, deposition, excommunication, and election of new popes and emperors followed. Henry's eldest son, Conrad, rebelled against him, but was overcome, and died at Florence in 1101. He then caused his second son, Henry, to be elected his successor, and crowned; but the latter also rebelled, and making himself master of his father's person, in 1106, by stratagem, compelled him to abdicate the throne. Henry IV. ended his life and sorrows in neglect, at Liége, in 1106; and, as he died under sentence of excommunication, was not buried till five years after, when the sentence was revoked, and his remains were interred at Spires.

HENRY V., the son and successor of the preceding, B. 1081. In 1106 he rebelled against his father, and dethroned him, assuming the imperial crown in his stead. In 1111 he married Matilda, the daughter of Henry I., king of England; and the rich dowry he received with his princess gave him the means of undertaking an expedition to demand the imperial crown from the pope. Finding that Pascal refused to crown him, Henry caused the pope to be conveyed away from the altar while at mass; and cut down, in the streets of Rome, all who opposed him. At length the pope yielded, and Henry was crowned in 1112, without making any new concessions. Soon after his return to Germany, the pope excommunicated him; which led to a new war, the invasion of Italy, and the election of a rival pope. Peace was not made till 1122, when the emperor renounced his claims. Died 1125.

HENRY VI., son of Frederick Barbarossa, B. 1165. He was elected king of the Romans when four years of age, and succeeded his father on the imperial throne in 1190. The same year, on the death of William II., king of



Patrick Henry

1736–1799

Sicily, he claimed that crown in right of Constance his wife, daughter of King Roger. After being crowned at Rome with his wife in 1191, he made an unsuccessful attempt to conquer Naples. In 1193 he gave Leopold, duke of Austria, a small price to hand over to his keeping his royal prisoner, Richard I. of England, whom he detained nearly a year, and relcased for a heavy ransom. With this money he undertook another expedition against Sicily, and succeeded. He was crowned at Palermo in 1194. A revolt broke out in consequence of his tyranny, and he returned to suppress it. D. at Messina, 1197.

HEN'RY VII., succeeded Albert I. in 1308. He undertook an expedition to Italy, and compelled the Milanese to crown him king of Lombardy. He then suppressed a revolt which had broken out in Upper Italy; took several cities by storm; and, having captured Rome, he was crowned Roman emperor by the cardinals sent from Avignon, while in the streets the work of murder and pillage was still going on. D. 1313.

HENRY, (RAPSON,) LANDGRAVE OF THURINGIA, was elected emperor by the ecclesiastical princes in 1246, when Pope Innocent IV. deposed Frederick II.; D. 1247 of a wound received fighting his rival.— HENRY THE LION AND H. THE PROUD.

Henry, CALEB SPRAGUE, author, editor, and divine, was born at Rutland, Mass., in 1804; studied theology at Andover and New Haven, and was ordained to the Congregational ministry in January, 1829, becoming pastor at Greenfield, Mass., and later at West Hartford, Conn. Six years later he took deacon's orders in the Protestant Episcopal Church, and was ordained priest in 1836. From 1839 to 1852 he held the chair of Philosophy and History in the New York University, acting as Chancellor during part of that period; was also rector of St. Clement's church, New York (1847–1850), editor of *The Churchman*, and for one year political editor of the New York *Times*. Prior to this period he had founded a publication called the *American Advocate of Peace*, which became the organ of the American Peace Society, and the *Review*, which he conducted until 1840. Among his published works were an annotated edition of Guizot's *History of Civilization*; a translation of Cousin's *Psychology; Social Welfare and Human Progress;* and *Satan as a Moral Philosopher*. Died in 1884.

Hen'ry, JOSEPH, a celebrated physicist, was born in Albany, N. Y., 1797, received a common education and commenced life as a watchmaker in his native city. In 1826 he was professor of mathematics in the Albany Academy, and in 1827 began making experiments in electricity. He invented the first machine moved by the agency of electro-magnetism, and was the first to demonstrate those principles by which intelligence is conveyed between distant points through the agency of the electric telegraph. In 1832 he was appointed professor of Natural Philosophy in the College of New Jersey, at Princeton, and in 1837 visited England, where he imparted his knowledge to Professor Wheatstone. In 1846 he was elected first secretary of the Smithsonian Institution at Washington, a post he held until his death, May 13, 1878. *H.* published, in 1839, *Contributions to Electricity and Magnetism*, and also contributed several scientific papers to *The American Philosophical Society*, to *Silliman's Journal*, and to the *Journal of the Franklin Institute*.

Henry, MATTHEW, a celebrated non-conformist divine, was born in Flintshire, Wales, in 1662; he was one of the two thousand ministers who seceded from the Church of England upon the passage of the Act of Uniformity. He began preaching in 1686, and the following year established himself at Chester, Eng., as pastor of a congregation of Dissenters, continuing this connection for a quarter of a century. He removed to Hackney, near London, in 1712, and died two years later while on a visit to his old friends in Chester. In 1704 he began the preparation of an ambitious work, entitled *An Exposition of the Old and New Testaments*, but only lived to complete the Acts of the Apostles. This work has been frequently reprinted.

Henry, PATRICK, an American statesman and orator, was born in Virginia, in 1736. He was one of a large family, grew up uneducated, made several unsuccessful ventures in trade, and at last turned advocate. He remained without distinction and without briefs for several years, but at last brought himself into notice and practice, in 1763, by his clever and successful pleading in a case respecting the legal income of the clergy. He opposed the clerical claim, and by the view he presented of the matter made it a great question of colonial independence. He removed to Louisa, and in 1765 was chosen a member of the Virginia legislature, and there made a very exciting speech against the famous "Stamp Act." He was one of the members of the first Congress, which met at Philadelphia in September, 1774, and was the first to call his countrymen to arms for attainment of their independence. His eloquence on the occasion is said to have astonished all his hearers. He was elected for several years governor of Virginia. Embarrassed with debts, he preferred then to retire from public office, and devote himself to his profession. He opposed the Federal constitution as not democratic enough and interfering too much with State rights. The post of Secretary of State was offered him by Washington, but he did not accept it. Died in 1799.

Henry, in *Alabama*, an extreme S.E. co., adjoining Florida and Georgia; *area*, 484 sq. m. *Rivers*. Chattahoochee, and numerous smaller streams. *Surface*, broken; *soil*, not fertile. *Cap.* Abbeville. *Pop.* (1890) 24,847.

Henry, in *Georgia*, a N.W. central co.; *area*, about 322 sq. m. *Rivers*. Cotton and South rivers, and Indian, Sandy, Towaliga, and Tassahaw creeks. *Surface*, generally level; *soil*, fertile. *Min.* Gold, iron, granite, and quartz. *Cap.* McDonough. *Pop.* (1890) 16,220.

Henry, in *Illinois*, a N.W. co.; *area*, about 830 sq. m. *Rivers*. Green and Rock rivers, and Edwards creek. *Surface*, diversified; *soil*, fertile. *Min.* Coal in abundance. *Cap.* Cambridge. *Pop.* (1890) 33,338.

—A city and township of Marshall co., on the Illinois river and C., R. I. & P. R. R., 33 m. N.N.E. of Peoria. Has a fine trade in farm products. *Pop.* (1897) about 1,850.

Henry, in *Indiana*, an E. central co.; *area*, about 400 sq. m. *Rivers*. Blue river and Fall creek. *Surface*, undulating; *soil*, fertile. *Prod.* Wheat, corn, hay, oats, and swine. *Cap.* Newcastle. *Pop.* (1890) 23,879.

—A township of Fulton co.

—A township of Henry co.

Henry, in *Iowa*, a S.E. co.; *area*, about 432 sq. m. *Rivers*. Skunk river and Cedar creek. *Surface*, level; *soil*, fertile. *Min.* Coal and limestone. *County-seat*, Mt. Pleasant. *Pop.* (1895) 18,278.

Henry, in *Kentucky*, a N. co.; *area*, about 272 sq. m. *Rivers*. Kentucky river and many of its tributaries. *Surface*, undulating; *soil*, very fertile. *Cap.* New Castle. *Pop.* (1890) 14,164.

Henry, or **Hen'rytown,** in *Minnesota*, a post-village of Fillmore co., about 9 miles S.E. of Preston.

Henry, in *Missouri*, a W. co.; *area*, about 740 sq. m. *Rivers*. Grand river, and Big, Deepwater, and Tebo or Thibaut creeks. *Surface*, diversified; *soil*, fertile. *Cap.* Clinton. *Pop.* (1890) 28,235.

Henry, in *Ohio*, a N.W. co.; *area*, about 420 sq. m. *Rivers*. Maumee river, Beaver and Turkey creeks. *Surface*, level; *soil*, fertile. *Cap.* Napoleon. *Pop.* (1890) 25,080.

Henry, in *Tennessee*, a N.W. co., adjoining Kentucky; *area*, about 580 sq. m. *Rivers*. Tennessee and Big Sandy rivers. *Surface*, diversified. *Cap.* Paris. *Pop.* (1890) 21,070.

Hen'ry, in *Virginia*, a S. co., adjoining North Carolina; *area*, about 410 sq. m. *Rivers*. Smith river and some smaller streams. *Surface*, hilly; *soil*, fertile. *Cap.* Martinsburg. *Pop.* (1890) 18,208.

—A post-office of Sussex co.

Henry Clay, in *Pennsylvania*, a township of Fayette co.

Henry Clay Fac'tory, in *Delaware*, a post-town of New Castle co. *Pop.* 329.

Henryel'len, in *Alabama*, a post-town of Jefferson co. *Pop.* (1897) about 500.

Hen'rysburg, a village of Quebec, about 32 m. S.E. of Montreal.

Henry's Cross Roads, in *Tennessee*, a post-office of Sevier co.

Hen'ryville, in *Pennsylvania*, a village of Monroe co., about 8 miles N. of Stroudsburg.

Henryville, a village of Quebec, about 37 m. S.E. of Montreal.

Henryville, in *Indiana*, a post-village of Clarke co.

Henryville, in *Louisiana*, a post-office of Natchitoches county.

Henryville, in *Mississippi*, a post-village of Clay co.

Henryville, in *Tennessee*, a post-village of Lawrence co., about 70 miles S.S.W. of Nashville.

Hen's'-feet, *n.* The hedge-fumitory, genus *Fumaria*.

Hen'singersville, in *Pennsylvania*, a village of Lehigh co.

Hens'ley, in *Indiana*, a township of Johnson county.

Henslovia'ceæ, *n. pl.* (*Bot.*) An order of plants, alliance *Saxifragales*. It contains but one genus, consisting of three or four species, which resemble in most respects the hydrangeas, the chief differences being in their tree-like habit, in the union of their styles into a cyliuder, and in the total absence of albumen. Their properties and uses are unknown.

Hep, *n.* (*Bot.*) See HIP.

He'pate, *n.* [Gr. *hepar*, liver.] A name given to some varieties of sulphate of baryta or heavy spar (*q. v.*) from their having a liver color.

Hepat'ic, Hepat'ical, *a.* [Lat. *hepaticus;* Gr. *hēpatikos*, from *hēpar*, the liver.] Pertaining to the liver; as, the *hepatic* gall.—Resembling the liver in color; as, *hepatic* cinnabar.

(*Anat.*) *Hepatic artery*, is that which nourishes the substance of the liver. It arises from the cœliac, where it almost touches the point of the *lobulus Spigelii*. Its root is covered by the pancreas; it then turns a little forwards, and passes under the pylorus to the porta of the liver, and runs betwixt the biliary ducts and the vena portæ, where it divides into two large branches, one of which enters the right, and the other the left lobe of the liver. In this place it is inclosed along with all the other vessels in the capsule of Glisson.—*Hepatic duct*, is about three fingers' breadth in length, and of the size of a quill. It is formed by the union of the biliary ducts, and joins the cystic duct at a very acute angle, to form the *ductus choledochus*. Its function is to convey the bile from the liver towards the duodenum.

Hepat'ica, *n.* [From Gr. *hēpar*, liver.] (*Bot.*) A genus of plants, order *Ranunculaceæ*. The Liverwort, *H. triloba*, is found in woods from Canada to California. This little plant is one of the earliest harbingers of spring, often putting forth its neat and elegant flowers in the neighborhood of some lingering snow-bank. The root consists of numerous and strong fibres. Leaves all radical, on long, hairy petioles, smooth, evergreen, coriaceous, divided into 3 lobes. Flowers on scapes 3–4′ long, solitary, numerous, generally blue, but frequently in varieties of white and flesh-color. In cultivation they become double.

(*Med.*) A name given to medicines believed to be capable of affecting the liver.

Hep'atite, *n.* (*Min.*) A brown, fetid sulphate of baryta.

Hepati'tis, *n.* [Gr. *hēpatitis*, belonging to the liver, from *hēpar*, the liver.] (*Med.*) Inflammation of the liver. The history and symptoms of this disease have been particularly dwelt upon in all medical works from the earliest periods. Until very recent times, when the attention of physicians was more especially called to diseases of the gastro-intestinal mucous membrane,—heretofore a field comparatively unexplored.—this affection, and its subsidiary diseases, were more studied than any other lesion of the digestive apparatus. In temperate latitudes *H.* is a rare disease; but in tropical climates it is often so acute, sudden, and fatal, as to defy medical treatment. The principal indications of the disease are, pain in the right side and shoulder, tenderness in the right hypochondrium when pressed, together with enlargement of the liver, often vomiting, always fever, with loss of appetite, and a foul tongue. It is frequently accompanied by jaundice. *H.* sometimes terminates in abscesses, which, on some occasions, require to be opened externally. Professional assistance is necessary with regard to them, as the treatment is complicated. After the disease has been subdued, vegetable tonics are useful in restoring the digestive powers. When the disease has supervened in a warm climate, a removal to a more temperate region is always advisable.

Hepatiza'tion, *n.* (*Med.*) Conversion into a liver-like substance;—applied to the lungs when gorged with effused matter, so that they are no longer pervious to the air.

Hep'atize, *v. a.* [Gr. *hēpatizein.*] To impregnate with sulphuretted hydrogen gas.—To gorge with effused matter, as the lungs.

Hepat'ocele, *n.* [Gr. *hēpatos*, and *kēlē*, a tumor.] (*Med.*) A hernia, in which a portion of the liver protrudes through the abdominal parietes.

Hepatocys'tic, *a.* [Gr. *hēpatos*, and *kustis*, a bladder.] (*Med.*) Pertaining alike to the liver and the gall-bladder.

Hepatogas'tic, *a.* [Gr. *hēpatos*, and *gaster*, the belly.] (*Med.*) Relating to the stomach and liver.

Hepatog'raphy, *n.* [Gr. *hēpatos*, the liver, and *graphein*, to describe.] (*Med.*) A treatise on, or description of the liver.

Hepatolithi'asis, *n.* [Gr. *hēpatos*, and *lithiasis*, the disease of the stone.] (*Med.*) The formation of concretions in the liver.

Hepatol'ogy, *n.* [Gr. *hēpatos*, and *logos*, discourse.] (*Med.*) Substantially identical with HEPATOGRAPHY, *q. v.*

Hep'burn, in *Pennsylvania*, a village and township of Lycoming co.

Hephæs'tion, the favorite of Alexander the Great, and the companion of his campaigns and festivities, married one of the daughters of Darius. D. at Ecbatana, 324 B. C.

Hep'ler, in *Pennsylvania*, a post-office of Schuylkill co.

Hep'pen, *a.* [A.S. *hæp*, fit.] Fit; appropriate; becoming. (R.)

Hep'tachord, (*-kôrd,*) *n.* [Gr. *heptachordos.*] (*Anc. Mus.*) A lyre having seven chords.—The interval of a seventh.—A poetical composition played or sung in seven different notes or tones.

Hep'tade, *n.* [Gr. *heptados.*] The number or sum of seven.

Hep'taglot, *n.* [Gr. *heptaglōttos.*] A book written in seven languages.

Hep'tagon, *n.* [Gr. *hepta*, seven, and *gōnia*, angle.] (*Geometry.*) A plane figure of seven sides. The area of a regular *H.* is equal to the square of one of its sides multiplied into the constant number 3·6339124.

Heptag'onal, *a.* [Fr.] Having seven angles or sides.

Heptagonal Numbers. (*Arith.*) Figurate numbers of the 2d order and 5th class; they are formed by the successive addition of the terms of the arithmetical series 1, 6, 11, 16, &c., whose common difference is 5. Thus the first four *H. N.* are, 1, 7, 18, 34, and the n^{th} is $\frac{n}{2}(5n-3)$.

Heptagyn'ia, *n.* [Gr. *hepta*, seven, and *gynē*, woman.] (*Bot.*) In the classification of Linnæus, an order of plants possessing seven pistils.

Heptagynian, Heptagynous, (*hep-ta-jin'yan, hep-taj'e-nus,*) *a.* [Fr. *heptagynique.*] (*Bot.*) Possessing seven pistils or styles.

Heptahe'dron, *n.* [Gr. *hepta*, and *hedra*, base; Fr. *heptaèdre.*] (*Geom.*) A solid figure having seven sides.

Heptahexahe'dral, *a.* [Gr. *hepta*, and *hexahedral*, q. v.] Having seven series of faces one above another, each series presenting six faces.

Heptam'erede, *n.* [Gr. *hepta*, and *meridos*, part.] That which divides into seven parts.

Heptam'erous, *a.* [Gr. *hepta*, and *mēros*, part.] (*Bot.*) Comprising seven parts.

Heptan'dria, *n.* [Gr. *hepta*, and *andros*, male.] (*Bot.*) In the classification of Linnæus, a class of plants which have seven stamens.

Heptan'drian, Heptan'drous, *a.* [Fr. *heptandrique.*] (*Bot.*) Possessing seven stamens.

Heptan'gular, *a.* [Gr. *hepta*, and Eng. *angular*, q. v.] Having seven angles.

Heptaphyllous, (*hep-tăf'ĕ-lus,*) *a.* [Gr. *hepta*, and *phyllon*, leaf.] (*Bot.*) Seven-leaved.

Heptarch, Heptarchist, (*hep'tărk, hep'tăr-kist,*) *n.* [Fr. *heptarque.*] One who rules a division of a heptarchy.

Heptarch'ic, *a.* [Fr. *heptarchique.*] Pertaining to a heptarchy, or seven-fold government; constituting or consisting of a heptarchy.

Hep'tarchist, *n.* See HEPTARCH.

Heptarchy, (*hep'tăr-kĭ,*) *n.* [Gr. *hepta*, and *ar-chē*

government.] A government by seven persons; also, the country so ruled. The English *H.* consisted of the seven Saxon states, Kent, Sussex, Wessex, Essex, Northumbria, East Anglia, and Mercia, united under the same rule, in 828, by Egbert, who assumed the title of king of England.

Heptateuch, (*hep'ta-tūk,*) *n.* [Gr. *hepta*, and *teuchein*, to prepare.] (*Script.*) The first seven books of the Old Testament.

Hep'-tree, *n.* [See HEP.] The Dog-rose, *Rosa canina.*

Her, *pron.* and *a.* (objective case of *she*, pers. pron. of the 3d pers. fem.) [A. S. *hes*, she, *hire*, of, to, or for her; *hi*, *hig*, her. See SHE.] Belonging to a female, or to a noun feminine; — being the possessive case of the personal pronoun *she;* as, *her* body, *her* love, &c.

He'ra, Hê'rê, *n.* [Gr.] (*Myth.*) See JUNO.

Herae'lea, (*Anc. Geog.*) the name of several Greek cities, the most important of which were: 1. A city of *Magna Græcia*, in Lucania, near the Tarentine Gulf, (now *Policoro.*) It was the birthplace of Zeuxis, and near it the Romans were defeated by Pyrrhus, B. C. 280. — 2. A city of Bithynia, surnamed Pontica (now *Eregli*), on the S. shore of the Euxine.

Herac'leonites, *n. pl.* (*Eccl. Hist.*) An early sect of heretics belonging to the Gnostics; — so called from *Heracleon*, whose tenets they embraced.

Herac'leum, *n.* (*Bot.*) A genus of plants, order *Apiaceæ*, distinguished by a calyx limb of 5 small, acute teeth; petals obcordate; fruit compressed, flat, with a broad, flat margin; seeds flat. They are stout herbs, with large umbels. The only noticeable species is *H. sphondylium*, the Cow-parsnip.

Herac'lidæ, *n. pl.* (*Anc. Hist.*) The descendants of Hercules, who, after his death, B. C. 1209, were expelled from the Peloponnesus, and took refuge in Attica. The return of the Heraclidæ, or the Dorian Migration, B. C. 1104, forms a celebrated epoch in ancient chronology, as marking the transition from the heroic or fabulous ages to the period of authentic history.

Herac'litus, a celebrated Greek philosopher of Ephesus, lived in the 69th Olympiad, about 500 B. C. The principle of his theory is the recognition of the fire of life, and the ethereal element of wisdom, as the ground of all visible existences. Only fragments of his works have been preserved, which are written in the symbolic or transcendental manner of the Pythagoreans.

Herac'lius, Emperor of the East, from 610 to 641. — His son, HERACLIUS CONSTANTINE, survived him only three months, being poisoned, it is said, by his mother-in-law, Martina.

Her'ald, *n.* [O. Fr. *herald*, and *haraud;* Fr. *héraut;* Ger. *herold.*] Among the Greeks and Romans, heralds were employed to carry messages to friendly and hostile nations, to conclude treaties of peace and amity, or to declare war. (See FECIALES.) In mediæval times, their duties were very similar, and they had the direction and management of tournaments and jousts, and the regulation of ceremonies of state; it also fell to their part to make lists of the knights and soldiers who were slain in battle. The supervision of pedigrees of descent, and the armorial bearings of families, also came within the especial province of the *H.*, who, with the kings-at-arms, held visitations in different counties at certain times for this purpose. *H.* are first mentioned under this title about the middle of the 12th century. The English *H.* were formed into a body corporate by Richard III. — See HERALDS' COLLEGE.

—A proclaimer; a publisher.

> "After my death I wish no other *herald*
> . . . but . . . Griffith." — *Shaks.*

—A precursor; a forerunner; a harbinger.

> "It was the lark, the *herald* of the morn." — *Shaks.*

—*v. a.* To introdnce, as by a herald; to proclaim.

> "We are sent from our royal master to *herald* thee." — *Shaks.*

Heral'dic, *a.* [Fr. *heraldique.*] Relating to blazonry; pertaining to heralds or heraldry; as, an *heraldic* cognizance.

Heral'dically, *adv.* In an heraldic manner.

Her'aldry, *n.* The sciouce which teaches how to represent in certain colors, or by figures, or to express in technical terms, whatever belongs to coat-armor, and to the manner of conducting public ceremonies, as coronations, &c. The origin of armorial bearings is undoubtedly the same as that of names of families: a mode of distinguishing by sight, as the other is by sound, a noted individual in society, or a leader in the field. We read of banners and standards in the Bible, (*Psa.* xx. 5; *Numb.* ii. 3,) and of seals bearing particular devices, (1 *Kings* xxi. 8; *Rev.* v. 1, 5.) The sculptures on the shields of Achilles and Hercules, in Homer and Hesiod, are rather ornamental than heraldic, but in the *Seven Chiefs against Thebes*, of Æschylus, the cognizances of these renowned leaders are as distinctly blazoned on their shields, and in the same manuer, as on those of knights in the Middle Ages. The Romans had no armorial devices for individuals, except their distinctive crowns for particular services. In the first crusade for the conquest of Palestine, A. D. 1096, the French shields were of polished metal without any ornament or sign, and in this, and the second crusade, A. D. 1142–7, no coguizances were borne, unless the white cross on a red ground which served to designate the French knights, and the red cross on a white ground worn by the English, can be considered as such. But in the third crusade, A. D. 1189, armorial devices were used, and in the 13th century they were regularly transmitted from father to son, and were embroidered on the surcoat, though afterwards we find them on both the jupon and tabard until the reign of Henry VIII. Wace mentions them as being in use by the Normans, and the Bayeux tapestry confirms the assertion. In 1216 (*temp.* Hen. III.) the vocabulary of *H.* was nearly as full and definite as at the present day, and armorial bearings were displayed on the mantle or surcoat, on pennon or banner, and on sword-hilts as early as A. D. 1250. The science of *H.* has been found a valuable aid to historical investigations, and is entitled to respect, not merely on this account, but also for the refinement and curious variety of the learning itself. Arms are often useful in showing from what person or country their bearers originated: thus the *Maxwells* and *Ramsays* bear the eagle to show their descent from Germany; the *Ruthvens*, the arms of Portugal, to show their descent from its royal house; the *Marjoribanks* (pronounced *Marchbanks*) bear the cushion to show that they were Johnstones originally; and by the same token *Wemyss* and *Fyfe* are known to be cadets of Macduff. Indeed, arms are often surer signs of consanguinity than the surname, as the Shaws of the north of England are proved to be McIntoshes by their arms. They show the alliance of the bearers to other families, and thus the memory of many an ancient and noble line is preserved, by the quartering of their arms by their descendants. They also denote the rank or condition in life of the bearer. Appended to grants and documents they inform us of the true surnames of the grantors which may have become illegible. Thus by the seals alone it is known that certain charters were granted by the Menzies, and other notables, though their names cannot now be deciphered. They often show the right originations and writings of surnames: thus we know the name of Tarbat to be incorrect, and that it should be written *Turbot*, by seeing they have three *turbots* fretted in their arms. They have proved who were the founders of towns, castles, and churches: thus the church of *Durham* is known to have been built by the king of Scotland, and the town of *Erfurt* by the French king, because they bear their arms. By these signs even ships of enemies are known at sea, captured and confiscated, for what are the flags of nations but a species of heraldic arms? As a general rule, the people of our own country care little or nothing for the science of *H.*, there being as yet no acknowledged "upper class" or aristocracy. To the American the sole interest in these things consists in their historical character, or, as in the case of individuals, in the remembrance of an honorable ancestry. "He who does not look back upon his ancestors, will never look forward to posterity,' is a true saying, and no man can afford to insult the memory of his *real* progenitor by a false claim to the arms of others. The feudal system, chivalry, and the crusades made necessary certain signs and figures to distinguish persons and perpetuate great actions, and the process of reducing these marks and signs to order was only a natural consequence of the first invention. Hence the necessity for Heralds, and a College of Arms. It is ridiculous, however, to suppose that there must be any analogy between heraldic signs or figures, and the actions represented. An escallop shell, a mullet, or a hawk, have no more connection with great actions than the sound of a letter of the alphabet has with its form. When we read "*the first, azure, a sun in its glory*" for the name of *Kerr*, we can see no connection the name of Kerr has more than any other with that glorious luminary. Heraldic signs must then be taken for the meaning known to be intended, though there is no doubt that caprice or accident were often causes for adopting them. In early times kings and the great feudatories granted their arms or part of them to their knightly followers, or the latter adopted them; hence the arms of many families resemble one another, except in *tincture*. Many of the most ancient coats-armorial were borne long before Heralds' College was founded, A. D. 1483. Since then, grants have been made by the sovereigns and the kings-at-arms, and no one in England can bear arms without their lawful authority, and the latter have considerable power for the purpose of preventing parties (by heavy fines, &c.) from bearing arms to which they are not entitled. In order to make this subject more easily understood, it is necessary to give a short account of the emblems of heraldry.—A *coat of arms* (so called from being formerly embroidered or otherwise exhibited on a surcoat, or coat of mail) is a mark of honor, denoting by different figures and colors variously arranged and displayed, the descent, alliance, or service of the bearer. Arms are of eight kinds, viz.: of *dominion*, adopted by countries or States, as the fleur-de-lis of France, eagle of Austria, and of the United States, &c.; of *pretension*, those of a kingdom upon which a sovereign has a claim, as the arms of Scotland and Ireland are quartered with the lions of England; of *concession*, or augmentation, conferred by a ruler for extraordinary service, as a heart to the coat of Douglas for carrying the heart of Robert Bruce to Palestine; of *community*, belonging to bishoprics, cities, corporations, companies, &c.; of *patronage*, to governors of provinces, &c., to mark their power or jurisdiction; of *family*, paternal or hereditary, belonging to a particular family to distinguish it from all others; of *alliance*, showing the union of families and relation of individuals; of *succession*, which accompany lordships or an estate, as the arms of the Isle of Man are borne by the Duke of Athole; of *assumption*, taken up by individuals, from caprice or vanity, without proper authority or legal right. The false assumption of arms is not only an abuse, but an absolute theft, in many instances, which cannot be prevented in a free country. It is, moreover, a contemptible piece of snobbery and flunkeyism; yet this passion for adventitious outward display is shown, not only in England, but in the United States, where all differences in rank are *theoretically* repudiated. The various parts of a coat of arms consist of — the *escutcheon*, or shield, the favorite shape of which, for the purpose of heraldry, is the Norman shield, somewhat triangular in form, called by the French *l'ancien écu.* It is the field or ground upon which arms are blazoned, and may be of any form. The shield of a widow or maiden is lozenge-shaped, that of a banneret is square. The escutcheon is supposed to be divided into nine parts: A, dexter chief; B, middle chief; C, sinister chief; D, honor point; E, fess point; F, nombril point; G, dexter base; H, middle base; I, sinister base. The rules of heraldry require that metal shall not be placed upon metal, nor color on color, though it is sometimes done (chiefly in Italian heraldry), and when a charge lies over a field partly of metal and partly of color, or where an animal is *attired*, *unguled*, or *chained*, with a tincture different from the body. Marks of cadency, chiefs, cantons, and borders are also exempt. The *tinctures*, or colors, are known by their names; but these change according to rank; thus, the colors of the arms of a sovereign are expressed by the names of *heavenly bodies;* of noblemen, by *precious stones*: of knights, bannerets, esquires, and gentlemen, by *metals.* The colors usually used are nine in number, viz.: —

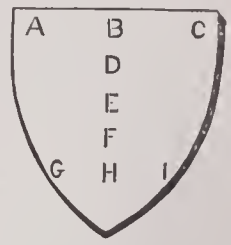


Fig. 1273.

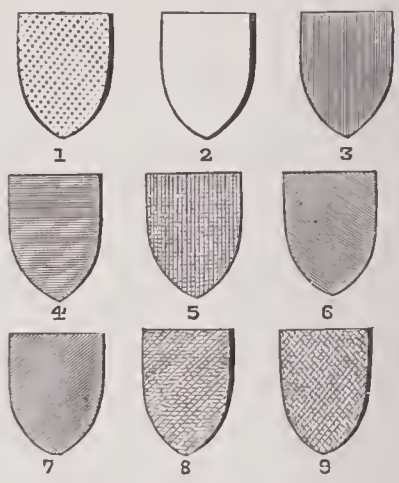


Fig. 1274. — COLORS, OR TINCTURES.

	Gentlemen.	*Noblemen.*	*Princes.*
1 *Yellow*	Or	Topaz	Sol.
2 *White*	Argent	Pearl	Luna.
3 *Red*	Gules	Ruby	Mars.
4 *Blue*	Azure	Sapphire	Jupiter.
5 *Black*	Sable	Diamond	Saturn.
6 *Green*	Vert	Emerald	Venus.
7 *Purple*	Purpure	Amethyst	Mercury.
8 *Orange*	Tenney	Hyacinth	Dragon's head.
9 *Murrey*	Sanguine	Sardonyx	Dragon's tail.

These are expressed in engraving by lines (Fig. 1274). *Furs* (q. v.) are also used for the fields. According to the quaint old herald, Gerard Leigh, A. D. 1597, *Or* "signifieth power or sovereignty; *Argent*, chastitie, clear conscience, and charity, — compounded with *Sable*, it means the yielding up of pleasure; *Gules*, betokeneth strength, boldness, with hardiness; *Azure*, of Godly disposition; *Sable*, the ancientest among colors, signifieth constancie, divine doctrine, heavinesse for loss of friends,— compounded with *Argent*, it means famous; *Vert*, mirth, love, and gladness; *Purpure*, jurisdiction; *Tenney* (not a good color) to the bearer thereof, signifieth gloric of himself; *Murrey*, or *Sanguine*, not to be hastie in battel, and yet a victor." Gold and Black (Or and Sable) is said to be the *richest* shield; Argent and Sable, the *fairest* shield; and Or and Vert, the *most glittering* shield. The *Helmet* is placed immediately over the shield, and is the true distinctive mark of gentility. The helmet of a sovereign is placed *affronté*, and has six bars, three on each side; of dukes and marquises, also *affronté*, but with five bars; of all peers under a marquis, in profile, with four bars. The helmets of baronets and knights, also placed in profile, is open-faced, without bars (beaver slightly raised); but the close helmet is used for all esquires and gentlemen, placed side, standing with bearer closed. The *Mantling*, or *Lambrequin*, was

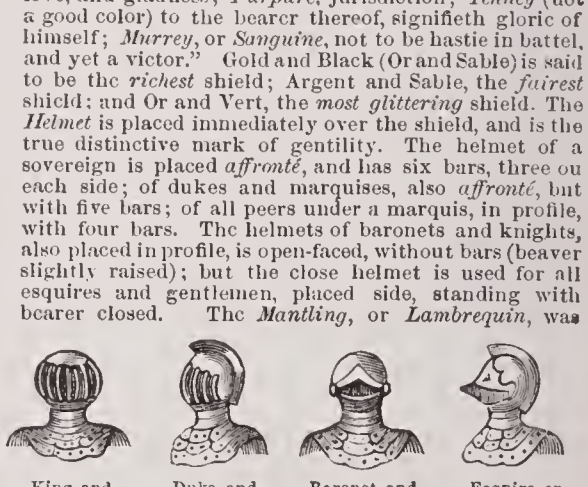


Fig. 1275.

the ancient covering for the helmet; now it is a mere ornament for the escutcheon, or helmet, and is usually represented by scroll-work, leaves, flowers, furs, mantles, &c., according to the fancy of the painter. When mantles are used, that of a sovereign is represented Or, doubled with ermine; of peers, crimson velvet folded and lined with ermine; of knights, esquires, and gentlemen, crimson velvet doubled with white satin. — The *wreath*, or *force*, is made of two skeins of silk twisted together, represented of the principal metal and color of the arms. Formerly

no one below a knight bore the crest set on a wreath, now all wear it.—The *chapeaux*, or caps of dignity, anciently worn by dukes, are now sometimes used to support the crest, instead of a wreath; but these, as well as ducal coronets, are frequently used for this purpose by families not above the degree of esquire. — The *crest*, or cognizance, is the highest figure of the ornaments of an escutcheon, though it is not an essential part of coat-armor. Comparatively few crests are hereditary; they are subject to change, and may be assumed or altered at the option of the bearer. (See CREST, and Figs. 591, 1194.) The *scroll* is the ornament placed above the crest or below the shield, containing the motto alluding to the bearings, or bearer's name, or commemorative of some great action. — *Supporters* are figures represented standing on the scroll at side of the shield supporting it. They are used only by the nobility, though there are some exceptions to this rule, especially in Scottish heraldry.—The *motto*, like the crest, may be taken, changed, varied, or relinquished, when, and as often as the bearer thinks fit; and may even be the same as used by other families of similar or dissimilar name. When the motto alludes to the crest, it should be borne over it. Sometimes a crest- and a shield-motto are used in the same arms. By the strict rules of heraldry, women are not allowed to wear a helmet, nor use a crest, nor motto.— The *badge*, or device, is a figure intended to represent something to be kept in mind by the individual who bears it. The Mowbrays, dukes of Norfolk, bore *lions* and *mulberry-leaves*, in allusion to their name. The earls of Abergavenny, the *portcullis* and *rose*, the ancient device of the family. (See BADGE.)— *Charges* are those figures or things which occupy the field, and are emblematic of individual history or character. Anciently, arms were simple and plain, the heralds of those times being of opinion that the less that appeared on a coat, the more honorable it was, and therefore the arms of Waldegrave are only *per pale, argent,* and *gules;* of Cleborne, *argent, three chevronels, and a chief sable;* of Stanhope, *quarterly ermine and gules;* but nowadays, forty to a hundred guineas will purchase, even from Heralds' College, a field, as Leigh hath it — "full of charge, but empty of honor." When three charges of one kind are used in a shield, two are placed above, and one below, unless they are borne upon a *fess* or *pale*. When a chevron or chevronel is borne surmounted by another ordinary, the difference, or *mark of cadency*, must be placed upon the highest ordinary. If a file, or *label*, be used, it should extend from side to side of shield, over whole coat, be it one or many; but in a single coat quarterly, it must be placed in the middle of the quarters, over the *fess*-point of the shield. On a field or ordinary, when one of the latter is placed over a charge, it is said to be *debruised by the ordinary*. Most charges are taken from the animal or vegetable kingdom From the former we have lions, wolves, bears, &c.; from the latter, trefoils, garbs (sheaves of corn), trees, &c. A griffin or any other beast is said to be *armed* or *langued* of any color, when the teeth, claws, or

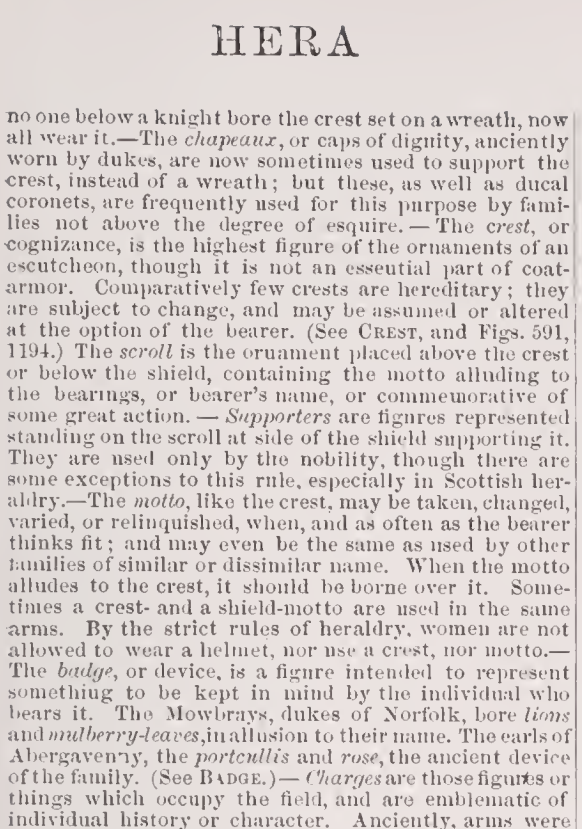


Fig. 1276. — COMMON CHARGES.

1. Stag *at gaze*. 2. Stag's head *caboshed*. 3. Lion, *statant guardant*. 4. Lion *passant*. 5. Lion *passant guardant*. 6. Lion *rampant*. 7. Lion *rampant guardant*. 8. Lion *rampant reguardant*. 9. Lion *sejant*. 10. Lion *couchant*. 11. Tiger *passant*. 12. Dragon. 13. Dragon's head *erased*. 14. Double-headed eagle *displayed*. 15. Boar's head *couped*. 16. Serpent *bowed debruised*. 17. Water-budgets. 18. Fleur-de-lis. 19. Clarion or rest. 20. Trefoils.

tongue is of that tinctnre. Animals that possess horns and hoofs are said to be *armed* or *unguled* in respect of them. A stag or antelope walking is said to be *tripping;* when *attired*, the horns are of that color; when *at gaze*, it is represented looking at the spectator. Bulls, boars, foxes, bears, &c., are favorite emblems, and the heads and limbs of these beasts are borne as charges *couped* (*i.e.*, cut off), or *erased* (torn off or jagged). When fishes are borne perpendicularly, they are said to be *hauriant;* when placed horizontally, *niant*. The dolphin is usually represented *embowed* or bent. A pelican is said to be *in her piety* when she is represented feeding her young. When her wings are placed back to back, they are said to be *indorsed*. This bird is commonly depicted pecking her breast. A peacock borne *affronté*, with tail expanded, is said to be *in his pride*. Birds of prey are said to be *armed* of the color or tincture of which their beaks and talons are represented, and such as have no talons are *beaked* and *membered*. The eagle and vulture are usually borne *displayed* or *preying*. The cock is said to be *armed*, *crested*, and *jelloped*, i. e. referring to comb and gills. Birds are represented *close*, *rising*, or *volant*. Trees are said to be *eradicated* or *fructuated* of some other color. Leaves, fruits, &c., are usually represented *proper*, i. e., of their natural color. The escallop shell, the emblem of the Crusader, is of common occurrence. Celestial bodies are frequently met with, as the sun, moon, crescent, mullets or stars, &c. The ancient heralds were fond of imaginary animals, as the wyvern, unicorn, dragon, &c. Saracens' heads, and other parts of the human body, are not uncommon, and are borne either whole or in part, as in the arms of the Isle of Man. Helmets, buckles, horse-shoes, wool-sacks, horns, water-budgets, &c., are also used — in fact, almost all things fanciful, and found in nature, contribute to the heralds' stock of charges. — In marshalling arms, or arranging the various coats in one escutcheon — which is termed a *genealogical pennon* — great care and an intimate knowledge of the rules of heraldry are required. The husband may *impale* the arms of his wife, unless she be an heiress, in which case he is to bear her arms on *escutcheon of pretence*, and her descendants quarter her arms with the paternal coat. For further information, see the articles on ORDINARY, CHARGE, LINE, &c., under their respective heads. The best work on Heraldry is that of *Gwillim*. See also *Edmondson*, *Burke*, *Dugdale*, *D'Hozier*, *Planché*, *Dallaway's Inquiries*, 1793, and *Whitmore's* Manual, published in Boston in 1868.

Her'alds' College. (*Her.*) This English institution was founded in 1483 by Richard II. of England. It was first situated in the parish of All-Hallows-the-Less, London; but was re-incorporated in the reign of Mary, who gave a site on Benet's Hill, Doctor's Commons, on which the present college was built by Sir Christopher Wren. Edward III. was the first English sovereign who created two heraldic kings-at-arms—*Surroy* and *Norroy*—whose offices were exercised S. and N. of the Trent, respectively. Richard II. gave the Earl-Marshal power to preside over a Court of Chivalry, assisted by the heralds, but the first heraldic collegiate chapter was held at the siege of Rouen, 1420. The kings-at-arms were fixed at three, their present number, by Henry VIII., and in 1528 a regular commission was granted for the whole kingdom, for heraldic visitation, after which period the county visitations were conducted with more system and regularity. The officers of Heralds' College are the Duke of Norfolk, hereditary Earl Marshal. Three kings-at-arms — *Garter*, *Clarencieux*, and *Norroy*. — of whom the first holds the highest rank. His duties are chiefly to grant supporters, arrange funerals, coronations, &c., and to present the Order of the Garter to foreign princes. The heralds are six in number, viz. — *Windsor*, *Chester*, *Lancaster*, *Somerset*, *York*, and *Richmond*; they, with the kings-at-arms, form the Collegiate Chapter. The four pursuivants, *Portcullis*, *Rouge-Dragon*, *Blue-Mantle*, and *Porte-Croix*, are merely probationers, who afterwards succeed to the higher offices. It is the duty of the officers of the college to keep the records of the arms, crests, and cognizances of all persons entitled to coat-armor. They have considerable authority for the purpose of preventing parties (by fines and other penalties) from bearing arms to which they have no right, and are authorized to assign armorial bearings to persons applying for permission to bear them. To obtain an assignment of arms, it is necessary to memorialize the Earl Marshal, and the applicant is required to produce evidence that he can sustain the rank of gentry. Persons having an hereditary claim to arms which have been disused for one or more generations, are empowered by the college to *resume* them on *proof* and registration of pedigree. The fee for a general search is £2 2*s.*; for an ordinary search, 5*s.*; for copying and registering pedigrees, 6*s.* and 8*d.* for the first, and 5*s.* for every other generation. In Ireland *Ulster king-at-arms*, and in Scotland *Lyon king-at-arms*, perform the same duties as *Garter* in England. In Ireland, the fee for a grant of arms is *thirty* guineas (£31 10*s.*), and for a confirmation, *ten* guineas (£10 10*s.*)



Fig. 1277.
WINDSOR HERALD.

Her'aldship, *n.* Office or vocation of a herald.

He'rat, a city of Afghanistan, and the capital of an independent state, situated in a plain near the Herirood River, 360 m. W. by N. of Cabul; Lat. 34° 50′ N., Lon. 62° 30′ E. It is well fortified, and surrounded by a wet ditch, mound, and bastioned wall. It contains a number of caravanseras, public baths, reservoirs, and numerous mosques, besides a strong citadel. *H.* is the emporium of the commerce carried on between Cabul and Bokhara, Hindostan, and Persia, and is a grand central mart for the products of India, China, Tartary, Afghanistan, and Persia. *Manuf.* Carpets, leather, caps, cloaks, shoes, &c. *Pop.* about 40,000, of various nationalities. This place has often been ravaged by various conquerors, disputing the empire of Asia. The position of *H.* is one of the greatest possible importance, and has been well described as the "Gate of India;" for within the limits of the Heratee country all the great roads leading to India converge. By the *H.* route alone could a formidable and well-equipped army march upon the Indian frontier from the north-west regions. In 1855 the Persians made a renewed attempt to get possession of *H.*; but, after a short war with England, desisted. — See AFGHANISTAN.

Herault, (*hā'rōlt.*) [Lat. *Araaris.*] A river of France, rising in the Cevennes, dept. Gard which in its S.W. course of 78 m. waters Ganges, St. Guilhem, Pézénas, and Bessan, after which it falls into the Mediterranean at the harbor of Agde.

—A maritime dept. in the S. of France, formerly comprised in Languedoc. It is bounded along its S.E. side by the Mediterranean. *Area*, 2,444 sq. m. Its surface is mountainous in the N. and W., fine valleys, however, intervening; the coasts are low, and exhibit extensive lagoons and salt marshes. *Climate.* Mild and genial, and generally healthy, with the exception of the swampy localities. *Rivers.* Lez, Hérault, and Orbe. *Prod.* Wine, olives, mulberries, fruits, drugs, and dyes. *Minerals.* Coal, copper, iron, and various others. *Manuf.* Cloths, cottons, silks, and woollens, paper, steel, brandy. *Chief towns.* Montpellier (the cap.), Cette, Agde, and Lodève. *Pop.* 448,375.

Herb, *n.* [Fr. *herbe;* It. *erba;* Lat. *herba;* akin to Gr. *pherbō*, to feed, to nourish.] (*Bot.*) A plant with a soft or succulent stalk or stem, which bears its flower and fruit once only, and then with its root wholly perishes. There are two kinds: *annuals*, which perish the same year; and *biennials*, which have their leaves the first year, and their flowers and fruit the second, and then die away. — The term is also extended to plants which live and blossom during an unlimited number of years, but which die every year in the ground, or near it. They are called *Perennial herbs.*

Herbaceous, (*her-bā'shus,*) *a.* [Lat. *herbaceus.*] Pertaining or relating to, or possessing the nature of herbs; as, an *herbaceous* plant. — Herbivorous; feeding on herbs. (R.)

Herbage, (*herb'āj,*) *n.* [Fr. and Sp.] Herbs collectively; grass; pasture; green fodder for beasts.

> "Thin *herbage* on the plains, and fruitless fields." — *Dryden.*

(*Eng. Law.*) An easement which consists in the right to pasture cattle on another's ground.

Herbaged, (*herb'ājd,*) *n.* Covered with grass or pasture.

Herb'al, *a.* Pertaining to, or consisting of herbs; as, an *herbal* ointment.

—*n.* A collection of specimens of plants, dried and preserved; an herbarium; a hortus siccus. — A book that contains the names and descriptions of herbs or plants; a dry garden.

Herb'alism, *n.* The study or knowledge of herbs.

Herb'alist, *n.* One who is skilled in herbs or plants; a collector of herbs or plants. (Sometimes written *herborist.*)

Herba'rian, *n.* A herbalist or herborist.

Herba'rium, *n.*; (Eng. *pl.* HERBARIUMS; Lat. *pl.* HERBARIA.) [From Lat. *herba.*] A collection of specimens of plants carefully dried and preserved. Such collections are very valuable, — for a well-preserved plant displays its botanical structure in all its minutiæ, better than the most accurate engraving. In order to compose an *H.*, plants are usually collected in a tin box, called a *vasculum*, which preserves them from withering for at least a short time. They should be gathered on a dry day, and those which have collected moisture in their leaves should be placed in a vessel of water and be allowed to dry there. It is necessary to kill plants with succulent stems or leaves, by immersing them for a short time in hot water. In order to complete the drying of the specimens, they are placed between layers of bibulous paper, so as not to distort their parts. Pressure is then applied, which varies according to the nature of the plants. Great care is necessary in order to avoid using too much pressure at first. The paper is changed every day, or every second day, and dry paper supplied for a short time. Those specimens which are quickly dried have the best appearance; and some plants which lose their natural color and turn black in the ordinary mode of drying, can be beautifully preserved by a quick process. Thus, in the case of the orchids, and other similar plants, when placed between layers of paper, inclosed in a wire net-work frame, and hung before a fire, where the package is made to turn like meat roasting, they can be exquisitely dried in a few hours. By the ordinary process they would require eight or ten days. When properly dried, the specimens are placed in sheets of writing-paper, and may be slightly fastened by making the top and bottom of the stalk pass through slits in the paper for the purpose. The name of the genus and species, the locality where it was found, together with any other interesting information, are then marked beside each. The method of preserving cryptogamous plants is more difficult, on account of the greater quantity of moisture which they contain, and the great delicacy of their texture. Herbaria are generally ranged on a botanical system; and great care is required in order to preserve their contents from the ravages of moths and beetles. Camphor and

a little corrosive sublimate are good preservatives. There are some herbaria in existence which have lasted for centuries, and which are still consulted for the identification of species.

Herb'arize, *v. a.* Same as HERBORIZE, *q. v.*

Her'bart, JOHANN FRIEDRICH, a German philosopher, b. at Oldenburg, 1776, was professor of philosophy at the universities of Königsberg and Göttingen. *H.* developed peculiar opiuions in opposition to most of the existing systems of philosophy, rejecting the method of psychology, aiming at a science of miud based on mathematics, and maiutaiuing that philosophy is not a science or explanation of any one subject, but a certaiu method of treating any subject, — a development and elaboration of notions or conceptions. But his views are sometimes left in obscurity from the brevity with which he states them. He wrote several works on education in the earlier part of his career, and expounded his philosophical views in the following, among other publications: — *Psychologie als Wissenschaft, neu gegründet auf Erfahrung; Metaphysik und Mathematik; Einleitung in die Philosophie; Allgemeine Metaphysik;* and *Kurze Encyclopädie der Philosophie.* D. at Göttingen, 1841.

Herb'ary, *n.* An herb-garden: a cottage-garden.

Herb'-bennet, Herb'-bennett, *n.* (*Bot.*) See GEUM.

Herb-chris'topher, *n.* (*Bot.*) The Bane-berry. — See ACTÆA.

Her'bert, the patronymic of a noble family, eminent in the historical annals of England, represented at the present day by the earls of Carnarvon, Pembroke, and Powis, and by Mr. Herbert of Muckross Abbey, Ireland. Of the more distinguished members of this house we mention:

HERBERT OF CHERBURY, EDWARD, (LORD.) b. 1581, celebrated for his spirit of knight-errantry and deistical character. In 1610 he served under Prince Maurice of Orange-Nassau, and was afterwards appointed English ambassador at Paris. During the civil war he sided alternately both with the Parliament and the king. Lord *H.* is considered the first of English deists; and was author of *De Retigione Gentilium*, and other works. — See Hallam's *Literary History.*

HERBERT, GEORGE, an English poet, and younger brother of the above, b. 1593, and educated at Westminster and Cambridge. After taking holy orders, he became rector of Bemerton, Wilts., where he died in 1632. *H.* is esteemed the best of the older English devotional poets, and his chief production, *The Temple, or Sacred Poems and Private Ejaculations*, contains passages of the most exquisite verse. His life was written by Izaak Walton. A new edition of *H.*'s works was published in London, in 1853.

HERBERT OF LEA, SIDNEY, (LORD,) an English statesman, son of the 11th earl of Pembroke, b. 1810, and educated at Harrow, and Oxford University. Destined for public life Mr. *H.* entered the House of Commons in 1832 as member for South Wilts, which he represented till 1861. At his entrance upon a political career, he belonged to the Conservative Party, and took office under Sir Robert Peel's administration (1841–5) as Secretary-at-War. As a member of the government, *H.* had the task of opposing Mr. Cobden's motion for an inquiry into the operation of the corn-laws as affecting agriculture, and, afterwards, on the conversion of Sir R. Peel and his party to free-trade principles, to argue in support of the latter. Quitting office in 1845, Mr. *H.* became again war secretary in Lord Palmerston's second administration in 1839. During this, his last tenure of ministerial position, he effected radical improvements in the education and sanitary condition of the British army, brought about the amalgamation of the Indian with the royal army, and organized the volunteer force. He, besides, originated many and striking reforms in the working-system of the war-office, and esteemed as his proudest title that which was popularly conferred upon him, the "Soldiers' Friend." In 1861, Mr. *H.* was raised to the peerage, and his death, occasioned by overwork, occurred within the same year. Lord *H.* had superior business qualifications, most genial and thorough-bred manners, flueut oratorical powers, and an exhaustless spirit of philanthropy. In him the arts found another Mecænas; and the fine church built by him in the Byzantine style, near his seat, Wilton Abbey, near Salisbury, will remain as an enduring monument of his refined taste and noble munificence. By his wife, a lady of the A'Court family, he left two sons, the elder of whom succeeded his uncle in 1864, as 13th earl of Pembroke and Montgomery.

HERBERT, WILLIAM, (3d EARL OF PEMBROKE,) an English poet, and the friend of Shakspeare, b. 1580. He was Chancellor of the University of Oxford, Governor of Portsmouth, Lord Chamberlain of England, and founder of Pembroke College, Oxford. He was a man of fine learning, and of a noble and heroic character, although tainted with much of the licentious spirit of his time. D. 1630.

Her'bert, in *Mississippi*, a post-village of Kemper co., about 90 m. E.N.E. of Jackson.

Herb'ery, *n.* A lodging-place; an arbor.

Herbescent, (*herb-es'sent,*) *a.* [Lat. *herbescens* — *herbesco*, to grow into herbs, stalks, or blades, from *herba.*] Growing into herbs.

Herb-carniv'orous, *a.* Feeding upon both vegetable and animal food, as certain animals.

Herbif'erous, *a.* [From Lat. *herba*, herb, and *ferre*, to bear.] Bearing or producing herbs.

Herb'ist, *n.* A herbalist.

Herb'ivore, *n.* An animal that feeds upon herbs or vegetables.

Herbiv'orous, *a.* [Lat. *herba*, and *voro*, to devour, to eat up.] Eating herbs; feeding on herbaceous plants.

Herbiv'orous Whales, *n. pl.* (*Zoöl.*) A name applied to certain pachyderms, which are whale-like in general appearance, as the manatee and the dugong. Cuvier has grouped them with the cetaceans incorrectly, since their teeth have flat crowns. They frequently leave the water, crawl upon the shore, and feed upon the vegetation.

Herb'less, *a.* Without herbs or vegetation.

Herb'let, *n.* A small herb.

Herb'orist, *n.* Same as HERBALIST, *q. v.*

Herboriza'tion, *n.* Act of seeking plants or herbs; botanical study.

— The figure of plants in mineral substances.

Her'borize, Her'barize, *v. a.* To seek plants, or new species of plants, with a view to determine their character and class.

Herbose', Herb'ous, *a.* [Lat. *herbosus* — *herba.*] Abounding with herbs; resembling herbs.

Herb-par'is, *n.* (*Bot.*) See PARIS.

Herb-rob'ert, *n.* (*Bot.*) See GERANIUM.

Herb'-woman, *n.; pl.* HERB-WOMEN. A woman who sells herbs.

Herb'y, *a.* Resembling, having the nature of, or covered with herbs; as, "*herby* valleys." — *Chapman.*

Hereula'neum, or HERCULA'NUM, an ancient and now buried city of Italy, in the Campagna, close to the Bay of Naples, and 8 m. S.E. of that city. The date of its foundation is unknown. Velleius Paterculus tells us that its inhabitants took an active part in the social and civil wars, and that the city suffered considerably in consequence. Little more is known about it except its destruction, with Pompeii and Stabiæ, by the great eruption of Mount Vesuvius, A. D. 79. The city appears to have been completely buried under showers of ashes, over which a stream of lava flowed, and afterwards hardened. The configuration of the coast itself was hardened by the burning torrent; and thus, when the local features were so wholly changed, all knowledge of the city, beyond its name, was soon lost. After a concealment of 16 centuries, accident led to the discovery of its ruins, in 1713, when the Prince d'Elbœuf, a French nobleman, who was building a palace at Portici, having need of materials for stucco, sunk a well on his estate to procure them, in course of which operation, traces of the lost city were brought to light. Twenty-five years afterwards, a systematic course of excavation was begun, which successively revealed a theatre, chalcidium, two temples, and a villa. Owing to the clumsy manner in which this work was performed, a small portion of the theatre is all that is now accessible, and the further progress of investigation has long been discontinued. The precious relics of antiquity, so far as they were capable of removal, were taken to Naples, and are now deposited, along with other relics from Pompeii, in a large museum attached to the royal palace. The collection is most extensive, and comprises not only frescoes, statues, and works of art, but also articles of household furniture, such as tripods, chandeliers, lamps, basins, paterræ, mirrors, appliances for the toilet, musical and surgical instruments, and even cooking-utensils. The paintings which have been cut from the walls on which they were originally executed have, since their restoration to the light, lost somewhat of their brightness; but the colors are still wonderfully fresh. The statues and busts (of bronze as well as marble) are very numerous, and of exquisite beauty. On the whole, the remains of *H.*, so varied and perfect, throw a strong light on the arts and domestic customs of the Romans. Of late years excavations have been resumed, with important results. The art relics of *H.* far exceed, in value and interest, those of Pompeii.



Fig. 1279. — GATE AT HERCULANEUM.

Hereula'neum, in *Missouri*, a post-village of Jefferson co., on the Mississippi river, 30 m. below St. Louis. It was almost entirely destroyed by a flood in 1844.

Hereulean, (*her-kū'lē-an,*) *a.* [From *Hercules.*] Of, or belonging to Hercules; resembling Hercules; very great, difficult, or dangerous; as, *herculean* labor. — Possessing extraordinary strength, size, force, or power; as, *herculean* limbs.

Hereules, (*her'cu-lēs,*) *n.* [Gr. *Heracles.*] (*Myth.*) A renowned hero, who in fabulous history was after death placed among the gods. Though the ancients enumerate many persons as having borne this name, the most celebrated of all was the *Theban Hercules*, who is reputed to have been the son of Jupiter by Alcmene, wife of the king of Argos, whom the god seduced by assuming the likeness of her husband. The jealousy of Juno induced her to send two serpents to destroy the infant in his cradle, but the child strangled both; he was reared in all the accomplishments of the age, and was endowed with prodigious strength. At eighteen, single-handed and unarmed, he killed a fierce lion; for this and many other public services he was rewarded by Creon, king of Thebes, with the hand of his daughter. The oracle having told him that he must serve Creon's son for twelve years as servant, he fell into a melancholy, which ended in furious madness; during which he divorced his wife, and murdered all his children. To expiate this crime, the king imposed the celebrated twelve labors, each of which was supposed to surpass all mortal power to accomplish unaided. To enable him to effect these, the gods bestowed a horse, armor, sword, bow and arrows, a shield, and a club of brass. His first feat was to free a wood in Achaia of the Nemean lion, whose hide was proof against any weapon, so that he was obliged to seize him by the throat and strangle him. The second labor was to destroy the Lernæan Hydra, which had fifty, some say a hundred heads; this he finally destroyed with his club. The third was the capturing, unhurt, a stag with golden horns, and swift as the wind; this cost him a year to hunt. The fourth, to bring alive a wild boar of terrific power and fierceness. His fifth was to cleanse the Augean stable, where 3,000 oxen had been confined for years; this he effected by turning a river into the stable. The sixth and seventh were the killing of a voracious kite, and the capture of a ferocious bull. The eighth was to possess the mares of the king of Thrace, which fed on human flesh. The ninth was to obtain the girdle of the Amazonian queen. The monster Geryon was the tenth; this was in Spain, when he erected the "Pillars" as a proof that he had been to the limits of the known world. The carrying away of the golden apples from the Garden of the Hesperides was the 11th task; and the 12th and last, the bringing up to earth the three-headed dog of Tartarus, Cerberus. He, moreover, delivered Hesione from a marine monster; separated the mountains of Calpe and Abyla, which formerly were a single mountain, and thus formed the "Pillars of Hercules;" killed the centaur Nessus; delivered Prometheus from his chains on Mount Caucasus; took Troy, to punish King Laomedon for his perjury; and performed a host of other brilliant exploits. Having carried off Iole, daughter of Eurytus, king of Æchalia, he was about to wed that princess, when Dejanira, his wife, finding herself about to be forsaken, sent him a tunic dyed with the poisoned blood of the centaur Nessus, thinking to regain his affections by that means. *H.* had no sooner put on the garment, than it adhered to his skin, and caused him the most cruel torments. To end these he kindled an immense fire on Mount Œta, and burnt himself alive. The burning pile was suddenly surrounded by a dark cloud, in which, amid thunder and lightning, *H.* was carried up to heaven, where Jupiter gave him Hebe for his wife. *H.* had several wives, the principal of whom were Megara, whom he killed in a fit of passion; and Dejanira, who was the mother of Hyllus. (See HYLLUS.) He loved Omphale, and spun at her feet to obtain her favors. He had been driven from his hereditary dominions by Eurystheus, and after his death, his descendants, the Heraclidæ (see HERACLIDÆ), made numerous attempts to reconquer them, but were unsuccessful till the year 1104 B. C. The great number of exploits which have been attributed to *H.* have led to the belief that there were many heroes of that name. Varro enumerates so many as 44; Diodorus says there were three, and Cicero counts six; but some modern scholars consider him an allegory of the sun, his twelve labors representing, according to their version, the twelve months, or the twelve signs of the zodiac.



Fig. 1280. — HERCULES.

H., (*Pillars of,*) the name given by the ancients to two rocks forming the entrance to the Mediterranean, generally identified with *Calpe* (now Gibraltar), and *Abila* (now Ceuta). See ABILA.

(*Astron.*) A constellation in the northern hemisphere, formed by the old astronomer Aratus, but considered to have received its present name from some later astronomer. It is surrounded by the constellations Boötes, Draco, Lyra, and Ophiuchus. It contains no stars of the first and second magnitude.

Her'cules-beetle, *n.* (*Zoöl.*) A Brazilian insect of the family *Scarabæidæ*, remarkable for its great size — it being 5 inches long — and for the singular appearance of the male; — an immense horn projecting from the head, and being opposed by a similar but smaller projection of the thorax, the whole resembling a pair of great but somewhat unequal pincers, of which the body of the insect is the handle.



Johann G. von Herder

1744–1803

Hereyn'ian Forest. [Lat. *Hercynia Sylva.*] The ancient name of a forest of Germany, covering a mountain-range generally identified with the Hartz Mountains. The term *H. F.* was afterwards restricted to the range which encircles Bohemia.

Her'eynite, *n.* [From Lat. *Hercynia*, the Bohemian forest.] (*Min.*) A black *spinel* (q. v.) from Ronsberg. *Sp. gr.* 3·91–3·95. *Comp.* Alumina 58·9, oxide of iron 41·1.

Herd, *n.* [A. S. *heord, hiord;* Swed., Goth., and Icel. *hiörd;* Goth. *hairda;* Sausk. *chardha*, force, strength.] A collection or assemblage, as of cattle which are guarded, kept, or tended; a number of beasts together; as, a *herd* of deer. — A company of men or people, used in a contemptuous sense; a crowd; a rabble.

"Survey the world, and where one Cato shines,
Count a degenerate *herd* of Catilines."—*Dryden.*

Herd, *n.* [A. S. *hirde, hierde, hyrde.*] One who herds cattle or domestic animals; — much used in composition; as, a shep*herd*, goat*herd*, swine*herd*, &c.

—*v. n.* To run in herds or collected masses, as beasts.

"Weak women should, in danger, *herd* like deer."—*Dryden.*

—To associate; to unite in a company or companies.

"Run to towns to *herd* with knaves and fools."—*Walsh.*

—*v. a.* To form or put into a herd.

Herd'er, *n.* Same as Herdsman, *q. v.*

Her'der, Johann Gottfried von, a German philosopher, theologian, poet, and miscellaneous writer, born in 1744, of poor parents, at Mohrungen, in Prussia, was educated for the church, and became court-preacher, ecclesiastical counsellor, and vice-president of the consistory to the duke of Saxe-Weimar; and D. in 1803. At the moment when he died he was writing a hymn to the Deity, and the pen was found on the unfinished line. His works form 45 vols. 8vo., and embrace the most various branches of science, philosophy, philology, natural and civil history, and politics. Among those best known are the *Geist der Hebräischen Poesie; Gedichte;* and *Ideen zur Philosophie-Geschichte der Menschheit*, translated into English under the title of "Outlines of a Philosophy of the History of Man" (London, 8vo.), which is one of the principal and standard treatises on the subject.

Her'derite, *n.* (*Min.*) A rare mineral from the tin mines of Ehrenfriedersdorf, Saxony. It is of a whitish color, tinged with yellow or green. *Sp. gr.* 2·98. *Comp.* Phosphate of alumina and lime with fluorine.

Herd'man, Herds'man, *n.; pl.* Herdmen, Herdsmen. A keeper of herds; a person employed in tending herds of cattle or other beasts. (Sometimes written *herder.*)

Herds'woman, *n.; pl.* Herdswomen. A woman who tends cattle.

Here, *adv.* [A. S., Dan., and Goth. *her;* Icel. *hér*; Ger. and D. *hier;* Sansk. *hi*, or *ithra*, here.] In this place: in the place where the speaker is present; — in contradistinction to *there.*

"To-day is ours, we have it *here.*"—*Cowley.*

—In the present life or state.

"Thus shall you be happy *here*, and more happy hereafter."*Bacon.*

Here sometimes precedes a verb without a subject, either being employed as an indefinite subject, or the latter being omitted; as, *here goes*, for *here it goes;* — especially used in making an offer or attempt, and in drinking healths. "*Here's* for earnest." (*Dryden.*) — "*Here's* to the king." (*Prior.*)

Here and there, in one place or another; in a scattered manner or condition; at intervals of space. — *It is neither here nor there*, neither in one place nor in another; hence, irrelevant; unimportant; indefinite.

Here'about, Here'abouts. *adv.* About this place.

Hereaf'ter, *adv.* After this time; in time to come; in some future time; in an after state.

—*n.* The time after this; a future state.

"'Tis Heaven itself that points out an *hereafter.*"—*Addison.*

Hereat', *adv.* At this; as, "the tribune was offended *hereat.*"—*Hooker.*

Hereby', *adv.* By this; by means of this; as, *hereby* famous.

Hereditabil'ity, *n.* State or position of being hereditary.

Hered'itable, *a.* [L. Lat. *hereditabilis.*] That may be inherited: as, an *hereditable* monarchy.

Hered'itably, *adv.* By inheritance; in an hereditable manner.

Heredit'ament, *n.* [L. Lat. *hereditamentum*, from Lat. *heres, heredis*, an heir. See Heir.] (*Law.*) Every kind of property that can be inherited; *i. e.* not only property which a person has by descent from his ancestors, but also what he has by purchase, because his heir can inherit it from him.

Hered'itarily, *adv.* By inheritance; by descent from an ancestor.

Hered'itary, *a.* [Fr. *héréditaire*, from Lat. *hereditas*, inheritance.] Relating to an inheritance; that has descended from an ancestor to an heir; as, an *hereditary* title or estate. — Descendible from an ancestor; that may descend to an heir at law.

"He shall ascend the throne *hereditary.*"—*Milton.*

—That is or may be transmitted from a parent to a child; as, *hereditary* pride, *hereditary* gout.

Hereford, or **Here'fordshire,** (*her'e-ford,*) a county of England, on the borders of Wales, bounded N. by Shropshire, S. by Gloucester and Monmouth, E. by Worcester, and W. by Brecknock and Radnor; *area*, 836 sq. miles. *Prod.* Wheat, barley, apples, pears, and hops. *Min.* Red and yellow ochre, pipe-clay, fuller's earth, and iron-ore on the borders of Gloucestershire. *Prin. Towns.* Hereford (the cap.), Leominster, Ledbury, and Ross. The chief rivers are the Wye, Frome, Lugg, Arrow, and Munnow.

Hereford, a city of England, cap. of above co., on the Wye, 134 m. W.N.W. of London. *Manuf.* Gloves, hats, and flannel.

Here'ford, in *Maryland*, a post-village of Baltimore co., abt. 52 m. N. by W. of Annapolis.

Here'ford, in *Pennsylvania*, a post-township of Berks co.

Herein', *adv.* In this.

"My best endeavors shall be done *herein.*" — *Shaks.*

Here'into, *adv.* Into this.

Heremit'ical, *a.* Same as Eremitical, *q. v.*

Hereof', *adv.* Of this; from this.

Hereon', *adv.* On this; hereupon.

Heresiarch, (*her-e'sĭ-ark,*) *n.* [Gr. *hairesis*, heresy, and *archos*, chief.] A leader in heresy; the chief of a sect of heretics.

Here'siarchy, *n.* Chief heresy.

Heresiog'rapher, *n.* [Gr. *hairesis*, heresy, and *graphein*, to write.] A writer on heresy.

Heresiog'raphy, *n.* A treatise or discourse on heresy.

Her'esy, *n.* [Fr. *hérésie;* Lat. *hærĕsis;* Gr. *hairesis*, from *haireō*, to take.] The act of holding opinions upon religious matters contrary to the authority and teaching of any religious community to which a person may be presumed to owe obedience. Primitively, however, it was used to designate any opinion that a man or a sect might choose to adopt; and in this way it was applied to the philosophic sects of the Greeks and Romans. In the New Testament, even, the term is frequently used to designate a religious sect, without any reproach being implied. In this sense it is used in *Acts* v. 17; xv. 5; xxviii. 22; and Josephus terms the three great Jewish sects, *heresies*, without wishing to imply any censure. On the other hand, it was used in a reproachful sense by the Apostles towards those who denied their doctrines, and by the Jews towards Christianity. In the writings of the Christian fathers we find the term employed towards those opinions which differed from what was deemed to be the doctrine of the Apostles; and later, when Christian teaching came to be regulated by ecclesiastical councils, any one who rejected their decisions was proclaimed to be a heretic; while those who gave their adherence to what was settled by these councils were proclaimed to be orthodox, which is still now the doctrine of the Roman Catholic Church. It is necessary that heresy should not be confounded with *schism*, or with *apostasy;* the latter implying a complete renunciation of Christian doctrine, while schism means only the rejection of some point of discipline, just as heresy denotes any division upon matters of doctrine. The early fathers gave the number of heresies as ranging between 80 and 150, although Dr. Lardner, in his "History of Heretics," demonstrates that these figures are somewhat exaggerated. Nearly all the heretical opinions current in the first two centuries of the Christian æra appertain to the creation of the world, to the connection between Christianity and Judaism, and to the person of our Saviour. The two great sects were the *Ebionites* and the *Gnostics.* In the 3d century the *Manichæan* heresy took birth. At the head of this sect was Manes, whose object it was to ingraft upon the teachings of the Apostles the rites taught by the Persian magi. Passing over the heretical controversies of *Sabellius*, of *Novation*, and of *Paul of Samosata*, all of which arose during the 3d century, we reach the great *Arian* heresy, which formed the chief object of the theological discussion during the 4th century. The only new sects which require distinct mention are the *Pelagian*, which sprang forth in the 5th cent.; the *Nestorians*, and their adversaries the *Eutychians;* the *Monothelites*, the *Monosophytes*, and the *Paulicians.* From the very date of the establishment of Christianity in the Roman empire, heresy appears to have been regarded as a crime cognizable by the civil law; and Constantine enacted several severe laws for its repression, which were continued and extended by his successors, and were collected into a single title, *De Hæreticis*, in the Justinian code. The penalties of heresy ordained by these enactments are very severe, extending to corporal punishment, and even to death; and they all proceed on the distinct assumption that a crime against religion is a crime against the state. These enactments of the Roman law were embodied in the various codes of the European kingdoms; and in considering the history of the Middle Ages, it is necessary to recollect that the principle above referred to, as to the social bearing of the crime of heresy and of other crimes against religion, pervades the whole system of mediæval jurisprudence. It is further to be remembered, that the principles of many of the mediæval sects were anti-social and communistical, as well as opposed to the doctrines of the Church; and that their leaders, in many instances, by adopting violent and revolutionary means for the propagation of their doctrines, drew upon themselves the punishment of anarchy and rebellion, as well as heterodoxy in religion. Still, with even these allowances, Catholic historians themselves admit that the mediæval procedures against heresy were in many instances excessive, as were, indeed, also the processes and penalties of the criminal code.

Her'etic, *n.* [Fr. *hérétique;* Gr. *hairetikos.*] One guilty of heresy; a person under any religion, but particularly the Christian, who holds and teaches opinions repugnant to the established faith, or that which is made the standard of orthodoxy.

Heret'ical, *a.* Containing heresy; contrary to the established faith, or to the true faith.

Heret'ically, *adv.* In an heretical manner; with heresy.

Hereto', *adv.* To this; hereunto; as, *hereto* I affix my seal.

Her'etoch, *n.* [Ger. *herzog.*] The name given by the Anglo-Saxons to those persons who were elected by the *folkmote* or full assembly of the people to lead the armies of the kingdom.

Heretofore', *adv.* In times before the present; formerly; as, it was the practice *heretofore.*

Heremto', *adv.* To this; hereto.

Hereupon', *adv.* On this; hereon.

Herewith', *adv.* With this; as, *herewith* please receive my compliments.

Her'ford, a town of Prussia, prov. Westphalia, on the Werra, 17 m. S.W. of Minden; *pop.* 11,000.

Her'iot, *n.* [A.S. *heregeat—here*, army, and *geat*, tribute, from *geotan*, to pour out.] (*Eng. Law.*) A tribute or fine payable to the lord of the fee on the decease of the owner, landholder, or vassal.

Her'iotable, *a.* Liable to the payment of a heriot.

Herisau, (*her'e-sow,*) a town of Switzerland, canton of Appenzel, 5 m. W.N.W. of Appenzel. *Manuf.* Cottons, silks, linens, and muslins. *Pop.* 7,865.

Her'isson, *n.* [Fr.] (*Fortif.*) A beam armed with iron spikes, and used as a barrier to block up a passage.

Heristal, (House of,) (*hair-is'tal,*) whence sprang the Carlovingian dynasty. It was founded by Pepin "the Young," lord of Heristal, steward of the palace under Thierry III., and afterwards duke of the Franks.

Her'itable, *a.* [O. Fr.] That may inherit or be inherited; inheritable. — Capable of inheriting.

Her'itably, *adv.* By way of inheritance.

Her'itage, *n.* [Fr. *héritage*, from Lat. *hereditas.*] Inheritance; an estate that passes from an ancestor to an heir by descent or course of law; that which is inherited.

"Lord of himself — that *heritage* of woe." — *Byron.*

(*Script.*) The saints or people of God.

"O Lord, save thy people, and bless thine *heritage.*" *Book Com. Pr.*

Her'itance, *n.* Heritage; inheritance. (R.)

Her'itor, *n.* In Scotland, a landed proprietor in a parish.

Her'kimer, in *New York*, a N.E. central co.; *area*, about 1,459 sq. m. *Rivers.* Mohawk, Moose, and Black rivers, besides many smaller streams. *Surface*, hilly; *soil*, fertile. *Min.* Iron, lead, plumbago, gypsum, limestone, and quartz. *Cap.* Herkimer. *Pop.* (1890) 45,608.

—A post-town and township, cap. of Herkimer co., on the Mohawk river and N. Y. Cent. R.R., 14 m. E.S.E. of Utica. *Pop.* of township (1897) about 4,750.

Her'ma, *n.; pl.* Hermæ. [Lat.] (*Greek Antiq.*) A small figure or bust of *Hermes* fixed on quadrangular pedestals on the side and at the crossing of roads.

Her'man, in *Wisconsin*, a post-township of Dodge co.

—A township of Sheboygan co.

Herman'dad, or Santa Hermandad. [Sp., brotherhood.] (*Sp. Hist.*) A fraternity founded among different towns and villages to prevent the commission of crimes, and to prevent the abuses and vexations to which they were subjected by men in power. To carry into effect the objects of this association, each village and town elected two *alcaldes*, — one by the nobility, and the other by the community at large. These had under their order inferior officers, called *cuad villeros.* Their duty was to arrest delinquents and bring them before the alcaldes, when they were tried substantially in the ordinary form. The abuses occuring in the exercise of the functions of these tribunals caused their abolition, and the *Santas hermandades* of Ciudad Rodrigo, Talavera, and Toledo, the last remnants of these anomalous jurisdictions, were abolished in 1835.

Her'mangarde, (*her'man-gard,*) the name of several princesses during the Middle Ages. — 1. The second wife of Charlemagne, daughter of Desiderius, king of the Lombards, who was drowned in 771, after being married a year. — 2. The first wife of Louis le Debonnaire, or queen of Provence.

Her'mann. See Arminius.

Her'mann, in *Missouri*, a post-town, cap. of Gascouade co., on the Missouri river and Mo. Pac. R.R., 81 m. W. of St. Louis. *Pop.* (1897) about 1,500.

Her'mannite, *n.* (*Min.*) Same as Rhodonite (*q. v.*).

Her'manos, Los. [Sp., "The Brothers."] A group of islands in the Caribbean Sea, about 50 m. N.W. of the island of Margarita. They belong to Venezuela.

Her'man's Store, in *Illinois*, a village and former post-office of Washington co.

Her'mannstadt [Lat. *Cibinium;* Hung. *Nancy-Szeben*], a town of the Austrian empire, in Transylvania, on the Cibin, a small branch of the Alnta, 71 m. S.S.E. of Klausenburg, and 70 m. W.N.W. of Kronstadt; Lat. 45° 47′ 4″ N., Lon. 24° 4′ 13″ E. *Manuf.* Linens, woollens, hats, leather, and paper. *Pop.* (1897) about 18,200.

Hermaphrodite, (*her-măf'ro-dīt,*) *n.* [Fr.; from Gr. *hermaphroditos* — a name derived from the fable of the union into one of the bodies of Hermaphroditos, son of Hermes and Aphrodite, and the nymph Salmacis. See Ovid's *Metamorphoses*, lib. iv. v. 347.] (*Physiol.*) An organized body in which there is either a real or apparent combination of the characteristics of the two sexes. True hermaphrodites are only met with in the lower degrees of the animal scale, among the Zoöphites, Mollusca, and Gasteropoda. The individuals of the human species regarded as *H.* owe their appearance to a kind of monstrosity which renders them unfit for generation. *H.* have, also been described, which, instead of uniting the attributes of both sexes, cannot be considered either as male or female. These have been called *neutral H.* For further details on this subject generally, the reader is referred to Steenstrup's *Untersuchungen über das Vorkommen des Hermaphroditismus in der Natur*, (1845.)

(*Bot.*) A flower containing both stamens and pistils.

Hermaphrodism is the rule, and the separating of sexes the exception, in the structure of flowers.

Hermaphrodit'ic, Hermaphrodit'ical, *a.* Partaking of both sexes.

Hermaphrodit'ically, *adv.* After the manner of hermaphrodites.

Hermaph'roditism, Hermaph'rodism, *n.* The state of an hermaphrodite.

Hermeneu'tic, Hermeneu'tical, *a.* [Gr. *hermeneutikos: hermeneus*, an interpreter, from *Hermes*, Mercury, the god of eloquence.] Interpreting; explaining; unfolding the significatiou; as, *hermeneutic* theology.

Hermeneu'tically, *adv.* According to the true art of interpreting words.

Hermeneu'tics, *n. sing.* The science of interpretation; particularly of interpreting the Scriptures. See EXEGESIS.

Hermes, (*her'mees.*) (*Myth.*) The Grecian name of MERCURY, *q. v.*

Her'mesite, *n.* [Gr. *Hermes*, mercury.] (*Min.*) A variety of TETRAHEDRITE, *q. v.*, containing mercury.

Her'mes Trismegis'tus, a supposed Egyptian priest and philosopher, the friend and counsellor of Osiris, and the first lawgiver and founder of religious ceremonies in Egypt. He taught the Egyptians to cultivate the olive and measure land; the science of hieroglyphics; and to him are also attributed all the mystic pursuits that afterwards made the Alexandrian school so famous. The works extant under the name of Hermes are: *Poemander, on the Power and Wisdom of God; Asclepius, a Dialogue on the Deity, Mankind, and the World;* and some others supposed to be of less antiquity than these, and all alike regarded as supposititious. Their value, however, will be found very great in any attempt to determine the history of philosophy. In all likelihood the name belongs to two distinct persons, the later of whom was an Egyptian philosopher and legislator, and the earlier a deification (called *Thoor* or *Thoth* by the Egyptians, *Thoyth* by the Alexandrians, and *Hermes* by the Greeks) of all the ancient philosophy and instruction of that mysterious country.

Hermet'ic, Hermet'ical, *a.* [Fr. *hermétique*, from Gr. *Hermes*, mercury.] Relating to Hermes; chemical. — Perfectly close, so that no air can escape; secure; incapable of being opened or discovered.

Hermetic Art. The imaginary art, or science, of alchemy; so called from *Hermes Trismegistus*, q. v., looked up to by the alchemists as the founder of their art. — See ALCHEMY.

Hermet'ically, *adv.* According to the hermetic art. — Chemically; closely; accurately; as, a bottle *hermetically* sealed.

Her'mit, Eremite, *n.* [See EREMITE.] A term often applied in the early, but more frequently in the later Church, to a person who, in order to resist the temptations and cares of the world, withdrew himself from society to a cavern, a mountain, a desert, or other solitary situation, there to devote himself to prayer, fasting, and mortification of the flesh. — See ANCHORITE, ASCETICISM.

Hermitage, (*her'mi-taij,*) *n.* [Fr. *ermitage;* O. Fr. *hermitage.*] The habitation of a hermit; a cell in a secluded place.

Her'mitage, a celebrated French vineyard, on the banks of the Rhine, 10 m. from Valence, where the famous Hermitage wine is produced. The best red qualities are distiuguished by a dark-red color, an exquisite bonquet, and a taste of strawberries. Their excellence is only fully developed after having been in bottle for several years.

Hermitage, in *California*, a P. O. of Mendocino co.

Hermitage, in *Georgia*, a post-village of Floyd co., 8 m. N. E. of Rome.

Hermitage, in *Illinois*, a village of Douglas co. Its P. O. is ARCOLA.

Hermitage, in *Louisiana*, a post-village of West Baton Rouge parish.

Hermitage, in *Missouri*, a post-village, cap. of Hickory co., about 80 m. W. S. W. of Jefferson City.

Hermitage, in *New York*, a village of Suffolk co., about 6 m. W. S. W. of Greeuport.

—A post-village of Wyomiug co. *Pop.* (1897) about 300.

Hermitage, in *Pennsylvania*, a post-vill. of Mercer co.

Hermitage, in *Virginia*, a post-office of Augusta co.

Her'mitary, *n.* [L. Lat. *hermitorium.*] A cell pertaining to an abbey, for the use of a hermit.

Hermit-crab, *n.* (*Zoöl.*) See PAGURIDÆ.

Hermit'ical, *a.* Pertaining to a hermit, or to a retired life; suited to a hermit.

Her'mit Island, an island in the S. Pacific Ocean, abt. 10 m. of Cape Horn; Lat. 55° 50′ S., Lon. 67° 55′ W.

Hermodae'tyle, *n.* [Gr. *Hermes*, mercury, and *daktylos*, finger.] (*Med.*) A species of the Colchicum tribe, probably that of the *Colchicum illyricum;* it is irregularly heart-shaped, and has a furrow upon one side, not unlike the tribe of the *Colchicum autumnale*, now much nsed in the eure of gont; it is imported from Turkey, and was formerly esteemed as a cathartic.

Her'mon, a lofty mountain on the N.E. border of Palestine, called also *Sirion, Shenir*, and *Sion* (*Deut.* iii. 8; iv. 39). It is a part of the great Anti-Lebanon range, at the point where an eastern and lower arm branches off, a little S. of the latitude of Damascus, and runs in a sontherly direction, terminating E. of the head of the Sea of Galilee. (Fig. 1281.) This low range is called Jebel-Heish. Monnt *H.* is believed to be what is now kuown as Jebel-esh-Sheikh, whose highest summit, surpassing every other in Syria, rises into the region of perpetual snow or ice, 10,000 feet above the sea, as it was formerly believed, but 9,000 only according to Lynch. Russegger, and Capt. Warren, who ascertained the height on the 14th of Sept., 1869. Capt. Warren says that the summit is formed by three peaks; that on the southern peak there is a hole scooped out of the apex, the foot being snrronnded by an oval of hewn stones; and that at its southern end is a *sacellum*, or temple, nearly destroyed; the latter appearing to be Roman and of more recent date than the oval.



Fig. 1281.
LAKE MEROM, (with Mount Hermon in the distance.)

Her'mon, in *Illinois*, a post-office of Knox co.

Hermon, in *Maine*, a post-towuship of Penobscot co., about 8 m. W. by N. of Bangor.

Hermon, in *New York*, a post-township of St. Lawrence co., about 10 m. S.S.W. of Canton.

Her'mon Pond, in *Maine*, a post-village of Penobscot co., abont 10 m. W. of Bangor.

Her'mos. [Gr., pastor, or the shepherd.] A father of the Church dnring the Ist century, who is said to be the same mentioned by St. Paul in his Epistle to the Romans. He is supposed to have died in Rome, abont the year 81. "The Shepherd," the work after which he is named, is still extant, aud was translated into English by Archbishop Wake, in 1693.

Hermosil'la, in *Colorado*, a village of Puehlo co., about 27 m. S. E. of Pueblo.

Hern, *n.* (*Poetical.*) Abbreviation of HERON (*q. v.*).

Hernandia'ceæ, *n. pl.* (*Bot.*) In some classifications, an order of plants, united by Lindley to the THYMELACEÆ (*q. v.*).

Hernan'do, in *Florida*, a W. co., bordering on the Gulf of Mexico; *area*, about 520 sq. m. *Rivers.* Withlacoochee river, and some smaller streams. *Surface*, level; *soil*, in general fertile. *Cap.* Brooksville. *Pop.* (1890) 2,476.

Hernan'do, in *Mississippi*, a post-village, cap. of De Soto co., about 200 m. N. of Jackson. *Pop.* (1890) 602.

Hern'don, in *Georgia*, a post-village of Burke co., on the Central R. R. of Ga.

Hern'don, in *Pennsylvania*, a post-village of Northnmberland co. *Pop.* (1897) about 425.

Hern'don, in *Virginia*, a post-town of Fairfax co., about 23 m. N. W. of Alexandria. *Pop.* (1890) 795.

Herne Bay, a watering-place of England, co. Kent, 8 m. N.E. of Canterbury, near the mouth of the Thames. It is a favorite summer resort of the Londoners, and has a pier extending 3,000 feet into the river. *Pop.* 2,200, and about 10,000 during the bathing-season.

Her'nia, *n.* [Fr. *hernie;* Gr. *hernos*, a branch, from its protruding forward.] (*Med.*) A general term in morbid anatomy applied to the protrusion of any viscus from its natural cavity. In a more restricted sense, however, the word only signifies a protrusion of the abdominal viscera. *H.* in the latter form is unfortunately very frequent. Many causes contribute to this frequency. There are three natural openiugs which are weak and unprotected in the walls of the abdomen. These openings yield easily, and permit the escape of any viscus that may be pressed towards them with even a moderate degree of force. The nature of the walls, too, which are principally composed of muscles, and the condition of the viscera within — loose, liable to change of size and situation, and subject to irregular pressnre by the contractions of these muscular walls — all unite to render these weak situations still more weak. The places referred to are called the *umbilicus*, and the *inguinal* and *femoral canals*. There are, however, other situations where hernia may occur, though such cases are unfrequent. It is also evident that if the muscles or tendons of the diaphragm are wounded, some portion of the contents of the abdomen may escape; thus constituting the varieties of ventral and phrenic hernia. The forms of this disease have consequently been arranged and named according to the places where they occur. Besides this division as to situation, there is another of great importance, derived from the nature of the viscus displaced. Men are much more liable to *H.* than women, the proportion being about four to one, and the liability to the disease increases with years. A hernia is always composed of a "sac" and its contents. The former is a portion of the peritoneum pushed forward by the protruding viscera, and forming a pouch. The contents of the sac vary greatly: but generally consist of a portion of the small intestines, especially the *ilium*. A certain quantity of fluid is always found secreted in the sac, together with the viscera. The principal divisions of the ordinary disease are: reducible (when it is returnable into the abdomen); irreducible, and strangulated hernia. *Reducible hernia* is treated either with a truss, so as to retain the protrusion within the cavity of the abdomen, or the treatment may be radical, the contrivances for which are purely surgical. In the former case, each particular kind of hernia reqnires its special form of truss, and before applying it, the *H.* must be reduced by placing the patient on his back, relaxing the muscles by bending back the thigh, and pressing the tumor back in the proper direction. The protruded viscus cannot be returned into the abdomen in irreducible hernia. Cases of this kind are treated either by means of a truss having a hollow pad, so as to embrace the tumor, or radically, in some cases by keeping the patient recumbent, on low diet, for two or three months, during which time the bowels aro kept open by laxatives and injections, the tumor being equally pressed during the time. When a portion of the intestine protruded is so tightly constricted that it not only cannot be returned into the abdomen, but has its circulation arrested also, the disease is called *strangulated hernia*. If relief is not speedily obtained when the disease occurs in this form, it is highly dangerous; for the strangulated part becomes gangrenous. If the intestines cannot be returned by pressure, chloroform is administered internally so as to relax the muscles, or a hot-bath, or bleeding to the verge of faintness. If none of these methods are of any avail, the operator is obliged to divide the constriction by means of the knife.

Her'nial, *a.* Pertaining to, or connected with, hernia.

Hernia'ria, *n.* (*Bot.*) A genus of plants, order *Illecebraceæ*. The species *H. glabra*, the Burst-wort, which was formerly considered efficacious in the case of hernia, seems destitute of all virtue.

Her'nosand, (*Wester-Norrland.*) a province of Sweden, bounded N. by Lapmark, E. by the Gulf of Bothnia, S. by Angermannland and Dalecarlia, and W. by Norway. It lies between Lat. 62° and 64° N., and Lon. 15° and 19° E.; *area*, 9,500 sq. m. *Prod.* Grain, flax, timber, tar, and pitch. *Pop.* 94,000. — Its capital, Hernosand, on the W. coast of the island of Hernœ, is joined to the mainland by a bridge 230 m. N. of Stockholm. *Manuf.* Flax, salt, linseed-oil, brandy, and ship-building.

Hern'shaw, *n.* Same as HERONSHAW, *q. v.*

He'ro, *n.* [Lat. *heros;* Gr. *heros;* probably akin to Ger. *herr*, lord, master, and to O. Ger. *her, heri*, high, sacred; Sax. *hear*, high, proud.] A chief; a man of distinguished valor, intrepidity, or enterprise in danger; a prominent personage in any great action or event.

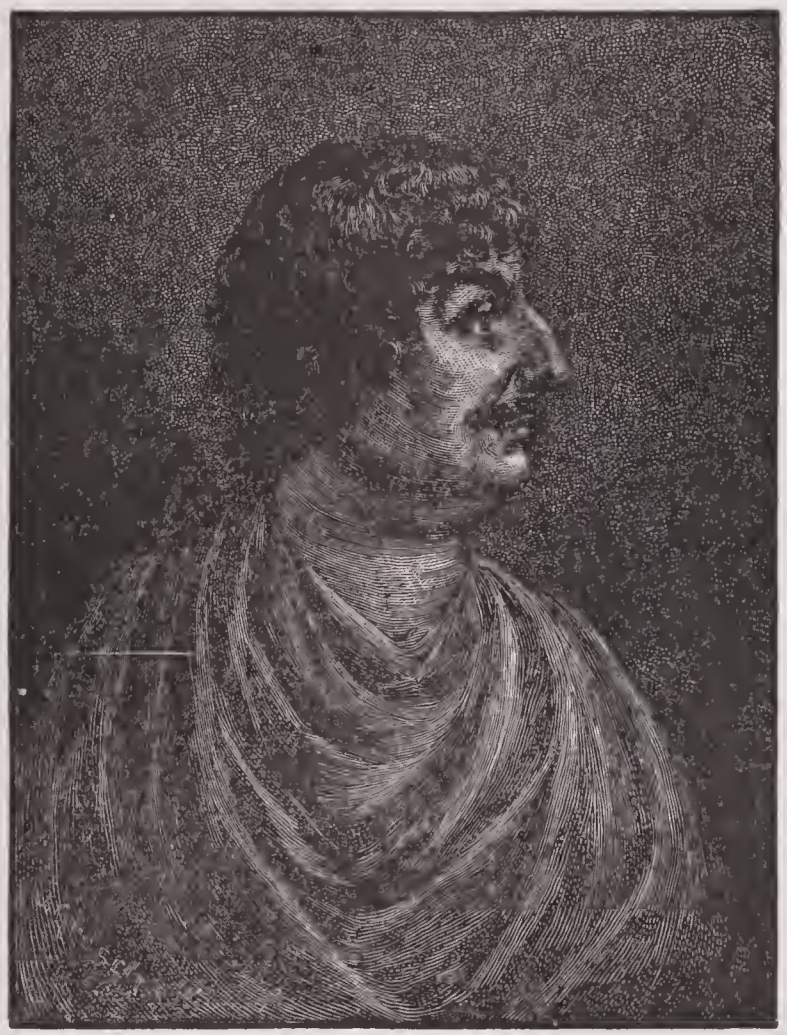
(*Lit.*) The principal personage of, or the person who has the principal share in the transactions related in, a poem or romance. — (*Myth.*) In the Homeric poems, *H.* is a title of honor, not only for those who were employed as leaders or fighting-men in war (the Danaans and Achæans being collectively called *heroes*), but even for heralds and minstrels, and for the unwarlike Phæacians. (*Od.* vii. 44.) In the Hesiodic *Theogony*, the Heroes are represented as a race of men interposed between the Brazen and the Iron Age, who fought at the sieges of Troy and Thebes. The exaltation of this race, which even in the *Iliad* (xii. 23) is styled a race of demigods, was completed before the time of Pindar, who makes them a race between gods and men. As so used, the term denoted especially those who were sprung from the union of a divine with a mortal being; as Persens from that of Zens with Danaê, and Achilles from that of Thetis with Peleus. But in the later historical writers, the heroes are commonly inferior local deities, as for instance the eponymous heroes of the Attic tribes. Their chapels, termed Ἡρῷα, although supported by the state, were always distinct from the temples of the national gods.

Her'od, the name of several princes, Idumæans by descent, who governed either the whole or a part of Judea, under the Romans. The two principal are: HEROD THE GREAT, the son of Antipater, who appointed him governor of Galilee. Antony appointed him tetrarch, and Augustus made him king of the Jews. He governed with savage cruelty, and sacrificed his wife Mariamne, her grandfather Hyrcanus, and brother Aristobulus. At the birth of Christ he caused all the infants of Bethlehem to be massacred, in hopes that he would fall among the number. He also put to death his sons Alexander and Aristobulus, so that Augustus said, "It was better to be Herod's hog than his son." He rebuilt the temple of Jerusalem, and, in a time of famine, sold his curiosities to relieve the sufferers. D. at the age of 70, after a reign of 37 years. — HEROD ANTIPAS, the son of the above, succeeded his father as tetrarch of Galilee. He divorced his wife, the daughter of Aretas, king of Arabia, and espoused Herodias, the wife of his brother Philip, on which Aretas declared war against him. Herod sacrificed John the Baptist to the cruelty of Herodias, and his conduct occasioned the Jews to revolt. Being called to Rome to justify his conduct, he died on the road. This is the Herod to whom Christ was sent by Pilate.

Hero'dians, *n. pl.* (*Script.*) A sect existing among the Jews at the period of our Saviour's preaching. (*Matthew* xvi.; *Mark* viii. 15.) Much doubt exists as to their history and tenets; some commentators, both ancient and modern, imagine that they were fanatics, who regarded Herod the Great as the Messiah; others, that they were a mere political party, attached to the family of Herod; while a third opinion (Bergier, *Dictionnaire de Théologie*) is, that they supported some innovations attempted by Herod in the religious observances of the country by the partial introduction of Pagan usages.

Herodia'nus, a Greek historian, flonrished in the 3d centnry, and held several public offices at Rome. His history is written in Greek, and comprises the period from the death of Marcus Aurelius to the year 238.

Hero'dias. (*Script.*) A grand-daughter of Herod the



Robert Herrick

1591–1674

Great and Mariamne, daughter of Aristobulus, and sister of Herod Agrippa I. She was first married to her uncle Herod Philip, but afterwards abandoned him and connected herself with his brother Herod Antipas. It was by her artifice that Herod was persuaded to cause to be put to death John the Baptist, who had boldly denunciated the incestuous connection which subsisted between her and Herod.

Herod'otus, the "FATHER OF HISTORY," a native of Halicarnassus, a Dorian city in Asia Minor, was born B. C. 484, and was perhaps alive in the beginning of the following century. According to Suidas, his father was called Lyxas, and his mother Dryo, both descended from noble Halicarnassian families. Disgusted with the government of Lygdamis, the grandson of Artemisia, who was tyrant of his native city, he retired for a time to the island of Samos, whence he acquired the Ionic dialect, in which he afterwards composed his history. To collect the necessary materials for his great work, he entered, in early manhood, upon that course of patient and observant travel which was destined to render his name illustrious in all future ages. During his wanderings, he visited almost every part of Greece and its dependencies, and many other countries, the affairs of which are treated in his work, investigating minutely the history, manners, and customs of the people. The shores of the Hellespont, Scythia, and the Euxine Sea, Syria, Palestine, Colchis, the northern parts of Africa, Ecbatana, and even Babylon, were the objects of his unwearied search. On his return from his travels, he took a prominent part in delivering his country from the tyranny of Lygdamis. But the expulsion of the tyrant did not bring tranquillity to Halicarnassus, and *H.*, having himself become an object of dislike, again quitted his native city, and settled, along with a colony from Athens, at Thurii, in the south of Italy, B. C. 443. Here he spent the remainder of his life, and here he wrote the work which has immortalized his name. The time and place of his death are matters of dispute. According to some he died at Thurii, and was buried in the market-place, while others assert that he died at Pella, in Macedonia. His history consists of 9 books, which bear the names of the 9 Muses. "Next to the 'Iliad' and 'Odyssey,'" says Col. Mure, "the history of *H.* is the greatest effort of Greek literary genius. The one is the perfection of epic poetry, the other the perfection of epic prose. Were it not for the influence which the prior existence of so noble a model, even in a different branch of composition, has evidently exercised on the historian, his title to the palm of original invention might rival that of his poetical predecessor. In the complexity of the plan [of his history], as compared with the simplicity of its execution, in the multiplicity and heterogeneous nature of its materials, and in the harmony of their combination, in the grandeur of its historical masses, and the minuteness, often triviality, of its illustrative details, it remains not only without equal, but without rival or parallel in the literature of Greece or Europe."

Hero'ic, *a.* [Lat. *heroïcus;* Fr. *héroïque.*] Pertaining to, or resembling a hero or heroes; as, *heroic* valor.—Becoming a hero; bold; illustrious; valorous; gallant; brave; intrepid; deserving or obtaining distinction by courage or magnanimity; as, *heroic* enterprise, *heroic* endurance.

H. Age. See HERO.

H. Poetry. (*Lit.*) That poetry which recites the achievements of heroes; epic poetry.—*H. Verse.* (*Pros.*) The verse appropriated to epic or heroic poetry;—in Greek and Latin, the *hexameter;* in English, Italian, and German, the *iambic of ten syllables,* either with or without the additional short syllable; in French, the *iambic of twelve syllables.*

Hero'ically, *adv.* In the manner of a hero; with valor; bravely; courageously; intrepidly; as, the troops fought *heroically.*

Heroi-com'ic, Heroi-com'ical, *a.* Consisting of the heroic and the ludicrous; denoting the high burlesque; as, an *heroi-comic* poem.

He'roine, *n.* [Fr. *héroïne.*] A female hero; a woman of brave spirit.

—The principal female character in a poem, novel, or drama, or one who figures prominently in any remarkable action.

He'roism, *n.* [Fr. *héroïsme.*] The qualities of a hero; bravery; gallantry; intrepidity; daring; courage; boldness; magnanimity.

Her'on, *n.* [Fr.; Lat. *ardea.*] (*Zoöl.*) The common name of the sub-family of birds *Ardeinæ,* a division of the family *Ardeidæ,* of which the common Heron (*Ardea cinerea*) is the general type. The characteristics of the *Ardeinæ* are as follows:—Beak long, strong, straight, compressed in a lengthened cone, upper mandible slightly channelled, ridge rounded, nostrils lateral, basal, pierced longitudinally in the groove, and half closed by a membrane; legs long, slender, naked above the tarsal joint, 3 toes in front, the 2 outer united by a membrane, 1 toe behind directed inwards, claws long, compressed, sharp, the middle claw denticulated on the inside; wings of moderate length, the first quill-feather a little shorter than the second or third, both of which are the longest in the wing. The common *H.* is one of the most numerous, as well as the best known of wading-birds, and formerly the bird was considered royal game, and statutes were passed for its preservation in most of the European states. The *H.* is said to be very long-lived, and was formerly held in considerable estimation as an article of food. It visits Scandinavia in summer, going occasionally as far north as the Faroe Islands, Iceland, and the southern coast of Greenland; but it is most abundant in Holland. The plumage is usually of a bluish-ashy color, and the average length of the bird from the point of the beak to the end of the tail about 3 feet, while from the carpal joint to the end of the wing the extent is about 17 inches. The solitary

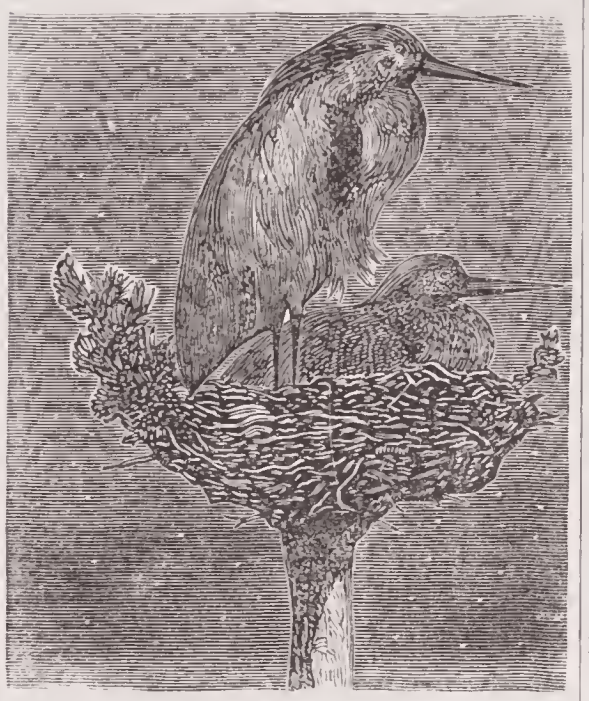


Fig. 1282.—THE COMMON HERON, (*Ardea cinerea.*)

habits of the *H.* are well known; for, except during the breeding-season, when they congregate in large flocks, they are generally seen alone. Their food is nearly entirely composed of fish, and they will be seen for hours standing by the side of ponds and streamlets, watching for their prey, which they catch by a single dart of their powerful beak. Like the rooks, they build their nests on trees with sticks, lined with dried grass, wool, and other warm materials, (Fig. 1282.) The female lays from 4 to 6 eggs, of a pale greenish-blue color. The *H.* is largely represented in America; and one of the largest



Fig. 1283.—THE GREAT BLUE HERON, (*Ardea Herodias.*)

species, the Great Blue *H.*, or Crane, *Ardea Herodias,* (Linn.,) (Fig. 1283.) is common in the United States. It measures upwards of 5 feet in length; the beak is 8 inches long, and of a brown color, inclining to yellow on the sides; on the back of the head is a long-feathered crest; the space between the beak and eye is naked, and of a pale-yellow; all the upper parts of the body, with the belly, tail, and legs, are brown; the quills black; the neck, breast, and thighs rufous. Like the other species, it frequents the borders of the lakes and rivers, and feeds on reptiles and small fishes. When wounded, it at once prepares for defence; and the dog or man who comes within reach is sure to receive a severe wound; and the danger is greater as these birds generally aim at the eye.

Her'on Isles, a group of islands in the Gulf of Mexico, S. of the mouth of Mobile Bay; Lat. 30° 12′ N., Lon. 88° W.

Her'onry, *n.* A breeding-place for herons.

Her'on's-bill, *n.* (*Bot.*) See ERODIUM.

Her'onshaw, Hern'shaw, *n.* A HERON, *q. v.*

Heroöl'ogist, *n.* [Gr. *herōs,* and *logos,* discourse.] One who treats of, or discourses upon, heroes.

He'ro's Fountain. See FOUNTAIN OF HERO.

He'roship, *n.* The character of a hero.

He'ro-worship, *n.* The worship of heroes, practised by the nations of antiquity; hence, extravagant admiration of heroes, or heroic qualities.

Herpes, (*hĕr'peez.*) *n.* [Lat. and Gr.] (*Med.*) A disease of the skin, consisting in the eruption of small aggregated vesicles. Several varieties of *H.* are mentioned by systematic writers on skin-diseases. A common form is familiarly known as *shingles.* In this, which, though not a dangerous is a very troublesome disease, patches of herpetic vesicles extend either quite around, or half around the body near the waist. The treatment of *H.* in its several forms consists merely in correcting the state of the secretions by alteratives and aperients.

Herpet'ic, *a.* [Fr. *herpétique.*] Pertaining to, resembling, or partaking of the nature of, the herpes; as, *herpetic* eruptions.

Herpetolog'ic, Herpetolog'ical, *a.* Relating, or pertaining to, herpetology.

Herpetol'ogist, *n.* One versed in herpetology.

Herpetol'ogy, *n.* [Gr. *herpetos,* a reptile; *logos,* a discourse.] (*Zoöl.*) That branch of the science which treats of reptiles. *H.* has received the attention of naturalists both in ancient and modern times. Linnæus gave much study to the subject, and Ray devoted considerable time to it. Lacépède, Brongniart, Latreille, and Dandin, also contributed to its advancement in the end of the 18th and beginning of the 19th century. In later times the principal writers on *H.* have been Schlegel, Gray, Müller, Owen, Agassiz, and others. Additional interest is added to the study of this branch of science on account of the numerous fossil remains of reptiles belonging to former geological periods which have been found. Many of these possess extraordinary characters, and are of immense size. Until lately, the *Batrachia,* or Amphibia, have always been included with the reptiles; consequently, in most works on *H.* a description of them is to be found. In this work they are separated in a distinct class, as proposed by Prof. Agassiz, who, in his *Essay on Classification* (1857), insists on the separation of the amphibians from the reptiles by the different manner in which their structural plan is carried out; the former breathing by lungs or gills, undergoing metamorphosis, laying a large number of small eggs, and having a naked skin,—while the latter are covered with horny scales, lay few and comparatively large eggs, breathe by lungs, and undergo no marked transformation.—See BATRACHIA and REPTILES.

Her'polhode, *n.* [A word coined from the Gr. *herpō,* I wind along, *polos,* an axis, and *hados,* a road.] (*Math.*) A plane transcendental curve, employed first by Poinsot in his graphic representation of the motion of a body around a fixed point. It is the locus of the point of contact with a fixed plane of an ellipsoid movable around its fixed centre.

Herre'ra, FRANCESCO, *el Viejo,* (the elder.) an eminent Spanish painter, B. at Seville, 1576. He was employed to paint in the palace and churches of his native town, and he also painted many *genre* subjects. A *Last Judgment,* and a *Descent from the Cross,* are among his principal works. D. about 1650.—HERRERA, FRANCESCO, *el Mozo,* (the younger,) son of the preceding, and also a painter, B. at Seville, about 1622. He studied at Rome, and after his return became second president of the Academy of Painting, Murillo being then president. He afterwards went to Madrid, and became first painter to Philip IV. D. about 1680.—There were several other artists of the name of Herrera contemporary with the above.

Herre'ra-Tordesil'las, ANTONIO DE, a Spanish historian, B. 1559, who wrote a General History of the Spanish Conquests in America between 1492 and 1554, a very elaborate and valuable work, in 4 vols. folio. He also wrote a *General History of Spain during the reign of Philip II.,* in 3 vols. folio, and other important historical works. D. 1625.

Her'rerite, *n.* (*Min.*) Same as SMITHSONITE, *q. v.*

Her'rick, ROBERT, an English poet, B. in London, 1591, and educated at Cambridge. He is the author of some of the most charming pastoral and anacreontic verse in the language, partaking largely of the quaint imagery and melodious expression of the Elizabethan school. *The Hesperides* may be esteemed his principal work. Many of his songs, as *Cherry Ripe,* &c., are popular even at the present day. A selection of *H.*'s poetical works, edited by Prof. Child, was published at Boston, in 2 vols., 12mo., 1856, and a new edition was also brought out in London, in 1859.

Her'rick, in *Pennsylvania,* a post-township of Bradford co., 10 m. of Towanda. *Pop.* (1897) about 825.

—A township of Susquehanna co. *Pop.* (1890) 721.

Her'rickville, in *Pennsylvania,* a post-village of Bradford co. *Pop.* (1897) about 290.

Her'ring, *n.* [A.S. *hæring;* Du. *haring;* Ger. *häring;* Fr. *hareng;* It. *aringa.* The A.S. is probably from *here*—Ger. *heer,* Goth. *harjis,* an army, a multitude.] (*Zoöl.*) A fish, several species of which form the genus *Clupea,* family *Clupeidæ.* The length of the head of the *H.*, compared to the length of the body alone, without the head or caudal rays, is as 1 to 4; the depth of the body compared to the whole length of the fish, as 1 to 5: the commencement of the dorsal fin is half-way between the point of the upper jaw and the end of the fleshy portion of the tail; the longest ray is nearly as long as the base of the fin; the pectoral fin being rather large compared to the size of the other fins. The ventral fin arises considerably behind the line of commencement of the dorsal fin, and is small, with elongated axillary scales, its origin half-way between the point of the lower jaw and the end of the short central caudal rays. The anal fin begins half-way between the origin of the ventral and the end of the fleshy portion of the tail, and extends over half the distance between its origin and the end of the fleshy portion; thus occupying the third quarter division of the distance between the origin of the ventral fin and the end of the fleshy portion of the tail. The rays are very short; the tail considerably forked, with the outer rays double the length of the middle ones. The lower jaw is much the largest; the dorsal and abdominal lines of the body slightly convex; the belly carinated, but not serrated, the scales moderate in size, oval, and thin. The upper part of the fish is a fine blue color, with green and other reflections, when viewed in different lights; the lower part of the side and belly, and the gill-covers, silvery white, exhibit-

ing the appearance of extravasation when the fish has been dead some twenty-four hours. The dorsal and caudal fins are of a dusky hue, and those on the lower parts of the body almost white. The opinion, once entertained, that the proper home of the *H.* is within the Arctic Circle, and that its vast shoals issue thence at certain seasons, migrating southward, and spreading themselves along the shores of Europe, Asia, and America, is now discarded as utterly without foundation; and the *H.* is believed to be an inhabitant of deep water, from which, at certain seasons, it approaches the shores, probably never migrating to any great distance. The young are abundant in the shallow water near the shores at seasons when the parent fish are absent. The *H.* seems always to deposit its spawn in comparatively shallow water, and is said to be very indifferent whether the spawning-ground be sandy, rocky, or covered with submarine vegetation. Certain localities, however, have the reputation of being favorite spawning-grounds. When the great annual shoals of herrings appear on the coasts, they generally swim near the surface of the water, and are followed by multitudes of larger fishes, as hakes, dog-fishes, &c., which prey on them; great numbers also fall a ready prey to gulls and other sea-birds, which congregate for the occasion. The food of the *H.* is believed to consist chiefly of minute crustaceans and *acalephæ;* but it feeds also on small fishes, not scrupling to devour even the young of its own species. The immense multitudes of herrings annually taken by the net cause no apparent diminution of their abundance, the destruction being compensated for by prodigious fecundity; more than 68,000 eggs have been counted in the roe of a single female. But *H.*, without any apparent cause, often desert parts of the coast where for a time they have been remarkably abundant, not returning in similar plenty till after the lapse of a number of years. The common American herring has been classed as a distinct species *C. elongata*, but is now considered to be a variety of *C. harengus*, the European species. The fish locally known as the *H.* in the States S. of Maine, is the alewife (*Alosa tyrannus*), belonging to the same genus as the shad, which is nearly allied to the *H.* It is very abundant, and is much esteemed. *C. mirabilis*, the Pacific coast species, closely resembles the common *H.* Its abundance resembles that of the Atlantic *H.*, and the fishery is of growing importance. *H.* are full of roe in the end of June, and continue in season till the beginning of winter, when they deposit their spawn. The young *H.* begin to approach the shores in July and August, and are then from half an inch to two inches long. The *H.* was unknown to the ancients, being rarely, if ever, found within the Mediterranean. The Dutch are said to have engaged in the fishery in 1164. The invention of pickling or salting *H.* is ascribed to one Benkels, or Benkelson, of Biervliet, near Sluys, who died in 1397. The emperor Charles V. visited his grave, and ordered a magnificent tomb to be erected to his memory. Since this early period the Dutch have uniformly maintained their ascendency in the *H.* fishery. The mode of fishing for *H.* is by drift-nets, very similar to those employed in the pilchard fisheries; the fishing is carried on only in the night, the most favorable time being when it is quite dark, and the surface of the water is ruffled by a breeze. The seine is largely employed in the alewife fisheries along the Atlantic coast.



Fig. 1284.—HERRING.
(*Clupea elongata.*)

Her'ring, in *Ohio*, a post-office of Allen co.

Her'ring-bone, *n.* Pertaining to or resembling the spinal bone of a herring; as, *herring-bone* stitch, a kind of cross-stitch in seams.

Herring-bone work. (*Building.*) Masonry in which the stones are laid aslant instead of being bedded flat.

Her'rington's Corners, in *New York*, a village and former post-office of Chemung co.

Her'rin's Prairie, in *Illinois*, a village of Williamson co. Its post-office is HERRIN.

Her'riottsville, in *Pennsylvania*, a village and former post-office of Washington co.

Herrn'huter, *n.* [From *Herrnhut*, in Upper Lusatia, Germany, the first established abode of the sect.] (*Eccl. Hist.*) See MORAVIANS.

Hers, *pron. fem. possessive.* (*Gram.*) Of her; belonging to her; as, this house is *hers* — *i. e.*, this is *her* house.

"My eyes are oft'ner washed than *hers.*" — *Shaks.*

Herschel, (*hĕr'shel,*) *n.* [From the discoverer, *Sir W. Herschel.*] (*Astron.*) Same as URANUS, *q. v.*

Herschel, (*hĕr'shel,*) SIR WILLIAM, F. R. S., a distinguished astronomer, B. at Hanover, 1738. He was educated as a musician, and early in life entered one of the bands belonging to the Hanoverian army. Finding no chance of promotion in his own country, *H.*, in 1757, repaired to England, where he met with success as a teacher and director of music. Imbued with a taste for, and having acquired a considerable knowledge of astronomy, he resolved to construct for himself a telescope wherewith to view the celestial phenomena he had hitherto read of only. He accordingly completed, in 1774, a 5-feet Newtonian reflector, with which he could see the satellites of Jupiter and the ring of Saturn. Not contented with this, *H.* made in succession no fewer than 200 *seven*-feet, 150 *ten*-feet, and about 80 *twenty*-feet telescopes. His first regular observations with the telescope were made in 1776 and following years, and were published in the *Philosophical Transactions* for 1780. In 1781 he discovered what he at first thought a comet, but which turned out to be a new planet, which he called the *Georgium Sidus*, but which has since received the name of *Uranus*, from its being next to Saturn. After this discovery, which spread his reputation over Europe, King George III. munificently enabled him, by the grant of a salary, to devote the whole of his time to astronomy. He therefore took up his residence at Datchet, near Windsor, where he made many discoveries in double and triple stars, on the proper motion of the sun and solar system, the spots at the pole of Mars, and the nebulæ and cluster of stars observed by Messier and Mechain. In 1787, *H.* discovered a 2d and 4th satellite of the Georgium Sidus, and in 1790 and 1799, five other satellites, viz., the 1st, 3d, 5th, and 6th, all of which move in a retrograde direction, in orbits almost perpendicular to the plane of the ecliptic. In 1781, George III. defrayed the expense of a 40-feet telescope with a mirror 4 feet in diameter, 3½ inches thick, and weighing 2,118 lbs. With this magnificent instrument *H.* discovered the 6th and 7th satellites, and also the spots, belts, and flattening on the 4 new planets between Mars and Jupiter. Till 1820, Sir William communicated almost every year important papers to the Royal Society on nebulæ, clusters of stars, the construction of the heavens, the motion of the solar system, on double stars, and on the 4 new planets between Mars and Jupiter. We owe to him also the discovery of invisible heating rays beyond the red extremity of the spectrum. Sir William *H.* was a member of the principal scientific societies of Europe and America; was created LL. D. in 1786, and in 1816 received the Cross of the Royal Guelphic Order. In 1820 he was elected the first president of the Royal Astronomical Society, and published in the first vol. of its *Transactions* a paper on 145 new double stars. D. Aug. 25, 1822.

HERSCHEL, SIR JOHN FREDERICK WILLIAM, BART, F. R. S., D. C. L., only son of the preceding, B. 1792. He was educated at Cambridge, where he became senior wrangler in 1813, and following in his father's footsteps, devoted his future career to astronomical pursuits. In 1816 he received the gold medal of the Royal Astronomical Society for observations on 10,000 multiple stars, and in 1823 presented to the Royal Society a catalogue of 380 double and triple stars, whose positions and apparent distances had never until then been fixed. In 1830, he published measurements of 1,236 stars, which he had discovered with his 20-feet reflecting telescope. At the same time he also devoted his attention to physics, the results of which appeared in his *Treatise on Sound; Treatise on the Theory of Light; Treatise on Astronomy*, &c., besides a great number of scientific memoirs published in the Royal Society's "Transactions," &c. He spent four years (1834–8) at the Cape of Good Hope, where he examined the whole Southern celestial hemisphere, and derived important meteorological and astronomical observations therefrom. In 1838 he was elected president of the Royal Society, and created a baronet; in 1839, an honorary D. C. L. of Oxford; and in 1842 was elected Lord Rector of Aberdeen University. In 1848 he filled the office of President of the Royal Astronomical Society; in 1850, published his valuable *Outlines of Astronomy*, and in the same year was appointed Master of the Mint, which post he resigned in 1855. D. 1871.

Her'schelite, *n.* (*Min.*) A white or colorless mineral, found in hexagonal tubular crystals. *Sp. gr.* 2·06. *Comp.* Silica 47·39, alumina 20·90, lime 0·38, soda 8·33, potash 4·39, water 17·84.

Herse, *n.* [Fr., a portcullis, from Lat. *hirpex*, gen. *hirpicis*, harrow.] Originally, a frame whereon lighted candles were placed at the obsequies of distinguished persons.

(*Fortif.*) (Also written HERSILLON.) A lattice or portcullis armed with spikes, used to close a gateway; also, a harrow used in lieu of a cheval-de-frise to impede the advance of an enemy.

—A hearse. See HEARSE.

—*v. a.* To put on or into a hearse.

"Would she were *hersed* at my foot."—*Shaks.*

—To carry to the grave.

Herself', *pron.* [*Her* and *self.*] (*Gram.*) The emphasized and reciprocal form of *she* and *her*, denoting a female; as, she *herself* is to blame for this; — used, also, in the predicate, both in the nominative and objective cases; as, it is *herself*, she deceived *herself.* — In her proper, true, and real character; hence, mistress of her own thoughts and actions; self-governing; sane; in her right mind; as, she is now *herself* again, she has come to *herself.*

By herself, alone; unaccompanied; solitary; apart; as, she chooses to walk by *herself.*

Her'sey, in *Michigan*, a post-village, cap. of Osceola co., on F. & P. M. R.R., 66 m. N. of Grand Rapids.

Her'seyville, in *Wis.*, a post-village of St. Croix co.

Hers'feld, or HIRSCH'FELD, a town of Prussia, prov. Hesse-Nassau, on the Fulda. *Manuf.* Woollen cloth, and serge. *Pop.* (1897) about 6,950.

Hersil'lon, *n.* (*Fortif.*) See HERSE.

Hers'man's, in *Illinois*, a post-village of Brown co.

Hers'tal, Her'istal, a town of Belgium, prov. of Liege, on the Meuse, 3 m. N.E. of Liege. *Manuf.* Iron and steel goods. It was in ancient times a fortress, and from it Pepin d'Héristal, progenitor of Charlemagne, took his title. *Pop.* 6,600.

Hertford, or **Herts.** (*hart'ford,*) a county of England, bounded N. by Cambridge and Bedford, E. by Essex, S. by Middlesex, and W. by Buckingham and Bedford; *area*, 611 sq. m. *Manuf.* Straw-plaiting and paper-making. *Prod.* Wheat, barley, oats, turnips, hay for the London market, and the county carries on a large trade in malt. The chief rivers are the Ouse, Lea, Maran, Beane, Rib, Stort, Colne, Ver, and New River. By diligent manuring, for which the proximity of London affords abundant facilities, the soil of *H.*, though not naturally fertile, has been brought to a considerable degree of productiveness. *Pop.* (1881) 202,990.

HERTFORD, a town of England, cap. of above co., on the Lea, 21 m. N. of London. *Manuf.* Flour and malt. The castle served as a place of imprisonment for David, king of Scotland, and John the Good, king of France. *Pop.* 7,265.

Hertford, in *North Carolina*, a N.E. co., adjoining Virginia; *area*, about 320 sq. m. *Rivers.* Blackwater and Meherrin rivers, which unite in this co. to form the Chowan River. *Surface*, generally level; *soil*, fertile. *Cap.* Winton.

—A post-village, cap. of Perquimans co., on the Perquimans River, abt. 12 m. from its mouth, and abt. 154 m. E. of Raleigh.

Her'tha, AER'THA, AOR'THA, EOR'THE. (*Myth.*) A chief divinity of the ancient German and Scandinavian nations. She was worshipped under a variety of names, of which the chief were analogous to those of Terra, Rhea, Cybele, and Ops among the Greeks and Romans.

Her'uli, *n. pl.* (*Hist.*) This Teutonic tribe, from the coast of the Baltic, descended the Danube to the Black Sea, sailed through the Hellespont in 262, when, with other Gothic tribes, they assailed the cities of Greece, burning, among others, the famous temple of the goddess Diana at Ephesus. They were met near Athens by Dexippus, who routed them in 267. They again wandered northward, invaded Italy, and overthrew the W. empire in 476. The Longobardi almost destroyed them in 512, and their name is mentioned for the last time in history at the defeat and death of Teias by Narses, in 553.

Herz, HENRI, a German composer and pianist, B. in Vienna, 1806. His numerous productions are remarkable for elegance; as a pianist he enjoyed great popularity. In 1846–7 he made a professional visit to the U. S.

Herzegovina, (*hairts-e-go-vee'na,*) or HERSEK, (*hair'seck,*) a former province of the Ottoman Empire, nominally forming (with the exception of Castel-nuova, and some adjoining districts) a part of the *eyalet* or pashalic of Bosnia. *H.* was bounded N. by Croatia, S. by Montenegro, E. by Bosnia, and on the W. by Dalmatia. The principal cities are Frebigne (former cap.), and Mostar. Its political and ethnographical character coincide with those of Bosnia (*q. v.*), though it differs in physical character. *H.* was occupied in 1878 under the Berlin treaty, and the government has since been administered by the Austro-Hungarian monarchy. *Area*, 3,616 sq m. *Pop.* (1897) about 200,000. See AUSTRIA.

Hesdin, (*hes'daing,*) a fortified town of France, dept. Pas-de-Calais, 16 m. S.E. of Moutreuil; *pop.* 4,000.

Hesh'bon. (*Script.*) A celebrated city of the Amorites, 20 m. E. of the mouth of the Jordan, (*Josh.* iii. 10; xiii. 17.) It was given to Reuben; but was afterwards transferred to Gad, and then to the Levites. It had been conquered from the Moabites by Sihon, and became his capital; and was taken by the Israelites a little before the death of Moses, (*Num.* xxi. 25; *Josh.* xxi. 39.) After the ten tribes were transplanted into the country beyond the Euphrates, the Moabites recovered it, (*Isaiah* xv. 4.) Its ruins are now called Hesban, and cover the sides of a hill 7 m. N. of Medeba.

Hesh'bon, in *Pennsylvania*, a P. O. of Indiana co.

He'siod, one of the earliest Greek poets, who is usually supposed to have lived in the 8th cent., B. C. He was a native of Ascra, in Bœotia, but almost nothing is known of his life. A family dispute drove him from Ascra, and he settled at Orchomenos. The works attributed to him are the poems entitled, *Works and Days*, *Theogony*, *Shield of Hercules*, and the lost *Catalogue of Women.* The poetry of the *Works and Days* is of a homely and didactic character, dealing with the practical interests of common life. It is "a faithful transcript," says Gottfried Müller, "of the whole condition of Bœotian life." The *Theogony*, however, is of a different character, being an attempt to present a systematic view of the origin and powers of the gods, and of the order of nature. It is of great importance for the history of the religion of the Greeks.

Hesio'ne. (*Myth.*) A daughter of Laomedon, king of Troy, and sister of Priam. Neptune, in his anger against her father for having failed in a promise towards him, sent a monster to ravage his country. The oracle consigned her, as an expiatory victim, to it; Hercules delivered her as she was about to be devoured by the monster; but not obtaining the reward promised by her father, he carried her off, and gave her in marriage to his friend Telamon. The abduction of *H.* became the Trojan pretext for the carrying off of Helen by Paris.

Hes'itancy, *n.* [Lat. *hæsitantia.*] A hesitating; a doubting; a pausing to consider; dubiousness; suspense.

"Some of them reasoned without doubt or *hesitancy.*" *Atterbury.*

—Vacillation of manner; indecision of thought or action; as, he spoke with *hesitancy.*

Hes'itant, *a.* [Lat. *hæsitans.*] Hesitating; deliberative; not prompt to act or decide. —Wanting aptness or fluency of speech.

Hes'itantly, *adv.* With doubt, pause, or hesitancy.

Hes'itate, *v. a.* [Lat. *hæsito, hæsitatum*, frequent. from *hæreo, hæsum*, to hang or hold fast, to stick. See ADHERE.] To stick fast; to remain fixed in a place; to stop or pause respecting decision or action; to be doubtful as to fact, principle, or determination; to be in suspense; as, he *hesitates* about the matter.—To stammer; to halt or bungle in speech; as, a *hesitating* delivery.

—*v. a.* To be undecided in reference to; to be vacillating about; also, to speak haltingly, or with hesitation; to stammer out.

"Just hint a fault, and *hesitate* dislike."—*Pope.*

Hes'itating, *p. a.* Doubting; pausing; stammering.
Hes'itatingly, *adv.* With hesitation or doubt.
Hesita'tion, *n.* [Fr. *hésitation*, from L. Lat. *hesitatio.*] Act of hesitating; a pausing or delay in forming an opinion or commencing action; doubt. — A stopping in speech; intermission between words; stammering.

"Many clergymen are unable to go on without perpetual *hesitations.*" — *Swift.*

Hes'per, Hes'perus, *n.* [Lat. *hesperus;* Gr. *hesperos.*] The evening star.
Hes'per, in *Iowa*, a post-village and township of Winneshiek co., abt. 14 m. N.E. of Decorah: *pop.* of township 1,010.
Hesperan'tha, *n.* (*Bot.*) A genus of herbaceous plants, order *Iridaceæ*, the species of which are commonly called *Evening-flowers*, in reference to the time the flowers expand.
Hespe'ria, in *Michigan*, a post-office of Oceana co.
Hespe'rian, in *Iowa*, a post-office of Webster co
Hesper'ides, *n. pl.* (*Myth.*) The name of the famous sisters, who, assisted by the dragon Ladon, guarded the golden apples which Hera had received, on her marriage with Zeus, from Ge. Their genealogy, as well as their number, are variously given by mythologists. They were, however, commonly set down at 4, whose names were Ægle, Erythia, Hestia, and Arethusa. The locality of the gardens was also a matter of controversy, the two favorite opinions placing them westward of Mount Atlas, and north of the Caucasus. With the assistance of Atlas the apples were stolen by Hercules, who killed the dragon.
Hesper'idine, *n.* (*Chem.*) A fragrant volatile oil, obtained from the leaves and the rind of the fruit of the *Aurantiaceæ*, q. v.
Hesperid'ium, *n.* [From the golden apples of the *Hesperides.*] (*Bot.*) A many-celled, few-seeded, superior, indehiscent fruit, covered by a spongy separable rind; the cells easily separable from each other, and containing a mass of pulp, in which the seeds are imbedded; — example, the orange.
Hes'peris, *n.* [Gr., evening, — the flower being then more fragrant.] (*Bot.*) A genus of plants, order *Brassicaceæ.* The species *H. matronalis*, the Rocket or Dame's Violet, stem single, erect, 3-4 feet high, leaves lanceolate, flowers purple, often doubled, is a fine garden perennial, said to be found native about Lake Huron.
Hes'perus, *n.* [Lat.] See HESPER.
Hess, HEINRICH VON, one of the most distinguished of modern German painters, B. at Düsseldorf, 1798. He was of a family illustrious in art, and was first taught by his father. After distinguishing himself by several fine religious paintings, he was sent to Rome under the patronage of the king of Bavaria, and in 1826 was appointed professor in the Academy of Munich, and director of the Painted-Glass Manufactory. His most celebrated frescoes are those of All-Saints Church, the Court Chapel, and the basilica of St. Boniface, the latter representing scenes in the life of the saint. Among his other works are named a *Holy Family*, exhibited in 1817: *Faith, Love, Hope; Apollo and the Nine Muses*, painted during his stay at Rome; and a *Last Supper.* The works of this great artist form one of the principal attractions of Munich. He obtained great reputation also as a portrait-painter. D. at Munich, 1863.
Hes'se, or **Hes'sia,** a territory of Germany, originally peopled by the Catti, or Chatti, an old Teutonic tribe. In the time of Clovis I. it formed part of Thuringia, but in 902 was under the govt. of a count of Hesse. It afterwards passed by marriage into the possession of Louis I. of Thuringia (1130–1140), and on the extinction of his male line in 1247, was erected into a distinct landgraviate under Henry "the Infant," whose claims were finally established in 1264. In 1292 it became a principality of the empire, and in 1458 was divided into *Upper* and *Lower Hesse*, the entire territory again becoming united under the Landgrave of Lower Hesse in 1500. On the death of Philip I., in 1567, *H.* was divided between his four sons, who founded the houses of Cassel, Marburg, Rheinfels, and Darmstadt. The first house of Rheinfels becoming extinct in 1583, and that of Marburg in 1604, the country became divided between the families of Hesse-Cassel and Hesse-Darmstadt, (*q. v.*)
Hes'se-Cassel, formerly ELECTORAL HESSE, [Ger. *Kurhessen,*] a prov. of W. Germany, belonging to Prussia, consisting of a central territory, bounded N.W. by Prussia, Westphalia, and Waldeck; N.E., Hanover, and Prussian Saxony; E., Saxe-Weimar; S. and S.E., Bavaria; and W. Frankfort, Nassau, and Hesse-Darmstadt; the whole lying between Lat. 50° 5′ and 52° 28′ N., and Lon. 8° 30′ and 10° 40′ 30″ E. *H. C.* was formerly divided into 4 sub-provs., viz., Upper and Lower Hesse, Fulda, and Hanau. *Area*, 4,430 sq. m. *Surface.* Mountainous in the N.E., E., and S. portions; and, generally speaking, one of the most richly wooded countries in Europe. *Rivers.* Weser, Main, Fulda, &c. *Soil.* Moderately fertile. *Agric. Prod.* Rye, barley, oats, pulse, maize, and potatoes. Tobacco, flax, and hemp are also raised. *Clim.* Healthy. *Min.* Mining is extensively carried on; iron, cobalt, copper, rock-salt, and coal being the chief results. *Manuf.* Linens, hardware, arms, earthenware, &c. *Chief towns.* Cassel (the cap.), Hanau, Fulda, and Marburg. *Pop.* 770,569. *Hist.* The sovereign house of *H. C.* was founded by William "the Sage" in 1567. The landgrave was raised to the dignity of elector by the treaty of Luneville in 1801. From 1806 to 1813, *H. C.* formed a part of the kingdom of Westphalia, of which Cassel was the cap. It was reërected into an electorate in 1813, and finally annexed to Prussia in 1867, which power, by a decree of Dec. 7, 1868, amalgamated it with the duchy of Nassau, under the title of HESSE-NASSAU.

Hes'se-Darmstadt, or the GRAND-DUCHY OF HESSE, a state of S. Germany forming part of the German Empire, consisting of the provs. of Starkenburg and Rhenish Hesse, separated from each other by the Rhine, and bounded N. by the Prussian prov. Hesse-Nassau, E. Bavaria, S. Baden, and W. Rhenish Bavaria and Prussia. *Area*, 2,695 sq. m. *Gen. Desc.* The surface of *H.-D.* is very diversified, consisting, for the most part, of a level and very fertile plain; the E. part of Starkenburg, however, is occupied by the hilly and richly-wooded tract of the Odenwald. *Rivers.* The Rhine, Main, Setz, Nahe, &c. *Clim.* Healthy. *Soil.* Highly productive, and especially adapted to agriculture. *Prod.* Cereals, wines, fruits, rape, hemp, flax, tobacco, timber, &c. Cattle-breeding is conducted on an extensive scale. *Min.* The working of salt, copper, and iron mines is an important feature of industrial economy; building-stone, slates, marble, gypsum, and potter's clay form, also, important mineral products. *Manuf.* Damask, linens, silks, tobacco, earthenware, and chemicals. *Govt.* A limited monarchy, hereditary in the male line, whose head bears the title of grand-duke. This state may, however, be considered as possessing a mere nominal independence, it being, in all essential respects, entirely under Prussian control.

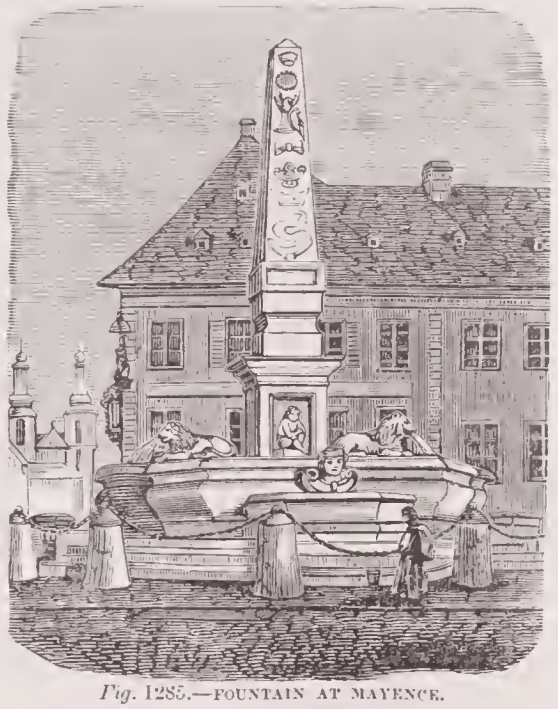


Fig. 1285.—FOUNTAIN AT MAYENCE.

Chief Towns. Darmstadt (the cap.), Mayence, Worms, &c. *Pop.* (1897) abt. 990,200. *Hist.* This state was separated from Hesse on the death of Philip I. ("the Magnanimous"), in 1567. In 1801 Louis X. was compelled to cede several districts on the left bank of the Rhine, for which he received in exchange the duchy of Westphalia, &c. In 1806, *H.-D.* became a grand-duchy. The grand-duke joined the alliance against France in 1813, and ceded Westphalia and other territories to Prussia in 1815; in 1850, joined the Austrian league assembled at Frankfort under the name of the *Ancient German Diet*, and, in 1866, surrendered to Prussia the prov. of Hesse-Homburg. It entered the German Empire in 1870.
Hes'se-Hom'burg, a former landgraviate of Germany, consisted of the provs. of Homburg and Meisenheim; the former of which was bounded by Hesse-Darmstadt, Hesse-Cassel, and Nassau, and the latter by Rhenish Prussia and the Bavarian palatinate; *area*, 106 sq. m.; *pop.* 26,000. The male line of *H.-H.* became extinct by the death of the landgrave Ferdinand Heinrich Friedrich, March 24, 1866; the state was incorporated with Hesse-Darmstadt, and now forms part of Prussian Hesse-Nassau.
Hes'se-Nas'sau, a new prov. of Prussia, incorporated by decree of Dec 7, 1868, by the union of the prov. of Upper Hesse (formerly a portion of the grand-duchy of Hesse) with the *ci-devant* duchy of Nassau; *pop.* 1,553,344.
Hes'senbergite, *n.* (*Min.*) A transparent bluish mineral from Mt. Fibia, near St. Gothard. It is a silicate, but its composition is not fully known.
Hessian, (*hèsh'an,*) *a.* (*Geog.*) Relating or belonging to Hesse, Germany; as, *Hessian* patriots.
—*n.* A native of Hesse, Germany.
Hessian Boots, *n. pl.* A kind of long, tasselled boots.
Hessian Fly, *n.* (*Zoöl.*) See CECIDOMYA.
Hes'site, *n.* (*Min.*) Telluric silver. A gray mineral of metallic lustre, containing silver 62·8, tellurium 37·2, sometimes gold in place of part of the silver. *Sp. gr.* 8·3–8·6. Occurs at the Stanislaus mine, Cal.
Hess Road, in *New York*, a P. O. of Niagara co.
Hess'ville, in *New York*, a village of Montgomery co., about 50 m. W. by S. of Albany.
Hess'ville, in *W. Virginia*, a post-office of Harrison co.
Hest, *n.* [A. S. *hās;* Ger. *geheiss*, command.] Command; precept; injunction. (Principally used in composition.) See BEHEST.
Hes'ter, in *Missouri*, a post-village of Marion co., abt. 10 m. N. of Palmyra.
Hes'tonville, in *Pennsylvania*, a suburban village within the chartered limits of Philadelphia, about 4 m. W. of the State House.
Hesyehast, (*hēs'e-kāst,*) *n.* [Gr. *hēsychastēs.*] (*Eccl. Hist.*) One of a singular class of fanatics, who were established in the 15th century, in some of the Greek monasteries of Mount Athos. These Quietists pretended to have attained a perfect interior life of devotional repose by intense contemplation. One of their maxims, apparently derived from some of the strange practices of the Indian ascetics, directs the disciple to "raise his spirit above all vain and transient things, repose his head on his breast, and turn his eyes with his whole power of meditation upon his navel." Hence, these visionaries derived the nickname of *Omphalopsychoi* (Cantacuzenus, ii. 38), or *Umbilicarii;* they were also termed *Thaborites*, from their notion respecting a divine light inhabiting the heart of the devotee.
Hetæ'ria, *n.* [Gr. *hetaireia*, companionship.] (*Hist.*) A word frequently used by classical writers to signify an association of any kind; thus the fraternities of the early Christians are called Hetariæ. In modern times two celebrated associations among the Greeks have assumed the name. The first was the *Hetæria of the Philomusoi*, or Friends of the Muses — a society formed for the purposes of education, founded (it is said) by Capo d'Istrias, about 1814; it established schools at Athens and elsewhere, and numbered at one time 80,000 associates. It was dissolved in 1821; but renewed in 1824, when Athens was in the hands of the Greeks. The more famous political Hetæria owes its foundation to the celebrated Rigas, who died in 1798. It was renewed abt. 1816, extended its ramifications through all Greece, and produced the Greek revolution, begun by Ypsilanti in 1821.
Hetch'el, *v. a.* See HATCHEL.
Het'ero-. [Gr. *heteros*, the other, one of two.] As a Greek prefix, or in composition, this term usually indicates *difference*; — used antagonistically to the prefix *homo*, denoting resemblance.
Heterocar'pous, *a.* [Gr. *heteros*, the other, and *karpos*, fruit.] (*Bot.*) That bears fruit of two sorts or shapes.
Heteroceph'alous, *a.* [Gr. *heteros*, and *kephalē*, a head.] (*Bot.*) Having male and female flower-heads in the same individual.
Heterocercal, (*het-er-o-ser'kal,*) *a.* [Gr. *heteros*, and *kerkos*, the tail.] (*Ichth.*) An epithet applied to fishes which have the upper fork of the tail longer than the lower, as in the shark and sturgeon.
Heterochromous, (*hēt-er-ōk'ro-mus,*) *a.* [Gr. *heteros*, and *chroma*, color.] (*Bot.*) Applied to a flower-head, when the florets of the centre or disc are different in color from those of the circumference.
Het'eroclite, *n.* [Fr. *hétéroclite;* Gr. *heteroklitos* — *heteros*, another, and *klitōs*, bent, from *klinō*, to bend down, to decline.] That which is of a different declension. — Any thing or person deviating from common forms.
(*Gram.*) A word which is irregular or anomalous.
Het'eroclite, Heteroclit'ic, Heteroclit'ical, *a.* Irregular; anomalous; deviating from ordinary forms or rules; abnormal; as, "*heteroclitical* sins." *Browne.*
Het'eroclin, *n.* (*Min.*) A brownish-black mineral, consisting mainly of binoxide of manganese, a variety of BRAUNITE, *q. v.*
Heterodac'tyle, *a.* (*Zoöl.*) Having the toes irregular, either as to number or formation.
Het'erodox, *a.* [Fr. *hétérodoxe;* Gr. *heteros*, and *doxa*, a notion, an opinion, from *dokeō*, to think.] Holding opinions different from those which are established, or are prevalent.
(*Eccl.*) Said of persons holding opinions repugnant to the doctrines of the Scripture, or contrary to those of an established Church; heretical; contrary to the faith and doctrines of the Scriptures; antagonistic to the doctrines or tenets of any established Church; — opposed to *orthodox.*
Het'erodoxly, *adv.* In a heterodox manner.
Het'erodoxness, *n.* State or condition of being heterodox.
Het'erodoxy, *n.* [Fr. *hétérodoxie.*] An opinion or doctrine different from or contrary to the doctrines of the Scriptures, or opposed to those of an established church; heresy.
Heterog'amous, *a.* [Gr. *heteros*, other, and *gamos*, marriage.] (*Bot.*) Applied to grasses, when the arrangement of the sexes is different in different spikelets from the same root, as in *Andropogon*; in Composite plants, where the florets are of different sexes in the same flower-head.
Heterogan'gliate, *a.* [Gr. *heteros*, and *gagglion*, ganglion.] (*Physiol.*) Having the ganglionic nervous system, and the ganglions, often unsymmetrically scattered.
Heterogene'ity, *n.* [Fr. *hétérogénéité.*] Heterogeneousness.
Heteroge'neous, Heteroge'neal, *a.* [Gr. *heteros*, and *genos*, race, descent, sort, kind. See GENUS.] Of a different kind or nature; unlike or dissimilar in kind; — used in opposition to *homogeneous;* as, *heterogeneous* bodies.
Heterogeneous attraction. (*Chem.*) See AFFINITY.
Heterogeneous quantities. (*Math.*) Quantities incapable of being compared together in respect of magnitude, as lines and surfaces, surfaces and solids, &c.
Heteroge'neously, *adv.* In an heterogeneous manner.
Heteroge'neousness, *n.* State or quality of being heterogeneous; difference of nature and quality; dissimilitude or contrariety in kind.
Heterogen'esis, *n.* [Gr. *heteros*, and *genesis*, birth.] (*Physiol.*) A term defined by Pouchet as noting the production of a new animal without the intervention of parents, all its primordial elements being drawn from surrounding nature. It is analogous to spontaneous generation.

Heterog'eny, *n.* [Gr. *heteros*, other, and *genos*, race.] The production of young in different kinds.

Heterograph'ic, *a.* Representing different sounds in different words with the same letters.

Heterog'raphy, *n.* [Gr. *heteros*, other, and *graphē*, writing.] That method of spelling in which the same letters represent different sounds in different words, as in the ordinary English orthography.

Heterol'ogous, *a.* [Gr. *heteros*, and *logos*, proportion.] Having different constituent elements or parts: having unequal proportions; — in contradistinction to *homologous*.

H. series. (*Chem.*) Those series whose numbers manifest a similarity of origin from homologues, but which differ considerably in their properties. See HOMOLOGOUS SERIES.

Heterom'erous, *n. pl.* [Gr. *heteros*, and *meros*, a leg.] (*Zoöl.*) A name given to Coleopterous insects which have five joints in the tarsus of the first and second pair of legs, and only four joints in the tarsus of the third pair.

Heteromor'phite, *n.* (*Min.*) Same as JAMESONITE, *q. v.*

Heteromor'phous, *a.* [Gr. *heteros*, and *morphē*, form.] (*Bot.*) Of an irregular or singular form; having two or more shapes.

Heteroöu'sian, Heteroöu'sious, *a.* [Gr. *heteros*, and *ousia*, essence.] Partaking of different natures, or essential qualities.

Heteropath'ic, *a.* [Gr. *heteropathēs.*] Same as ALLOPATHIC, *q. v.*

Heteroph'yllous, *a.* [Gr. *heteros*, and *phyllon*, leaf.] (*Bot.*) Applied to plants which have two different kinds of leaves on the same stem.

Het'eropod, *n.* One of the HETEROPODA, *q. v.*

Heterop'oda, *n. pl.* [Gr. *heteros*, and *pous*, foot.] (*Zoöl.*) An order of molluscous animals comprehending those which have the foot compressed, and in the form of a thin vertical fin, as in the *Carinaria*.

Heterop'odous, *a.* Of, relating or pertaining to, the heteropods.

Heterop'tera, *n. pl.* [Gr. *heteros*, and *pteron*, wing.] (*Zoöl.*) A section of Hemipterans comprehending all the Bugs, distinguished by having the hemelytra terminating abruptly by a membranous appendage.

Heterop'tics, *n. sing.* [Gr. *heteros*, and Eng. *optics.*] False optics.

Heteroscian, (*het-er-ŏsh'yan,*) *a.* (*Geog.*) Of, relating or pertaining to, a portion of the earth's surface, considered relatively to a certain other portion, so situated that the shadows of two objects, one being in the former, and the other in the latter, fall in opposite directions.

—*n.* [Gr. *heteroskios* — *heteros*, and *skia*, shadow.] (*Geog.*) An epithet applied by the ancient geographers to the inhabitants of the two temperate zones, because their shadows at mid-day are always projected in opposite directions in respect to each other; in one case to the north, and in the other to the south.

Het'erosite, *n.* (*Min.*) A phosphate of the oxides of iron and manganese; a variety of TRIPHYLITE, *q. v.*

Heteros'trophe, *a.* [See below.] (*Conch.*) Reversed; a term applied to shells whose spires turn in a contrary direction to the usual way.

Heterot'ropal, Heterot'ropous, *a.* [Gr. *heteros*, and *trepō*, I turn.] (*Bot.*) A term applied to the embryo of a seed when the former lies across the latter, that is to say, neither pointing to its base nor apex.

Heth, in *Indiana*, a township of Harrison co. *Pop.* (1897) about 1,810.

Het'man, *n.*; *pl.* HETMANS. [Pol.; Russ. *ataman*, from Ger. *hauptmann*, headman, captain.] The title given to the commander-in-chief of the Cossacks.

"The Ukraine's *Hetman*, calm and bold."—*Byron.*

Het'ricks, in *Pennsylvania*, a village of York co.

Heu'chelheim, a town of Prussia, formerly in prov. Ober-Hessen, Hesse-Daamstadt. *Pop.* (1897) about 1,420.

Heuche'ra, *n.* [After *J. H. Heucher*, a German botanist.] (*Bot.*) A genus of herbaceous plants, order *Saxifragaceæ*. *H. Americana*, the Alum-root, is a neat plant, 2–4 feet high, found in all the States; leaves roundish, panicle elongated, calyx campanulated and more conspicuous than the purplish-white petals. Its root is astringent, hence its common name.

Heu'landite, *n.* (*Min.*) A mineral occuring in right rhomboidal prisms or their modifications. Color, white, sometimes red, gray or brown; transparent. Found in Chester, Mass., Bergen Hill, N. J., &c. *Sp. gr.* 2·2. *Comp.* Silica 59·1, alumina 16·9, lime 9·2, water 14·8.

Heus'ler, in *Indiana*, a post-office of Perry co.

Heu'velton, in *New York*, a post-village of St. Lawrence co., on the Oswegatchie River, abt. 5 m. S.E. of Ogdensburg.

He'veene, *n.* (*Chem.*) A heavy oil obtained by the distillation of gutta-percha.

He'ves, a town of Hungary, 60 m. E.N.E. of Perth; *pop.* 6,100.

Hew, (*hū,*) *v. a.* (*imp.* HEWED or HEWN.) [A. S. *heawan, geheawan;* D. *houwen;* Ger. *hauen;* Sansk. *cho*, to cut, to cut down.] To cut, as with an axe, or other edged instrument; — frequently preceding *down*, or *off*. "Yet shall the axe of justice hew him *down*." (*Sidney.*) — To shape by cutting with a sharp tool or instrument; — often before *out;* as, "Thou hast *hewn out* a sepulchre here" (*Isaiah* xxii.); — hence, to form laboriously.

"The gate *hew'd* by Mars himself, from Indian quarries came." *Dryden.*

—To chop; to hack; to cut to pieces.

Hewed, (*hūd,*) *p. a.* Cut and made smooth or even; chopped; hacked; shaped by cutting, or by a chisel.

Hew'er, *n.* One who hews wood or stone.

Hewn, *p. a.* The same as HEWED, *q. v.*

Hewn Stone. (*Masonry.*) That kind of stone which is employed after the whole face has been worked; it differs from block stone in the superior quality of the work upon the surface.

Hexacap'sular, *a.* (*Bot.*) Possessing six capsules.

Hex'achord, *n.* [Gr. *hex*, and *chordē.*] (*Mus.*) A progression of six notes, to which Guido attached the syllables *ut, re, mi, fa, sol, la*. The *H.* is called a *sixth;* and is twofold, *greater* and *less*. The former is composed of two greater, two less tones, and one greater semitone, making five intervals; the latter, of two greater tones, one lesser, and two greater semitones.

Hexadac'tylous, *a.* [Gr. *hexadaktylos.*] (*Zoöl.*) Having six fingers or toes.

Hex'ade, *n.* [Gr. *hexados;* Lat. *hexadis.*] A series or succession of six numbers.

Hex'agon, *n.* [Gr. *hex*, six, and *gonia*, an angle; Fr. *hexagone.*] (*Geom.*) A plane figure bounded by six straight lines. When these are equal, the *H.* is *regular*. The side of a regular *H.* is equal to the radius of its circumscribing circle, a property which has numerous useful applications. The area is equal to the square of its sides multiplied into the constant number 2·598076; that is, into three times half the tangent of 60°.

Hexag'onal, *a.* Having six angles and six sides.

Hexagonal Numbers. (*Arith.*) Figurate numbers of the second order and fourth class; they represent the successive sums of an arithmetical series whose first term is 1, and common difference 4. The n^{th} hexagonal number, therefore, is $n\,(2\,n—1)$.

Hexag'onally, *adv.* In the form of an hexagon.

Hexagyn'ian, Hexag'ynous, *a.* (*Bot.*) Possessing six pistils.

Hexahe'dral, *a.* Having the figure of an hexahedron; cubic.

Hexahe'dron, *n.* [Gr. *hex*, and *hedra*, base; Fr. *hexadre.*] (*Geom.*) A solid bounded by six planes. A parallelopiped is an *H.* whose opposite faces are parallel. The cube or *regular hexahedron* is one of the five regular solids, having six equal square faces, twelve equal edges, and eight solid angles, each formed by the meeting of three plane right angles.

Hexahem'eron, *n.* [Fr.; Gr. *hex*, and *hemera*, day.] A term or duration of six days. — The history of the six days' labor of creation, as described in the first chapter of Genesis.

Hexam'erous, *a.* [Gr. *hex*, and *meros*, part.] (*Bot.*) In sixths, or sixth parts.

Hexam'eter, *n.* [Fr. *hexamètre;* Gr. *hex*, and *metron*, a measure, a verse, a metrical line.] (*Pros.*) The commonest and most important form of dactylic verse used among the ancient Greeks and Romans. It was termed *hexameter* in consequence of its consisting of six feet, either dactyls or spondees, which could be used indifferently throughout the verse, with two exceptions: that the last foot must be invariably a spondee, and the last but one a dactyl. In a few rare cases, either to vary the rhythm, or to produce some special effect, a spondee is introduced in the fifth foot, when the line is denominated a *spondaic* line.

Hexamet'ric, Hexamet'rical, *a.* Consisting of six metrical feet.

Hexam'etrist, *n.* A writer in hexameters.

Hexan'dria, *n.* [Gr. *hex*, and *andros*, male; Fr. *hexandrie.*] (*Bot.*) A Linnæan class of plants having six stamens.

Hexan'drian, Hexan'drous, *a.* (*Bot.*) Possessing six stamens.

Hexan'gular, *a.* [Gr. *hex*, and Eng. *angular.*] Presenting six angles or corners.

Hex'aped, *a.* Having six feet.

Hexapet'alous, *a.* [Gr. *hex*, and *petalon*, leaf.] (*Bot.*) Having six petals.

Hexaph'yllous, *a.* [Gr. *hex*, and *phyllon.*] (*Bot.*) Six-leaved.

Hex'apla, *n.* [Gr.] (*Bibliog.*) The combination of six versions of the Old Testament by Origen is so called, viz., the Septuagint, those of Aquila, Theodotion, Symmachus; one found at Jericho, and another at Nicopolis.

Hex'aplar, *a.* Sextuple.

Hex'apod, *a.* [Gr. *hex*, and *pous, podos*, a foot.] Six-footed.

—*n.* (*Zoöl.*) An animal with six legs, such as a true insect.

Hexap'terous, *a.* [Gr. *hex*, and *pteron*, wing.] Possessing six wing-like processes.

Hexastich, Hexastichon, (*-stik, hex-as'ti-kon,*) *n.* [Gr. *hexastichos.*] (*Lit.*) A poem comprising six verses.

Hex'astyle, *n.* [Gr. *hexastylos.*] (*Arch.*) A triangle, or building, having six columns in front.

Hex'ham, a town of England, in Northumberland co., on the Tyne, 19 m. W. of Newcastle; *pop.* 6,500.

Hexoctahe'dron, *n.* [Gr. *hex*, and Eng. *octahedron.*] (*Geom.*) A solid presenting 48 equal triangular faces.

Hexyl, (*heks'il,*) *n.* [Gr. *hex*, six.] (*Chem.*) A liquid of agreeable aromatic odor, boiling at 395°, obtained from œnanthytate of potash by voltaic decomposition. It is the sixth of the series of the hydrocarbon radicals of the alcohols, and is also called caproyl.

Hey, (*hāi,*) *interj.* [Probably from *high.*] An exclamation of joy or mutual exhortation; — contrary to the Lat. *hei.*

"Then *hey* for praise and panegyric!"—*Prior.*

Hey'-day, *interj.* [For *high-day.*] An expression of frolic or exultation, and, sometimes, of wonder.

"Thou spend'st such *hey-day* wit in praising him."—*Shaks.*

—*n.* A frolic; wildness; exuberance of life.

"At your age the *hey-day* in the blood is tame."—*Shaks.*

Heyst-op-den-berg, (*histe-op-den-bairg,*) a town of Holland, on the Great Nethe, 17 m. S.E. of Antwerp; *pop.* 7,800.

Hey'wood, JOHN, one of the earliest English poets and dramatists, B. about 1500. He is also said to have been well skilled in music, and as a player on the virginals. He was a great favorite with Henry VIII. and Queen Mary, but on the accession of Elizabeth he went to Mechlin. One of his principal works is entitled, *The Spider and the Fly, a Parable.* Died in 1565.

Hey'worth, in *Illinois*, a post-village of McLean co.

Hezeki'ah, a pious king of Judah, succeeded his father Ahaz about 726 B. C., and D. about 698 B. C. His history is contained in 2 Kings 18–20; 2 Chr. 29–32. He was succeeded by the unworthy Manasseh.

Hiatus, (*hī-ā'tus,*) *n.* [Lat., from *hio*, to open or gape; Gr. *chaō.*] An opening; a gaping; an aperture; a gap; a chasm. — (*Bibliography.*) A chasm or blank space left in a manuscript, as from a passage erased, &c.

(*Gram.* and *Pros.*) The occurrence of a final vowel, followed immediately by the initial vowel of another word without the suppression of either by even an apostrophe. In the French language, the *H* is most carefully avoided, but in the English not so much attention is paid to it, although it is considered a blemish by the more careful writers.

Hiawas'see, in *Georgia*, a post-vill., cap. of Towne co., on the Hiawassee River, abt. 85 m. N. by W. of Athens.

Hiawassee, in *Georgia, N. Carolina*, and *Tennessee*, a small river rising in Union co. of the former state, and flowing N.W. into N. Carolina, traverses Cherokee co., thence into Polk co. of Tennessee, it continues its tortuous N.W. course between Bradley and McMinn cos., entering the Tennessee River in Meigs co.

Hiawa'tha, in *Kansas*, a fine city, cap. of Brown co., on the Mo. Pac. and St. J. & G. I. R. Rs., 32 m. N. W. of Atchison. *Pop.* (1895) 3,602.

Hib'bard, in *Indiana*, a post-office of Marshall co.

Hibbard, in *Tennessee*, a post-office of Franklin co.

Hib'bett's, in *Ohio*, a post-office of Carroll co.

Hibbiappa'ba, in Brazil. See IBIAPABA.

Hibbs'ville, in *Iowa*, a post-village of Appanoose co.

Hiber'nacle, Hyber'nacle, *n.* [Lat. *hiberuaculum.*] That which serves as winter-quarters. (R.)

Hibernac'ulum, Hyberuac'ulum, *n.* [Lat.] (*Gardening.*) Anything used as a protection to young buds during the winter.

Hiber'nal, Hyber'nal, *a.* [Fr.; from Lat. *hibernus—hiems*, winter.] Relating or pertaining to winter; wintry.

Hi'bernate, Hy'bernate, *v. a.* To winter; to pass the winter season in a domiciled state, as beasts, birds, &c.

Hi'bernation, Hy'bernation, *n.* The act of hibernating, or of passing the winter in a domicile or place of seclusion.

(*Zoöl.*) That peculiar condition of sleep which certain animals, chiefly cheiroptera and rodentia, pass the winter season. The bats, the hedgehog and the dormouse are the most striking examples of this phenomenon.

Hiber'nia, the Roman name for IRELAND (*q. v.*).

Hiberuia, in *Missouri*, a village of Callaway co., on the Missouri river, opposite Jefferson City.

Hiberuia, in *New Jersey*, a post-village of Morris co., on Central R. R. of N. J. *Pop.* (1897) about 1,420.

Hiber'nian, *a.* [From Lat. *Hibernia.*] (*Geog.*) Pertaining or relating to Hibernia, or the modern Ireland; as, the *Hibernian* brogue.

—*n.* A native or inhabitant of Ireland.

Hiber'nianism, Hiber'nicism, *n.* An idiom of speech peculiar to the Irish.

Hiber'no-Cel'tic, *n.* The branch of the Celtic language spoken by the people of Ireland.

Hibis'cus, *n.* [Gr. *hubris*, haughtiness.] (*Bot.*) A gen. of plants, order *Malvaceæ*. The species *H. Cannabinus* yields the fibre known as *sunnee*, or *brown Indian hemp*, which is used in India as a substitute for true hemp. It is sometimes confounded with *sunn hemp*, which is the produce of a leguminous plant, (see CROTALARIA.) *H. arboreus*, a native of the W. Indies, is also remarkable for the tenacity of its inner bark, and some authors declare that the whips formerly used by the slave-drivers were manufactured from its fibres. The petals of a Chinese species, *H. rosasinensis*, the China-rose, are astringent, and are used by the "Celestials" to blacken their eyebrows and the leather of their shoes. Various other species of *H.* yield valuable fibres useful for textile fabrics, or for paper.

Hiccius Doccius, (*hik'shī-us dŏk'shī-us.*) [A corruption from the Lat. *hic est doctus*, this is a learned man.] A cant phrase for a juggler, or one who plays tricks of legerdemain.

"And *hiccius doccius* played in all."—*Hudibras.*

Hiccough, (*hik'kup,*) *n.* (Sometimes written HICCUP.) [*Hic* and *cough;* Dan. *hikke;* formed from the sound.] (*Med.*) A spasmodic affection of the diaphragm, in which the muscles of respiration and of the larynx are more or less involved. *H.* may occur from eating too hastily after a lengthened fast, from drinking cold water, or from any causes affecting the stomach. As a symptom towards the end of fever, or in gangrene, it is always regarded as the near harbinger of death. The treatment of *H.*, when a sudden ejaculation or a diversion of the patient's mind fails to check it, is to give 20 drops of sal-volatile and 15 drops of ether in a wineglass of camphor-water, or, in severe cases, 30 drops of laudanum.

Hick'man, in *Kentucky*, a S.W. county, adoining Mississippi and Tennessee; *area*, about 240 sq. m. *Rivers.* Mississippi and several of its tributaries. *Surface*, level; *soil*, fertile. *Cap.* Clinton. *Pop.* (1890) 11,637.

—A post-town, cap. of Fulton co., on the Mississippi river, and the Nash., Chat. & St. Louis R. R., 36 m. below Cairo, Ill. *Pop.* (1897) about 1,700.

Hick'man, in *Tennessee*, a W. central co.; *area*, about 648 sq. m. *Rivers.* Duck river, and numerous smaller streams. *Surface*, hilly; *soil*, tertile. *Min.* Iron ore. *Cap.* Centerville. *Pop.* (1890) 14,499.

Hick'man Creek, in *Kentucky*, enters the Kentucky river through Jessamine co.

Hick'man's Bend, in *Arkansas*, a village of Mississippi county.

Hick'ory, *n.* (*Bot.*) The common name of the genus of trees *Carya*, order *Juglandaceæ*. The hickories are exclusively North American. They are large and beautiful trees, attaining a height of 70 or 80 feet, with pinnate leaves. The timber of all of them is very heavy, strong, and tenacious, but decays speedily when exposed to heat and moisture, and is said to be peculiarly liable to injury from worms. Great quantities of *H.* are used to make hoops for casks. It is also much used for handspikes. Musket-stocks, shafts of carriages, handles of whips, large screws, &c., are made of it. It is greatly esteemed for fuel. The nuts of some of the species are excellent for eating, with sweet and agreeable flavor.—*C. alba*, the *shellbark* or *shagbark H.* (Fig. 1286), so called from the shaggy outer bark peeling off in long, narrow plates, yields the common *hickory nut* of the northern parts of the U. S. It abounds on Lake Erie, and in



Fig. 1286.—THE SHELLBARK HICKORY.
(*Carya alba.*)

some parts of New Jersey and Pennsylvania. The trunk is slender. The leaves are often 20 inches long. The nuts are in considerable request, and are sometimes exported. The shell is thin but hard, the kernel sweet. An oil, which is used by the Indians as an article of food, is obtained from it by pounding and boiling.—*C. sulcata*, the *thick shellbark H.*, a very similar tree, abounding in the fertile valleys of the Allegheny Mountains, has a nut with a thick, yellowish shell, which is often brought to market in America under the names of "Springfield nut" and "Gloncester nut."—*C. eliræformis* yields the *Pecan nut*, the most esteemed for its flavor. It differs from the others in the nut having no partitions within the shell.—Other species yield the *mocker nut*, *pig nut*, and *bitter nut.*

Hickory, in *Arkansas*, a township of Carroll co.

Hickory, in *Illinois*, a post-village of Lake co., about 50 m. N. N. W. of Chicago.

—A township of Schuyler co.

Hickory, in *Iowa*, a post-village of Monroe co.

Hickory, in *Mississippi*, a post-village of Newton co.

Hickory, in *Missouri*, a S. W. central co.; *area*, about 415 sq. miles. *Rivers.* Little Niangua and Pomme de Terre rivers, and Lindley's and Warblow creeks. *Surface*, uneven; *soil*, fertile. *Cap.* Hermitage. *Pop.* (1890) 9,453.

Hickory, in *Ohio*, a village of Carroll co., about 120 m. E. N. E. of Columbus.

—A post-office of Mahoning co.

Hickory, in *Penna.*, a township of Lawrence co.

—A township of Mercer co.

—A township of Forest co.

—A post-village of Washington co.

Hickory Barren, in *Missouri*, a post-village of Greene co., about 120 m. W. of Jefferson City.

Hickory Branch, in *Indiana*, a post-village of Posey co.

Hickory Corners, in *Michigan*, a post-village of Barry co.

Hickory Corners, in *New York*, a post-office of Niagara co.

Hickory Corners, in *Pennsylvania*, a post-village of Northumberland co.

Hickory Creek, in *Illinois*, a village of Fayette co., about 80 m. S.S.E. of Springfield.

Hickory Creek, in *Missouri*, a village of Audrain co., about 60 m. N.E. of Jefferson City.

Hickory Creek, in *Texas*, enters the Rio Llano in Gillespie co.

—A village of Hunt co.

Hickory Flat, in *Alabama*, a post-village of Chambers co.

Hickory Flat, in *Georgia*, a post-village of Cherokee co., about 125 m. N.W. of Milledgeville.

Hickory Flat, in *Kentucky*, a post-vill. of Simpson co.

Hickory Flat, in *Mississippi*, a post-village of Benton co.

Hickory Fork, in *Virginia*, a P. O. of Gloncester co.

Hickory Grove, in *Georgia*, a post-village of Crawford co., about 37 m. W. of Macon.

Hickory Grove, in *Indiana*, a township of Benton county.

Hickory Grove, in *Iowa*, a village of Delaware co.

—A township of Jasper co.

—A township of Scott co.

Hic'kory Grove, in *Kentucky*, a post-village of Graves co.

Hickory Grove, in *Missouri*, a twp. of Warren co.

Hickory Grove, in *South Carolina*, a village of York co. The post-office is HICKORY.

Hickory Grove, in *Wisconsin*, a twp. of Grant co.

Hickory Hill, in *Illinois*, a post-office of Marion co. about 44 m. S.E. by S. of Vandalia.

—A township of Wayne co.

Hickory Hill, in *Missouri*, a post-village of Cole co., about 17 m. S.W. of Jefferson City.

Hickory Hill, in *Penna.*, a post-village of Chester co.

Hickory Hill, in *South Carolina*, a village of Hampton co.

Hickory Hill, in *Texas*, a village of Cass co.

Hickory Level, in *Georgia*, a post-village of Carroll co., about 150 m. W.N.W. of Milledgeville.

Hickory Plains, in *Arkansas*, a post-village of Prairie co.

Hickory Point, in *Illinois*, a village of Woodford co.

Hickory Point, in *Indiana*, a village of Porter co.

Hickory Port, in *Missouri*, a village of Grundy co.

Hickory Ridge, in *Arkansas*, a twp. of Phillips co.

Hickory Ridge, in *Illinois*, a P. O. of Hancock co.

Hickory Ridge, in *Tennessee*, a P. O. of Jefferson co.

Hickory Station, in *Arkansas*, a post-office of Montgomery co.

Hickory Valley, in *Arkansas*, a post-village of Independence co.

Hickory Valley, in *Tennessee*, a post-town of Hardeman co., on the Illinois Central R. R.

Hickory Withe, in *Tennessee*, a post-village of Fayette co.

Hicks, ELIAS, an eminent minister of the religious Society of Friends, born on Long Island, in 1748. The preaching of *H.*, and the manner of his treatment by a portion of Friends, were among the principal causes of the division of that society. Died in 1830.

Hicks, in *New York*, a post-village of Chemung co. *Pop.* (1897) about 500.

Hick's Cor'ners, a village of Grenville co., prov. of Ontario, about 8 m. S. of Kemptville.

Hicks'ford, in *Virginia*, a village of Greenville co., on the Meherrin river, about 62 m. S. of Richmond.

Hicks Mill, in *Maryland*, a post-village of Prince George co.

Hick'son, in *North Dakota*, a post-village of Cass co.

Hicks Store, in *Virginia*, a P. O. of Spottsylvania co.

Hicks'ville, in *New York*, a post-village of Queens co., 56 m. E. of Brooklyn. *Pop.* (1897) about 2,100.

Hicksville, in *Ohio*, a post-village and township of Defiance co., on B. & O. R. R., 20 m. W. of Defiance. *Pop.* (1897) about 2,250.

Hicks Wharf, in *Virginia*, a post-village of Mathews county.

Hickwall, Hick'way, *n.* [Old Eng.] (*Ornith.*) A small wood-pecker, *Picus minor.*

Hid, Hidden (*hid'n*), *pp.* of HIDE (*q. v.*). Concealed; secreted.

"The several parts lay *hidden* in the piece."—*Dryden.*

—Secret; mysterious; not known.

"What I have *hidden*, hope thou not to know."—*Dryden.*

Hid'age, *n.* [From *hide*, an Old Eng. land measure.] A tax formerly levied by the English monarch on every hide of land.

Hidal'go, *n.* [Sp., corrupted from *hijo de algo*, son of somebody; Pg. *fidalgo.*] A Spanish nobleman of the lower class. The title, although frequently applied during the last century and Middle Ages, is now extinct.

Hidalgo, in *Texas*, a S. county, adjoining Mexico; *area*, about 2,970 sq. m. *Rivers.* Rio Grande and Olmos creek. *Surface*, mostly level; *soil*, fertile. *Cap.* Hidalgo. *Pop.* (1890) 6,534.

Hid'dekel, one of the rivers of the Garden of Eden, believed to be the Tigris.

Hid'den, *pp.* and *p. a.* from *hide.* See HIDE and HID.

Hid'denly, *adv.* In a hidden, secret, or mysterious manner.

Hide, *v. a.* (*imp.* HID; *pp.* HIDDEN, HID.) [A.S. *hydan*; D. *hoeden*, to guard, to watch; Goth. *huotan*; W. *cuddiaw*, to cover, to conceal: allied to Gr. *keutho*, to cover closely; Sansk. *chad*, to cover.] To cover; to conceal; to secrete; to withhold or withdraw from sight.

"Ye little stars! *hide* your diminished rays."—*Pope.*

—To withhold from knowledge; to keep secret; to screen.

"Teach me . . . to *hide* the fault I see."—*Pope.*

—To shelter; to protect; to keep in safety; as, to *hide* in a place of security.

To hide the face, to discountenance; to withdraw grace or favor.

"Thou didst *hide thy face*, and I was troubled."—*Ps.* xxx. 7.

To hide the face from, to overlook; to pass without censure.—To be displeased with; to exhibit severity to. — *To hide one's self*, to secure one's safety; to prevent detection.

—*v. n.* To be or to lie concealed or secreted; to withdraw from sight or observation; to abscond.

"Bred to disguise, in public 'tis you *hide*."—*Pope.*

Hide-and-seek, a play among children, in which some hide that the others may find them.

Hide, *v. a.* To flog; to beat; to whip; to flagellate; as, to *hide* a rowdy. (Used both in England and the U. States.)

Hide, *n.* [A.S. *hyde*, from *hydan*; Dn. *huid*; Ger. *haut*; Dan. and Icel. *hud.* See verb above.] That which covers and protects the flesh or the body of an animal; the skin of an animal, either raw or dressed.

(*Com.*) The skin of some of the larger animals, which are specially adapted for the manufacture of leather, and which are also a source of glue. The term is applied chiefly to those of cattle, the horse and the hippopotamus, and of the buffalo when intended for tanning. The skins of young cattle are distinguished as *kips*, and those of the deer, sheep, goat, seal, &c., even though intended for leather, are called *skins.*

—The human skin;—used in a contemptuous sense.

"Oh, tiger's heart, wrapt in a woman's *hide*."—*Shaks.*

Hide, Hyde, *n.* [A.S. *hyd.*] An old English measure of land. Its contents are not quite certain, but are stated to have been 100 Norman, or 120 English acres.

Hide'-bound, *a.* Having the hide close;—applied to a horse or a cow when the skin sticks so closely to the ribs and back as not to be easily loosened or raised.

(*Arboriculture.*) A term applied to trees in which the bark does not swell freely in proportion to the growth of the tree.

Hid'eous, *a.* [Fr. *hideux.*] Frightful; terrible; horrible; ghastly; shocking to the eye.—Distressing or repugnant to the ear; discordant; provoking terror, dismay, or confusion; as, a *hideous* yell.—Hateful; detestable; loathsome.

Hid'eously, *adv.* In a manner to frighten; dreadfully; shockingly.

Hid'eousness, *n.* Frightfulness to the eye; dreadfulness; horribleness.

Hid'er, *n.* One who hides, secretes, or conceals.

Hid'ing, *n.* Concealment; withdrawment; a withholding.

Hid'ing-place, *n.* A secret place; a spot adapted to concealment.

Hidrot'ic, *n.* [Gr. *hidrōtos*, sweat.] (*Med.*) A medicine to promote perspiration.

Hie, *v. n.* [A.S. *higan, higian;* Icel. *hagga*, to move.] To hasten; to move or run with haste; to go in haste; to speed. (Used principally in poetical composition.)

"Hang up thy lute, and *hie* thee to the sea."—*Waller.*

Hielmar, (*heel'mar.*) a lake of central Sweden, surrounded by the districts of Nykioping, Oorebro, and Westeraas; *area*, 40 m. in length, by an average of 8 m. in width. It communicates with Lake Malar by the Or, or *Batka.*

Hiel'mite, *n.* (*Min.*) A black mineral from the Kararfvet mine near Fahlun, Sweden. It is a stanno-tantatale of iron, uranium, and yttria, of complicated composition; *sp. gr.* 5·82.

Hiera'cium, *n.* [Gr. *hierakos*, a hawk,—supposed to strengthen the vision of birds of prey.] (*Bot.*) The Hawkweeds, a gen. of plants, ord. *Asteraceæ.* They are perennial herbs, with leaves alternate, entire or toothed; involucre more or less imbricated, ovoid, many-flowered; scales very unequal. *H. Canadense*, *H. venosum*, and *H. paniculatum*, are American species. *H. murorum*, the Golden-lungwort, or Wall-Hawk-weed, is a native of Europe.

Hie'ra-pic'ra, *n.* [Gr. *hieros*, sacred, and *pikros*, bitter.] (*Med.*) The Holy Bitter, vulgarly called *hickery-pickery*,—a very excellent old-fashioned tonic bitter, made by mixing one part of powdered aloes with two parts of canella alba.

Hierap'olis. [Gr., sacred city.] (*Anc. Geog.*) A city of Phrygia, near the junction of the rivers Lycus and Meander, celebrated for its warm springs, and its cave Plutonium, from which arose a mephitic vapor which was poisonous to all but the priests of Cybele. A Christian church was early established here, and St. Paul mentions it, (*Col.* iv. 12, 13.) The city is now desolate, but its ruins still exhibit many traces of its ancient splendor.—2. A city of Syria, called *Bambyce* by the early natives, one of the chief seats of the worship of Astarte or Ashtoreth.

Hierarch, (*hī'e-rärk.*) *n.* [Gr. *hierarchēs*; Fr. *hiérarque.*] A ruler, or one who governs sacred things.

"Angels, under their *hierarchs* in orders bright."—*Milton.*

Hierar'chal, *a.* Relating or pertaining to a hierarch.

Hierar'chical, *a.* Belonging to a hierarchy, or to sacred or ecclesiastical government.

Hi'erarchism, *n.* Ruling principles of a hierarchy.

Hierarchy, (*hī'ē-rar-ke,*) *n.* [Gr. *hieros*, sacred, and *archon*, government.] (*Eccl Hist.*) Literally, *H.* means a *holy government*, and is used to signify either the constitution and government of the Christian Church, or ecclesiastical polity, comprehending different orders of clergymen, and the government of the Church over the State. Taken in the former sense, with reference to the internal government of the Church, the *H.* arose with the formation of the Christians on an independent establishment; for, although *presbyters*, or elders, were placed at the head of the earliest congregations of Christians, yet their constitution was essentially democratic,—each and all of the members having a share in the concerns of the whole society, and a vote in the election of elders, the exclusion of renegades, and the reception of proselytes. Afterwards, the government of the Church became more and more transferred into the hands of the elders; and in the 2d century, the bishops became chiefs, and took all authority in their own hands, although the elders were still possessed of some semblance of power. In the capitals of different provinces, the bishops were termed *metropolitans*, and were superior in office to the provincial bishops, and thus, gradually, an *aristocratical H.* was formed, and the "metropolitans" of Constantinople, Antioch, Alexandria, and Jerusalem were called "Patriarchs," and looked up to as the heads of the Church, under the sovereignty of the Pope.—According to Dionysius the *Areopagite*, *H.* also denotes a division of the angels which were divided into three of these separate constitutions. The first *H.* was composed of the *cherubim*, *seraphim*, and *thrones;* the second of *dominions*, *virtues*, and *powers;* and the third, of *principalities*

angels, and *archangels*. Some of the Rabbins reckon 4, and others 10 hierarchies, or orders of angels.

Hieratic, (*hī-e-răt'ik,*) *a.* [Gr. *hieratikos*, from *hieros*, sacred, *hiersus*, a priest.] Sacerdotal; pertaining to priests; priestly; consecrated to sacred uses;—especially applied to the emblematic character used by the Egyptian priests. — See HIEROGLYPHICS.

Hières, in France. See HYÈRES.

Hi'ero, or **Hi'eron I.,** a tyrant of Syracuse, succeeded his brother Gelon B. C. 478. He carried on war for several years with Theron, tyrant of Agrigentum, and his son and successor Thrasydæus, the latter of whom he defeated and got expelled. In 474 he gained, in conjunction with the Cumæans, a great victory over the Etruscans, whose naval power did not recover the blow. Hiero was a patron of scholars, and his court was made illustrious by the presence of Æschylus, Pindar, Simonides, Xenophanes, and other distinguished Greeks. He was also frequently a successful competitor in the games at Olympia and Delphi. His government was very despotic, and was supported by mercenary guards and a spy-system. D. at Catania, B. C. 467.

HIERO II., king of Syracuse, was the son of Hierocles, said to be a descendant of Gelon. After distinguishing himself in the Sicilian war of Pyrrhus, he was chosen, in B. C. 275, general of the Syracusan army. He carried on war with the Mamertines, who had invaded the island and taken Messina, and in 270 was chosen king by the Syracusans. The Mamertines having obtained the alliance of Rome, Hiero in 264 allied himself with the Carthaginians, who had gained a footing in the island, and thus began the first Punic war. Defeated by Appius Claudius in the following year, Hiero made peace with the Romans, and became their faithful and very useful ally. Under his government his subjects enjoyed great prosperity; he made some excellent laws, which the Romans retained after their conquest of Sicily; avoided all parade of royalty; fostered commerce, and strengthened and beautified Syracuse. The mathematician Archimedes lived in his reign. Hiero D. B. C. 215, aged 92.

Hieroch'loa, *n.* [Gr. *hieros*, sacred, and *chloa*, grass.] (*Bot.*) The Holy-grasses, a genus of plants, order *Graminaceæ*. *H. borealis*, the Holy or Seneca grass, is a grass about a foot high, with a brownish glossy lax panicle. It is found in the north of Europe, and in America from Virginia up to the Arctic regions. It has a sweet smell, like that of vernal grass; and in Iceland, where it is plentiful, it is used for scenting apartments and clothes. In some countries, it is strewed on the floors of places of worship on festival-days, whence its name, and that of the genus.

Hierocles, (*hi-er'o-klees.*) The name of several Greeks. — 1. A professor of rhetoric at Alabanda, in Caria: he is said to have excelled in what Cicero called "the Asiatic" style of eloquence. Lived in the 1st century, before the Christian æra. — 2. A writer on the veterinary art, of whose work three chapters have been preserved. — 3. A Stoic philosopher, who is said to have flourished about the time of Hadrian. — 4. A writer of a work, which, under the title of "Travelling Companion," gave a description of the provinces of the Eastern empire. This work was edited and printed by Wesseling, at Amsterdam, in 1735. He is supposed to have lived in the 6th century. — 5. A persecutor of the Christians, who was president of Bithynia, and afterwards governor of Alexandria, where he committed numberless cruelties. He wrote some books against the Christians, mentioned by Lactantius and Eusebius. The remains of his writings were published by Bishop Pearson in 1654, with a curious discourse upon them. Lived in the 4th century. — 6. An Alexandrine Platonic philosopher, who wrote seven books on Providence and Destiny, and a commentary on the Golden Verses of Pythagoras; the latter of which is extant, also fragments of the former. Lived in the 5th century.

Hieroc'racy, *n.* [Gr. *hieros*, and *kratos*, power.] Ecclesiastical government; hierarchy.

Hieroglyph, (*hī'e-ro-glif,*) *n.* [Fr. *hiéroglyphe;* Gr. *hieros*, sacred, and *glyphō*, to hollow out, to engrave or carve.] A sacred sculptured or carved character or symbol.

Hieroglyph'ic, or **Hieroglyph'ical,** *a.* [Fr. *hiéroglyphique.*] Relating to hieroglyphics; emblematic; expressive of some meaning by characters, pictures, or figures.

—Enigmatical; occult; obscure; as, *hieroglyphical* scrawl.

Hieroglyph'ically, *adv.* Emblematically; in an hieroglyphic manner.

Hieroglyphics, (*hī-e-rō-glĭf'iks,*) *n. pl.* A term generally applied to the representations of animals or other forms, used to express language, and more especially to those found sculptured on the monuments of Egypt. The ancient Egyptians appear to have used about 1,000 symbols, by means of which they were enabled to express themselves correctly and clearly. Among the ancient Greeks this mode of writing was called *hieroglyphic*, or *hierographic;* and its invention was attributed to Thoth, the Egyptian Hermes. In nearly all cases, hieroglyphics consist of representations of the sun, moon, and stars, the human form, animals, fishes, works of art, &c., which were either engraved in reliefs sunk below the surface, or traced with a reed pen on slabs of stone, pieces of wood, or leaves of the papyrus. In the Egyptian monuments the hieroglyphics are sometimes plain, and sometimes decorated with colors. Those found on coffins appear to have been traced out and afterwards colored; those inscribed on papyri are merely sketched out, and are called *linear hieroglyphs.* They are arranged in perpendicular or horizontal columns, separated by lines, and in some cases distributed in a sporadic manner in the area of the picture to which they refer. *H.* appear on the walls of the earliest tombs, and are even found scrawled on the blocks of stone which form the great pyramid of King Cheops. They continued in use for upwards of 3,000 years, when they were superseded by a more condensed writing, called the *Demotic*, and lastly by the modern Coptic, on the introduction of Christianity. All knowledge of the mode of deciphering hieroglyphics was lost from the 10th to the 16th century; and on the revival of learning, the task was undertaken in vain, till the discovery of the Rosetta stone in 1799, when a clue to their interpretation was gained. In 1814 Young was the first to discover, from the name of Ptolemy on this stone, and that of Berenice on a doorway in the south corner of Karnac, that certain *H.* were used to represent sounds, and not ideas exclusively, as had been believed up to that time. From that period the study of hieroglyphics has been pursued by many learned men. Hieroglyphs are divided into two classes — *ideographs*, or symbols representing ideas, not sounds; and *phonetics*, which spell the sound of the word the sense of which they are intended to convey. Nearly all the inscriptions are principally composed of phonetics, which are easily distinguished by their constant recurrence. The ideographs are divided into two classes, — first, those which represent the object directly: as a wolf to represent that animal, a man having the head of an ibis to represent the god Thoth, a bundle of flax to represent flax, &c.; — secondly, those which are enigmatic, and express the idea by less direct means; as a woman beating a tambourine to express joy, a smoking pail for milk, an ape for anger or irritability, and a jackal for cunning. The number of these particular signs, however, was not many, as a certain class of them was used to express more ideas than one. Thus a figure representing a seated man signified man in all his relations, functions, and offices; meaning either father, brother, governor, priest, &c.; the particular meaning being conveyed by the arrangement of phonetics before the sign. In the same manner all acts of locomotion were represented by two legs in the act of walking; all actions where the arms were required, by an arm holding a stick; all precious stones by a ring; and all beasts and objects made of leather by a skin. The *H.* closely resemble in their use the cuneiform characters of the Assyrians. (See CUNEIFORM.) The Chinese mode of writing is also very similar to the hieroglyphs of ancient Egypt in the use of the phonetics. The ideographs are often preceded by a group of phonetics indicating the spelling. Thus *Aush*, a wolf, is preceded by a hare *A*, a line of water *N*, and a basin *SH;* a jackal, *Sab*, "cratty," is preceded by the back of a chair *S*, and a chisel *B*. Those *H.* called phonetics are fewer in number than the ideographs, and are divided into two classes — those ending in vowels and those ending in consonants. The former are fifty-two in number; and as they represent eighteen sounds of the spoken language, answer the purpose of a pure alphabet. The grammatical forms, the abstract prefixes and affixes, substantive, and auxiliary verbs, — in fact, the great body of the language, is composed of the phonetics. The groups of phonetics preceding the ideographs are constantly interchanged among themselves; and during the long period of three thousand years, similar texts in the papyri show hundreds of words written with different symbols. The hieroglyphical inscriptions on stone among the Egyptians are all religious, historical, or sepulchral. All their books, with the exception of the Rituals, or *hieratic* books, were written in a cursive or flowing hand, of a very distinct, clear shape, with headings at the tops of the pages. This hieratic character, as it is called, did not employ so many symbols as the hieroglyphic, and approached nearer to the alphabetic system. It continued in use till the 2d or 3d century after the birth of Christ. After the 8th century B.C., it was only used for religious purposes. The demotic character was at first only an abridgment of the hieratic forms; but it rapidly lost all resemblance, and finally tried to accommodate the written language as nearly as possible to the alphabetical Greek and Phœnician systems then known to the Egyptians. It remained in use till the 3d century A. D., when it gave way to the Coptic. During the time of Clement it was first learned by the beginners, who then proceeded to learn the hieratic, and afterwards the hieroglyphic, then an old and dead writing. The ancient Ethiopians carved *H.* on their pyramids and monuments, as well as the Egyptians. The characters resemble those in use in the latter days of the Egyptian monarchy. Hieroglyphical inscriptions have also been found at Nineveh, Koyunjik, and in the islands of the Greek Archipelago. The term *H.* has been applied to the picture-writing of the Aztecs, or ancient Mexicans. The subject delineated, such as a monarch or a town, was absolutely painted, and certain hieroglyphs were introduced in order to aid the explanation. The symbol expressing the king's name is attached by a cord over the head of the monarch; that of the town over it, and so on. After the introduction of Christianity, it is said that the monks used these symbols, according to their sounds, to write the Lord's Prayer and other religious formulas. The term *H.* was applied by writers in the 16th century to emblemata or devices symbolizing sentences taken from the Greek and Latin poets, and having no relation to Egyptian *H.* Almanac-makers and astrologers have also applied the term hieroglyphic to the symbolical pictures which are supposed to be prophetic of coming events.

Hierog'lyphist, *n.* A person conversant with hieroglyphics.

Hi'erogram, *n.* [Gr. *hieros*, sacred, and *gramma*, writings.] A kind of sacred writing.

Hierogrammat'ic, *a.* Pertaining to, or written in hierograms, or sacred writing.

Hierogram'matist, *n.* [Gr. *hierogrammateus*, a sacred scribe.] A writer of hierograms, or one skilled in hieroglyphics; particularly, one of an order of Egyptian priests whose duty it was to keep the sacred records, to teach the ritual, and to insure its accurate observance.

Hierograph'ic, Hierograph'ical, *a.* [Gr. *hieros*, sacred, and *graphikos*, from *graphein*, to write.] Pertaining to sacred writing.

Hierol'atry, *n.* [Gr. *hieros*, and *latreia*, worship.] Saint-worship, or devotional homage to sacred things.

Hierolog'ic, Hierolog'ical, *a.* Relating, or belonging to, hierology.

Hierol'ogist, *n.* One skilled in hierology.

Hierol'ogy, *n.* [Gr. *hierologia.*] A treatise or discourse on sacred things; especially, the science of the ancient Egyptian inscriptions and sacred writings.

Hi'eromancy, *n.* [Gr. *hieromanteia.*] The art of divination from the appearances presented by the victims offered in ancient sacrifices.

Hi'ero-mar'tyr, *n.* A priest-martyr.

Hieromne'mon, *n.* [Gr. *hieromnēmōn*, an observer of sacrifices.] (*Greek Hist.*) The title of one of the two deputies sent to the meetings of the Amphictyonic Council by each tribe forming that confederacy. His office was, as the name imports, to superintend the religious rites on the occasion. It also, in some of the Greek states, denoted a priest, and also a magistrate.

Hieron'ymites, *n. pl.* (*Eccl. Hist.*) An order of hermits, which grew out of the third order of St. Francis (see FRANCISCANS). It was founded by St. Thomas of Sienna, and confirmed by Pope Gregory XI. in 1374. — (Also written *Jeronymites.*)

Hieron'ymus, a tyrant of Sicily, grandson and successor of Hiero II. After reigning 10 months, he was assassinated, and all his family exterminated, B. C. 214.

Hierophant, (*hī-ĕr'o-fănt,*) *n.* [Gr., from *hieros*, sacred, and *phainē*, I show.] (*Greek Hist.*) The title borne by the priests who initiated candidates at the Eleusinian Mysteries. He was necessarily a citizen of Athens, and held the office, which was regarded as one of high religious importance, for life.

Hierophan'tic, *a.* [Gr. *hierophantikos.*] Pertaining to hierophants.

Hies'ter's Mill, in *Pennsylvania*, a P. O. of Berks co.

Hig'ganum, in *Connecticut*, a post-village of Middlesex co., about 23 m. S.S.E. of Hartford.

Hig'gin's Point, in *Alaska*, a cape forming the N.W. point of the N. entrance to the channel of Revilla-Gigedo; Lat. 55° 27′ N., Lon. 131° 34′ W.

Hig'ginsport, in *Iowa*, a post-office of Jackson co.

Hig'ginsport, in *Ohio*, a post-village of Brown county, on the Ohio River, about 47 miles above Cincinnati.

Hig'ginsville, in *Illinois*, a P. O. of Vermilion co.

Higginsville, in *New York*, a post-village of Oneida co., about 110 m. W.N.W. of Albany.

Hig'gle, *v. n.* [See HAGGLE, HAWK, and HUCKSTER.] To carry and hawk provisions, vegetables, &c., about for public sale. — To chaffer; to haggle; to be tedious, nice, or close-fisted in making a bargain.

Hig'gledy-pig'gledy, *adv.* Topsy-turvy; upside-down; at sixes and sevens: in confusion and disorder; as, everything is *higgledy-piggledy* just now. (Used colloquially.)

Hig'gler, *n.* One who carries provisions, &c., about for sale. — One who chaffers or haggles in making bargains.

High, (*hī,*) *a.* (*comp.* HIGHER; *super.* HIGHEST.) [A. S. *heah, heach;* D. *hoog;* Ger. *hoch;* Goth. *hauh*: Icel. *hár;* Swed. & Goth. *hög;* probably based upon the Sansk. *adhi*, over, above.] Elevated: lifted up; far above the earth or its surface; elevated above, or far above the horizon; raised above any object; lofty; sublime; as, a *high* mountain, a *high* tower, the sun is *high* in the heavens. — Exalted in nature or dignity; elevated in rank, office, or condition; chief; eminent; lofty; as, *high* renown, a *high* station. — "'Tis from *high* life *high* characters are drawn." (*Pope.*) — Noble; illustrious; of gentle birth; as, a man of *high* family. — Magnanimous; dignified; exalted in sentiment; distinguished; pre-eminent; honorable. "The *highest* faculty of the soul." — Arrogant; proud; boastful; ostentatious; — employed in a bad sense; as, "*high* and threatening language." (*Clarendon.*) — Loud; boisterous; blusterous; tempestuous; violent; forcible; as, a *high* sea, a *high* wind. — Strong; mighty; powerful; sometimes, majestic; triumphant; victorious; as, *high* passions. — Severe; oppressive: violent; as, to carry things with a *high* hand. — Solemn; mighty; held in veneration; as, "*high* instincts." (*Wordsworth.*) — Full; complete; great; rich; luxurious; strong; vivid; deep; as, *high* noon, *high* heat, *high* seasoning, *high* coloring, *high* living, *high* pleasure, &c. — Very abstruse; profound; difficult to comprehend; complex.

"They meet to hear and answer such *high* things." — *Shaks.*

—Dear; costly; of a great price or value; precious; greatly prized; as, a *high* rate of purchase. — Capital; great; — opposed to *little;* as, *high* treason, in distinction from *petty* treason.

(*Chron.*) Remote in past time; far advanced into antiquity.

(*Geog.*) Remote from the equator, north or south; advancing in Lat. from the line: as, a *high* temperature.

(*Mus.*) Acute; sharp; — in contradistinction to *grave* or *low;* as, a *high* pitch, a *high* note, a *high* sound.

(*Fine Arts.*) Wrought so as to stand prominently from the surface; as, *high*-relief; also, far advanced in perfection of style; as, *high* art.

High admiral. (*Nav.*) In Great Britain, the chief admiral; the highest rank of admiral. — *High and dry*, raised above the surface of the water; in a dry place; as, a vessel *high and dry.* — *High constable.* (*Eng. Law.*)

A chief of police in some cities; a superintendent officer or constabulary. — *High day.* (*Script.*) A saint's day; a festival; as, *high days* and holidays. — *High jinks,* (derived from an old Scottish pastime,) a festive time; fine doings; jollity. — *High living,* luxurious diet; feeding upon rich or costly food. — *High noon,* midday; the time when the sun is in the meridian. — *High operation.* (*Surg.*) Extraction of the stone from the bladder. — *High place.* (*Script.*) An elevated place whereon sacrifices were offered. — *High school.* See SCHOOL. — *High seas,* the ocean beyond the bonndary of jurisdiction of any country; also, the waters of the sea beyond the limits of low-water mark. — *High steam,* a head or high pressnre of steam, that is over 50 lbs. on the square inch. — *High time,* proper time for anything to be done; fit occasion. — *High treason.* (*Law.*) Treason against a state or government. See TREASON. — *High water,* highest flood of the tide; also, the time thereof. — *High-water mark,* the margin denoting the customary or periodical flow of the tide: that line of the sea-beach reached by flood-water. — *High wine,* distilled wine; pure alcohol or liqnors.

NOTE. *High* is extensively employed in the construction of compound words, the majority of which are self-explanatory; as, *high*-red, *high*-crowned, *high*-flavored, *high*-priced, *high*-shouldered, &c.

High, *adv.* To a great altitnde; eminently; greatly: with deep thought; profonndly; powerfully. "He reasoned *high*." — *Milton.*

—*n.* Aloft; a high place; an elevation; superior region; as, on *high*, from *high*.

High'-aimed, (*-āmd.*) *a.* Having lofty aims or aspirations; as, "high-*aimed* hopes." — *Crashaw.*

High'-altar, *n.* (*Eccl.*) The altar at which alone high-mass is celebrated in Roman Catholic churches.

High'-bailiff, (*-bā'lif.*) *n.* The chief bailiff; also, in England, the chief municipal officer of certain towns; also, an officer belonging to a county-court. (Eng.)

High'bank, in *Indiana,* a town of Pike co., on the White river, about 100 m. S.S.W. of Indianapolis.

High'bank, in *Michigan,* a post-office of Barry co.

High'-blest, *a.* Supremely happy. "The mind of God *high-blest*." — *Milton.*

High'-blown, *a.* Much puffed with wind; self-inflated, as with pride or vanity.

High'-born, *a.* Being of noble birth or extraction.

High'-bonnd, *v. n.* To spring upwards; to bound aloft.

High'-bred, *a.* Well-bred; with aristocratic tastes and manners, becoming a gentleman.

High Bridge, *New Jersey,* a post-town of Hunterdon co. *Pop.* (1897) about 850.

High'-built, (*-bilt,*) *a.* Of lofty structure or elevation.

"His look haughty as his pile, *high-built* and proud." — *Milton.*

—Covered with a lofty edifice or building.

"The *high-built* elephant his castle rears." — *Creech.*

High'-church, *n.* (*Eccl.*) That section of the Episcopal Church which maintains the highest notions respecting Episcopacy, the authority of bishops, &c. See PROTESTANT EPISCOPAL CHURCH.

High'-church'ism, *n.* The theological doctrines, and ritualistic principles of the High-Church party.

High'-church'man, *n.* An adherent of High-Church tenets.

High'-climbing, (*-klim'ing,*) *a.* Climbing to a high elevation.

—Presenting difficnlties of ascent.

High'-colored, High'-coloured, (*-kul'lurd,*) *a.* Exhibiting a strong, deep, or glaring color: as, *high-colored* wine. — Vivid; picturesque; forcibly represented; as, a *high-colored* narrative.

High-Commission, (Court of,) *n.* (*Eng. Hist.*) A conrt established by 1 Eliz. c. 1, as an ecclesiastical tribunal, without power to fine.

High'-design'ing, *a.* Having great or lofty schemes or designs.

High'-embowed, (*-em-bōd',*) *a.* Loftily arched.

High Falls, in *New York,* a post-village of Ulster co., about 70 m. S.W. by W. of Albany.

High'-fed, *a.* Pampered; fed on luxurious diet.

High'-feeding, *n.* Lnxnry in diet; high-living.

High'-flown, (*-flōn,*) *a.* Elated; pompous; proud; as, *high-flown* hopes. — Turgid; stilted; extravagant; tombastic; as, *high-flown* language.

High'-flnshed, (*-flŭsht,*) *a.* Elevated; gratified; exhilarated.

High'-flyer, *n.* One who carries his notions or principles to a pitch of extravagance; as, a political *high-flyer.*

High'-flying, *a.* Extravagant in claims, opinions, or aspirations.

High Forest, in *Minnesota,* a post-township of Olmsted co., abt. 6 m. S. of Rochester.

High'gate, a village of England, co. Middlesex, forming one of the suburbs of London, 5 m. N.W. of Saint Paul's, and 450 feet higher than the dome of that cathedral; *pop.* 6,000.

High'gate, in *Vermont,* a post-village and township of Franklin co., on Missisque Bay, abt. 50 m. N.W. of Montpelier.

High'gate Resin, *n.* (*Min.*) Fossil copal or Copalite, *q. v.* It is named from Highgate, near London, where it is found.

High'-German, *n.* The modern German langnage, correctly spoken, — in opposition to *Low-German,* or *Low-Dutch,* or that spoken by the people of those German provinces bordering on Holland.

High'-go, *n.* A spree; a jollification; high jinks; a carousal. (Colloq. and vulgar.)

High'-going, *a.* Moving in high, rolling masses, as the waves of the sea.

High'-grown, *a.* Grown to a considerable extent or height.

High'-hand, *n.* Arbitrary behavior; assumption of tyrannical or overbearing manners; as, he lords it over them with a *high-hand.*

High'-handed, *a.* Arbitrary; stringent; oppressive; as, *high-handed* measures.

High-heaped (*-hēpt*), *a.* Piled up high.

High'-hearted, *a.* Full of spirit and courage.

High'-heeled, (*-hēld*), *a.* Made with high heels; as, "embroidered *high-heeled* shoes."

High Hill, in *Ohio,* a post-office of Muskingum co.

High Hill, in *Texas,* a post-village of Fayette co.

High'-hung, *a.* Hung aloft; placed on high; elevated; as, the "*high-hung* taper's light."—*Dryden.*

High Knob, in *Pennsylvania.* See POKONO MOUNTAIN.

High Lake, in *Iowa,* a post-town of Emmet co.

High Lake, in *Pennsylvania,* a post-village of Wayne co. *Pop.* (1897) about 150.

High'land, *n.* A mountainous region; an elevated tract of land; as, the *highlands* of Scotland, *highlands* of the Hudson, &c.

—*a.* Pertaining to, or partaking of the characteristics of, a mountainous or rugged country; specifically, relating or belonging to the highlands of Scotland; as, a *highland* glen, a *highland* clan, a *highland* welcome.

Highland, in *Illinois,* a township of Grundy co.

—A city and township of Madison co., 34 m. E. by N. of St. Louis, Missouri. *Pop.* (1897) about 2,000.

Highland, in *Indiana,* a post-village of Lake co., on the C. & E. R.R.

—A township of Franklin co.

—A township of Green co.

—A township of Montgomery co.

—A village of Vermilion co., abt. 70 m. W. of Indianapolis.

Highland, in *Iowa,* a post-township of Clayton co., about 5 m. W. of Elkader.

—A township of Guthrie co.

—A township of Tama co.

—A township of Union co.

—A township of Wapello co.

—A township of Washington co.

—A township of Winneshiek co.

Highland, in *Kansas,* a post-village of Doniphan co., about 25 m. W.N.W. of St. Joseph, Missouri. *Pop.* 500.

Highland, in *Maine,* a post-office of Knox co.

Highland, in *Michigan,* a post-twp. of Oakland co.

Highland, in *Minnesota,* a post-office of Fillmore co., about 30 m. S.S.W. of Winona.

—A village of St. Louis co., abt. 17 m. W.N.W. of Duluth.

High'land, in *Mississippi,* a post-village of Tishemingo co., about 32 m. S.S.E. of Corinth.

Highland, in *Missouri,* a post-office of Perry co.

Highland, in *Nebraska,* a township of Gage co.

Highland, in *New York,* a township of Sullivan co.

—A post-village of Ulster co., on the P., R. & N.E. and West Shore R.Rs.

Highland, in *Ohio,* a S.S.W. co.; *area,* about 527 sq. m. *Rivers.* Paint river, and Brush, Rattlesnake, and White Oak creeks. *Surface,* elevated; *soil,* fertile. *Cap.* Hillsborough. *Pop.* (1890) 29,048.

—A township of Defiance co.

—The P. O. name of NEW LEXINGTON, a post-village of Highland co.

—A township of Muskingum co.

Highland, in *Pennsylvania,* a P. O. of Bradford co.

—A township of Chester co.

—A village of Dauphin co.

Highland, in *South Carolina,* a post-village of Greenville co.

Highland, in *Tennessee,* a post-office of Jackson co.

Highland, in *Texas,* a post-office of Erath co.

Highland, in *Virginia,* a N.W. co., adjoining W. Virginia; *area,* about 389 sq. m. *Rivers.* The headwaters of the James and Potomac rivers. *Surface,* diversified, being bounded N.W. and S.E. respectively by the Alleghany and Shenandoah Mountains. *Soil,* in the valley, fertile. *Cap.* Monterey. *Pop.* (1890) 5,352.

Highland, in *Wisconsin,* a post-village and township of Iowa co., 50 m. W. of Madison. *Pop.* of village (1895) 751.

Highland Creek, in *Kentucky,* enters the Ohio river, between Union and Henderson cos.

High'lander, *n.* An inhabitant of highlands; a mountaineer; particularly, a native of the Scottish highlands. They are sometimes called *Blue-bonnets,* from the national covering of the peasantry, a fabric of thick milled woollen, without seam or lining, and so exceedingly durable that, with reasonable care, a single bonnet serves a man all his life. This cap, so frequently noticed in historical records and in Scotch songs, was of a broad, round, and flat shape, overshadowing the face and neck, and of a dark-blue color. It has been since somewhat modified, and is now known as the *Glengarry bonnet.* See CLAN, and SCOTLAND.

Highland Falls, in *New York,* a P. O. of Orange co.

Highland Fling. A dance of the Scots Highlanders.

Highland'ish, *a.* Having the characteristic features of highlands, or mountainous scenery.

Highland Lake, in *Penn.,* a P. O. of Lycoming co.

High'landman, *n.; pl.* HIGHLANDMEN, *n.* A Scots highlander.

"It's ill to tak' the brecks frae a *Hielandman.*"—*Scots Proverb.*

Highland Mills, in *New York,* a post-village of Orange co., about 95 m. S.W. of Albany.

High'land Nursery, in *New York,* a village of Schuyler co.

High'land Park, in *Illinois,* a city of Lake co., on Lake Michigan and C. & N.W. R.R., about 24 m. N.N.W. of Chicago. *Pop.* (1890) 2,163.

High'lands, in *Colorado,* a post-village of Arapahoe co., 2 m. W. of Denver.

High'lands, (The,) (*hī'lands,* or *hē'lands,*) a natural division of Scotland, comprising all the mountainous portion of the country to the N. and N.W.,—in contradistinction to the *Lowlands,* which occupy the S. and S.E. — See SCOTLAND.

Highlands, or NEVERSINK HILLS, in *New Jersey,* an elevated range in Monmouth co., extending from Sandy Hook to Raritan Bay. The highest elevation is Mount Mitchell, 282 feet above the sea. There are two lighthouses about 100 feet apart, called the Highland Lights. The southern one is 248 feet above sea-level, exhibits a revolving light on the Fresnel plan, and is said to be the best on the United States coast; Lat. 40° 23′ 7″ N., Lon. 73° 59′ 8″ W.

Highlands, in *New York,* a mountainous region in Orange, Putnam, and Dutchess cos., on both sides of the Hudson River. The greatest elevation, New Beacon, is 1,685 feet above sea-level.

High'landville, in *Iowa,* a P. O. of Winneshiek co.

High'-life, *n.* The fashionable world; aristocratic circles; bon-ton; as, a wedding in *high-life.*

High'-lift, *v. a.* To lift upward; to raise aloft.

High'-lived, *a.* Belonging to high-life.

High'-living, *n.* Luxurious living; rich diet; fashionable mode of life.

High'-low, *n.* An ankle-boot, or ankle-jack; a Blucher-boot.

"In a velveteen jacket, corduroy pantaloons, and *high-lows.*" *Egan.*

Highly, (*hī'ly,*) *adv.* In a high manner; with elevation in place; in a great degree; with elevation of mind, opinion, or action; with great estimation; prondly; arrogantly; ambitiously; — opposed to *lowly.*

High Market, in *New York,* a post-town of Lewis co., about 130 m. N.W. of Albany. *Pop.* (1897) about 750.

High-mass, *n.* (*Eccl.*) In the Roman Catholic church, the mass which is celebrated before the high-altar on Sundays and festivals.

High'men, *n. pl.* A name given to dice loaded in a manner to invariably show high numbers when thrown.

High'-mettled, *a.* High-spirited; full of fire and courage; as, a "*high-mettled* racer."

High'-minded, *a.* Proud; haughty; arrogant; as, a "*high-minded* strumpet." — *Shaks.*

—Having honorable pride; magnanimous; characterized by elevated thoughts, feelings, and principles: — in contradistinction to *mean*; as, a *high-minded* man.

High'-mindedness, *n.* State or quality of being high-minded; elevation of character; magnanimity.

High'ness, *n.* State of being high; elevation above the surface; loftiness; altitude; height. — Dignity; elevation in rank, character, or power; excellence. — Violence. — Great amount. — Acuteness, as of tone. — Intensity, as of heat.

—A title first attributed to bishops, and afterwards to European monarchs in general (succeeded, however, by *majesty* in the 16th century), and, thereafter, to sovereign princes (below kingly rank), and their descendants. The title of *royal highness* was first assumed by Gaston, Duc d'Orleans, brother of Louis XIII., in 1631; and it is now conferred on all royal princes and princesses, whether in the direct line of succession or not. The Elector of Hesse-Cassel had, and the German grand-dukes still have, also the title of royal highness. The children of the latter bear, however, the style of *grand-ducal highness.* The issue of the emperors of the French, of Russia, and of Austria, are denominated *imperial highness;* and all other princes not included in the above category bear the title of *serene highness,* being an equivalent for the term *Durchlaucht,* by which they are addressed in Germany.

High Point, in *Illinois,* a village of Mercer co.

High Point, in *Iowa,* a post-township of Decatur co. *Pop.* (1895) 766.

High Point, in *Kansas,* a post-township of Ness co.

High Point, in *Missouri,* a post-village of Monitean county.

High-priest, the chief priest and head of the Jewish synagogne, instituted by Moses, acting under the instructions of Jehovah. The importance of this office was indicated by the most gorgeous apparel, and the *high-priest* was esteemed the most imposing personage of the nation, (Fig. 1287.) The dress of this functionary was characterized by his breast-plate, termed the *urim* and *thummim,* or "light" and "right," according to Luther's translation, composed of twelve precious stones, on which the names of the twelve tribes of Israel were inscribed. To him belonged the exposition of the oracles



Fig. 1287. — HIGH-PRIEST.

of God, and no other was allowed to enter the sanctuary, or holiest of holies, in the tabernacle, which he was only allowed to do once in a year, in order to pray and sacrifice for the sins of the nation, which were believed to be thus expiated.

High'-pressure, (*prĕsh'ur,*) *a.* (*Steam-engineering.*) A term applied by engineers to designate the steam which works engines without being condensed at the end of every stroke; it is usually employed at a high degree of elastic force, the pressure per square inch being at about from 40 to 60 lbs. In American and in some modern English engines, steam of 120 lbs. pressure per inch superficial is used. Condensing engines are not usually high-pressure engines, though they may employ high-pressure steam.

High-pressure engine. (*Mach.*) A non-condensing steam engine, worked by the excess of the pressure of the steam upon the piston above the pressure of the atmosphere; in this engine, after the steam has acted upon the piston, it passes through the eduction-pipe into the air.

High'-priced, *a.* Yielding a great price; costly; expensive; dear.

High'-priestship, *n.* Rank or office of a high-priest.

High'-principled, *a.* Possessing principles of a lofty or elevated character; strict in principle; as, *high-principled* morality.—Extravagant in notions of politics.

High'-proof, *a.* Possessing highly rectified alcoholic properties; as, *high-proof* whiskey.

High'-raised, (*-razed,*) *a.* Elevated; lifted on high; placed aloft.—Uplifted or elated with high notions or expectations.

High'-reaching, *a.* Reaching to a considerable altitude.—Far-reaching; extending upward.—Aspiring; self-seeking; ambitious; as, a *high-reaching* politician.

High'-red, *a.* Deeply-red; possessing a strong, glaring red color; as, a "*high-red* tincture."—*Boyle.*

High'-resolved, *a.* Very resolute; with superior determination.

High'-road, *n.* A highway; a road much frequented or travelled by the public.

High'-ropes, *n. pl.* Intense excitement of mind; uncontrollable passion; cantankerous humor; as, our friend's wife is on her *high-ropes.*

High'-sea, *n.* Very strong, high waves; a heavy sea.

High'-seasoned (*-sē-zned*), *a.* Flavored with spices, or other condiments; tasty; imparting gasto; as, *high-seasoned* delicacies.

High Shoal, in *N. C.*, a township of Rutherford co.

High Shoals, in *Alabama*, a post-village of Randolph co. *Pop.* (1897) 88.

High Shoals, in *Georgia*, a post-village of Oconee co. *Pop.* (1897) about 585.

High'-sighted (*sīt'ed*), *a.* Always looking upward; as, "*high-sighted* tyranny."—*Shaks.*

High'-souled, *a.* Possessing a high spirit; lofty-minded; magnanimous; as, a *high-souled* woman.

High'-sounding, *a.* Stilted; pompous; inflated with ostentation; noisy; pretentious; as, *high-sounding* language.

High'spire, in *Pennsylvania*, a post-borough of Dauphin co., 6 m. S. E. of Harrisburg, on Pennsylvania R. R.

High'-spirited, *a.* Full of natural fire; vehement; easily excited; irascible; spunky; as, a *high-spirited* youth.

—Bold; daring; insolent; boisterous; as, a *high-spirited* virago.

High'-steward, *n.* In England, a great officer of state; as, the Lord *High-Steward* of the Household; also, the chief governing officer of a university or town; as, the *High-steward* of Oxford University.

High'-stomached, (*-stŭm'akt,*) *a.* Possessing a proud, lofty, or independent spirit; obstinate; petulant.

High'-strung, *a.* Strung to a full tone; pitched to a high key;—hence, high-spirited, proud, defiant, haughty; as, a *high-strung* horse.

High'-swelling, *a.* Swelling greatly; boastful; bombastic; with inflation; as, *high-swelling* words.

Hight, (*hīt.*) *v. a.* and *n.* (*imp.* and *pp.* HIGHT.) To be called, named, or styled. (Used only in composition.)

"Childe Harold, was he *hight?*"—*Byron.*

High'-taper, *n.* (*Bot.*) See VERBASCUM.

High'-tasted, *a.* Having a strong relish, or flavor; piquant; as, *high-tasted* game.

Hightener, (*hīt'n-r,*) *n.* He who, or that which, heightens. (R.)

High'-tide, *n.* High-water; a tide that rises higher than an ordinary tide; a strong flood.—A holiday.

High'tower, in *Georgia*, a post-village of Forsyth co. on the Etowah River, about 120 miles N.W. of Milledgeville.—See ETOWAH.

High'town, in *Virginia*, a post-office of Highland co.

Hights'town, in *New Jersey*, a post-borough of Mercer co., on P. & H. and Penna. R. Rs.

High'-viced (*vist*), *a.* Excessively wicked; heinous; as, a "*high-viced* city."—*Shaks.*

High'ville, in *Penna.*, a post-village of Lancaster co.

High'-voiced, (*-voist,*) *a.* Having the voice pitched, in a high key; possessing a loud tone of utterance.

High'-water, is defined to be the utmost flow and greatest elevation of waters acted on by tidal influence; and it is also a term applied to the time of such elevation. The time of *H. W.* depends on the age of the moon, and is nearly always the same at any one place at the full of the moon. *H. W.* lasts about 15 to 20 minutes, after which time the tide begins to ebb. The method by which the time is found is as follows:—Add four fifths of the days of the moon's age, considering them as hours, to the time of *H. W.* at the full of the moon; and the sum thus obtained will be found to be the time of *H. W.* answering to the day in question.

High-water mark, is the line made on the shore by the tide at its utmost height.—See TIDAL ACTION.

High'way, *n.* A public road; a way open to all passengers; an open thoroughfare;—opposed to *by-way.*—A train of action, with apparent consequences;—used in a figurative sense.

"Trades we have lost, and are in the *highway* to lose."—*Child.*

High'wayman, *n.*; *pl.* HIGHWAYMEN. One who robs passengers on a public road or highway; a footpad.

Highworth, (*hī'wêrth,*) a town of England, in Wiltshire, 4 m. from Shrivenham Station, on the Great Western Railroad; *pop.* 4,200.

High'-wrought, (*-rawt,*) *a.* Wrought with exquisite art or skill; elaborately finished; accurately done.

—Inflamed to a high degree; worked to a strong pitch; as, *high-wrought* passions.

Higuey, (*hēē'ga,*) a village of the island of Hayti, W. Indies, about 78 m. E. of San Domingo.—A bay of the above island; Lat. 18° 20′ N., Lon. 68° 40′ W. It is protected by the island of Saona.

H. I. H., abbreviation of His, or Her, Imperial Highness.

Hi'ka, in *Wisconsin*, the P. O. name of CARTERVILLE, a post-village of Manitowoc co.

Hi'ko, in *Nevada*, a post-village of Lincoln co., about 300 m. S.E. of Carson City.

Hilabee', or **Hillabee',** in *Alabama*, a village of Talladega co.

—A small creek, entering the Tallapoosa River from Tallapoosa co.

Hi'lar, *a.* (*Bot.*) Pertaining to the hilum of a seed.

Hila'rion, (St.,) the principal founder of Monachism in Palestine, was B. near Gaza, about A. D. 292. Sent to study at Alexandria, he was there converted to Christianity, when the fame of St. Anthony attracted him to the desert and made him a monk. He then returned to Palestine, gave away his property, and retired, still very young, into the desert. He founded several monasteries, lived the most austere life, and gained the highest reputation for sanctity and even for miraculous powers. He afterwards visited the regions of Egypt, Sicily, and Dalmatia, and D. in the isle of Cyprus, about 372. His *Life* was written by St. Jerome.

Hila'rious, *a.* Full of hilarity; gay; mirthful; merry; as, *hilarious* laughter.

Hilar'ity, *n.* [Fr. *hilarité;* Lat. *hilaritas,* from Gr. *hilaros,* cheerful, gay, joyous, from *hilaos,* propitious, favorable.] Cheerfulness; mirth; merriment; gayety; good humor; exhilaration; jollity; exuberance of animal spirits.

Hil'ary, a pope, elected in 461; D. 467.

Hil'ary, (St.,) a father of the Church, bishop of Poitiers, one of the greatest church-teachers of his age, was a native of Poitiers, and was raised to the episcopal office about A. D. 350. On the arrival of the Emperor Constantius in the West, and the consequent introduction of the Arian controversy into the Gallic Church, he presented a memorial to the emperor, frankly, yet respectfully, pleading for freedom of worship for the Catholics. It was in vain; and he was soon after banished to Phrygia. He appeared at the Council of Seleucia in 359, and afterwards at Constantinople, but he was ordered to return to his diocese. He continued his exertions in behalf of the orthodox faith, held several councils in Gaul, and also visited Italy. *H.* wrote several works of divinity and some hymns, and translated many works of Origen into Latin. D. 367.

Hil'ary, (St.,) bishop of Arles; B. 401; D. 449.

Hildburghau'sen, a town of Prussia, on the Werra, 16 m. S.E. of Meiningen. *Manuf.* Papier-mâché, woollen and linen cloths, dolls, and tobacco. It was once the cap. of the duchy of Saxe-Hildburghausen. *Pop.* 6,000.

Hil'debrand. See GREGORY VII.

Hil'debrand, king of the Lombards, ascended the throne in 736, and shared power with his uncle Luitprand; but his tyranny became insupportable to his subjects, who deposed him in 744, electing in his stead the duke of Friuli.

Hildesheim, (*hil'des-hīme.*) [Lat. *Hennepolis.*] A city of Prussia, in Hanover, 16 m. S.E. of Hanover. *Manuf.* Linen cloths and yarn. *Pop.* 16,500. *H.* has a splendid Gothic cathedral, built in the 11th century, with bronze gates 16 feet high.

Hil'dreth, RICHARD, an American author and journalist, B. at Deerfield, Mass., in 1807. In 1832, *H.* became editor of the "Boston Atlas." In 1834, while sojourning in the South, he produced his anti-slavery novel *Archy Moore,* which was republished in England under the title of the *White Slave,* and became very popular. In 1840, *H.* removed to Demerara, British Guiana, where in an editorial capacity he became a prominent advocate of free labor. *H.*'s principal work was the *History of the United States* (6 vols. 8vo., New York, 1849–56). *H.* also published *Japan as it Was and Is* (12mo., 1855), and was afterward connected with the editorial staff of the New York *Tribune.* Died July 11, 1865.

Hile, *n.* (*Bot.*) See HILUM.

Hil'ing, *n.* Same as HELING.

Hill, *n.* [A. S. *hill,* or *hyll;* Du. *heuvel;* Ger. *hügel;* Dan. *høj;* Icel. *holl, hvoll.* The Ger. is from *hoch,* high, whence it may be inferred that the A. S. is from *heah, heag,* high, *q. v.*] A height; a natural elevation of land or a mass of earth rising above the common level of surrounding land; an eminence inferior to a mountain in altitude.—Anything hemispherical and prominent, or having the form of a hill.—The earth raised about the root of a plant or cluster of plants. (U. S.)—A single cluster or group of plants growing close together, and having the earth heaped up about them. (U. S.)—*Webster.*

—*v. a.* To form hills, or small elevations of earth; as, to *hill* corn.

Hill, ROWLAND, a celebrated English divine and popular preacher, B. of a noble family, in 1744, and educated at Eton and Cambridge. After taking orders in the Episcopal Church, he early abandoned its communion, and joined the Methodists. His talents as a witty, eccentric, and eloquent preacher, raised him to the highest fame of any pulpit orator of his day. His celebrated work entitled *Village Dialogues,* reached its 34th edition in 1824. D. 1833.

Hill, SIR ROWLAND, K.C.B., F.R.S., celebrated as the author of the cheap or penny-postage system, B. in England, 1795. After agitating, for several previous years, his scheme regarding a reform of the old postal and franking systems, he, in 1842, succeeded in getting it carried into effect. It at once produced great results, and in 1846 the British public presented *H.* with a testimonial valued at $67,000. In 1854 he was made Chief Secretary of the English Post-Office, and held that position till 1864, when he retired on account of ill-health. In the same year, he was voted a sum of $100,000 by Parliament, the Albert gold medal of the Society of Arts, and the degree of D.C.L. in recognition of the benefits he had conferred on his country. *H.* was also the originator of the money-order system, and of post-office savings-banks. He was knighted in 1860. D. 1879.

Hill, in *New Hampshire*, a post-town of Merrimack co. *Pop.* (1890) 548.

Hill, in *Pennsylvania*, a post-office of Mercer co.

Hill, in *Texas*, a N. central co.; *area,* about 1,000 sq. m. *Rivers.* Brazos and Noland's rivers, besides numerous smaller streams. *Surface,* level; *soil,* fertile. *Cap.* Hillsborough. *Pop.* (1890) 27,583.

Hil'lah, Hel'lah, a town of Asiatic Turkey in the pashalic of Bagdad, and 60 m. S. of that city, on the W. bank of the Euphrates, and bordering the great Syrian desert. In the vicinity are the ruins of Babylon, and it is the entrepôt of commerce between Bagdad and Bassora. *Pop.* 13,000.

Hill Church, in *Pennsylvania*, a P. O. of Berks co.

Hilleglass', in *Pennsylvania*, a village of Montgomery co., abt. 20 m. S. of Allentown.

Hil'lel, *the Elder,* surnamed HASSAKEN, was a celebrated Jewish doctor or rabbi, who lived in the century preceding the Christian æra, and was a native of Babylon. At the age of forty he removed to Jerusalem, where he studied the law with such diligence as to become master of the chief school of that city. He formed a new digest of the traditionary law, from which the "Mishna," or earliest part of the Talmud, is derived. Shammai, one of his disciples, dissented from his master, and set up a new college, which produced violent contests among the Jews; but the party of Hillel proved victorious. He lived to the great age of 120 years.

Hillel, *the Younger,* who obtained the title of NASI, or prince of the captivity, presided over the Jewish church in the 3d and 4th centuries, and distinguished himself by his great astronomical learning, reforming the Jewish calendar, regulating the period of the equinoxes, &c. *H.* was also one of the doctors to whom is ascribed that portion of the Talmud called "Gemara."

Hil'lerman, in *Illinois*, a village of Massac co.

Hill'house, in *Ohio*, a post-office of Lake co.

Hill Grove, in *Kentucky*, a post-office of Meade co.

Hill Grove, in *Ohio*, a post-village of Darke co.

Hill Grove, in *Virginia*, a P. O. of Pittsylvania co.

Hil'liards, in *Ohio*, a post-village of Franklin co., abt. 10 m. N.W. of Columbus.

Hil'liards, in *Penna.*, a post-village of Butler co.

Hil'liardston, in *North Carolina*, a post-office of Nash co.

Hil'lier, in *Ohio*, a flourishing township of Knox co.

Hil'liness, *n.* State of being hilly, or covered with eminences.

Hill'ing, *n.* Act or process of raising soil around plants, &c.

Hil'lock, *n.* A gentle eminence; a small hill.

Hill River, in British N. America. See HAYES RIVER.

Hills'borough, a town and parish of Ireland in the co. of Down, Ulster, about 3 miles S.S.W. of Lisburn. *Pop.* of town (1897) 2,950.

Hillsborough, a town of the island of Carriacou, one of the Grenadines, West Indies.

Hillsborough, a township of Albert co., New Brunswick, on the Peticodiac river.

Hillsborough, in *Alabama*, a post-village of Lawrence co., about 120 m. N. of Tuscaloosa.

Hillsborough, in *Arkansas*, a post-village of Union county.

Hillsborough, in *Florida*, a W. co., bordering on the Gulf of Mexico; *area,* about 1,280 sq. m. *Rivers,* Kissimmee or Kissiuee, and numerous smaller streams, besides several considerable lakes. The coast is also indented with some large bays and harbors. *County-town,* Tampa. *Pop.* (1897) about 32,500.

Hillsborough, in *Georgia*, a post-village of Jasper co., about 26 miles W. by N. of Milledgeville.

Hillsborough, in *Illinois*, a post-village, cap. of Montgomery co., about 64 miles S. of Springfield. *Pop.* (1897) about 2,500.

Hillsborough, in *Indiana*, a post-village of Fountain co., about 14 miles E. of Covington. *Pop.* (1890) 564.

—A village of Wayne co., 11 m N. by E. of Richmond.

Hillsborough, in *Iowa*, a post-village of Henry co.

Hillsborough, in *Kentucky*, a post-village of Fleming co., about 86 miles E. by N. of Frankfort.

Hillsborough, in *Maryland*, a post-village of Caroline co., about 30 miles E. of Annapolis.

Hillsborough, in *Mississippi*, a post-village of Scott co., about 50 miles N.E. of Jackson.

Hillsborough, in *Missouri*, a post-village, cap. of Jefferson co., about 40 miles S.S.W. of St. Louis.

Hills'borough, in *North Carolina*, a post-village, cap. of Orange co., 40 m. N.W. of Raleigh. *Pop.* (1890) 662.
Hillsborough, in *New Hampshire*, a S. co., adjoining Massachusetts; *area*, about 844 sq. m. *Rivers.* Merrimac, Contoocook, and Souhegan rivers, besides numerous smaller streams. *Surface*, uneven; *soil*, mostly fertile. *Caps.* Manchester and Nashua. *Pop.* (1890) 93,247.
—A post-township of Hillsborough co., about 20 m. W. by S. of Concord.
Hillsborough, in *New Jersey*, a post-township of Somerset co.
Hillsborough, in *North Dakota*, a post-village of Traill co. *Pop.* (1897) about 1,000.
Hillsborough, in *Ohio*, a post-village, cap. of Highland co., 65 m. E. of Cincinnati. *Pop.* (1897) abt. 3,750.
Hillsborough, in *Oregon*, a post-village, cap. of Washington co., 40 m. N. of Salem.
Hillsborough, in *Pennsylvania*, a post-borough of Somerset co.
Hillsborough, in *Tennessee*, a post-vill. of Coffee co.
Hillsborough, in *Texas*, a city, cap. of Hill co., on M., K. & T. and St. L. S. W. R.Rs., 66 m. S.S.W. of Dallas. *Pop.* (1897) about 2,730.
Hillsborough, in *Virginia*, a post-village of Loudoun co., about 165 m. N. of Richmond.
Hillsborough, in *Wisconsin*, a post-village and township of Vernon co., about 33 m. W.N.W. of Baraboo.
Hillsborough Bridge, in *New Hampshire*, a post-village of Hillsborough co., about 21 m. S.W. of Concord.
Hillsborough Centre, in *New Hampshire*, a post-village of Hillsborough co.
Hills'dale, in *Michigan*, a S. co., adjoining Indiana and Ohio; *area*, about 597 sq. m. *Rivers.* The headwaters of the St. Joseph's of Lake Michigan, St. Joseph's of the Maumee, Grand and Kalamazoo rivers. *Surface*, diversified; *soil*, fertile. *Cap.* Hillsdale. *Pop.* (1894) 30,271.
—A thriving city, cap. of the above co., on L. S. & M. S. R.R., 80 m. S.W. of Detroit; has important manuf., and is seat of Hillsdale College. *Pop.* (1894) 4,121.
Hillsdale, in *Minnesota*, a township of Winona co., about 5 m. W. of Winona.
Hillsdale, in *North Carolina*, a post-village of Guilford co., about 95 m. N.W. of Raleigh.
Hillsdale, in *New York*, a post-town and township of of Columbia co., about 45 m. S.S.E. of the city of Albany. *Pop.* (1890) 1,554.
Hillsdale, in *Pennsylvania*, a post-village of Indiana co.
Hill's Fork, in *Ohio*, a post-office of Adams co.
Hills'grove, in *Illinois*, a village of McDonough co., about 12 m. S.W. of Macomb.
Hillsgrove, in *Pennsylvania*, a post-village of Sullivan co., about 23 m. W. of Laporte.
Hill'side, in *Pennsylvania*, a post-village of Westmoreland co., about 19 m. E.N.E. of Greensburg.
Hill'-side, *n.* The side, slope, or declivity of a hill.
Hill's Land'ing, in *Maryland*, a village of Prince George co.
Hill's Point, in *Maryland*, a post-vill. of Dorchester co.
Hill Spring, in *Kentucky*, a post-office of Henry co.
Hills'view, in *Pennsylvania*, a post-office of Westmoreland co.
Hills'ville, in *Pennsylvania*, a P. O. of Lawrence co.
Hillsville, in *South Carolina*, a P. O. of Spartanburg co.
Hillsville, in *Virginia*, a post-village, cap. of Carroll co., about 260 m. W. by S. of Richmond.
Hill'top, *n.* The summit or crown of a hill.
Hill'town, in *Pennsylvania*, a post-township of Bucks co., about 6 m. W. by S. of Doylestown.
Hill Valley, in *Pennsylvania*, a village of Huntingdon co.
Hill'y, *a.* Abounding with hills; characterized by eminences; as, a *hilly* tract of country.
Hi'lo, in *Minnesota*, a village of Bigstone co.
Hilt, *n.* [A. S. *hilt*, *gehilt*, from *healdan*, to hold.] That part of anything which is to be held in the hand; the handle or haft, particularly of a sabre.
"A sword . . . from *hilt* to point."—*Shaks.*
Hilt'ed, *a.* Having a hilt; as, a *hilted* weapon.
Hil'ton, in *Iowa*, a township of Iowa co.
Hil'ton, in *New York*, a post-office of Mouroe co.
Hil'ton Head, in *S. Carolina*, an island off the S.E. coast of Beaufort dist., at the mouth of Broad River; *area*, about 40 sq. m. On the N.E. shore there is a military post. During the civil war, a strong fortification was erected here by the Confederates, called *Fort Walker*, armed with 20 guns, and garrisoned by a force of 620 men. This fort was attacked Nov. 5th, 1861, by a Union fleet under Com. Dupont, and captured, after a smart action, in which a Confederate flotilla, or "mosquito fleet," under Com. Tatnall, took part. The National loss was reported at 8 killed and 23 wounded, that of the Confederates, 10 killed, and 10 wounded.
Hil'ton's, in *Tennessee*, a post-village of Sullivan co., on the Holston River, about 100 m. E.N.E of Knoxville.
Hi'lum, or UMBILICUS, *n.* (*Bot.*) The point of attachment of the ovule or the seed to the *placenta*, if sessile—to the *funiculus*, if stalked.
H. I. M. Abbreviation of His, or Her, Imperial Majesty.
Him, *pron.* [A.S. nom. *he*, dat. *him*, accus. *hine*, him; Lat. *eum.*] (*Gram.*) The objective case of HE, *q. v.*
Himala'yas, (The,) or the HIMALAYA MOUNTAINS. [Sansk. *Hima-álaya*, abode of snow; anc. *Imaus* or *Emodus.*] An extensive mountain-range of Asia, and the loftiest in the world, bounding Hindostan on the N., and separating it from the table-land of Thibet, which stands 10,000 feet above the sea. This chain is continuous W. with the Hindoo-Coosh, and Behor-Tagh, and E. with the Chinese table-land of Yun-nan; but the term *Himalaya* is usually restricted by geographers to that portion or the range lying between the passages of the Indus and Brahmapootra; the former being in Lat. 35° N., and Lon. 75° E., and the latter in 28° 15′ N., and Lon. 96° E. The direction of the range, as thus defined, is S.E. from the Indus to the Gunduk, and thence E. to its termination. Its entire length is 1,900 m.; its average breadth 90 m., and the surface which it covers is estimated at 160,000 sq. m. The average height of the *H.* has been estimated at 15,700 ft. The principal peaks are: Mount Everest, 29,002 ft.; Kunchinjinga, in Sikkim, 28,178 ft.; W. peak of the same, 27,826 ft.; Dhawalagiri, in Nepaul, 26,862 ft.; Dhawahir, in Kumaon, 25,749 ft. The passes over the main ridge amount to about 20, a few of which only are practicable for horses, sheep being principally used as beasts of burden over the steep acclivities. The limit of perpetual congelation in this chain is about 12,000 feet above sea-level. The only rock sufficiently extensive to characterize the geological formation of this great chain is gneiss, which constitutes the substance of the highest ridges and crests. Granite, schist, clay-slate, and red sandstone are also met with.



Fig. 1288.—A VILLAGE IN THE HIMALAYAS.

The chief minerals hitherto found are gold-dust, copper, lead, iron, antimony, manganese, sulphur, alum, and rock-salt. There are no direct traces of volcanoes so far discovered by English explorers, but the numerous thermal springs, and many shocks of earthquake felt by travellers in many parts of the range, indicate it to be the focus of derangements of the earth's crust. The height at which plants and trees flourish on the *H.* varies on the N. and S. slopes nearly proportionally to the difference in the altitude of the snow-line. On the S. slope grain cultivation is not attempted higher than 10,000 feet; the highest habitation is at 9,000 feet; pines show their best growth at an elevation of 10,300 feet. The rhododendron grows up to 12,000 feet, and birches are found as high as 13,000 feet above the sea. On the N. side, villages are found as high as 13,000 feet, grain is cultivated at 13,500 feet, birch-trees rise to 14,000 feet; and vegetation is met with at 17,500 feet. Wheat, barley, and other grains are found on these heights. Strawberries and currants thrive on the S. slope, at an altitude of 11,600 feet. The mammalia of the *H.* are chiefly confined to ruminating animals, a few varieties only of the horse and cat tribes being found in these regions. The wild horse is seen on the N. side of the range; but the principal tenants of the hilly slopes are the yak, much used as a beast of burden by the Tartars, the ghurl (*Caper ægragus*), of which the Cashmere and Thibet goats are varieties, the Nepaul stag, the black deer, the chirn, or one-horned antelope, the goral, and the nylghan. Among the birds are the læmmer-geyer (*Gypætus barbatus*), the common cuckoo, the Impeyan pheasant (*Lophophorus refulgens*), the red-legged crow, and the wood-pigeon.
Himalay'an, *a.* (*Geog.*) Relating or pertaining to the Himalaya Mountains, Asia.
Himan'topus, *n.* [Gr. *himantopous*—*himas*, a thong, and *pous*, foot.] (*Zoöl.*) A genus of Grallatorial birds, family *Recurvirostridæ*, distinguished by the great length of their legs; from which circumstance they are sometimes called *Stilt-birds.* One species is found in this country, the Black-necked Stilt, *H. nigricollis* (Vieill.), (Fig. 1289.) This bird, called in Europe the Long-legged Plover, is 14 inches long. As its conformation would lead us to conclude, it is a bird whose most congenial habitat is morasses, and the low, flat shores of lakes, rivers, and seas. Like many of the true grallatores, it possesses the power of swimming with the greatest ease and lightness. Few birds exceed it in the powers of flight; its wings far exceed the tail, and it passes through the air with astonishing rapidity. When on firm ground, it appears as if tottering on long and awkward stilts, but firm ground is not its congenial sphere.



Fig. 1289.—THE BLACK-NECKED STILT.
(*From Tenney's Manual of Zoölogy.*)

Him'era, (*Anc. Geog.*) A Greek city of northern Sicily, at the mouth of the river Himera, between Panormus and Cephalædium, was founded by a colony from Zancle, B. C. 648. A great battle was fought near the city, between the Carthaginians and the Sicilians, the latter being victorious, B. C. 480. Some new colonists, of Doric extraction, arrived here B. C. 476. It was razed to the ground by the Carthaginians, B. C. 408. Many of the inhabitants returned, and founded a new city near the site of *H.*, B. C. 405. Agathocles was defeated at *H.*, B. C. 310.
Him'rod's, in *New York*, a post-office of Yates co.
Himself', *pron.* [*Him* and *self.*] (*Gram.*) The emphatic and reciprocal form of *he* and *him*, used only in the nominative or objective cases; as, he told me so *himself*, it was *himself*, &c.—Possessing self-command or government; in his true or natural character, temper, or disposition, as distinguished from moral obliquity, derangement, or other factitious influence; as, let him alone, he will come to *himself.*
"Conscience avaunt, Richard's *himself* again."—*Shaks.*
By himself, alone; without companionship; secluded; solitary; as, he prefers to be *by himself.*
Himyar'ie, Himyarit'ie, *a.* Relating or pertaining to Himyar, an ancient monarch of Yemen, in Arabia, or to his successors, or people; as, the *Himyaritic* tongue.
Himyaritic Inscriptions. (*Archæol.*) Inscriptions found in Arabia, exhibiting the primitive type of the oldest form of the language still spoken in Yemen, and the S. of Arabia. These inscriptions have been investigated, since 1830, by Gesenius, Rödiger, Fresnel, and Ewald.
Hin, *n.* [Heb.] A liquid measure among the Hebrews. It was the 6th part of an ephah or bath, equal to about six English quarts.
Hinche, (*hansh,*) a town of the island of Hayti, W. Indies, on the Hinche River, an affluent of the Artibonite, about 46 m. S.E. of Cape Haytien.
Hinch'inbrook, a village of Beauharnois co., Lower Canada.
Hinch'inbrook Island, lies on the N.W. coast of N. America, in Prince William's Sound. It is barren, desolate, about 30 m. in length from N.E. to S.W., and about 8 m. in mean width. Lat. 60° 24′ N., Lon. about 146° 56′ W.
Hinck'ley, a town of England, in Leicestershire, 12 m. S.W. of Leicester, and 102 W.N.W. of London. *Manuf.* Cotton stockings, thread, and worsted. It is noted for its fine ale. *Pop.* 8,030.
Hinck'ley, in *Ohio*, a post-township of Medina co.
Hinc'mar, archbishop of Rheims, known as a controversial and learned writer in the 9th century.
Hind, *n.* [A. S. and Du. *hinde*; Ger. *hinde*, *hindinn*; Icel. *hind*; O. Ger. *hinta.* Etymol. unknown.] (*Zoöl.*) The female of the red deer or stag:—correlative of *hart.*
Hind, *n.* [O. Eng. and Scot. *hyne.*] A peasant; a rustic; a boor; a country clown; a farm-laborer. (Used in England.)
Hind, *a.* (*comp.* HINDER; *superl.* HINDMOST or HINDERMOST.) [A. S. *hyndan*; Ger. *hinten*; Goth. *hindar*, *hindana*, behind; probably connected with Finn. *handa*; Esthon. *hand*, the tail.] Backward; pertaining to the part which follows; placed in the rear;—in opposition to the fore-part; as, the *hind* legs of a quadruped, the *hind* part of a body.
Hind, JOHN RUSSELL, F.R.S., an English astronomer, B. 1822. Mr. *H.*, who is Foreign Sec. of the Royal Astronomical Society, is distinguished as the discoverer of 10 new planets, between the years 1847–1854, for which he received the gold medal of the society. In 1852, the English government conferred on him a pension of $1,000 per annum "for important astronomical discoveries."
Hind'berry, *n.* [O. Ger. *hindbeere.*] An English provincialism for the RASPBERRY, *q. v.*
Hind'er, *a.* [*comp.* of HIND; Ger. *hintere.*] Posterior; that is in position contrary to that of the head or fore-part; in the rear; behind; following; as, the *hinder* part of a ship, the *hinder* feet of an animal.
Hin'der, *v. a.* [A. S. *hindrian*; Du. *hinderen*; Ger. *hindern.*] To keep back or behind, or prevent from moving forward by any means; to stop; to interrupt; to obstruct.
"*Hinder* me not, seeing that the Lord hath prospered my way." *Gen.* XXIV. 56.
—To prevent the progress of, or to render slow in motion; to prevent; to check; to retard; to impede; to delay.
"My tears must stop, for every drop, *hinders* needle and thread." *Hood.*
—To debar; to shut out; to thwart; to contravene.
"Too much company *hinders* thought and wit from fixing." *Temple.*
—*v. n.* To interpose obstacles or impediments.
Hin'derance, Hin'drance, *n.* Act of hindering, or of restraining or impeding motion.—Impediment or

obstruction; that which opposes or stops progression, action, or locomotion.

Hin'derer, *n.* The person who, or thing which, hinders.

Hind'ermost, Hind'most, *a.* [Superl. of *hind*; Goth. *hindumists.*] That is behind or in the rear of all others; the last.

"'Tis not his wont to be the *hindmost* man." — *Shaks.*

Hindoen, (*hind'o-en,*) an island of the Loffoden group, on the Norwegian coast; extent, 50 m. by 30 m. It is noted as a famous fishing station.

Hin'dou, a river of Hindostan, which rises in Malwah, and after a N.E. course of 160 m., joins the Jumna, in Lat. 28° 25′ N., Lon. 77° 30′ E.

Hin'doo, Hin'du, *n.*; *pl.* HINDOOS or HINDUS. [Hind. *Hinduwi*, from *Hindûstân*, India.] A native of Hindostan or India.

Hin'doo Ar'chitecture. The oldest buildings that remain as examples of the early architecture of India are considered by competent judges not to have been erected earlier than 300 years prior to the Christian æra. Indian architecture may be broadly classified as *Buddhist*, *Brahman*, and *Mohammedan*, which three styles derive their names from the religion professed by the dominant power in India during the period in which each prevailed; Buddhism giving place to Brahmanism, and Brahmanism yielding in its turn to the Mohammedan form of worship, introduced by the Saracenic conquerors of India about 1000 A. D. There are many points in which the architecture of Hindostan bears a striking resemblance to that of Egypt, temples being found in both countries that have been hewn out of the solid rock, and ornamented with statues attached to piers or walls, which are remarkable for their size and colossal proportions. The chief, and, indeed, almost the only, remains of Buddhist architecture, with the exception of the *topes*, or structures built to contain relics of Buddha, are the cave temples found in southern India, the principal of which are the temples of Elephanta and Salsette, near Bombay; Behar, Cuttack, and those of Ellora and Carli, in the province of Aurungabad, (see ELLORA, and Fig. 934.) The temple of Elephanta is much larger than those of Ellora and Carli, and excavated in the side of a mountain. It is filled with rich and varied sculpture, consisting chiefly of colossal figures in *alto relievo*. The columns are composed of a fluted shaft swelling outwards in the middle, standing on a high square base, and surmounted by a bulb-shaped circular capital, which is one of the chief distinctive features of Indian architecture. The Buddhist rock-monasteries consist of a series of cells ranged round a central hall. They are not so richly ornamented with sculpture as the temples; but many of the chambers are decorated with paintings representing events in the life of Buddha, and portraits of Buddha himself and Buddhist saints. The topes are generally in the form of circular buildings surmounted by a dome. They vary from 10 or 20 feet in diameter to 180 or 200 feet, and for the most part consist of a solid cupola erected on a flat terrace reached by steps, with a relic-case called a *tee*, or a square ornament in the shape of a box, intended to represent a relic-case, on the summit. A column called a *lât* was placed in front of the Buddhist religious buildings, on which the Buddhist creed was inscribed. Some of the Buddhist temples in Ceylon, Burmah, and Java consist of a series of terraces rising above one another in a pyramidal form, with a relic of Buddha under a dome at the summit. On the decline of the worship of Buddha in India, a sect known as the Jains, or Jainas, sprang up. The temples erected by the Jains were characterized by great elegance and lightness of structure, combined with richness of ornamentation. They consist of a central dome, surrounded by others more or less in number, supported on sculptured columns. The ceiling of the cupolas, which are hollow, and not solid like the domes of the topes erected by the Buddhists, are panelled and adorned with elaborately designed scroll-work and foliage. The temples of the followers of Brahma consist of an inner temple, or sanctuary, called the *bimana*. This is in the form of a four-sided pyramid, which rises to a great height, and is formed of a succession of steps or terraces, adorned with figures and sculpture, and crowned by a small dome. In this was the cell, or sanctuary, which contained the image of the deity, and was lighted by lamps. A porch was placed before the entrance to this inner sanctuary, and the entire pile formed the centre of a rectangular court, surrounded by a high wall. The entrance to this court was flanked by pyramidal gate-towers, called *gopuras*, (Fig. 1290.) Halls, or colonnades, consisting of a roof, supported on pillars, varying in number from four up to a thousand, according to the size of the building, were erected in the inclosures that surrounded the Brahman temples. These halls were called *choultries:* they served for the celebration of festivals and ceremonies connected with the worship of Brahma, that occurred at various seasons of the year. The temples at Tanjore and Bareilly are the best examples of this style of Indian architecture. When the Mohammedans conquered India, they introduced the arch, and various features of Saracenic or Moorish architecture, which were gradually blended with the more prominent features of the previous styles prevailing in that country, until a new style was produced similar in many respects to the architecture of Arabia, Northern Africa, and Spain, when the Saracens had the mastery over those countries, but containing other characteristics which are sufficient to mark it as a distinct style. The ornamentation is as rich and minute in detail as that of Moorish architecture, and the pointed and horse-shoe arch are introduced in a square panel, but the bulbous cupolas swelling outwards, and extending considerably beyond the circle of the base, as well as the projecting galleries of the minarets and balconies, supported on cantilevers of great length, are peculiar, and belong en-

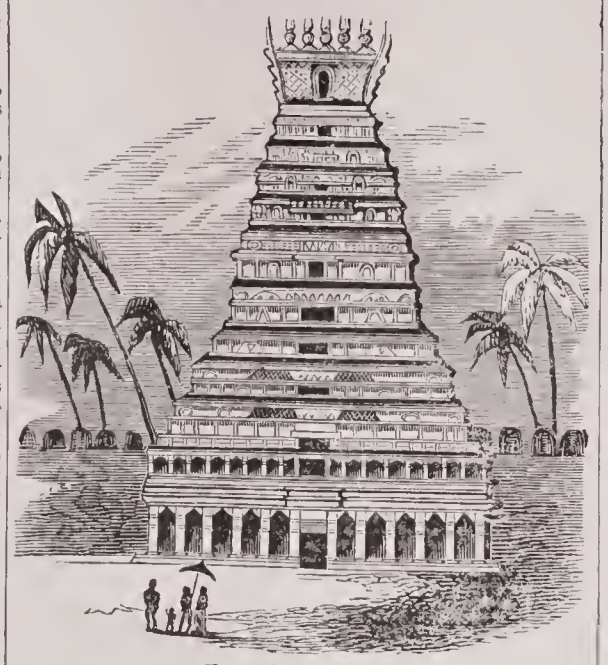


Fig. 1290. — GOPURA,
(or gate leading into the inclosure of the temple at Seringham.)

tirely to the Mohammedan architecture of India. The mosques, and some of the tombs erected by the great Mohammedan sultans of India, afford the best examples of this style of architecture. Among these may be named the great mosque at Delhi, and the magnificent mausoleum (Fig. 56) built by Shah Jehan, near Agra, about 1640, to the memory of one of his queens. In Fig. 1291 we give the design of a very interesting monument situated at about 11 m. S. of Delhi, in the middle of a wilderness of ruins, the called *Khuttub* (or *Kutub*) *Minar.* It is a round pillar, of 240 feet in height, the diameter at the base being 35 feet, but gradually diminishing to less than 10 feet at the top. It is divided into five stories, the relative height of which decreases in the same ratio as the diameter of the shaft. Each story has a heavy cornice of the richest sculpture, surmounted by a low stone balustrade. The three lower stories are entirely of red sandstone, fluted, or rather reeded with alternate convex and angular divisions, and belted at short intervals by bands of Arabic inscriptions, sculptured in relief, and of colossal size. The two highest stories are mostly of white marble, without inscriptions, and deviate slightly from the diminishing slope of the pillar, whence it is generally supposed that they were added at a later period. The summit is reached by a winding staircase of 378 steps, which become very narrow as the diameter of the shaft diminishes towards the top. The K. is certainly the finest single tower in the world, and the only one of its kind in India. Nothing positive is known concerning the date or design of its erection. Both the Hindoos and the Moslems claim it, the former alleging that the inscriptions were subsequently added by the conquerors. From the singular manner in which the shaft is reeded, and from the absence of arches in the openings for air and light, Bayard Taylor (*India, China, and Japan*) thinks that the three lower stories are of Hindoo construction, while the appearance of the arch in the upper stories indicates that they have been added at a later period.

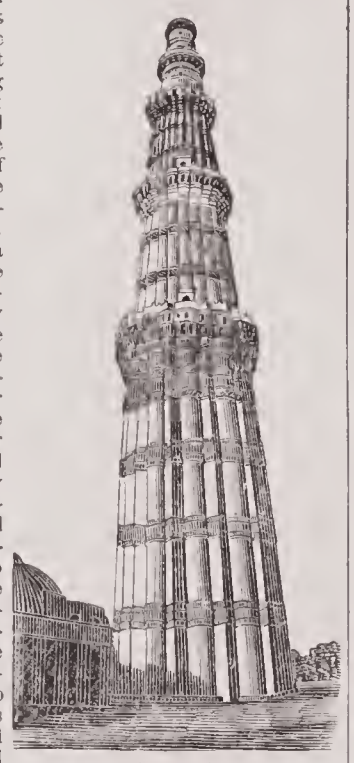


Fig. 1291.
THE KHUTTUB MINAR.
(Near Delhi.)

Hin'dooism, Hin'duism, *n.* The system of religious doctrines and social customs peculiar to those inhabitants of Hindostan who profess the worship of Brahma. One of the principal features in Hindooism is the system of caste, which divides society into four orders. (See CASTE.) The manners, customs, and laws of Hindoos are so intimately connected with their religion, that they can scarcely be described separately. The division into castes is a religious institution, which includes the whole detail and intercourse of life. The Brahmins, or the first of these castes, are the priests of their religion, which is a polytheism, or worship of many gods. The great vagueness of the Brahminical language with respect to the attributes of the gods, the long catalogue of fictions tacked on to their exploits, and the endless ramifications of sects, render any clear definition of the Hindoo religion very difficult. The code of Menu is one of the principal foundations of Hindoo faith, and is, besides, one of the few sacred documents out of which anything approaching to a precise idea of Hindooism can be extracted. Its date is given at about 600 B. C.; yet it yields in high antiquity to the Vedas, or sacred books of the Hindoos, the ages of which are stated at from eight to ten centuries before Christ. The code of Menu, however, has the advantage of being comparatively clearer than the older books, and is thus of more value to a modern student. All the sacred books of the Hindoos, although they inculcate the moral duties of justice, mercy, and benevolence, yet seem, like every system of false religion, to give the first place to the ceremonial law. The devotion of the Hindoos, consequently, consists in mere outward observances, and is not inconsistent with the most disgraceful crimes. The great triad of the Hindoo divinity is composed of Brahma the *Creator*, Vishnu the *Preserver*, and Siva the *Destroyer*; while beneath this trinity lurks the incomprehensible Brahm. Hindoo adoration, for the present period, is reserved for the "Destroyer" and the "Preserver," Brahma having only one temple subsisting to his honor. The worship of this god ceased about the commencement of the Christian æra. According to the Hindoos, the constant interposition of the deity is required to maintain a proper balance in earthly affairs. Vishnu the "Preserver" is represented in the sacred books as having passed through ten incarnations, called *Avatars*. The first is the avatar of the fish, when the world is described as being destroyed by a deluge. In the second avatar, Vishnu, issuing from the side of Brahma in the shape of a boar, grows in an hour as large as an elephant, and remains suspended in the air, while a malignant giant rolls up the earth and flings it down into an abyss. Vishnu, however, descends into the water, and brings up the earth again on his tusk, spreading it out "like a carpet on the face of the water." In the third avatar, Vishnu and Brahma churned the ocean like a "pot of milk," in search of the *amreeta*, or water of immortality. In the fourth, he appeared as a man with the head of a lion. In the fifth, sixth, and seventh, Vishnu goes through a course of adventures in seeking out impious and cruel kings, and punishing them. In the eighth avatar, he appeared as the beautiful Krishna, the shape in which he is most frequently worshipped. The ninth avatar was the incarnation in the person of Buddha; while the tenth avatar is still to come. Vishnu is then expected to appear mounted on a white horse, with a scimitar blazing like a comet, to mow down all incorrigible offenders who shall be living on earth. As the Hindoos began by dividing the divine power among a triad of rival gods, they soon began to split up into sects, each sect holding its own god to be the only true one. The followers of Vishnu and Siva invented new symbols, ascribing each to their respective divinity the attribute of creation. This contention for superiority ended in the total suppression of the worship of Brahma, and the temporary submission of Vishnu to the superior Siva. This, however, did not last long, and crusades were raised by the sects against each other. All the Hindoos, however, believe in one mysterious pre-eminent power, which they call *Brahm*, a power which can not only absorb the universe but all the gods. This absorption into the essence Brahm, which put an end to the transmigration of the soul, is the highest reward of the holy Hindoo. In order to attain this state of beatitude, a large number of injunctions have been laid down, to which he must duly attend. He must injure nothing animated, must subdue all sensual appetite, and perform all the rites prescribed in the Vedas. As the divinity can only be approached in a state of the greatest purity, and as the supposed causes of impurity are exceedingly frequent and numerous, the Hindoo has to perform a great number of religious ceremonials every day of his life. The modes of purification are very various and strange, many of them being very ridiculous. Of these bathing is the most rational; the other modes are by stroking a cow, looking at the sun, or having the mouth sprinkled with water. Inanimate objects need purification also; land is made pure by sweeping, by scraping, by allowing a cow to pass a night upon it, &c.; folded clothes must be sprinkled with hallowed water, and wooden utensils planed. The expiation of sin by voluntary penance is another favorite doctrine of the Brahmins, by which they contrive to awe superstitious minds into subjection. To such an extent does this fanaticism carry the Hindoo, that he will, as travellers have witnessed, keep his hands clenched till they are pierced by the growth of his nails (Fig. 340); or hold his arms upraised till the limbs become paralyzed; or vow to remain in a standing position for years. Such spectacles have been frequently witnessed among the wandering professors of penance called Fakirs. See FAKIR. — The junction of the Ganges and the Jumna is a place of peculiar sanctity, and a favorite dying-place of the devout Hindoo. Many of them drown themselves at the junction of the streams every year, and the rapidity with which the victim sinks is a token of his favorable acceptance by the god of the river. In order to gain the good graces of the deity, the devoted person, with pots of earth fastened to his feet, is carried out into the middle of the stream. The devout multitude contem-

plate the scene from the surrounding banks, and applaud the victim if he retains a steady and resolute countenance to the last. But for obtaining a full display of the Hindoo religion, and of the monstrous practices which it permits and encourages, it is necessary to behold it when crowds are gathered to celebrate its greatest festivals, among which is the *Charak Pujah*, annually celebrated in honor of Kali, Maha Kali, or Parvati, the wife of Siva. Owing to the savage character of Kali, and the numerous crimes of which she is regarded as the patroness, the Brahmins and more respectable native classes of Calcutta, keep aloof from an open participation in it, but at the same time show where their sympathies lie by contributing largely to the expense, and countenancing the proceedings by their presence as spectators By the more zealous



Fig. 1292. — CHARAK PUJAH.
(From Park's "Wanderings of a Pilgrim.")

votaries a whole month before the festival, by others three days, are employed in initiatory ceremonies of purification and devotion. When the first day devoted to it arrives, an upright pole twenty to thirty feet in height is erected, and across its summit a horizontal beam is placed to move round on a pivot. From each end of the beam hangs a rope, the one loosely, and the other with two hooks attached to it. The performance now begins. A devotee coming forward prostrates himself, and is immediately fastened to the hooks, which, for this purpose, are run through the fleshy parts of his back near the shoulders. The end of the other rope is then seized by a number of persons, who commence running round with it at a rapid pace. This motion is of course communicated at once to the hooks, and the wretched devotee lifted up into the air is swung round in agony. Were the flesh to give way, the force with which he is whirled, as well as the height, would project him like a shot from a gun, and his death would be inevitable. The devotee by giving a signal may be relieved from peril and torture, but he is in no haste to give it, and usually remains suspended from ten minutes to half an hour, for strange to say, this is a religious service the merit of which is proportioned to the length of time the agony is endured! The moment he descends and is taken off the hooks, another steps forward to take his place, and the machine is kept wheeling till the day is far spent. In estimating the aggregate amount of suffering inflicted, it is necessary to remember that these horrid swings were not confined to the suburbs of Calcutta, where Kali's temple stands, but that in thousands of towns and villages throughout Bengal they were in simultaneous operation, torturing the infatuated devotees, while multitudes of spectators stood around gazing with applause and wonder.

Hin'doos, (Literature of the.) In common with their religious traditions and the invention of their alphabet, the literature of the Hindoos is of the highest antiquity. Nearly all the literary compositions of the Hindoos are in verse. "For history," says Mill, "they have only certain narrative poems, which depart from all resemblance to truth and nature, and have evidently no further connection with fact than the use of certain names and a few remote allusions. Their laws, like those of rude nations in general, are in verse. Their sacred books, and even their books of science, are in verse; and, what is more wonderful still, their dictionaries." Because men feel before they speculate, therefore is poetry, which is the earliest form of expressing the feelings, the first literature. At this primary stage has the literature of the Hindoos remained. To commence with the Sacred Literature: Under the general term of *Shastras*, the Hindoos possess the four "Vedas," named respectively the *Rig*, *Yajash*, *Sama*, and *Atharva;* the four "Upavedas," or "Sub-Vedas," — the *Ayash*, *Dhanush*, *Ghandarva*, and *Artha;* the "Vedanga," or *Six Angas;* and, finally, the "Upangas." The *Vedas* are written in Sanskrit, (see HINDOSTAN, LANGUAGES OF,) as are the *Mantras*, or prayers, the *Brahmanas*, or commandments, and, in short, the whole body of the Hindoo theology proper. The *Upavedas* form a second class of sacred books, and consist of treatises upon surgery, medicine, music, dancing, war, architecture, and many mechanical arts. The *Vedangas*, or Six Angas, are treatises subsidiary to the Vedas, and comprehend rules for reciting the Vedas, and especially as regards the accent and tones to be observed; a treatise on grammar; besides dissertations upon meters, astrology, and astronomy. These works are held to have been given by inspiration of God to enable the Brahmins to read and understand the Vedas. Thus, we here perceive a double inspiration, that of the Vedas and that of the Angas, the latter forming the key by which the Vedas are opened. The *Upangas*, or inferior bodies of learning, comprehend logic, theology, the institutes of the law, and certain legendary treatises, to the number of eighteen, which bear the name of *Puranas*. These are mainly mythological in character, giving the histories of the gods, often at great length, the *Pedma Purana*, which is written in praise of the lotus, and gives the history of Lakshmi, the wife of the god Vishnu, containing 55,500 stanzas. The *Agru Purana* forms a sketch of all Hindoo science, in 15,500 stanzas, while others are devoted to descriptions of the ancient cities of Orissa and Benares. The two great epic poems of India, the *Ramayana* and the *Mahabharata*, are also classed among the sacred books. Of these the former, which is ascribed to a poet named Valmiki, best deserves the name of epic, it being confined to the adventurous career of Ramatshandra, King of Ayodya, and the 7th incarnation of Vishnu. The *Mahabharata* details the wars of the Pundus and Kurus, and constitutes a great storehouse of Hindoo legend, three-fourths of the work being made up of long drawn out episodes. It embraces 18 books and more than 100,000 stanzas. Both these works contain finely poetic passages, and despite their florid style and vein of exaggeration and exuberance, are classed among the world's great epics. (See EPIC POETRY). There are a number of later epic poems of an artificial character, written in and after the 5th century, A.D., labored and heavy in style, yet not without poetic thought and artistic feeling.—*Minor Poetry.* India produced a store of poetic compositions of the lyric, descriptive and didactic character, in which field the *Cloud Messenger* of Kalidasa is a gem of poetic sentiment. An exiled demigod sends his wife a message of love by a cloud, and describes to his messenger, in glowing language, the scenes it will pass over in its journey. The authors of India were also prolific in the field of story, fable and fairy tales, of which the most famous collection is the well-known *Panchatantra*. There are various other collections, the title of one being translated by the comprehensive phrase, "Ocean of Rivers of Story." Some of the stories in these collections are familiar to modern readers as modified in the *Arabian Knights' Entertainments.—Drama.* India was also prolific in dramatic literature, which probably came down from early times, though it is doubtful if any of the existing plays are older than the 5th century A.D. Of playwrights, the most famous is Kalidasa, his best known play being *Sakuntala*, or "The Lost Ring," which is notable for beauty of language and artistic merit. The *Toy Cart*, of Sudraka, is of great interest as a vivid picture of the social life of its period.—*Critical Literature.* Critical inquiry in India began in the latter Vedic times, being a natural outgrowth of the study of the sacred writings, and occupying the fields thence arising, viz.: Phonetics, prosody, grammar, etymology, astronomy, and ceremonial law. Among the earliest works on law was the celebrated *Code of Manu*, which was in time followed by various digests of practical legislation, some of which are still authoritative. Grammar, in the hands of Hindoo thinkers, became a science, the famous work of Panini being still regarded as the foundation of grammatical analysis. To the same writer is ascribed a work on phonetics, in which the nature of the letters and accents is minutely treated. In addition may be named dictionaries, works on prosody, music, rhetoric, medicine, astronomy and mathematics, in the last of which works were produced which are still employed as standard text-books. The *Sakuntala* of Kalidasa—who has been called "the Hindoo Shakespeare"—has been translated into English and also into German.

Hin'dostan, or INDIA EAST OF THE GANGES AND BRAHMAPOOTRA, as distinguished from INDIA BEYOND THE GANGES, or FURTHER INDIA, (in the European sense,) a vast region of S. Asia, in the form of a peninsula, having its apex projecting S. into the Indian Ocean, or in other words, comprising the whole of the great triangle of country extending from the borders of Little Thibet, in about the 35th deg. of N. Lat., to Cape Comorin, or about the 8th deg. It is bounded on the N. by the highest range of mountains in the world, the Himalayas; by the two great rivers, the Indus and Brahmapootra on the N.W. and N.E.: and in every other direction by the ocean. The ancient inhabitants of India had no common name for themselves or their country; but their Persian neighbors called the people *Hindoos*, and the region, as far as they knew it, *Hindostan;* words which, in old English, would have been accurately as well as literally rendered *Negro*, and *Negroland*. The comprehensive sense in which the term "Hindostan" is now employed, as distinctive of the entire territory S. of the Himalaya Mountains, over which the institution of caste prevails, is of European origin; the people of the country confining the term to the region lying N. of the Nerbudda, and calling all to the S. of that river the *Deccan* (q. v.), a word derived from the Sanskrit, and meaning "the right hand," and also "the South." *Area. H* comprises in all an area of about 1,250,000 sq. m., or about a third part of the estimated area of Europe; but from the absence of gulfs, inland seas, and lakes, the proportion of solid land is greater. — *Polit. Div.* This immense country, under the popular designation of BRITISH INDIA, embraces eight great provinces, viz.: *Bengal*, *Madras*, and *Bombay;* the *Central Provinces;* the *North-West Provinces*, and *Oudh;* *Burmah*, *Assam;* and the *Punjab*. These again are subdivided into inferior territorial jurisdictions, and also include a number of quasi-independent states, under the political supremacy and protection of the English govt. — *Gen. Desc.* The coast outline of *H.* is comparatively little broken by any considerable inlet of the sea. From the mouths of the Indus to the delta of the Ganges there are but three great gulfs, those of Cutch, Cambay, and Bengal, — if the latter, indeed, which, though it breaks the coast of Asia, does not break that of Hindostan, can be considered in this class. Harbors are even less frequent; along the W. coast, over 14° of Lat., there is but a single good one, Bombay; and from Cape Comorin to the W. mouth of the Ganges, a distance of 1,500 m., there is not one. The Indian coasts are also in a great measure destitute of islands. Unless Ceylon (*q. v.*) be admitted as belonging to *H.*, which can hardly be done, there is not one on the E. coast: and on the W. there are very few, and those of inconsiderable size. The natural geographical divisions of *H.* are as follows: 1. The range of the Himalayas with their valleys. 2. The Gangetic plain, comprising only the tract of inundation, and which rises very little above sea-level. 3. The upper plain of the Ganges, from the prov. of Bahar inclusive, up to the foot-hills of the first Himalayan range, where the rivers Ganges and Jumna issue from the hills to the N., bounded to the S. by the Vindhyan range, and to the W. by the great desert. The height of the E. portion of this division may be about 500 feet above the level of the sea, and the land rises gradually as we proceed N. until, where the great rivers emerge into the plain, it has an elevation of over 1,000 feet. 4. The N. portion of the great central table-land, as far S. as the valley of the Nerbudda, which generally intersects the plateau in question from E. to W. The height of this section of the table-land ranges from 1,700 to 2,000 ft. 5. The portion of the table-land which lies S. of the valley of the Nerbudda, down to the junction of the E. and W. Ghauts, and the valley of Coimbatore. Height of the table-land here from 2,000 to 3,000 ft. 6. From the gap of Coimbatore inclusive to Cape Comorin. 7. The narrow strip of low land lying between the W. Ghauts and the sea, or coast of Malabar, including the W. acclivities of the mountains themselves. 8. The alluvial plain of unequal breadth, which lies between the E. Ghauts and the Bay of Bengal, generally called the *Carnatic*, rising gradually from the shore to the foot of the mountains; highest point, about 490 feet above sea-level. And 9. The peninsula of Gujerat with the adjacent country, containing much mountain-land and a few plains. All these divisions differ so materially in their physical aspect, climate, geological formation, animal and vegetable productions, as well as in an ethnographical point of view, as fully to warrant this distribution. (The geographical features, &c., of the various states and provs., aggregated under the general name of *H.*, will be found amply detailed under their own separate and distinctive heads in this work.)— *Mountains.* The principal mountain-chains are those of the Himalayas, the Vindhyan range, and the W. and E. Ghauts, (all of which see.)— *Rivers. H.* possesses some of the largest rivers in the world, as the Ganges, Indus, Brahmapootra, Jumna, Goomtee, Godavery, Nerbudda, &c. — *Lakes.* Few lakes of any size are found in this country; the most considerable is that of the Runn, lying between the Gulf of Cutch and the delta of the Indus, which is believed to occupy a space of 5,000 square miles. — *Climate.* In a country which embraces 27 degrees of lat., which contains extensive plateaux, elevated from 2,000 to 3,000 feet above sea-level — some of the largest plains in the world, almost on a level with, or but a few hundred feet above the sea—the highest range of mountains (Himalayas) in the world — tracts of bare rock — deserts of deep sand, and dense primeval forests, — it is needless to say that there must exist a very great diversity of climate. But besides the great difference arising from these causes, the distribution of rain is another source. The whole continent of *H.* up to the 35th degree of Lat., is subject to the influence of the monsoons, which blow from the N.E. during the temperate winter months, and from the S.W. during the tempestuous and hot or rainy months of summer and autumn. This is the general rule: but in India, as in other Asiatic countries under the influence of the monsoons, and where are mountain ranges running N. and S. of sufficient elevation to intercept the clouds, the time of the periodical fall of rain is reversed. To the W. of the great chain of the W. Ghauts, on the one hand, over 11° of Lat., the periodical rain-fall corresponds with that of other parts of India, or takes place during the W. monsoon. E. of the Ghants, on the other hand, over 8° of Lat., the fall of rain takes place during the E. monsoon; while the table-land which lies beyond the two ranges partakes, to a moderate degree, in both falls. As a general rule, the year is divided in India

into three well-defined seasons: a *hot*, corresponding with part of spring and summer; a *wet*, agreeing with part of summer and autumn; and a *cold*, corresponding generally with our winter months. With respect to temperature, much of *H.* being between the tropics, and the remaining portion within 12° of the tropic, the whole is entitled to the designation of a hot country. The mean temp. at Bombay is 82° Fahr.; at Madras 84°; and at Calcutta 79° Fahr. In summer the mean temp. is from 100° to 110°.—*Geol., &c.* The geological formation of India may be summed up as extremely simple, compared with that of other, and more temperate countries, consisting only of 4 classes of rocks, viz., the *granitic*, the *sandstone* and *clay-slate*, the *trap*, and the *alluvial*.—*Min.* Coal underlies a large area of surface, and is being extensively worked; iron, copper, gold, diamonds, rubies, and other gems are also found.—*Zoöl.* The elephant, rhinoceros, bear, hyæna, and man-eating and other tigers, have their habitat in the mountain defiles, and jungles. Birds of the most varied brilliancy of plumage are met with innumerably. The reptile genus is represented by the python, cobra-di-capello, and other deadly serpents, alligators, lizards, *et sic de similibus*.—*Ethnology.* There are at present spoken in India, by the most civilized races, not less than 25 distinct languages or dialects, indicating the existence of as many distinct nations; but, including tribes more or less savage and barbarous, at least 50 languages, demonstrating the presence of at least as many distinct tribes. Of the more civilized nations 8 may be said to be distinguished from the rest by some superiority of civilization, as implied in the possession of a national alphabet, a national literature, superior population and consequent industry, a greater progress in the useful arts, with the richer and more extensive territory which they are found to occupy. These are the Bengalee, Ooriya, Mahratta, Gujratee, Telinga, Tamul, Karnata, and Hindu or Hindostanee nations. The Bengalee nation occupies above 80,000 sq. m. of fertile land, chiefly within the delta of the Ganges, and amounts in number to above 25,000,000. The Tamul nation covers abt. 56,000 sq.m. at the S. extremity of the peninsula, and numbers between 6,000,000 and 7,000,000 people. The Telinga race occupies 100,000 sq. m. of the N.E. portion of the country, and count, probably, between 7,000,000 and 8,000,000 heads; while the Ooriyas, spread over at least 17,000 sq. m. of the low land which connects the Gangetic delta with the S. peninsula, number abt. 4,000,000. The Mahratta nationality extends over, at an estimate, 100,000 sq. m. of territory (between 22° and 23° N. Lat.), and its capitation may be approximately computed at 12,000,000. The Karnata, or *Carnara* people, filling a central portion of the table-land S. of the 18th degree of Lat., are believed to possess abt. 75,000 sq. m. of territory, and their numbers may be taken at abt. 5,000,000. The race speaking the Hindoo language inhabit at least 100,000 square m. of the upper division of the valley of the Ganges, and cannot amount to less than 20,000,000,—physically and intellectually the most vigorous of all the Indian races. The barbarous and savage tribes are universally to be found in the recesses of mountainous and sterile regions, never within the fertile plains or extensive table-lands; and there is scarcely any considerable range throughout India in which some of them are not to be met with. They are, however, most numerous on the East frontier of Bengal, in the fastnesses of the mountains, and the wild region of Gundwana, and generally in the ranges of hills lying between the Gangetic plain and the great central plateau. Besides the original and peculiar inhabitants of *H.*, a crowd of foreign colonists, or settlers, forms a considerable element of the present population of the country. These, following generally the order of their arrival, or supposed arrival, are as follows: Jews, Syriac Christians, Arabs, Armenians, Parsees, Persians, Afghans, Tartars, Turks, Abyssinians, Portuguese, English, Dutch, French, Danes, and Chinese. —*Religion, &c.* The forms of religious worship which prevail in Hindostan, are the Brahmanic, Buddhistic, Jain, Singh, Mohammedan, Jewish, and Christian. These, and especially the two first and most prevalent of them, are again divided into so many different doctrines, such an infinity of sects and castes, that it would be almost impossible to enumerate, much less describe them. This religion, perhaps beyond any other, pervades the entire frame of civil society, and mixes itself up with every concern of life, private and domestic. Almost every act of a Hindoo may, in fact, be said to be more or less a religious act. According to the best authorities, the Hindoo Pantheon is peopled by precisely 333,000,000 deities; but as no one has attempted to name them, it can only be concluded that the Hindoo deities are in reality innumerable! Among the lower orders of the people, and especially among the ruder tribes, a sort of fetichism prevails; and trees, rocks, and shapeless masses of stone are worshipped or abandoned, according to the fears, hopes, or caprices of their votaries. The Hindoos, however, really attach less importance to doctrinal matters, than to distinctions of caste, funeral and marriage ceremonies, and the whimsical observances respecting supposed purity and impurity in regard to food, and other matters of ordinary domestic life. The distinctions of caste are the most remarkable of these, and form indeed the characteristic feature of Hindoo society. Every one has heard that the Hindoos are divided into four great classes or *castes*: that is, into priests, soldiers, traders, and laborers. (See CASTE, BRAHMAISM, BUDDHISM, HINDOO RELIGION, &c.) The Mohammedan faith began to make some impression on India about the opening of the 11th century, and the descendants of foreign settlers, or the converted nations of this persuasion, are at present believed, for all India, to number one-seventh of the population. The Christians are principally found in the S. part of the peninsula; the greater number are Nestorians, who are supposed to have embraced Christianity through the labors of Greek missionaries from Syria, as early as the 2d and 3d centuries of the Christian æra. Most of the remainder are Roman Catholics, the descendants of Portuguese, or persons converted by European missionaries.—*Industry, Arts, and Manuf.* The arts in which the Hindoos have made the greatest progress are agriculture, weaving, dyeing, and architecture. The ox, buffalo, horse, ass, elephant, dog, hog, sheep, and goat have been domesticated, and used by this people from the earliest antiquity. The camel, probably, has been equally long known in Upper *H.* The more common kinds of poultry are also of equal antiquity among the Hindoos; and are supposed, and apparently with good reason, to have spread from them to the W. world. The buffalo and ox only are used for agricultural purposes; the horse generally for war or pleasure, only now and then for burden; the elephant for pleasure or burden; the camel and ass (with few exceptions) for pleasure only. With the exception of the horse, camel, sheep, and goat, every one of the animals above enumerated are still found in many parts of India in the wild state. The agricultural implements used by the natives are simple and rude, and the process of application is equally uncouth. The greatest exercise of Hindoo skill and labor is displayed in works of irrigation; and the reader will not be surprised at this, when he understands that through means of irrigation the produce of the land is, according to circumstances, always multiplied five-fold, and often as much as ten. The works for this purpose comprise immense embankments, reservoirs or tanks, and wells. The delta of the Ganges, and the celebrated mound of the Cavery in S. India, afford examples of the first description of works; reservoirs, or tanks, are sometimes of vast extent, and capable of converting 4,000 or 5,000 acres of what is often a bare desert of sand into productive grain-fields; these are most frequent in S. India. Wells, which are often sunk to the depth of between 200 and 300 feet, chiefly irrigate the upper portion of the Ganges valley. The articles of produce cultivated by the Hindoo peoples from remote antiquity are, wheat, barley, rice, millet, pulse, the sugar-cane, sesame, mustard, the cocoa, areca, and other palms; ginger, and various kinds of spices, cotton, hemp, the mulberry, indigo, madder, the mango, and the banana. From the Moslems they received the vine, fig, apple, peach, and pear; the pomegranate, limes, and oranges; the carrot, onion, and melon, with the opium poppy. From Europeans they have received maize, oats, common potatoes; the *batata*, or sweet potato, the capsicum, guava, and pine-apple, by way of America; the shaddock from Java, the lichi from China; and most of the common pot-herbs direct from Europe. The sugar-cane is most probably a native of *H.*, and the art of manufacturing coarse sugar from it is traced by the etymology of the word *gour* to Bengal. The art of granulating sugar, and separating it from the molasses, was probably brought into India from China, as the name of the commodity *Chini* would seem to imply. The art of candying or crystallizing sugar, the only mode of refining practised in the East, was taught the Hindoos by the Mohammedans. The Hindoos had made a far greater progress in the art of weaving than in any other; materials for this process they may be considered, in ancient times, to have possessed nearly a monopoly of, viz., cotton, silk, and the hair of the Thibetian goat. With the exception of silk, which they had in common with China, India may be considered as the native country both of the material, and the manufacture of the others. The cotton-plant is grown almost everywhere, from the S. extremity of India up to the valleys of the most N. range of the Himalayas, and it may be traced from India to every warm country by its original Sanskrit name. The quality and nature of the fabric varies everywhere with the quality of the plant; and hence a vast variety of fabrics known by the names of the districts producing the raw material; thus the fine textures known in commerce as *Dacca muslins*, were produced only in that district in which is cultivated, within narrow limits, a variety of the plant, with a staple remarkable for fineness and beauty, not found anywhere else. Silk-weaving, like that of cotton, is an art that has descended from remote ages in *H.* The variety of the silk-worms bred in India differs from that of China and Europe, and the Hindoos being much inferior in skill and ingenuity to the "Celestials," the silk fabrics of India have never equalled those of China, nor is the raw material, even now, equal to that of the Chinese, though under the superior care and cultivation of Europeans. The invention of the Cashmere-shawl manufacture belongs to the Hindoos — people of this race having originally peopled the country N.W. of the Indus. The Hindoos, comparing them with other nations in the same state of society, and to Europeans until comparatively recent periods, had attained considerable expertness in the art of dyeing, producing colors that are both fast and brilliant. Here also, however, they had superior advantages in the possession of three of the finest and most durable of all coloring materials,—indigo, lac, and madder. Inferior dyes, such as the carthamus, morinda, turmeric, and sappan, are also natives of the country. Their dyeing processes, however, have always been, and are, tedious, operose, and empirical. The architectural works of the Hindoos are treated of elsewhere. (See HINDOO ARCHITECTURE.)—*Com. &c.* The total exp. in the year 1895 amounted to $259,393,595; imports, $207,775,500.—*Railroads.* The railroads built or sanctioned to March 31, 1896, covered 26,466 miles, of which 19,677 were open to traffic. The gross earnings were about $65,000,000 and the net revenue $35,000,000, giving a return of 5·78 per cent. on the invested capital. Of the roads in operation, about 14,000 miles belonged to the state; the total cost of the roads being about $438,000,000. The government telegraph lines had a length of 44,468 miles, with 138,256 miles of wire. The number of paid dispatches forwarded during the year was 4,391,226. The telephone has also been widely introduced.—*Govt. and Finance.* The executive authority in *H.* is vested in a Governor-General, or viceroy, appointed by the English Crown, and acting under the orders of the Secretary of State for India, assisted by a Council of State of 15 members, of whom 7 are elected by the Council of Directors of the East India Company, and 8 are nominated by the Crown. The government in India is exercised by the Council of the Governor-General, consisting (usually) of 7 members appointed by the English Secretary of State. The ministry, divided into the several departments of Foreign Affairs, Finances, the Interior, Military Administration, and Public Works, do not form part of the Council. The Anglo-Indian army in 1896–97 numbered 237,758 men. Financial statistics reported by the Indian budget for 1896 estimated the revenue for that year at $236,718,515, as against an estimated expenditure of $234,325,795; while the public debt stood at $545,948,915 (gold values).—*Chief cities.* Calcutta (present capital), Bombay, Madras, Delhi (ancient capital); Lahore, Benares, Lucknow, Agra, Allahabad, Peshawur, Hyderabad, Cashmere, Poonah, &c.—*Population* of British India in 1896, 221,172,952, excluding the native states, whose population at the same time was estimated at 66,050,479.—*History.* The *real* history of *H.* commences with the first Moslem invasion, A. D. 1000, between 13 and 14 centuries after the incursion of Alexander the Great. Mahmoud, sovereign of Ghuznee, in Afghanistan, pushed his conquests as far as Bundelcund and Gujerat. India was at this time divided among many independent monarchs, most of them petty ones; and the resistance made to the conqueror was hardly more formidable than that which the ancient Mexicans offered to the Spaniards. Towards the close of the 12th cent., the Afghans made their first appearance on the theatre of Indian history, a prince (Mohammed Gauri) of this race making an invasion of *H.* The latter dying without issue, his general, Cootub, seized upon the Indian conquests of his master, and fixed the seat of his govt. at Delhi, in 1193. This may be considered as the date of the first effectual conquest of the country. For 322 years after this period Afghan sovereigns reigned in Delhi. In 1525, *H.* was invaded by Baber (*q. v.*), who defeated and killed the last Afghan monarch, and seated himself on the vacant throne, thus establishing the line of princes known as the *Moguls*. The empire of the latter was consolidated under Aurungzebe (*q. v.*), in whose reign its power culminated. After his death, in 1707, the Mogul dynasty began to decline; and after an attempt made by the French to establish a great Indian sovereignty, the foundations of a vast political power were laid between 1750 and 1765, by the greater resources and superior maritime strength of the English, and especially by the extraordinary military genius and enterprise of Lord Clive, (*q. v.*) Since then, the history of *H.* presents a succession of victories by British arms, directed by able statesmen and executed by generals of the stamp of Wellington, Cornwallis, Lake, Napier, Gough, Hardinge, Lawrence, and Clyde. See the articles on the several States, &c., of India, in this work. By the disastrous tidal wave of Oct., 1876, thousands of lives were lost and millions of property destroyed. India has suffered repeatedly by famine, that of 1897, the fifteenth of this century. Pestilence also produced its devastations in 1897, a plague breaking out in the city of Bombay which caused terrible ravages among the crowded native population of that city. See BUBONIC PLAGUE and BACTERIOLOGY.

Hindostan'ee, Hindostan'i, *a.* Pertaining or having reference to the Hindoos, or to their language. —*n.* The language spoken by the Hindoos of India.

Hin'dostan, (Languages of.) A survey of the languages, no less than of the antiquities and the religious systems, which prevail in India, would seem to afford a sufficient proof that its inhabitants are a primitive people, and that its territory is truly *Medyama*, *Medhya-Dehsa* (the central land). Our knowledge of the philology of this strange and wildly magnificent country is due to the labors of the missionary Henry Roth, and the Jesuit Hanzelbein, and since 1790 to the more searching investigations of Paolino, Sir Wm. Jones, Wilkins, Forster, Carey, Marshman, Wilson, Colebrooke, Marsden, Bopp, and others. Following Colebrooke, who took a Hindoo treatise upon rhetoric as his guide, we find there are 4 principal languages — *Sanskrit*, *Prakrit*, *Paisachi* or *Apadhransa*, and *Magadhi* or *Misra*, the Apadhransa and Magadhi being considered the same, and the Misra and Paisachi as one, so that in reality the leading languages are the Sanskrit, the Prakrit, and the Magadhi. This is the opinion of the last-quoted author; but other English critics maintain that this statement requires considerable qualification. 1. The *Sanskrit*, known also as *Gronthon* (from *graudha*, book), is the sacred language of the Brahmins and of literature. Now a dead language, there is strong presumptive evidence that it was once a spoken tongue. Singularly copious, and perfect in construction to a degree, its alphabet, consisting of 50 letters, is termed *Devanagari* (the divine alphabet), on account of its supposed origin with the gods, whose language it is. It has 3 genders, a dual like the Greek, conjugations numbered according to the vowel or cousonant endings, 7 cases

after nouns instead of pronouns, and an abundance of particles. The period of its highest perfection was in the last century preceding the Christian æra, when the great poet Calydos flourished, the author of *Sakoontalah* (the Fatal Ring), and of the *Megha-Data* (the Cloud Messenger). In the Sanskrit, also, are written the old sacred books of the Vedas. The founder of the Sanskrit grammar is Pannini, the supposed author of the *Sutras*, or short grammatical precepts. His system was improved by Catugayana, in a work called *Mahabhasia*, which again was amended by Caiyata. Perhaps the most celebrated of the later works upon the grammar of the Sanskrit tongue are the *Casica Vritti*, and the commentary upon it by Haradatta Misra, entitled *Padamanjari*. Among the best modern grammars are those of Colebrooke and Wilkins. Coming to dictionaries of the Sanskrit, we find the *Amara Cosha, or the Treasure of Amara Singh*, a writer who flourished anterior to the Christian æra, the *Viswapracasa* of Maheswara, and the *Haravali* of Purushottama. By English authors, we possess the *Dictionary in Sanskrit and English* of Prof. Wilson, the *Sanskrit and English Dictionary* printed at Calcutta in 1846, the *Elementary Introduction to the Sanskrit Language* by Monier Williams, &c. The learned Sir Wm. Jones established in 1808 at Calcutta a printing-office for the production of Sanskrit works; and to this great Oriental scholar we owe the comparatively deep acquaintance we possess of the Sanskrit — a language that would be important for the literary treasures of which it is the storehouse, but which becomes in the highest degree valuable when we reflect that it contains the fundamental sounds of all the European languages. (See art. ARYAN LANGUAGES.) II. The *Prakrit* is the common language, and comprehends within itself the various dialects used in writing and in social intercourse. Colebrooke mentions 10; but to these should be added the *Punjabee* and the *Brija Bhasha*. The 5 following dialects constitute the languages of N. and E. Hindostan: — 1. The *Sareswata*, spoken by the people who dwell upon the river of this name, a stream flowing through the Punjab. It is a language rich in dramas and poems. 2. The *Kanyacubja*, which appears to be the parent of the modern Hindostanee, interlarded with Persian and Arabic words. 3. The *Bengalee*, a dialect principally spoken in E. Hindostan. It is rich in translations from the Sanskrit, and forms almost exclusively the language of the learned Hindoos. Its alphabet is a close copy of the Devanagari. 4. The *Mitilaw* or *Tirhoot* is the chief language of Mitilaw, or the circle of Tirhoot, and the neighboring districts lying between the rivers Cusi and Gundhae, and the mountains of Nepaul. 5. The dialect of Orissa, called *Ooriya*. The 5 following form the languages of the southern extremity of the Deccan, of the Mahrattas, of the people inhabiting the middle of the Mysorean plateau, of the inhabitants of the tract of country lying between the Krishna River and the Godavery, and of the Gujeratese. They are named respectively the *Drarida*, the *Maharashtra* or *Mahratta*, the *Karnata*, the *Telinga*, and the *Gurjara* or *Gujeratee*. III. The *Paisakee* or *Apadhransa* has been presumed to be a mixture of the dialect of mountaineers and the Sanskrit. It is never alluded to in dramatic writings, except to serve as a subject for ridicule. IV. The *Magadhi* or *Misra*, presumed to be analogous with the Pali and Magadhi of the Cingalese, is the language of the priests of Buddha. In common with the Chinese, the foundation of this series of dialects is monosyllabic. Broadly speaking, it may be said to comprehend all the various dialects spoken by the peoples inhabiting the coasts and islands lying between India and China.

Hin'drance, *n.* See HINDERANCE.

Hinds, in *Mississippi*, a S.W. central co.; *area*, about 870 sq. m. *Rivers.* Big Black and Pearl rivers. *Surface*, level; *soil*, fertile. *Cap.* Raymond. *Pop.* (1890) 39,279.

Hinds'boro, in *Illinois*, a post-village of Douglas co., on T. H. & I. R. R.

Hinds'burg, in *New York*, a post-village of Orleans co., about 28 miles W. of Rochester.

Hin'er's Run, in *Pennsylvania* (now HYNER), a post-office of Clinton co.

Hines'berg, in *Wisconsin*, a village of Fond du Lac co.

Hines'burg, in *Vermont*, a post-town of Chittenden co. *Pop.* (1890) 1,205.

Hines'ville, in *Georgia*, a post-village, cap. of Liberty co., about 40 m. S.W. of Savannah.

Hinge, (*hĭnj,*) *n.* [Dan. *hængsel*, a hinge, from *hænge*, to hang. See HANG.] The hook or joint on which a door, gate, &c., hangs and turns. — That on which anything turns, hangs, or takes issue from; a ruling point; a deciding principle.

"No *hinge*, nor loop, to hang a doubt on." — *Shaks.*

—One of the four cardinal points, east, west, north, or south.

"When the moon is in the *hinge* at East." — *Creech.*

To be off the hinges, to be in a state of confusion, irregularity, or disorder. (Used as a figurative colloquialism.)

The man's spirit is out of order, and *off the hinges*." — *Tillotson.*

(*Conch.*) The part where the valves of a bivalve shell are united, consisting of ligament and teeth.

—*v. a.* To furnish with hinges: as, to *hinge* a door.

—*v. n.* To turn, stand, or hang, as upon a hinge; to rely upon as a decisive point; — generally before *on* or *upon*; as, the argument *hinges on* the application of this principle.

Hinged, (*hĭnjd,*) *a.* Supplied or fitted with hinges: as, a *hinged* gate.

Hing'ham, in *Massachusetts*, a post-town and township of Plymouth co., on Massachusetts Bay and N. Y., N. H. & H. R. R., 12 miles S. of Boston. *Pop.* (1895) 4,819.

Hingham, in *Wisconsin*, a post-vill. of Sheboygan co.

Hiniesta (*hē-ne-ās'ta*), a town of Spain, 50 m. S.S.E. of Cuenca. *Manuf.* Woollens. Jasper quarries are worked in the neighborhood. *Pop.* (1897) 2,890.

Hinkleton (*hink'el-ton*), in *Pennsylvania*, a post-village of Lancaster co., about 40 m. E.S.E. of Harrisburg.

Hin'mansville, in *New York*, a post-v. of Oswego co.

Hin'non. See GEHENNA.

Hin'ny, *n.* [Lat. *hinnus*; Gr. *hinnos* or *ginnos*, a mule.] The hybrid produced between a horse and a she-ass. It is smaller than a mule, but the body is more bulky in proportion to the legs, and its strength is inferior. It is rare and less valuable than the mule, although it is more docile.

—An appellation given in fondness; a corruption of *honey*.

Hinojosa (*hin-o-hō'sā*), a town of Spain, prov. Cordova, 38 m. from the city of Cordova. *Manuf.* Woollens. *Pop.* (1895) 8,500.

Hins'dale, in *Illinois*, a post-village of Du Page co.

Hinsdale, in *Massachusetts*, a post-town of Berkshire co., about 143 m. W. N. of Boston. *Pop.* (1897) abt. 1,300.

Hinsdale, in *Montana*, a post-office of Valley co.

Hinsdale, in *New Hampshire*, a post-town of Cheshire co., on the Connecticut river, about 60 m. W.S.W. of Concord. *Pop.* (1890) 2,258.

Hinsdale, in *New York*, a post-town and township of Cattaraugus co., on Erie and W. N. Y. & P. railroads, about 52 miles S.S.E. of Buffalo. *Pop.* of township (1890) 1,312.

Hin'son, in *Georgia*, a post-office of Coffee co.

Hint, *v. a.* [Etymol. uncertain; probably allied to Dan. *vink*, a sign, signal.] To bring to mind by a slight mention or a remote allusion; to allude to; to suggest; to intimate; to insinuate; to imply; as, to *hint* a suspicion.

—*v. n.* To mention slightly or indirectly; to allude to; to refer to; to glance at; to touch upon suggestively.

"To *hint* pure thought, and warn the favour'd soul."—*Thomson.*

To hint at, to allude to indirectly; to make a cursory suggestion.

—*n.* An indistinct allusion; a slight mention, intimation, insinuation, or suggestion.

"Upon this *hint* I spake." —*Shaks.*

Hint'ingly, *adv.* In a hinting manner; allusively; suggestively.

Hin'ton, in *Michigan*, a township of Mecosta co., abt. 24 m. N. of Greenville.

Hip, *n.* [A. S. *hype*, *hypp*; Goth. *hups*; Ger. *hüfte*.] The protuberant or projecting part of an animal, formed by the haunch-bone and the flesh upon it; the haunch; the joint of the thigh. See HIP-JOINT.

(*Arch.*) The external angle formed by the meeting of the sloping sides of roofs, which have their wall-plates running in different directions.

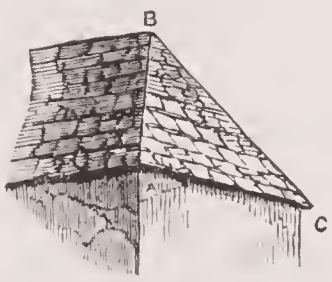


Fig. 1293.
THE ANGLES A B; B C ARE THE HIPS.

To have on the hip, to have the advantage. (A vulgar colloquialism, supposed to take its derivation from the haunch or *hip* of a deer, being the part commonly seized by the dogs when overtaken in hunting.)

—*v. a.* To sprain or dislocate the hip.

Hip, *interj.* (Allied to *hoop.*) An exclamation used in calling; a signal for cheering; as, *Hip, hip*, hurrah!

Hip, *n.* [A. S. *hiop*, *heop*; O. Ger. *huifo*, a kind of thorn.] (*Bot.*) The fruit of the dog-rose, or wild brier.

"The oak bears masts, the briars scarlet *hips*." —*Shaks.*

Hip, Hipped, Hip'pish. See HYP, HYPPED, HYPPISH.

Hip'-hap, *n.* A cant term formed by the reduplication of HAP, *q. v.*

Hip'-joint, *n.* (*Anat.*) One of the most important articulations in the body, and the most complete example of the ball and socket-joint. The hip-joint is made up of two bones, — the *acetabulum*, or cup-like cavity in the os innominatum, or three bones forming one-half of the *pelvis*; and the head of the *femur*, or thigh-bone, the same provision being made here, by capsular, conical, transverse, and lateral ligaments, to secure the bone in its socket, and yet afford unlimited play to the limb; while, to guard it from blows and the force of accidents, the part is padded with a number of short, fleshy muscles, in addition to which a quantity of adipose tissue beneath the cuticle still further protects the part.

Hip'-knob, (*-nob,*) *n.* (*Arch.*) A pinnacle, finial, or other similar ornament, placed on the apex of the hips of a roof or the point of a gable.

Hip'-moulding, *n.* (*Arch.*) A moulding placed on the beam which forms the hip of a roof.

Hip'pace, *n.* [Lat.] Cheese made of mare's milk. — The rennet of a colt.

Hippar'chia, *n.* (*Zoöl.*) See SATYRIDÆ

Hippar'chus, the most eminent among the ancient astronomers, was a native of Nicæ, in Bithynia, and flourished about a century and a half before the Christian æra. He resided some time in the island of Rhodes, whence he has derived the appellation of *Rhodius*; but he afterwards went to Alexandria, at that time the great school of science. He has been styled the patriarch of astronomy, and was certainly the first who treated the sublime science in a philosophic manner. He discovered the precession of the equinoxes, calculated the eclipses, determined the revolutions and mean motions of the planets, invented the stereographic method of projection, numbered and catalogued the fixed stars, and, in short, by his labors were laid the solid foundations of geographical and trigonometrical science.

Hipped-roof, (*hipt'-rōōf.*) *n.* (*Arch.*) See HIP-ROOF.

Hip'perholme, a town of England, in the West Riding of Yorkshire, 2½ m. from Halifax.

Hip'pias, prince of Athens, was the son of Pisistratus, at whose death he assumed the government, in conjunction with his brother Hipparchus; but the latter being assassinated by a band of conspirators, while conducting a solemn procession to the temple of Minerva, *H.* immediately seized the reins of government, and revenged the death of his brother by putting to death all of whom he entertained the least suspicion. His tyranny at last became so obnoxious to the citizens, that he was expelled from the city B. C. 510. He afterwards found means to induce Darius to apply to the Athenians in his favor; and their decisive refusal kindled the first war of the Persians against the European Greeks. According to some authorities the fate of Hippias was decided on the field of Marathon, where he fell on that memorable day, fighting against his countrymen, B. C. 490.

Hip'pocampi, (MAJOR and MINOR.) [Lat. *pl.* of *hippocampus.*] (*Anat.*) The large and small sea-horse, — the name of two processes in the ventricles of the brain, so called from their fanciful resemblance to the hippocampus.

Hip'pocampus, *n.* [Lat., from Gr. *hippokampos* — *hippos*, a horse, and *kamptein*, to bend.] (*Zoöl.*) The Sea-horse, a genus of Lophobranchiate fish of a highly singular appearance. The species *H. Hudsonius* (Decay) of the Atlantic coast of the U. States (fig. 1292), is 6 inches long; body much compressed, short, and deep; the whole length of the body and tail divided by longitudinal and transverse ridges; snout-headed; neck contracting suddenly beyond the head; and the tail long, quadrangular, and terminating in a naked or finless tip. When swimming about, the *H.* maintains a vertical position; but the tail is ready to grasp whatever it meets in the water, and when fixed, the animal darts at its prey with great dexterity. In its dry or contracted state the fancied resemblance from which this fish takes its name is far more apparent than when alive.


Fig. 1294. — THE SEA-HORSE, (*H. Hudsonius.*)

Hippocasta'neæ, *n.* (*Bot.*) A sub-order of plants, order *Sapindaceæ*. They are characterized by having leaves opposite; ovules, 2 in each cell, one ascending and the other suspended; embryo curved with great fleshy consolidated cotyledons.

Hippoceu'taur, *n.* [Gr. *hippokentauros.*] (*Myth.*) Same as CENTAUR, *q. v.*

Hip'pocras, *n.* [N. Lat. *vinum Hippocraticum*, wine of Hippocrates.] A spiced beverage, held in great esteem by the monks in the Middle Ages as a warm and grateful cordial and stimulant in cases of cold, and also as a beverage in winter nights, and for the aged and relaxed. The spiced hippocras, as it was called, was made differently by different nations and persons; in general, however, it consisted of cinnamon, cloves, nutmegs, mace, ginger, grains of paradise, and canella bark, bruised and macerated for seven days in Canary wine (Madeira), and then sweetened either with honey or sugar strained and taken warm. The "*ypocras*," for lords and abbots were somewhat more potent, and was prepared with aqua vitæ, or brandy, pepper, ginger, cloves, grains of paradise, ambergris, and musk.

Hippocratea'ceæ, (*Bot.*) A small order of plants, alliance *Rhamnales*, not represented in N. America. They are shrubs with opposite simple leaves and small deciduous stipules. Flowers small, regular, and unsymmetrical. Sepals and petals 5, hypogynous and imbricated, the former persistent. Stamens 3, hypogynous and monadelphous; the anthers with transverse dehiscence. Ovary 3-celled, with a single style. Fruit baccate, or consisting of 3 samaroid carpels. Seeds definite, exalbuminous; embryo straight; radicle inferior. The plants of this order abound principally in South America; some are found in Africa and the East Indies. Some have edible fruits, as the species of *Tontalea*, found in Brazil and Sierra Leone. *Hippocratea comosa* yields oily and sweet nuts.

Hippocrates, (*hip-pŏk'ra-tēs.*) the greatest physician of ancient times, usually designated the "Father of Medicine," was a native of Cos, an island of the Ægean. He was one of the family or caste of the Asclepiadæ, the reputed descendants of the mythical Æsculapius, and was born about B. C. 460. He was thus the contemporary of Socrates and Plato, and began to be illustrious during the Peloponnesian war. He was educated by his father Heraclides and by Herodicus, and it is

said that he also became a pupil of the sophist Georgias and the philosopher Democritus. He travelled extensively, and at length settled in Thessaly, and died at Larissa at an advanced age. Many fables were circulated respecting him in later times, and many works were attributed to him which he did not write. Among his genuine writings are the *Prognostikon*, *Aphorisms*; the *Books on Epidemics*, *On Diet in Acute Diseases*; *On Air, Water, and Place*, and *On Wounds of the Head*. *H.* is distinguished for his remarkable skill in diagnosis, and his accurate and vivid description of morbid symptoms. He was one of the first to insist on the importance of diet in cases of disease; appears to have practised auscultation and taught the doctrine of "critical days." His works were held in extraordinary honor, and were the subject of commentaries by Celsus, Galen, and other eminent writers. He wrote, like Herodotus, in the Ionic dialect, though Cos was a Dorian colony; and his style is remarkable for condensation. Many striking sayings are scattered through his works which have passed into familiar use.

Hippoc'rates'-sleeve, *n.* [Lat. *manica Hippocratis.*] An old pharmaceutical term signifying a conical bag or strainer made of flannel or linen, in the shape of a jelly-bag; used for straining syrups, decoctions, &c.

Hippocrat'ic, *a.* Relating or pertaining to Hippocrates, (*q. v.*)

Hippocratic face. (*Med.*) The change produced in the countenance by the approach of death; the eyes are sunk; the temples hollow; the nose sharpened; the forehead dry, tense, and harsh; the complexion sallow, livid, or black; the lips cold, placid, and pale, or of a leaden hue; — so called from having been first described by Hippocrates.

Hippocrat'ism, *n.* The medical system propounded by Hippocrates.

Hip'pocrene, *n.* [Gr. *hippokrēnē*, a horse-fountain.] (*Myth.*) A fountain at the foot of Mount Helicon, in Greece, supposed to have been produced when the horse Pegasus struck his foot against the mountain. It was regarded with peculiar veneration, as it was believed to be a favorite haunt of the Muses, and was looked upon as one of the chief sources whence the poets drew their inspiration.

Hippocrep'iform, *a.* [Gr. *hippos*, a horse, *krēpis*, boot, and *forma*, shape.] (*Bot.*) Having the form or shape of a horse-shoe.

Hippoda'mia, a daughter of Œnomaus, king of Pisa, in Elis, married Pelops, son of Tantalus. Her father, according to an oracle, refused to marry her except to one who could overcome him in a chariot-race. As the beauty of *H.* was celebrated, many accepted her father's conditions. Thirteen had already been conquered, and laid down their lives, when Pelops came from Lydia. He previously bribed Myrtilus, the charioteer of Œnomaus, and insured himself the victory. Œnomaus, mounted on a broken chariot, was killed in the course, and Pelops married *H.*, who became mother of Atreus and Thyestes.

Hip'podrome, *n.* [Gr. *hippus*, a horse, and *dromos*, a race-course.] (*Arch.*) A place appropriated by the Greeks to the equestrian exercises, and in which prizes were contended for during the celebration of some of the Olympic games. (See GAMES.) The most remarkable of all the Grecian *H.* was certainly that built at Olympia, which is stated by Pausanias to have been four leagues long and one in breadth. The one at Constantinople still remains, and may well create a feeling of astonishment in the minds of travellers, as it usually does. This latter was built in imitation of the grand circus at Rome, and was adorned with statues, both of marble and bronze; among the most important of which, it may be stated, were the fine bronze horses of Lysippus, possessed by Venice, which formerly ornamented the *H.* of Constantinople. The word itself is still in use, and is, even now, applied to circuses and other buildings set apart for equestrian purposes.

Hippoglos'sus, *n.* (*Zoöl.*) See HALIBUT.

Hip'pogriff, Hip'pogryph, *n.* [It. *ippogrife*, from Gr. *hippos*, horse, and *gryps*, griffin.] (*Myth.*) A fabulous animal, represented as a winged horse, with the head of dragon or griffin.

Hippol'yte, (*Myth.*) a queen of the Amazons, given in marriage to Theseus by Hercules, who had conquered her, and taken away her girdle by order of Eurysthens. She had a son by Theseus, called Hippolytus.

Hippol'ytus, (*Myth.*) a son of Theseus and Hippolyte, famous for his continence. His step-mother, Phædra, fell in love with him, and when he refused to pollute his father's bed, she accused him of offering violence to her person before Theseus, who, believing the accusation, entreated Neptune to punish his son. *H.* fled from the resentment of his father, and, as he pursued his way along the seashore, his horses were so frightened at the noise of sea-calves, which Neptune had purposely sent there, that they ran about the rocks till his chariot was broken, and his body torn to pieces. Upon this myth, Euripides founded his play entitled *Hippolytus.*

Hippol'ytus, (St.,) bishop of Portus, (*Romæ,*) near Ostea, and a father of the Church, flourished in the 3d century; was chiefly remarkable as the presumed author of a work on *Heresies*, hitherto attributed to Origen. The Chevalier Bunsen, a few years since, wrote a work called "Hippolytus," in which, while giving the arguments on both sides, he pronounced himself an advocate for the claims of Hippolytus to the authorship of the work in question. Lived during the 3d century.

Hip'pomane, *n.* (*Bot.*) A gen. of plants, ord. *Euphorbiaceæ.* The species *H. mancinella* is the famous Manchineel-tree, which is asserted to be so poisonous that persons have died from merely sleeping in its shade. It flourishes in the Antilles and on the American continent, near the sea, and forms a very handsome tree, with foliage not unlike that of the pear-tree. The juice which fills the tree is of a pure white color, and when dropped on the hand it burns like fire, forming an ulcer very difficult to heal. Seamen state, that if sea-water be applied to the eyes when affected by the poison, it allays the inflammation in an effectual manner. The fruit, which resembles a very beautiful apple in appearance, contains a similar juice, but of a milder character. The burning of the lips immediately warn those who bite it of the danger of eating it. The timber is beautifully variegated, and susceptible of a high polish. It takes its name from the Gr. *hippos*, a horse, *manomai*, I rage.

Hippo'na, (*Myth.*) a goddess who presided over horses. Her statues were placed in horses' stables.

Hip'pouyx, *n.* [Gr. *hippos*, a horse, and *onyx*, a claw.] (*Zoöl.*) A genus of Molluscous animals, of which there are numerous species, though until lately only known in a fossil state. The shell is obliquely cap-shaped; inequivalve, and destitute of ligament and hinge teeth; lower valve attached with a muscular impression composed of two lunulate portions meeting at one extremity, and presenting the form of a horse-shoe; upper valve conical, with the apex inclined backwards, and the muscular impression marginal. These animals are generally, but not always, supported on a solid shelly plate.

Hippopathol'ogy, *n.* [Gr. *hippos*, and Eng. *pathology.*] The veterinary science; the pathology of horse-medicine.

Hippoph'agi, *n.* [Gr. *hippos*, and *phagein*, to eat.] (*Anc. Geog.*) A people of Scythia that fed on horse-flesh. The descendants of these — the Kalmuck Tartars of the present day — still retain the peculiarities of the Scythians, and esteem horse-flesh as a dainty.

Hippophagous, (*hip-pof'a-gus,*) *a.* [Gr. *hippos*, and *phagein*, to eat.] Feeding on horse-flesh, as certain Tartar tribes, &c.

Hippophagy, (*hip-pōf'a-je,*) *n.* Art or practice of eating horse-flesh. Many attempts have been made in Europe to introduce the flesh of the horse as an article of food, hippophagic societies being formed in Paris and Berlin about 1845; horse butcheries established in Germany in 1855, and in Paris in 1865. But these efforts were largely failures, and the people of Paris first became accustomed to *H.* during the privations of the siege of 1870–71. The meat, though dark in color, is found to be pleasant in taste and nutritious, and its use is rapidly increasing. *H.* has not extended to the U. S.

Hippopot'amus, *n.* [From Gr. *hippos*, the horse, *potamios*, of the river.] (*Zoöl.*) The River-horse, a pachydermatous animal, which inhabits most of the rivers of Africa. Its generic characters are: four toes on all the

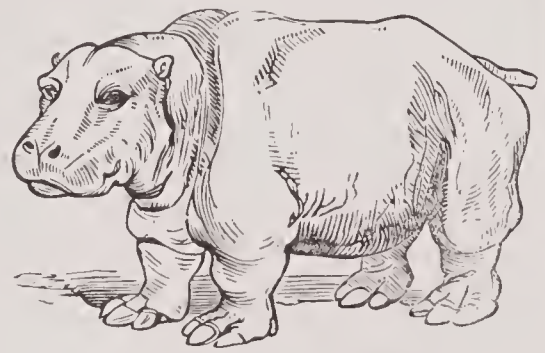


Fig. 1295. — HIPPOPOTAMUS.

feet, inclosed in small hoofs; six molar teeth on each side of both jaws; large and strong canines, of which the upper ones are nearly straight, the lower ones curved, and working upon each other so as to produce a chisel edge; four incisors in each jaw, the upper ones short and conical and bent inwards towards the mouth, the under ones long and cylindrical, and pointing outwards. The skeleton of the hippopotamus approaches that of the ox and the hog, but it presents, also, wide differences, which separate it from classification with any other animal. From the structure of the teeth, it is evident that the quantity of vegetable matter supplied to the digestive organs must be very great in proportion to the nourishment derived from the same, as the principle on which its jaws are formed seems more for the purpose of tearing and rudely dividing than thoroughly masticating the tough grasses and vegetables which form the staple food of the animal. The hippopotami live during the day-time immersed in the water of their native rivers, and at night come to land for the purpose of feeding, when they do an immense amount of damage to the neighboring fields, not only from the large amount of produce they consume, but also the still greater quantity which they tread under foot and lay waste with their ponderous, bulky proportions. From their being able to breathe under water, they appear to be possessed of some muscular arrangements for closing the nostrils, as is seen in seals and other marine animals. Remains of different species of hippopotami are often found in the tertiary geological formations of Europe, and in the tertiary stratas at the foot of the Himalaya Mountains in Hindostan an extinct species of *H.* has been discovered, which had six incisor teeth in each jaw. Bochart identifies the *H.* with the *Behemoth* mentioned in Scripture; but Cuvier, while agreeing with him that the identity is possible, still asserts that the description given in the book of Job is not sufficient to place the matter beyond doubt. That it was known to the ancients is conclusive from the fact that Herodotus, Aristotle, Pliny, and Diodorus, each and all give descriptions of the animal.

Hippu'ric Acid, *n.* [Gr. *hippos*, horse, and *ouron*, urine.] (*Chem.*) This acid exists in the urine of herbivorous animals, and in small quantity in that of human beings. It is increased by a vegetable diet, by the disease called diabetes, and may be caused to appear in the urine in considerable quantity by using benzoic acid with the food. *H. A.* is obtained by evaporating fresh horse urine to one-eighth its volume, and adding hydrochloric acid, when the impure *H. A.* crystallizes out. By redissolving in boiling water, and bleaching with animal charcoal, the acid is obtained in white prismatic crystals. It is soluble in 500 parts of cold water, but dissolves readily in boiling water and alcohol. With bases, *H. A.* forms salts remarkable for their beautiful crystalline forms. When heated, it yields benzoic and cyanohydric acids; when boiled with powerful acids, it yields benzoic acid and glycocoll; and it yields benzoic acid when treated with oxidizing agents, as when its solution is boiled with brown oxide of lead, or with sulphuric acid and peroxide of manganese, and also when it is heated with sulphuric acid at a temperature of 248°.

Hippu'ris, *n.* (*Bot.*) The Mare's-tail, a genus of the nat. ord. *Halaragaceæ.* *H. vulgaris* is an insignificant plant common in stagnant water and slow streams. The stem is simple, or sometimes branched at the base, and erect. The leaves are linear, pointed at the end, and growing in whorls of from six to twelve. The flowers are minute, and often without stamens. They are produced in the axil of each of the upper leaves.

Hip'purite, *n.* [Gr. *hippos*, a horse.] (*Geol.*) A massive horseshoot-like bivalve or the chalk formation, having a deep conical or sub-cylindrical under-valve, with a flattish lid, or upper valve.

Hip'purites, *n.* (*Geol.*) A gen. of fossil plants of the coal-measures, so called from their close resemblance to the *Hippuris vulgaris*, or Mare's-tail. If they grew in the same relative proportions as the existing plant, many of the fragments found would indicate a height of 18 or 20 feet.

Hip'pus, *n.* [Lat., from Gr. *hippos.*] (*Med.*) A spasmodic affection of the iris, occasioning repeated dilatations and contractions of the pupil of the eye.

Hip'-rafter, *n.* (*Arch.*) The rafter or beam in the angle of a roof formed by a hip.

Hip'-roof, Hipped'-roof, *n.* (*Arch.*) A roof having sloping ends or sides, which intersect each other.

Hip'shot, *a.* Having the hip dislocated.

Hip'-tile, *n.* A tile shaped to cover the hip of a roof.

Hip'-tree, *n.* (*Bot.*) The Dog-rose, *Rosa canina.*

Hip'-wort, *n.* A plant.

Hi'ram, (*Script.*) 1., a king of Tyre, who sent to congratulate David on his accession to the throne, and aided him in building his palace. (2 *Sam.* v. 11; 1 *Chr.* xiv. 1.) He was the father of Abibaal of secular history. — 11., a king of Tyre, was a grandson of the former (2 *Chr.* ii. 14), and like him a friend of David. He congratulated Solomon at the commencement of his reign, and furnished essential aid in building the Temple.

Hi'ram, in *Maine*, a post-township of Oxford co., abt. 60 m. S.W. of Augusta.

Hiram, in *Ohio*, a post-township of Portage co. It is the seat of Hiram College.

Hi'ramsburg, in *Ohio*, a post-village of Noble co.

Hircic, (*hēr'sik,*) *a.* [Fr. *hircique*, from Lat. *hircus*, a he-goat.] (*Chem.*) Obtained by saponification of hircine; as, *hircic* acid.

Hir'cine, *n.* (*Min.*) Same as HIRCITE, *q. v.*

—*a.* Goat-like; having a rank, goatish smell.

Hir'cite, *n.* [Lat. *hircus*, a goat.] (*Min.*) A fossil resin of a yellowish-brown color. It fuses and burns in a candle-flame, and leaves a coal that has a strong animal odor, whence its name; *sp. gr.* 1·10.

Hire, *v. a.* [A.S. *hyrian, ahyrian*, from *hyre.*] To procure from another person for temporary use at a certain rate of compensation, or for a fair equivalent; as, to *hire* a house for twelve months, to *hire* a horse for a day, to *hire* an opera-glass for one evening. — To engage in one's employ for a stipulated amount of wages, or other money consideration; to contract with for a pecuniary recompense; as, to hire a *cook* for the season, to *hire* a laborer by the day. — To bribe; to engage for immoral or nefarious purposes; to suborn; as, to *hire* a person to declare an alibi. — To engage the services of, for a specified compensation; to permit the temporary employment of for remuneration; to lease; to let; generally preceding *out*; as, he has *hired out* his brood-mares: — and sometimes reflexively; as, she *hires* herself *out* as a laundress.

—*n.* [A.S. *hyre*; Du. *huur*; Ger. (dial.) *heuer*; Ar. *kira, ajar, ajr.*] Compensation paid or contracted to be given for the temporary use of anything.

—Remuneration given for personal services; wages; salary; pay; reward; allowance. — Reward, or recompense for base or nefarious services rendered; a bribe.

Hire'less, *a.* Without hire.

Hire'ling, *n.* A hired person, or one who serves for a pecuniary recompense: — hence, by implication, a mercenary; a tool; also, a prostitute.

—*a.* Serving for wages or hire; employed for money or other compensation; corrupt; mercenary; venal.

Hir'er, *n.* One who hires or obtains the use of anything for a pecuniary or other recompense; one who contracts with or engages servants.

Hirondelle, *n.* [Fr.] The Swallow.

Hirschberg, (*heersh'bairg,*) a town of Prussia, in Silesia, on the Lauer, at the junction of the Bober and

Zacke, 28 m. N.W. of Liegnitz. *Manuf.* Cloth, linen, stockings, paper; printing, and sugar-refining is also carried on.

Hirsowa, (*heer'sō-va.*) a fortified town of Turkey-in-Europe, on the Danube, 64 m. S.W. of Ismail; *pop.* 4,800.

Hirsute, (*hĕr'sūt,*) *a.* [Lat. *hirsutus*, rough, shaggy, from *hirtus.*] Hairy; rough with hair; shaggy; set with bristles; as, a *hirsute* skin.

(*Bot.*) Hispid; having roughish hairs; as, a *hirsute* root.

Hir'suteness, *n.* Hairiness; shagginess.

Hirun'do, Hirundinidæ, *n. pl.* [Lat., swallow.] (*Zoöl.*) The Swallows, a genus and fam. of birds, order INSESSORES, *q. v.* See SWALLOW.

His, (*hiz,*) *pron., possessive sing.* of *he*, and possessive adjective pron. [A.S. nomin. *he*, he; Gr. *hys*, of him.] Belonging or pertaining to him.

"*His* time is for ever, everywhere *his* place." — *Cowley.*

—Of him; as, the responsibility is *his.*

NOTE. — *His* was formerly connected with a noun as a purely possessive sign.

"Fit to be made Methusalem *his* page." — *Donne.*

Of his, considered as an equivalent for *of him.*

Hisin'gerite, *n.* (*Min.*) A black mineral of greasy lustre; composed of silica 35·9, sesquioxide of iron 42·6, water 21·5. *Sp. gr.* 3·045. Found at various places in Norway and Finland.

Hisk, *v. n.* [From Lat. *hiscere*, to gape.] To gasp, or breathe laboriously. (Used as an English provincialism.)

His'lopite, *n.* (*Min.*) A green mineral from central India, consisting of calcite colored with glauconite, *q. v.*

Hispa'nia, the Latin word for SPAIN, *q. v.*

Hispanio'la, or SAN DOMINGO. See HAYTI.

Hispanicism, (*his-păn'i-sizm,*) *n.* An idiom or peculiarity of speech belonging to the Spanish language.

His'pid, *a.* [Lat. *hispidus*, rough, shaggy, bristly; perhaps from Gr. *aspis*, a shield, originally of bull's hide, rough and hairy.] (*Bot.*) A term used in describing the superficial appendages of bodies to denote their being covered with long rigid hairs, as the stem of *Echium vulgare.*

(*Zoöl.*) Denoting a surface rough with minute spines, or very rigid bristles; bristly.

His'pidous, *a.* [Dim. of *hispid.*] (*Bot.*) Possessing stiff, stunted hairs.

Hiss, *v. n.*, (*imp.* and *pp.* HISSED, (*hist.*) [A.S. *hysian*; Dan. *hvæse;* formed from the sound.] To make a sibilant sound by impelling the breath between the tongue and the upper teeth, particularly expressing disapprobation or dislike.

—To give a strong aspiration, resembling the noise made by a serpent, or as water in which hot metal is plunged, &c.

"Thrown into the Thames . . . like a horse-shoe . . . *hissing* hot." *Shaks.*

—To glance or glide with a whizzing, whirling noise, as an arrow.

"His forceful spear . . . *hissing* as it flew." — *Dryden.*

—*v. n.* To condemn by hissing; to follow or pursue with hisses or sounds of disapprobation; to silence or put down with hisses; to explode; — sometimes before *off* or *out;* as, to be *hissed off* the stage. — To procure hisses; to contrive disgrace for.

"I play a part, whose issue will *hiss* me to my grave." — *Shaks.*

—*n.* The sound made by ejecting the breath between the tongue and upper teeth, as in pronouncing the letter *s*, or any sibilant sound; — used, especially, as an indication of contempt or disapprobation; object of dislike or derision.

"I will make this city desolate, and a *hissing.*" — *Jer.* xix. 8.

Hiss'ingly, *adv.* With a hissing sound; in a sibilant manner.

Hist, *interj.* Silence! hush! be still! — an exclamation commanding silence.

Histogenet'ic, *a.* Pronucing or forming animal tissues.

Histog'eny, *n.* [Gr. *histos*, tissue, and *genein*, to bring forth.] The generation and development of organic tissues.

Histog'raphy, *n.* [Gr. *histos*, and *graphein*, to describe.] A description of organic tissues.

Histolog'ical, *a.* Relating or pertaining to histology, or histological facts or principles.

Histol'ogist, *n.* One learned in histology.

Histol'ogy, *n.* [Gr. *histos*, a web, *logos*, a discourse.] A term identical, or almost so, with general minute anatomy, or microscopic anatomy. *H.* classifies and describes the structural or morphological elements which exist in the solid and fluid parts of organic bodies. This science did not make any great progress until the commencement of the nineteenth century, when the invention of the compound microscope caused its advancement. Its origin, however, may be traced back to Malpighi, who lived in the seventeenth century, and discovered the blood-corpuscles. In more recent times, very valuable discoveries have been made by uniting the use of the microscope to experimental chemistry. The structure of different horny tissues was thus first shown; and it was proved that whalebone, nails, and cow-horn are similarly composed of aggregations of diminutive cells. *H.* has also been useful in the investigation of the nervous tissues, and of many other structures, and has been a very important element in the recent development of medical science. Much useful information has also been obtained through the study of vegetable *H.* Kölliker, Leydig, Frey, and Schwann, may be mentioned among those who have practiced it successfully in Germany: Robin and Lebert in France; and in England, Todd, Bowman, Clarke, Beale, Queckett, Bennett, and Lockhart, while the histologists of the U. S. are now among the foremost in the world.

Histo'rian, *n.* [Fr. *historien*, from *histoire*, history, *q. v.*] A writer, or compiler of history: a chronicler; an annalist.

Histor'ic, Histor'ical, *a.* [Fr. *historique*, from Lat. *historicus.*] Containing history, or the relation of facts and events; as, an *historical* romance. — Relating or pertaining to history; as, "*historic* care." (*Prior.*) — Illustrated by or contained in history; as, *historical* evidence. — Representing or illustrative of history; as, an *historical* chart.

Histor'ically, *adv.* In an historical manner; in a form indicative or illustrative of history; by way of narrative.

"I shall consider him *historically* as an author." — *Pope.*

Historicize, (*his-tŏr'i-sīz,*) *v. a.* To make historical; to record as matter of history. (R.)

Historied, (*his'to-rid,*) *a.* Storied; narrated; recorded in history.

Historiog'rapher, *n.* [Gr. *historiographos.*] A professed historian, or writer of histories. It has been a common, although not uniform, practice in European courts to confer the place of state historiographer on some learned man as a mark of royal favor. Voltaire had at one period the title of *Historiographer-Royal of France.*

Historiograph'ic, *a.* Relating to historiography.

Historiog'raphy, *n.* The art or employment of an historiographer or historian.

His'tory, *n.* [Fr. *histoire;* Gr. *historia*, from *historeo*, I inquire.] Literally, an account of facts. The word was first used by Herodotus, who calls his work by the title *Historia*; and there can be but little doubt that this ancient writer fixed the sense in which the word has since been applied: that is, as meaning the science which treats of man, in all his social relations, religions, moral, commercial, political, or literary, as far as these are the result of general influences extending to large masses of men. Embracing both the past and the present, *history* consequently considers everything which acts upon men, — regarding them in the light of members of society. It should clearly represent the relations in which man exists towards his brother men, and should detail the influences to which he is subjected, the motives by which he is actuated, and the inferences drawn from the same, with clearness and truth. According to some commentaries, *H.* may be either considered in the light of an intellectual exercise in the department of human knowledge or science, or as a form of literary composition. Bacon reckoned it as the chief component part of learning, and studied it in its relations to memory, while he placed philosophy and poetry below it, as appealing only to the understanding and imagination. It is therefore the business of *H.* to record or remember the events, past and present, of the world, and to place them down in such a way that they can have the best hold on the memory, by appealing to other facts for their support and corroboration. This is the true definition of the word used by Herodotus, although it has been analogically used to express other branches of investigation, as in the term *natural H.*, still in use; and some of the ancient writers defined the general use of the word by their adaptation of it; as, Aristotle's *H. of Animals*, and Theophrastus' *H. of Plants.* The civil *H.* of man has been somewhat arbitrarily subdivided into several branches; as, *civil* or *biblical H.* (the *H.* of states and empires), *ecclesiastical H.* (the *H.* of the Christian Church), *sacred H.* (the historical part of the Scriptures), *profane H.* (or *H.* written by uninspired authors). Our most ancient civil *H.* is found in the Old Testament; but its objects are confined, as it is written more as a chronicle of the acts of the Jewish race than a general description of other nations, who were also connected with them in relations of amity or war. Of *Assyria*, *Egypt*, *Phœnicia*, and ancient *Persia*, *Carthage*, &c., we possess no historical notice, except such as is derived: — 1. From Jewish or classical authors; 2 From monuments, especially in Egypt. With respect to Persia, much industry has been expended in endeavoring to extract from the histories of modern native writers coincidences with the narrations of Greek and Roman authors; and the recent discoveries of Layard, Rawlinson, and others are thought to have thrown much light on this branch of our subject, though their full value is not as yet determined. The poems of Homer are generally regarded as containing the oldest fragments of *Grecian H.;* but from these we can infer little more than the existence of certain towns, or the prevalence of certain customs, at the time in which the poems were composed. An examination of the Trojan legend with the mythology of other portions of the Aryan race, has shown that there is no real ground for theories which connect the war of Troy with the movements of Hellenic colonists in W. Asia, or with any other political causes. Herodotus is the oldest Greek prose writer. His invaluable *H.* comprises a description of several countries bordering on Greece and the Mediterranean, concise narratives of Egyptian, Persian, and Assyrian *H.*, and a connected account, more or less detailed according to circumstances, of the *H.* of Greece, both civil and domestic, for about 50 years previous to the invasion of Xerxes, with which his annals close (B. C. about 480). The *H.* of the Grecian commonwealth is pursued in detail by Thucydides and Xenophon for about a century afterwards. After that period, our knowledge of Greek domestic *H.* is confined to the incidental notices derived from contemporary writers and the general compilations of later historians, varying greatly in trustworthiness and authority. Among these may be mentioned, as authors from whom a large portion of our actual knowledge is derived, Diodorus Siculus, the author of a very miscellaneous general *H.*, of which great part is lost, who lived about the age of Augustus; Polybius, whose *H.* is more especially devoted to Roman affairs; Arrian and Quintius Curtius, the historians of the conquests of Alexander; Livy, as to the transactions between Greece and Rome; Justin, the compiler of a brief but useful abridgment of general *H.;* Plutarch, in his *Lives of Illustrious Men*, &c. These writers bring the student down to the period of the subjugation of Greece by Rome, after which all *H.* of Greek affairs, properly so called, terminates, until the establishment of what is known as the Eastern Empire; and we have little knowledge of the state of Greece and the Græco-Asiatic kingdoms in their provincial state. Ancient *Roman H.*, down to the first Punic war, is chiefly known from the compilations of Livy and Dionysius of Halicarnassus, writers whose credit is rendered extremely doubtful by modern investigation, and, where these fail, from incidental sources. In the *H.* of the Punic wars, the narrative of Livy is aided by the admirable work of Polybius. From the end of the second Punic war to the dictatorship of Sulla, nearly 150 years, our materials for Roman *H.* are very deficient, the want of contemporary writers being supplied only by later compilations, and by the incidental knowledge derived from writers on various subjects, the course of whose composition led them to touch on past events, of whom the most valuable is Cicero. From the period of Sulla's dictatorship to the accession of Vespasian, nearly 150 years, we have the advantage of a succession of contemporary writers, some of them actors in the events which they describe, and comprising some of the greatest names in literature — Sallust, Cicero, Cæsar, Velleius, Paterculus, Tacitus. Yet even here there is one considerable *lacuna*, comprising the last thirty years of the reign of Augustus, as to which our knowledge is scanty. From the accession of Vespasian to the reign of Constantine, a long period elapses, during which our historical acquaintance with the events of an empire then comprising the greater part of the civilized world is vague and defective. Dion Cassius and Herodian are the two best writers on *H.* who can be named in this long interval. The latter, during the short epoch which he illustrates as a contemporary, is full and valuable. After the accession of Constantine, we have abundant materials for *H.*, both ecclesiastical and civil, from the hand of contemporary authors, down to the reign of Justinian in the East and of Theodoric in the West, although the quality of the writers is sensibly degenerated. Perhaps the comparative obscurity and uncertainty into which *H.* is plunged after the last of these two epochs, and the absence of all standard writers after Procopius, render it the best period to fix upon for the arbitrary limit between ancient and modern *H.* It will be seen from this brief summary, that the only periods of any extent as to which we have the assistance of contemporary historians, or original authority properly so called, in the whole extent of classical *H.*, are: — 1. As to Greece, from B. C. 500 to B. C. 380; 2, as to Rome, from the dictatorship of Sulla to the accession of Vespasian, B. C. 76 to A. D. 70, and finally the reigns of Constantine and his successors. After the *downfall of the Roman Empire*, a long series of revolutions in dynasties and nations followed before W. Europe was parcelled out into the several great countries which, notwithstanding all subsequent changes in political limits, have since subsisted as geographical divisions — France, Spain, Britain, Italy, the Scandinavian regions. Another period elapsed before the three great countries of E. Europe (Russia, Poland, Hungary), were added as distinct members to the family of European states. From the abdication or deposition of Augustulus and the so-called fall of the Roman empire to the revival of literature, a period comprising in round numbers about 11 centuries, our knowledge of the affairs of W. Europe is derived from a series of writers, in each country, who are usually comprehended under the title of *chroniclers.* A chronicle, or book of annals, is properly a *H.*, of which the continuous narrative is so interrupted that each year forms a separate section, and events are thus related in nearly strict chronological order. This is a form very commonly adopted by the historians of the dark ages, of whom the greater proportion were monks. But a great many of the histories of the Middle Ages are not even in the forms of chronicles; they have all the requisites which the most fastidious criticism can require of a regular history. The venerable Bede, who wrote in the 9th century, presents us with the first name of true credit and authority among the annalists of England. Of the monkish Latin chroniclers in later times, Matthew Paris is perhaps best entitled to the character of an historian. After the period of the invaluable Saxon chronicle, we have no vernacular English histories worthy of note, with the exception of a few meagre rhyming chronicles, until the revival of letters and discovery of printing. In France, the long collection of native Latin chroniclers presents us with few names of interest after the time of the celebrated Gregory of Tours; but the Crusades called forth, for a short space, an unusual spirit of historical description. When we arrive, however, at the 14th and 15th centuries, we find among the native French historians two authors of great value as intimately acquainted with the events of their own times, Froissart and Philip de Comines. The annals of Italy are to be sought in the pages of a long series of chroniclers, from the 8th century downwards, of whom the

most valuable are published together in Muratori's great collection. Their works are uniformly in Latin until the 13th century. But towards the end of that age the Tuscan dialect was elevated, as it were at a single step, to the rank of a literary language; and the little Tuscan republics produced a succession of historians, many of them remarkable for the purity of their style, and some (as the three Villani of Florence) for their extensive information and historical talent. Germany and Spain, in the Middle Ages, produced few historical works above the rank of dry chronicles. But the annals of the Scandinavian nations form the most important part of their early and peculiar literature. The Greek empire produced, also, a series of chroniclers, whose works have been collected in the *Corpus Historiæ Byzantinæ*. The period known as that of the revival of letters, and the following century, were distinguished by the appearance of several writers of first-rate merit in the department of *H.* In Italy, Guicciardini; in France, De Thou; in Spain, Herrera; and in England, Camden. To follow the progress of *H.* in modern times would be an impossible task. Suffice it to say, that with the advance of literary knowledge and the increase of education, historical writers seem to become more strongly divided into two very different classes: those who furnish contributions towards the *H.* of their own times, especially the writers of memoirs — of which France gave tho first examples, and still produces the most numerous; and historians, more properly so called, who collect, discuss, and criticise, endeavoring to extricate the truth from the mass of former materials. The latter, in our times, has become more peculiarly the province of literary men. Philosophical *H.*, in which the mero narrative of facts is regarded as subordinate to the elucidation of general truths, and too frequently to the establishment of favorite theories, is a modern improvement in the art; and Voltaire is commonly regarded, not without some truth, as the founder of the school of philosophical historians, among whom the highest rank in popularity has been attained and deserved by Gibbon. But it may be said, with truth, that the present century has carried the science of philosophical and political *H.* very far beyond those which preceded it. The names of Sismondi, Mignet, Thiers, H. Martin Thierry, Michelet, Hallam, Macaulay, Niebuhr, Schlosser, Ranke, Finlay, Grote, Dean Milman, Sir G. Cornewall Lewis, Fronde, and our distinguished countrymen, Bancroft, Prescott, and Motley, might be cited in proof of this assertion.

His'tory-piece, *n.* (*Painting.*) A picture representing some memorable event in history.

His'trion, Histrion'ic, *n.* [Lat. *histro.*] A stage-player. (R.)

Histrion'ic, Histrion'ical, *a.* [Lat. *histrionicus*, from Etruscan *hister*, a player or dancer.] Relating or pertaining to stage-playing or players; having reference to theatrical representation; pantomimic; — employed, sometimes, in a bad sense; as, the *histrionic* profession.

"False and *histrionic* feelings." —*De Quincey.*

Histrionic Art. The art of acting in dramatic representations.

Histrion'ically, *adv.* In the manner of a stage-player; theatrically; resembling a pantomime.

His'trionism, *n.* Stage-playing; the acts or practices of buffoons or pantomimists.

Hit, *v. a.* [Swed. *hitta*, to strike, to touch; Dan. *hitte*, to find, to meet with.] To strike; to touch or reach with a blow, as the mark or object aimed at; to strike or touch, either with or without force.

"I think you have *hit* the mark." — *Shaks.*

—To strike, touch, or reach a mark with anything directed to that object; to attain exactly; to be conformable to; to suit; not to miss, or fail; — used tentatively.

"Some comment here . . . may *hit* the poet's mind."—*Roscommon.*

(*Games.*) In backgammon, to take up and replace by a man from the opposite side; — said of a single man standing by himself on one point.

To hit off, to describe, or strike off with characteristic fidelity; to fix or determine luckily; as, tho artist *hit off* the facial expression to tho life.

—*v. n.* To strike; to meet or come in contact; to clash; to collide:—preceding *on* or *against.* — To meet or fall on by good luck; to succeed by accident; to strike or reach the intended mark, point, or aim.

"All human race would fain be wits,
And millions miss for one that *hits.*"—*Swift.*

To hit on or *upon*, to light upon: to discover or attain by chance; to arrivo at fortuitously.

·*n.* A striking against; a stroke; a forcible touch; a blow; a collision of one body against another;—often implying with luck or chance. — A happy idea or conception; a lucky phrase, or apt expression of thought; a striking or peculiarly applicable impression, which seems competent to hit the mark.

(*Games.*) In backgammon, a partial victory;—three *hits* being equivalent to one gammon.

Hit, a town of Turkey in Asia, 140 miles N. of Hillah. This city, which became colebrated at a very early period for its abundant supplies of bitumen, carried into Egypt, B. C. 1400, is still an important mart for the same commodity. *Pop.* 1,500.

Hitch, *v. n.* [Sw *hækta*, to join with a buckle, frequent. from *haka*, to seize with a hook, from *hake*, a hook.] To be caught or hooked; to become entangled; as, a *hitched* cable. — To move by jerks, or with stops, as one whose legs are entangled; to move spasmodically; to jerk; to hop. — To fidget; to move restlessly; to change places; as, to *hitch* one's position when standing. — To hit the legs together in going, as horses. (Eng.)

—*v. a.* To hook; to catch or hold by a hook; as, to *hitch* a bridle. — To raise; to hoist; as, to *hitch* a bale.

(*Naut.*) To make fast; as, to *hitch* a rope.

—*n.* A catch; a hook, or anything that holds;—hence, an obstacle, hinderance, or impediment; as, there is a *hitch* in the affair. — Act of catching or holding, as on a hook. — A check, or sudden halt in locomotion.

(*Geol.*) A small dislocatiou of a vein or lode.

(*Naut.*) A knot or noose made iu a rope or hawser; as, a clove-*hitch*, a running-*hitch*.

Hitchcock, Charles Henry, geologist, son of Prof. Edward Hitchcock, born at Amherst, Mass., Aug. 23, 1836; graduated at Amherst College; Assistant Geologist of Vermont (1857–61); State Geologist of Maine (1861–62); and of New Hampshire (1868–72); professor of Geology at Dartmouth College since 1869; vice-president of the American Association (1883). Has written much on geology.

Hitch'cock, Edward, d.d., ll.d., an eminent American geologist, b. in Deerfield, Mass., 1793. He successively filled the offices of principal of Deerfield Academy, 1815–18; pastor of the Congregational Church at Conway, Mass., 1821–5; professor of chemistry and natural history in Amherst College, 1825–45, and president and professor of natural theology and geology in the same institution, from the latter year to 1854. He was, besides, appointed State geologist of Mass. in 1830, of New York 1st district in 1836, and of Vermont in 1857. D. 1864. Dr. *H.* was the author, among other works of high reputation, of *Illustrations of Surface Geology* (1857); of *Elementary Geology* (which has passed through 25 editions in the U. States, besides 8 in England), and *Religion of Geology and its Connected Sciences* (1851), which has had an extensive circulation on both sides of the Atlantic.

Hitch'in, a town of England, co. Hertford, 16 m. from Bedford; *pop.* 8,500.

Hitch'ing, *n.* A fastening for horses.

Hites'ville, in *Illinois*, a village and township of Coles co., about 100 miles E.S.E. of the city of Springfield.

Hithe, Hythe. [A.S. *hyde.*] A small haven; a port; a landing-place for vessels: used in composition; as, Rother*hithe*, Queen*hithe*, Lamb*hithe* (now *Lambeth*), (England.)

Hith'er, *adv.* [A. S. *hider* or *hither*; Goth. *hidre*; Icel. *hedhra*; Sansk. *hina*, this.] To this place; used with verbs signifying motion, and, by implication, toward the speaker.—To this end, aim, point, topic, result, design, or conclusion; — used argumentatively. (R.)

—*a.* Nearer; towards the side or direction of the person speaking — correlative of *farther*; as, the *hither* side of a house.

Hith'ermost, *a.* Nearest on this side.

Hith'erto, *adv.* To this time; yet; in any time, or every time; until now; in time preceding the present.

"*Hitherto* she kept her love concealed." —*Dryden.*

—To this place, or to any prescribed limit.

"*Hitherto* shalt thou come, but no further." — *Job* xxxviii. 11.

Hith'erward, *adv.* Hither; toward this place; this way; here.

Hit'ter, *n.* One who hits, or deals successive blows; as, a hard *hitter.*

Hitteroe, (*hit'te-ro,*) an island on the coast of Drontheim, in Norway; *area*, 250 m. *Pop.* abt. 6,000.

Hiv-o'a, the principal island of the Marquesas group in the South Pacific Ocean, is about 22 miles long by 10 miles broad. Its northern point is said to be in Lat. 9° 34′ S., and in Lon. 139° 4′ W. *Pop.* stated at 6,500.

Hive, *n.* [A. S. *hyfe*, from *hiwa*, a family; Goth. *heiva*; O. Ger. *hiwisea*; Sansk. *xi, xiv*, to dwell.] A swarm of bees; a family of bees belonging to a single hive.

—A receptacle for housing bees; a habitation for bees. — A company or society massed together, or closely united; a place or scene crowded with busy occupants.

—*v. a.* To collect into a hive; to cause to enter a hive, as bees. — To contain; to receive, as a habitation or place of deposit; to deposit or lay up for use and enjoyment.

"*Hiving* wisdom with each studious year."—*Byron.*

—*v. n.* To take shelter together; to reside in a collective body.

"Drones *hive* not with me."—*Shaks.*

Hive'-beetle, *n.* (*Zoöl.*) See Clerus.

Hive'less, *a.* Without a hive; deprived of a hive.

Hiv'er, *n.* One who collects bees together to hive.

Hives, *n.* [Scot. See Heaves.] (*Med.*) The Croup, *q. v.*

Hix'ton, in *Wisconsin*, a post-township of Jackson co., about 40 m. N. by E. of La Crosso: *pop.* about 600.

Hi'zerville, in *New York*, a post-village of Oneida co., 110 m. W.N.W. of Albany.

H. M., abbreviation of His or Her Majesty.

H. M. S., an abbreviation for His or Her Majesty's Ship or Service.

Ho, Ho'a, *interj.* [Lat. *ohe!* formed from the sound.] An exclamation, equivalent to Hola! Halloo! ahoy! oh! hey! — used to attract attention, or given as a signal of approach.

"What noise there, *ho?*"—*Shaks.*

—Stand! stop! hold! be still! cease! — used by wagoners in stopping their horses. (In England, *whoa!*)

"Stand *ho!* speak the word along."—*Shaks.*

Hoag'lin, in *Ohio*, a thriving post-township of Van Wert county.

Hoag's Corner, in *New York*, a post-village of Rensselaer co. *Pop.* (1897) about 350.

Ho'ang-ho. [Chin., the yellow river.] A great river of China, and one of the most prominent features in the geography of that vast empire. It rises near Lat. 34° N., Lon. 98° E. Though broad and rapid, it is in many places so shallow as to be unfavorable for navigation. It is also liable to overflow its banks, so that it has been necessary, in many places, to raise dykes for the defence of the surrounding country. Its length is estimated at abt. 2,000 miles.

Hoar, *a.* [A. S. *har.*] White, or whitish.

—Gray with time or age; hoary.

—*n.* Hoariness; venerableness.

"The awful *hoar* of innumerable ages." — *Burke.*

—Rime; fog or thick mist. (Used in England.)

Hoard, (*hōrd,*) *n.* [A. S. *hord*; Sax. *heord-ürn*, a repository.] A treasure; a store, stock, or quantity of anything amassed or laid up; a secret fund; a hidden deposit of anything valuable; as, a *hoard* of money, a *hoard* of maxims.

—[O. Fr. *hourde*, a palisade.] The name given in some parts of England to the fence or barrier inclosing the space of ground on which builders are at work.

—*v. a.* [A. S. *hordan*; O. Ger. *gihurten*; Goth. *huzdjan.*] To collect, amass, or lay up a large quantity of anything: to gather together; to accumulate; to store secretly; to deposit in a place of privacy and security.

"You *hoard* not wealth for your own private use." — *Dryden.*

—*v. n.* To lay up in store; to gather together and form a hoard.

Hoard'er, *n.* One who hoards, or secretly accumulates.

Hoar'-frost, *n.* See Freezing.

Hoar'-hound, *n.* (*Bot.*) See Ballota.

Hoar'iness, *n.* State of being hoary or whitish; grayishness; as, the *hoariness* of advanced age.

Hoarse, (*hōrs,*) *n.* [A. S. *has*; Dan. *hæs*; O. Flem. *heersch*; Ger. *heiser*; allied to Harsh, *q. v.*] Having a harsh, rough, rasping voice, as when suffering with a cold. — Rough; grating; croaking; discordant; — used in application to any sound.

"The *hoarse* rough voice should like the torrent roar." *Pope.*

Hoarse'ly, *adv.* With a rough, rasping, discordant voice or sound.

"The hounds at nearer distance *hoarsely* bay'd." — *Dryden.*

Hoarse'ness, *n.* Harshness or gruffness of voice; roughness or discordance of sound; preternatural asperity of voice.

Hoar'stone, *n.* A stone placed to mark the limits or boundary of an estate; a land-mark.

Hoar'y, *a.* [See Hoar.] White or gray with age.

"The *hoary* head is a crown of glory." — *Prov.* xvi. 31.

—White, or of a whitish color.

"The *hoary* willows waving with the wind." — *Dryden.*

(*Bot.*) A term used in describing the superficial appendages of bodies, denoting their being covered with very short dense hairs placed so closely as to give an appearance of whiteness to the surface from which they grow.

Hoax, (*hōks,*) *n.* [A. S. *hucse*, or *hucx*; Low Ger. *jux.*] Something done for deception, derision, or mockery; a practical joke; a trick played off in sport; a false report.

—*v. a.* To play a trick upon for sport, or without malicious intent; to deceive; to humbug; to mock by false representation or incitement.

Hoax'er, *n.* One who hoaxes; a trickster; one who dupes or plays practical jokes upon another.

Hob, *n.* [O. Ger. *hôba*, *huofa*, an abode; *lanthuoba*, a countryman. Perhaps allied to Hobble, *q. v.*] A hobbling, awkward, clumsy clown; an elf; — a contraction for *Robin*, a sprite, from Shakspeare's *Robin Goodfellow.* —A rustic; a bumpkin; a country lout. — The flat surface sides of a grate, intended to hold things to be kept warm; as, a kettle on the *hob.* — The nave of a wheel. See Hub.

Ho'bart, in *Indiana*, a post-town and township of Lake co., on 3 railroad lines, about 11 m. N.E. of Crown Point. *Pop.* (1890) 1,010.

Hobart, in *New York*, a post-village of Delaware co., about 65 miles W.S.W. of Albany.

Ho'bart Town, a seaport and cap. of Tasmania, on the Derwent; Lat. 42° 53′ S., Lon. 157° 26′ E. It is the seat of the colonial governor. *Pop.* (1897) about 32,000, a decrease since the last census.

Hobbes, (*hŏbs,*) Thomas, an English philosopher, b. at Malmesbury, 1588. He lived on intimate terms with Bacon, Ben Jonson, and all the distinguished men of his time; he became tutor to the Prince of Wales, afterwards Charles II., and though many of his philosophical and political opinions have been condemned, he must be considered the father of Psychology, and the first great English writer on the science of government. His principal works are, the treatises *De Cive* and *The Leviathan*, both of which were censured by parliament in 1666; *Human Nature; De Corpore Politico; De Libertate, Necessitate, et Casu;* and *Behemoth.* D. 1679.

Hobbe'ma, Meindert, a very distinguished Dutch landscape-painter, b. 1638; was a pupil of Ruysdael. D. about 1690.

Hob'bie, in *Pennsylvania*, a post-office of Luzerno co.

Hob'bism, *n.* The philosophical doctrines of *Thomas Hobbes*, (q. v.)

Hob'bist, *n.* A disciple of Hobbes; a professor of Hobbism.

Hobble, (*hŏb'l,*) *v. n.* [A. S. *hoppan*; W. *hobelw.*] To walk lamely, or with the weight of the body resting chiefly on one leg; to limp; to walk, with a hitch or hop, or with crutches.

"Was he ever able to walk, without being discovered by his *hobbling?*"—*Swift.*

—To move roughly, unevenly, or irregularly, as poetical feet.

"She *hobbles* in alternate verse."—*Prior.*

—*v. a.* To hobble; to clog; to fasten the legs loosely one to the other; as, to *hobble* a horse.

—*n.* An uneven, awkward, stumbling manner of walk.

"One of his heels is higher than the other, which gives him a *hobble* in his gait."—*Swift.*

—A position of difficulty, perplexity, or embarrassment; a quandary; a mess; a state of trouble or confusion.

"Thou hast got into a *hobble* to-day."—*Waterton.*

Hob'bledehoy, *n.* (Also *hobbletehoy* and *hobbetehoy.*) [Prov. Eng. See HOBBLE.] A growing youth; a stripling; one who has passed boyhood and not yet entered upon manhood;—generally used in a contemptuous sense.

Hob'bler, *n.* One who hobbles in his gait.

Hob'bler, *n.* [O. Fr. *hobiler.*] One who served on a hobby, as a light-armed soldier.

Hob'blingly, *adv.* With a limping or halting step.

Hob'by, *a.* Rough; nueven; full of ruts or holes;—applied to roads.

Hob'by, *n.* [W. *hob*, anything having an aptness to rise, swell, or throw out.] (*Zoöl.*) A species of European falcon (*Falco subbuteo*) formerly used in the humbler walks of hawking, chiefly for larks and other small birds. It is about 12 inches in length; has a prominent and crooked bill; the orbits of the eye are yellow, and over each eye is a light colored streak.

Hob'by, *n.* [Fr. *hobin*, perhaps from Dan. *hoppe*, a mare; probably akin to Icel. *hoppa*, to leap, and Lapp. *hapos;* Gr. *hippos*, a horse.] An active ambling pony or nag; a galloway; a garran.—A stick to represent a horse, on which children get astride and play at horsemanship. (Generally called *hobby-horse.*)—Any favorite pursuit or object of occupation in which a person principally indulges; an eccentricity; that which a person practises with zeal or delight; a pet, or ever-recurring theme of thought or conversation.

"In life, each man rides his own *hobby.*"—*Collins.*

Hob'goblin, *n.* [Probably from *hob*, for Robin, and *goblin*, *q. v.*] A frightful apparition; a spectre; an imp; a gnome.

Hob'nail, *n.* A nail with a thick, clnmp head, nsed in men's strong boots, and sometimes to fasten horses' shoes.—A rustic; a country lout; a bumpkin; a term of contempt or derision.

Hob'nailed, *a.* Set with hobnails; as, *hobnailed* shoes.

Hob'nob, Hob'-a-nob, Hob'-or-nob, [Probably from A. S. *habban*, have, and *habban, ne habban*, not have.] Take or not take; a familiar invitation or call to drink reciprocally.

Hob'nob, *v. n.* To drink reciprocally, familiarly, or together.—By extension, to associate familiarly.

Hobo (*hō'bō*), *n.* (*Western U.S.*) A homeless wanderer, perhaps one degree above the ordinary "tramp;" sometimes applied to a printer or other mechanic who wanders from place to place seeking temporary employment at his trade.

Ho'boken, in *New Jersey*, a city and port of entry of Hudson co., on the Hudson river, opposite New York city, and about 2 miles above Jersey City. It is chiefly noted as a place of resort for the citizens of New York, and of residence for persons doing business in that city. Here are extensive docks used for transatlantic steamships. *Pop.* (1895) 54,083.

Ho'boy, *n.* (*Mus.*) See OBOE.

Hob'son's Choice, *n.* A choice without an alternative; that which is tendered, or nothing; the one thing or none. This phrase is said to have originated from one Hobson, a livery-stablo keeper at Cambridge, England, who obliged each customer requiring the hire of a horse to take the next in turn, or that which stood nearest the stable-door.

Hoche, (*hōsh,*) LAZARE, one of the most celebrated generals of the French republic, B. near Versailles, 1768. Ho is chiefly known as the "Pacificator of La Vendée." D. suddenly, 18th Sept., 1797.

Hochheim, (*hōke'hīme,*) a city of Prnssia in Nassau, near the confluence of the Main and Rhine, 16 m. S.W. of Frankfort. It stands on a hill sloping to the Main, on which are the vineyards producing the true *hock*, a name often improperly given to Rhenish wines generally.

Hochstadt, (*hōke'stat,*) a town of Bavaria, on the Danube, 11 m. N.W. of Augsburg. The Emperor Henry IV. was defeated in the plains of *H.* in 1081.—The French and Bavarians defeated the Imperialists here, Sept. 18, 1703.—Here also, near the village of *Blenheim*, Aug. 13, 1704, tho French and Bavarians were defeated by the Prince Engene and the Duke of Marlborough.—At this place also, June 19, 1800, the French, nnder Moreau, defeated the Austrians, and effected the passage of the Danube. *Pop.* 2,750.

Hock, *n.* Same as HOUGH, *q. v.*

—*v. a.* To hamstring; to hough; to disable by cutting the tendons of the hough or ham.

Hock, *n.* [From *Hochheim*, q. v.] A description of light-yellow Rhenish wine, either sparkling or still. (Formerly written *hockamore.*)

Hockanum', in *Connecticut*, a post-village of Hartford co., abt. 3 m. S.E. of Hartford.

Hockanum' River, in *Connecticut*, enters the Connecticut River in Hartford co.

Hock'-day, Hoke'-day, *n.* [Ger. *hoch*, high, and Eng. *day.*] A festival formerly observed in England on the second Tuesday after Easter, in commemoration of the destruction of the Danes in the time of Ethelred.

Hockes'sin, in *Delaware*, a post-vill. of Newcastle co.

Hock'ey, Hook'ey, Hawk'ey, *n.* A game at ball, played with a hooked club, somewhat resembling *golf* (*q. v.*).

Hock'-herb, *n.* A plant otherwiso known as the mallows.

Hock'ing, or HOCKHOCK'ING, in *Ohio*, a river rising in Perry co., and after a general S. and S. E. course enters tho Ohio river, between Athens and Meigs cos..

—A S. E. central co.; *area*, about 408 sq. m. *Rivers.* Hocking and Scioto rivers, and Salt and Raccoon creeks. *Surface*, hilly; *soil*, fertile. *Min.* Iron. *County-town*, Logan.

—A township of Fairfield co.

Hock'ingport, or TROY, in *Ohio*, a post-village of Athens co., on the Ohio River, abt. 25 m. below Marietta.

Hockle, (*hok'l,*) *v. a.* [See HOCK.] To hamstring; to divide the tendons of tho hough.—To mow, as stubble.

Hock'ley, in *Texas*, a post-village of Harris co., abt. 40 m. W.N.W. of Houston.

Hock'ley, in *Wisconsin*, a post-office of Vernon co.

Ho'cus, *v. a.* To cheat; to swindle; to adulterate, as liquors; as, to *hocus* beer with laudanum.

—*n.* A deceiver; a swindler; a common cheat or trickster.

Ho'cus-po'cus, *n.* [D. *hokus-bokus;* also, said to be a corruption of the Latin words *hoc est corpus*, in the office of the mass.] A conjurer's trick; a piece of legerdemain; also, a juggler, or one who practices sleight-of-hand.

—*v. a.* To cheat; to jugglo.

Hod, *n.* [Fr. and Ger. *hotte*, from Allemannic *huter*, to cover.] A kind of wooden box-tray, used by bricklayers for carrying bricks, mortar, &c., and borne over the shoulder by a handle or shaft.—A coal-box; a coal-scuttle.

Hodchod'kee Creek, in *Georgia*, enters Patawha Creek in Randolph co.

Hod'den-gray, *n.* [See HODDEN.] Undyed woollen cloth;—a term peculiar to Scotland.

Hodgdon, (*hoj'don,*) in *Maine*, a post-township of Aroostook co., about 160 m. N.E. of Augusta; *pop.* abt. 1,200.

Hodg'don's Mills, in *Maine*, a post-office of Lincoln county.

Hod'genville, in *Kentucky*, a post-village, cap. of Larne co., about 75 m. S.W. of Frankfort.

Hodge-podge, (*hōj'pōj,*) *n.* [Fr. *hochepot.*] A hotch-potch; a hash; a mixed mess, or medley of ingredients.

"They have made our English tongue . . . a *hodge-podge* of all other speeches."—*Spenser.*

—A commixed quantity of land.

Hodge'-pudding, *n.* A pudding compounded of a medley of ingredients.

Hodgesville, (*hoj'es-vil,*) in *Mississippi*, a village of Itawamba co.

Hodier'nal, *a.* [Lat. *hodiernus.*] Of to-day; belonging to the present day. (R.)

Hod'man, *n.; pl.* HODMEN. A bricklayer's tender or assistant; one who carries a hod.

Hod'mandod, *n.* Same as DODMAN, *q. v.*

Hodograph, (*hōd'o-graf,*) *n.* [Gr. *hodos*, a path, and *graphō*, I trace.] (*Math.*) A curve imagined by Sir W. Hamilton to illustrate the theory of central forces.

Hoe, (*hō,*) *n.* [Ger. *haue*, from A.S. *heawan*, to hew. See HEW.] (*Agric.* and *Gardening.*) An instrument for stirring the surface of the soil, cutting up weeds by the roots, and earthing up plants. The hand-hoe is a thin plate of iron 6 to 8 inches broad, and sharpened on the edge, fixed at right angles on the extremity of a pole or rod, which serves as a handle. This is called a *draw-hoe*, because in the operation of hoeing the instrument is drawn or pulled toward the operator. Another kind of garden hoe has the blade or iron plate fixed on the extremity of the handle, and in continuation of it; and this is called a *thrust hoe*, because in hoeing the operator always pushes the hoe forward. This kind is also called the *Dutch hoe*, most probably from having been first introduced from Holland. In agriculture, hoes of the thrust kind are drawn by beasts of burden, and commonly called *horse hoes.* In general form they resemble a plough; but instead of the share they have one or more iron blades or plates with sharp edges, fixed to perpendicular iron rods at their lower extremities. These sharpened plates being drawn through the soil, cut through the roots of weeds an inch or two beneath the surface. Agricultural or field hoes are only nsed in the case of those field crops which are sown or planted in rows. There are a great many kinds of field or horse hoes, chiefly differing in the number of blades which are attached to the common frame for stirring and cleaning a greater or smaller number of spaces between the rows of drilled crops at once.

Hoe, *v. n.* To cut, dig, scrape, or clean with a hoe; to clean from weeds; as, to *hoe* the soil in a garden, to *hoe* corn, &c.

—*v. n.* To use a hoe; to operate with a hoe.

Hoe'-cake, *n.* A coarse cake of Indian meal, baked over a fire; a johnny-cake.

Hoe'ing, *n.* (*Agric.* and *Gardening.*) The operation of stirring the ground, cutting of weeds, or earthing up plants with a hoe. In the case of any of these operations dry weather must be chosen, otherwise the result will either be useless or injurious. Plants rooted up by the hoe in wet weather will produce fresh roots and grow again, while plants earthed up under similar circumstances will have the leaves which are covered by the soil decayed by it. In either case also the ground will be hardened by the treading of the feet of men or horses, so as to obstruct the progress of the roots, and to exclude air and water from penetrating through it to them. *H.* is sometimes performed on surfaces which are without weeds for the purpose of stirring the soil; but in such cases pronged hoes, or hoes having three or more long spikes or teeth, are more effective than hoes with broad plates or blades.

Hoe's Printing-machine. See PRINTING.

Hof, (or STADT ZUM HOF,) a city of Bavaria in Upper Franconia, on the left bank of the Saale, 30 m. N.E. of Baireuth. *Manuf.* Woollens, cottons, leather. It has also extensive breweries.

Ho'fer, ANDREAS, a celebrated Tyrolese patriot, B. at St. Leonard, in the valley of Passeyr, 1767. When the Tyrol, long a part of the Austrian dominions, was given by the treaty of Presburg to tho king of Bavaria, then the ally of Napoleon, the Tyrolese revolted, and Andreas *H.* became their leader. Within a week from the outbreak of the insurrection, early in April, 1809, the Bavarian forces were everywhere defeated and tho Tyrol freed. Three French armies then invaded the province, and after temporary success on their part, Hofer won the victory of Innspruck, and again freed his country. By the armistice of Znaim, agreed to after the victory of Napoleon at Wagram, the Austrians were compelled to quit the Tyrol. A second French invasion ended in defeat, and the people were a third time freed. For a few weeks *H.* was, virtually, sovereign of his country; but on the renewed invasion of French and Bavarians, he was betrayed to his enemies, condemned by a court-martial at Mantua, and shot February 20, 1810. His remains were buried in the cathedral of Innspruck; his widow was pensioned by the Austrian government, and his son raised to the rank of nobility.



Fig. 1296.
MONUMENT TO HOFER AT INNSPRUCK.

Hoffman, CHARLES FENNO, an American poet and novelist, B. in New York, 1806. After leaving Columbia College, *H.* was called to the bar at New York, where he practised during three years; but, compelled by the state of his health to travel on the prairies, he published, in 1834, a record of his wanderings, under the title of *A Winter in the West*, which obtained a considerable share of popularity. This was followed by *Wild Scenes in the Forest and Prairie*, in 1837, and the romance of *The Greyslaer*, in 1840. From the above period to 1849 he was one of the most active and successful contributors to the various American magazines, for one of which, the *American Monthly*, he wrote his novel of *Vanderlyn.* In 1842 he published a collected edition of his poems, under the title of *A Vigil of Faith, and other Poems.* For nearly two years he was at the head of the *Literary World*, in which he wrote his sketches and essays, under the title of *Sketches of Society.* An unfortunate attack of mental alienation, in 1849, suddenly stopped his brilliant career, during which, save for his love of the horrible and repulsive, he might have claimed rank among the best modern novelists. D. 1884.

Hoffman, or **Hoffmann.** There have been several Germans of this name distinguished for their medical knowledge.—MORITZ HOFFMANN, B. in 1621, at Fürstenwalde, in Brandenburg; settled at Altorf, where he held the professorships of anatomy, botany, and physic; was tho discoverer of the pancreatic duct; D. 169[illegible]. He wrote several works on medical subjects.—FRIEDRICH HOFFMAN, the most celebrated of the name, was B. in 1660, at Halle, in Saxony, where his father was also an eminent physician. He studied and lectured at Jena, and afterwards practised at Minden. In 1684 he visited England, and formed an acquaintance with Boyle and other men of science. On the establishment of the university of Halle, he was appointed primary professor of medicine and natural philosophy; and thrice held the situation of rector. His reputation being now fully established, and his fame widely spread, he was elected a member of various scientific associations in London, Berlin, and St. Petersburg; and appointed physician to the king of Prussia, who gave him the title of first physician and aulic councillor. His works are very numerous, the most important being his *Systema Medicinæ Rationalis* and *Medicina Consultatoria. H.* obtained much reputation by the new hypothesis which he suggested on the origin of disease, and which, after serving a temporary purpose, led to the establishment of other and sounder hypotheses. D. 1742.

Hoffman, ERNST THEODOR WILHELM, a German novelist and miscellaneous writer, was B. at Königsberg, in 1776. He studied the law, and held various judicial appointments in Poland, till his legal career was interrupted by the invasion of Warsaw by the French, in 1806, in the government of which city he had been appointed counsellor. Having devoted his leisure time to the study of music, and being at the same time a romance-writer and an artist, he applied himself to these pursuits in order to obtain a livelihood. He possessed much imagination and talent; but he was an intemperate liver, of a fiery temper, exceedingly vain, and suffered much from hypochondria. Among his works are *Fantasy Pieces*, *The Devil's Elixir*, *The Entail*, *The Adversary*, &c., all displaying a singularly wild and romantic imagination. In 1816 he was reinstated as counsellor of the court of judicature in Berlin. D. 1822.

Hoffmann (von Fallersleben), AUGUST HEINRICH, a popular German poet, B. at Fallersleben, 1798. In 1823 he was appointed conservator of the Breslau University library, and soon afterwards published his *Unpolitical Songs*, which caused him to become very popular. He wrote songs for children, for workmen

and for peasants; indeed, as a poet, he may be said to have written only for the simplest among his countrymen. He also contributed valuable philological articles to the best periodicals in Germany. Died Jan. 19, 1874.

Hoff'mann, August Wilhelm, a distinguished German chemist, born at Giessen, 1818, was nominated in 1864 professor of chemistry in the University of Berlin. His best work is entitled *Memoirs on the Molecular Constitution of the Organic Bases.*

Hoffman's, in *New York,* a post-office of Schenectady co.; formerly called Hoffman's Ferry.

Hoffman's Gas Furnace, *n.* (*Chem.*) A furnace for the analysis of organic substances, in which the combustion tube is heated by a number of perforated clay-burners.

Hog, *n.* [W. *hwch.*] (*Zoöl.*) The common name of a well-known pachydermous animal constituting the gen. *Sus,* in the *Suidæ* or Swine family. As all the varieties of this useful quadruped are derived from the Wild Boar, we shall proceed to describe that animal before we speak of the domestic species; merely premising that the genus *Sus* is in some points of an ambiguous nature, appearing to form at once a link between the cloven-footed, the whole-hoofed, and the digitated quadrupeds. The Wild Boar is a native of almost all the temperate parts both of Europe and Asia. We learn from Buffon, that wild boars follow their common parent until they have passed their third year, never wandering alone till they have acquired sufficient strength to resist the attacks of the wolf. "These animals," says he, "when they have young, form a kind of flocks, and it is upon this alone that their safety depends. When attacked, the largest and strongest front the enemy, and by pressing all around against the weaker, force them into the centre. Domestic hogs are also observed to defend themselves in the same manner. The wild boar is hunted with dogs, or killed by surprise during the night, when the moon shines. The wild boar is in general more gaunt and bony, the muscular strength much greater, and the temper far more savage, than the domestic *H.* It is of a dark brindled-gray color, or blackish; but when only a year or two old, is of a dull yellowish-brown cast; and when quite young, is marked by alternate dusky and pale longitudinal bands along the sides. Between the bristles, next the skin, is a finer or softer hair, of a woolly or curly nature. The snout is somewhat longer in proportion than that of the domestic species; but the principal difference is in the length of the tusks. Though ordinarily timid and inoffensive, it is found that the females show the most determined courage when their young are attacked, and defend them with all imaginable fierceness. If two boars chance to meet in the early part of the year, at which time the male seeks the female, the most furious encounters ensue. By a forest law of William the Conqueror, (A. D. 1087,) it was ordained that any who were found guilty of killing the stag, the roebuck, or the wild boar, should have their eyes put out. — The common or domestic *H.* (*Sus scrofa*) differs from the wild animal principally in having smaller tusks and larger ears, which are also somewhat pendant and of a more pointed form. In color, as well as size, it varies very considerably, but the prevailing cast is a dull yellowish-white, marked or spotted irregularly with black, sometimes perfectly plain or unspotted, sometimes rufous, and sometimes totally black. Of all quadrupeds the *H.* is the most gross in his manners, and therefore has been regarded as the very personification of impurity. The Jews were strictly enjoined not to eat its flesh; and the Mohammedans agree in this respect with the Mosaic prohibition. In most parts of Europe and America, however, it constitutes a very material part of the food of mankind. The *H.* is an animal of a remarkable prolific nature; and as they bring forth from 10 to 15, and sometimes 20, at a litter, they would soon become very numerous, were they not diminished for the support of man. Their flesh, says Linnæus, is wholesome food for persons of athletic constitutions, those who habituate themselves to much exercise, but improper for such as lead sedentary lives. It is, however, an article of general consumption, and one which is of great importance to a naval and commercial nation, as it takes salt better than any other flesh, and consequently is capable of being longer and more easily preserved than any other. The Jews and the Mohammedans not only abstain from the *flesh* of swine from a religious principle, but even consider themselves defiled by touching it. The Chinese, on the contrary, are so excessively fond of pork, that many, owing to this partiality alone, as it is said, have been prevented from conversion to Mohammedanism. The *fat* of swine differs, in its situation, from that of almost every other quadruped, as it forms a thick, distinct, and continued layer betwixt the flesh and the skin. *Lard,* which is chiefly obtained from the fat membranes of the abdomen, is applicable to various uses, both culinary and medicinal; and when good, is white and moderately hard. The *skin,* when properly dressed, is used for the seats of saddles; it is also employed by various artificers. Great attention has been paid in this country to the improvement of the various breeds; and by judicious crosses much has been effected both as to quality and size. Swine were probably introduced from Spain into Hispaniola by Columbus in 1493, into Florida by De Soto in 1538, into Canada in 1608, and into Virginia in 1609, where they multiplied so rapidly that in 18 years the people were obliged to palisade Jamestown to keep them out. Different breeds are prized in different districts, according to the fancy of producers, the facility of raising them, and the particular object of the farmer. The Chinese *H.,* both the white and black varieties, are easily fattened, and have small bones; indeed, they are generally too fat to be esteemed as pork, and are considered to make poor bacon. Bred carefully, and mixed with other stock, they are valuable animals. The Neapolitan is the most celebrated of the Italian breeds, doubtless descended from the improved varieties of ancient Rome, and the stock of most of the English breeds. Though not very hardy, the flesh is of superior quality. It is small, black, with few bristles, short snout, erect ears, and small bones. Crossed with the Berkshire breed, the form is improved and the constitution hardened, with a remarkable tendency to fatten easily. The Berkshire, an English breed, black or white, is larger than the Neapolitan, with more bristles, and less fat to the meat, which is well suited for bacon and hams. This was formerly preferred above all others in many parts of New England; but its cross with the Chinese is more profitable, as the weight is heavier with light feeding, and the disposition milder. The Essex, crossed with the Neapolitan, is one of the most valuable, and has taken more prizes in England than any other breed. It is black, of good size and symmetry, mild disposition, easily fattened, the meat of excellent quality, and the dressed weight at 12 and 18 months 250 to 400 lbs. It is not subject to cutaneous diseases. The Irish grazier is slow in coming to maturity; but crossed with the Berkshire is an excellent variety. The Woburn or Bedford breed was originally sent by the Duke of Bedford to General Washington, and was produced at Woburn, England, by a cross of the Chinese boar and a large English *H.* When pure they are white, with dark ash-colored spots. They are of large size, with deep, round bodies, short legs, and thin hair, easily kept, and maturing early. The Middlesex is a popular breed in England, and has been considerably imported into the U. States. It is derived from a mixture of the Chinese with some larger stock. The color is usually white, and the size larger than the Suffolk, weighing at 18 months 800 to 900 lbs. The bones are smaller than in the Essex. But the favorite of all breeds seems now to be the Suffolk, so named from that county in England, whence the London market has long been supplied. The present breed is believed to have originated from the old Suffolk crossed with the Chinese and Berkshire. The pure breed is remarkably symmetrical, small and compact, short-legged, and small-headed, the exact opposite of the long, lank, and lean *H.* of the western prairies. Their early maturity, small consumption of food, and tendency to fat, compensate for their want of size. The color is white. These are the most esteemed varieties. There are many others, imported and domestic, which thrive well in peculiar districts, and which are more or less extolled by their respective fanciers. While *H.* are kept in New England and the Middle States mostly in pens, in the West they are allowed to range in the woods and fields till within 3 months of the time of killing them, feeding upon clover, corn, acorns, and mast. An epidemic disease, known as *hog cholera,* proved terribly destructive to hogs in the U. S. in 1870–80. For another disease, dangerous both to hog and to man, see Trichinæ.

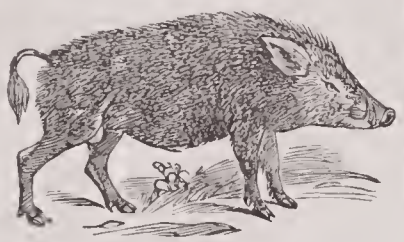


Fig. 1297. — the wild boar. (*Sus scrofa.*)



Fig. 1298. — suffolk hog.

—A mean, grovelling, filthy, guzzling fellow. (*Colloq.*)

—A two-year old sheep; a hogget. (Used in England.)

(*Naut.*) A brush with a long handle, used for scouring barnacles and sea-weed of a ship's bottom.

—*v. a.* To clip or cut short the hair of; as, to *hog* a horse's mane.

(*Naut.*) To scrape a ship's bottom under water.

—*v. n.* To bend, as a ship, so as to resemble in some degree a hog's back;—hence, to be strained out of shape.

—(*Colloq.*) To appropriate the whole or the best of anything without regard to the rights of others.

Hog, *v. a.* [Ger. *hocken.*] To carry on the back, as a butcher carries a carcass.

Ho'gan, in *Indiana,* a flourishing township of Dearborn co.

Hogan, in *North Carolina,* a P. O. of Rockingham co.

Ho'ganite, *n.* (*Min.*) Same as Natrolite (*q. v.*).

Ho'gan's, in *Tennessee,* a post-office of Smith co.

Hogansburg, in *New York,* a post-village of Franklin co., about 40 m. N.E. of Ogdensburg.

Ho'gansville, in *Georgia,* a post-village of Troup co., about 13 m. N.E. of La Grange.

Hoganville, in *Kansas,* a post-office of Graham co.

Ho'garth, William, a celebrated English artist and humorist, b. in London, 1697. He was apprenticed at an early age to Gamble, a silversmith, but at the expiration of his term, in 1718, he took to engraving in copper for the booksellers. In 1730 he married the only daughter of Sir James Thornhill, against her father's consent, and set up for himself as a portrait-painter with considerable success. He now commenced his remarkable series of satirical paintings reflecting on the social abuses of his time: — viz., the *Harlot's Progress* in 1734; the *Rake's Progress* in 1735; and the *Marriage à la Mode* in 1745, now in the National Gallery. In 1753 he appeared as the



Fig. 1299. — hogarth's house at chiswick, (Eng.)

author of *Analysis of Beauty, written with a View of Fixing the Fluctuating Ideas of Taste.* In 1757 *H.* was appointed serjeant-painter to the king: he d. in London, Oct. 26th, 1764, and was buried at Chiswick. *H.* was a good painter as well as a great satirist.

Hog Branch, in *Louisiana,* a village of St. Helena parish.

Hog Creek, in *Ohio,* a village of Allen co.

Hogestown, (*ho'jes-town,*) in *Pennsylvania,* a post-village of Cumberland co., abt. 9 m. S.W. of Harrisburg.

Hog-gum, *n.* (*Bot.*) See Rhus.

Hog Head, a promontory on the W. coast of Ireland, at the mouth of the Kenmare River.

Hog Islands, a small cluster of islets off the coast of co. Kerry, Ireland, near the embouchure of Kenmare River.

Hog'-backed, *a.* Having a curved back like that of a hog, as a ship.

Hog'-cote, *n.* A place for the keeping of swine: a sty.

Hog'-frame, *n.* (*Naut.*) A fore-and-aft frame, usually above deck, and forming, together with the frame of the vessel, a truss to prevent vertical flexure. Used chiefly in American river and lake steamers, and called also *hogging-frame.*

Hogg, James, an English poet, popularly known as the "Ettrick Shepherd", b. 1772. He belonged to the vale of Ettrick, in Selkirkshire, where he followed the pastoral occupation of his ancestors. His first published song, *Donald Macdonald,* acquired extensive popularity. After several successful literary efforts, the most considerable of which was a volume of ballads called *The Mountain Minstrel, H.,* who had failed in sundry sheep-farming speculations, removed to Edinburgh in 1810, with the view of living by his wits. He there published a volume of songs, *The Forest Minstrel,* and conducted a periodical called *The Spy,* which existed for about a year. It was not, however, until the appearance of *The Queen's Wake,* in 1813, that he became greatly distinguished as an author. Besides *The Pilgrims of the Sun, Queen Hynde,* and other poetical works, *H.* wrote numerous tales and novels, few of which are now much read. He was on terms of friendship with Scott, Wilson, and other literary



Fig. 1300. — birth-place of the "Ettrick Shepherd."

magnates of Edinburgh, and the manner in which he was made to figure in the celebrated *Noctes Ambrosianæ* of Blackwood's Magazine — although sometimes complained of by himself — contributed not a little to his fame. With less masculine sense than Burns, and far inferior in tender and passionate earnestness, he yet possessed a higher creative fancy; and many of his pieces, such as *Bonny Kilmeny,* are marked by a certain wild and dreamy fascination, unlike anything else with which we are acquainted. D. 1835.

Hog'gan, *n.* [Cornish.] The tinner's pasty.

Hog'ger, *n.* A stocking without a foot, worn by miners working in coal-pits.

Hog'gerel, Hog'grel, *n.* [See Hog.] A two-year old sheep; a hogget.

Hog'ger-pump, *n.* (*Mining.*) The upper pump in a mine.

Hog'gery, *n.* Hoggish characteristics; beastliness; swinishness of manners. (R.)

"Crime and shame, and all their *hoggery.*" — *E. B. Browning.*

Hog'get, *n.* A sheep of the second year. A lamb comes a *teg* in its first winter, and afterwards a *hogget;*

and, on losing its coat, a *shear-hog.* — Also, a two-year old boar.

Hog'ging, *n.* (*Naut.*) An undue falling of a ship's head and stern, in consequence of weakness in the keel, or in the tie provided by the decks. *H.* may be immediately caused by the suspension of the ship on a wave amidships, or by her taking the ground in the middle.

Hog'ging-frame, *n.* (*Naut.*) See HOG-FRAME.

Hog'gish, *a.* Having the qualities or characteristics of a hog; swinish; gluttonish; brutish; filthy; meanly selfish.

Hog'gishly, *adv.* In a coarse, brutal, filthy, or gluttonous manner.

Hog'gishness, *n.* Quality of being hoggish; brutishness; beastly filthiness; mean selfishness; voracity in devouring food.

Hog'grel, *n.* Same as HOGGEREL, *q. v.*

Hogg's Falls, in *Kentucky*, a village of Ohio co., on Green river.

Hog'herd, *n.* A swineherd; a keeper or tender of hogs.

Hog'-louse, *n.* (*Zoöl.*) See ONISCUS.

Hogmanay', *n.* [Corrupted from Norm. Fr. *au gui menez*, lead to the mistletoe.] In Scotland, a popular name given to the festival of New-Year's eve.

Hog'-nut, *n.* (*Zoöl.*) See HICKORY.

Ho'go, *n.* A vulgar corruption of HAUT-GOUT, *q. v.*

Hog-pea'nut, *n.* (*Bot.*) The Pea-vine. See AMPHICARPÆA.

Hog'-pen, *n.* A hog-cote; a pen or sty for hogs.

Hog'-plum, *n.* (*Bot.*) See SPONDIAS.

Hog'-ringer, *n.* One who fastens rings in the snouts of hogs.

Hog River, in *Michigan*, enters the Coldwater River in Branch co.

Hog's'-fennel, *n.* (*Bot.*) See PENCEDANUM.

Hogshead, (*hŏgz'hed,*) *n.* [D. *okshoofd*; Dan. *oxehoved*; Gael. *toesaid*; probably a corruption of *ox-hide*, and originally used to signify as much liquor as filled an ox's hide or skin.] A large cask, usually containing from 100 to 140 galls. (U. States.) — An English measure of capacity, containing 63 imp. wine gallons, or about 52½ imperial gallons; as, a *hogshead* of ale.

Hog'-shearing, *n.* Rumpus; great cry and little wool; much ado about nothing; — used in a ludicrous sense.

Hog'-skin, *n.* The skin of swine tanned into leather.

Hog's'-lard, *n.* The fat of hogs; lard of swine.

Hog'sties, a group of dangerous rocks and islets of the Bahama Group, W. Indies, abt. 38 m. N.W. of the Great Inagua.

Hog'-sty, *n.* A pig-sty; a hog-cote; a pen for hogs.

Hogue, (La,) (*hŏg.*) See CAPE LA HOGUE.

Hog'-wash, *n.* Refuse used as food for swine; swill.

Hog'-weed, *n.* (*Bot.*) See AMBROSIA.

Hohenlin'den, a village of Bavaria on the Iser, near Ebersburg, and 33 m. E. of Munich. Here in 1800 the French, under Moreau, defeated the Austrians commanded by the archduke John, which event brought About the peace of Luneville.

Hohenlin'den, in *Mississippi*, a P. O. of Webster co.

Hohenstauffen, (*hō hen-stōwf'fen.*) (*Hist.*) A celebrated German house founded by Frederick von Büren, who lived about 1040. His son fought valiantly under the Emperor Henry IV. in the battle of Merseburg, in 1080, and received the hand of the emperor's daughter Agnes, together with the dukedom of Suabia, in 1081. Conrad, his grandson, was elected emperor of Germany, Feb. 22, 1138. Conrad III. was succeeded as emperor by his nephew, Frederick I., surnamed Barbarossa, 1152–90; and the imperial throne was occupied by his son and grandson till 1254. The sole and last survivor of the Hohenstauffen race, Conradin, tried to regain the family heritage; but having been defeated in the battles of Beneventa, Feb. 26, 1266, and of Tagliacozzo, Aug. 23, 1268, he was made prisoner and beheaded at Naples, Oct. 29, 1268.

Hohenstein, (*hō'hen-stīn,*) a town of Prussia, in Saxony, 6 m. from Chemnitz. Mines of silver and arsenic are situated near it. *Pop.* 6,746.

Hohenzollern, (*hō-hen-zol'lern.*) (*Hist.*) The royal house of Prussia was founded by Count Thassilo, who built the castle of Zollern, afterwards called *Hohenzollern* (High-Zollern), in 800. The castle was greatly enlarged by Frederick, the first Count of Zollern, in 980. Frederick III. gained the title of prince and the government of Nuremberg in 1273. In the 16th century the house separated into two branches, the younger of which subsequently became kings of Prussia, while the elder remained princes of *H.* Frederick VI., of the younger line, received the province of Brandenburg from the emperor in 1411; his successor acquired the territory of Prussia in 1560. Another Frederick made himself king of Prussia, Jan. 18, 1701. — The principalities of *Hohenzollern-Hechingen* and *Hohenzollern-Sigmaringen*, for many centuries in the possession of the elder line, were united with Prussia by treaty, March 20, 1850, and now form a province, consisting of a narrow strip of land entirely surrounded by the territories of Würtemberg and Baden. *Area*, 480 sq. m.; *pop.* 64,632.

Hoho'kus, in *New Jersey*, a post-village and township of Bergen county, about 34 m. N.N.W. of the city of New York.

Hoi'den, Hoy'den, *n.* [W. *hooden*, a woman of doubtful fame.] A rude, awkward, bold, skittish girl; a romp; a tomboy.

—*a.* Rude; awkward; bold; skittish; country-bred; inelegant.

—*v. n.* To romp rudely or indecently; to play the part of a tomboy.

"The wenches had been *hoidening* with the young apprentices." *Swift.*

Hoi'denhood, Hoy'denhood, *n.* State of being a hoiden or tomboy.

Hoi'denish, Hoy'denish, *a.* Becoming, or partaking of the qualities of a hoiden; skittish; tomboyish; of a romping disposition; as, a *hoidenish* girl.

Hoist, *v. a.* [Fr. *hausser*, to raise, from Lat. *altus*, high; Swed. *hissa*, *hyssa*, from *ha*, high.] To raise; to lift; to heave; to lift or bear upwards by means of tackle; as, to *hoist* a sail, flag, &c.

—*n.* Act of hoisting, raising, or lifting. (Used colloquially.) — The term applied to the apparatus used in factories, mines, hotels, &c., for the purpose of raising persons, or things, from one level to another; the man-engines are a kind of hoist, as also are the hydraulic cranes now in general service.

(*Naut.*) The perpendicular height of a sail, flag, &c.; — in opposition to the *fly*, or extent from the mast or pole to the outer edge.

Hoi'ty-toi'ty, *a.* [Equivalent to Scot. *hoot-toot.*] Flighty; giddy; thoughtless; harum-scarum; gay; noisy; — used, generally, as an exclamation implying surprise or displeasure, with some degree of contemptuous indifference.

"*Hoity-toity*! What have I to do with dreams?" — *Congreve.*

Ho'kah, in *Minnesota*, a post-village of Houston co., on the Hokah or Root River, about 7 m. S.W. of La Crosse.

Hokah (or Root) River, in *Minnesota*, enters the Mississippi River below La Crosse. *Length*, abt. 130 m.

Hoke'-day. See HOCK-DAY.

Hokendau'qua, in *Pennsylvania*, a post-village of Lehigh co., on the Lehigh River, about 1 m. above Catasauqua.

Ho'la, Hol'la, *interj.* Hollo! hey there! ahoy!

Hol'aday's, in *Iowa*, a post-office of Adair co.

Holbach, PAUL, BARON D', (*hōl'bak,*) a German writer, B. at Heidelsheim, in the Palatinate, 1723, who was educated at Paris, and passed almost all his life there. He allied himself with the leaders of French thought, the philosophers of the *Encyclopédie*, entertaining them at sumptuous suppers, and encouraging the freest utterance of their most extreme opinions. He was in philosophy a pure materialist, and wrote numerous works under an assumed name, and contributed to the *Encyclopédie* numerous articles on natural history, politics, and philosophy. The most famous of the works written by *H.* wholly or in part, is the *Système de la Nature*. D. 1789.

Hol'beach, a market-town of England, co. of Lincoln, 37 m. S.S.E. of Lincoln, 89 m. N. of London. *H.* has a fine Gothic church. *Pop.* 4,021.

Hol'bein, HANS or JOHANN, one of the most famous German painters, B. at Augsburg, about 1495, learned the elements of his art from his father, whom he soon excelled. His talent procured him the friendship of Erasmus, for whose "Praise of Folly" he drew several whimsical designs. At the recommendation of Erasmus he came to England, and was employed first by Sir Thomas More, who introduced him to Henry VIII. He rose to the zenith of fortune in that monarch's court, and painted a great number of portraits which are still



Fig. 1301. — HOLBEIN.

considered masterpieces of art. He died of the plague in 1543. His style is manly and correct, but hard and formal: the character, however, and individuality of many of his portraits, are evidently exact and masterly. (See Figs. 539, 1301.) He painted some religious and historical pieces; his masterpiece is perhaps the *Family of the Burgomaster Meyer*, now in the Gallery of Dresden. *H.* is also the author of a very celebrated series of designs, known as the *Dance of Death*, cut in wood and first published at Lyons in 1538; afterwards copied by Hollar and others. See MACABRE, (DANCE.)

Hol'brook, in *New York*, a village of Suffolk co.

Hol'brook, in *West Virginia*, a village of Ritchie co.

Hol'cad, *n.* [Gr. *olkados*, a ship of burden.] An ancient Greek vessel of large tonnage.

Hol'comb Valley, in *Illinois*, a post-village of Ogle co., on the C. B. & Q. and the C. Gt. W. R.Rs.

Hol'cus, *n.* (*Bot.*) A genus of plants, order *Gramineæ*, the species of which are natives of Africa and Asia. *H. saccharatus*, the *Sorghum saccharatum* of some botanists, is called the North China sugar-cane or sweet sorgho, and is much cultivated in China and other parts for the sake of its sugar; it is said to yield from 10 to 15 per cent. of this product. Its grain is eaten in Africa, and is termed *dochna*. The plant has lately been introduced into the U. States, and is highly recommended by some agriculturists for cultivation as a substitute for the sugar-cane. *H. sorghum* (*Sorghum vulgare*, or *Andropogon sorghum*) is extensively cultivated in many parts of Africa, in Turkey, and in India, for the sake of its grain, which is known by the name of *Guinea corn*, *durra*, *Turkish millet*, and *jaar*. This grain is much used as human food in warm countries. A kind of beer, called *bouza*, is prepared from it. The stalks of the plant are used to make whisks and carpet brooms. *H. lanatus*, the soft grass, is the only N. American species.

Hold, *v. a.* (*imp.* HELD: *pp.* HELD, and, sometimes, HOLDEN.) [A. S. *healtan;* Dan. *holde;* Icel. *halda;* probably akin to Heb. *kul*, to hold up, to sustain]. To have in the grasp; to keep; to have fast; to retain; to confine in a given position or relation, or within certain limits; to stop; to restrain from escape. — To detain; to maintain; to defend; to keep possession of; to exert authority over; to secure in one's own keeping.

— To have or possess by title, as lands; to be in possession of; to occupy; to own by proprietorship.

"*Holding* Corioli in the name of Rome." — *Shaks.*

— To fix; to compel to observe or fulfil; to restrain from motion; to bind, legally or morally; to limit in scope of action; to confine.

"He had not sufficient judgment and self-command to *hold* his tongue." — *Macaulay.*

— To continue; to prosecute or carry on, as a line of argument, or course of conduct; to keep up in action or progress; to sustain in proceeding forward.

"Night and Chaos . . . *hold* eternal anarchy." — *Milton.*

— To contain, or to have capacity to receive and contain; to measure in containing power: as, a hogshead *holds* 63 gallons. — To consider; to think; to regard; to judge; to maintain, as an opinion; to esteem; to account.

"I *hold* him but a fool, that will endanger
His body for a girl that loves him not." — *Shaks.*

— To celebrate or solemnize, as a feast; to direct and cause to take place officially; to tend to bring about that which is the result of united deliberation or action; as, to *hold* a meeting, to *hold* a court, to *hold* counsel together, &c.

"The queen this day here *holds* her parliament." — *Shaks.*

— To handle; to manage or treat intellectually; to accept, as an opinion; to maintain or persist in, as a resolve; to be committed to, as an open or secret adherent; to retain, as force of will.

"Whereupon they . . . *held* them battle a long season." 1 *Macc.* vi. 52.

To hold forth, to offer; to exhibit; to propose; to advance.

"Christianity came into the world . . . *holding forth* nothing but piety." — *Temple.*

To hold a wager, to lay, stake, or hazard a wager; to make a bet. — *To hold in*, to restrain; to curb; to bridle. "These men wish they had *held* themselves longer *in*." (*Hooker.*) — *To hold off*, to keep away or at a distance. — *To hold on*, to continue; to protract; to proceed in; as, the ship *held on* her course. — *To hold out.* (1.) To extend; to stretch forth; to proffer. "Fortune *holds out* these to you as rewards." (*Ben Jonson.*) (2.) To continue to do or suffer; to endure; to sustain; as, the fort *held out* till the last.

To hold one's own, to keep what belongs to one's self; to retain a present state or condition; not to lose ground or fall off. — (*Naut.*) To keep up in sailing; as, the ship *holds her own* with the fastest. — *To hold up*, to sustain; to support; to raise; to lift; to keep to the mark; as, to *hold up* the head.

"Heir from heir shall *hold* his quarrel *up*." — *Shaks.*

Hold, *v. n.* To continue firm or fast; to remain fixed; as, the anchor *holds*.

— To be true; to endure; to remain valid; to stand, as a fact or truth; as, the rule *holds* good. — To remain sound, intact, or unbroken; to be unsubdued; not to fail; to persist; to abide.

"Our force by land hath nobly *held*." — *Shaks.*

— To halt; to stop; to cease motion or action.

"Damn'd be him that first cries 'Hold, enough!'" — *Shaks.*

— To remain attached; to cleave; to adhere; not to fall away, part from, or desert; sometimes preceding *for*, *to*, or *with*; as, they *hold to* their principles, I *hold* the same opinion *with* you. — To refrain; to place a check or restraint on one's self; — generally before *from*: as, she with difficulty *held from* using her tongue. — To derive right; to admit dependence on, as for enjoyment of estate, &c.; to draw or deduce title; — usually preceding *of*; as, he *holds* his lands *of* the crown.

"The great barons had . . . petty barons *holding* under them." *Temple.*

To hold forth, to speak or preach publicly; to haranguo; to proclaim.

"A petty conjurer . . . *held forth* in the market-place." — *L'Estrange.*

To hold in, to restrain or command one's self: as, he could hardly *hold in* his mirth. — To continue fortunate or in luck. "The duke, playing at hazard, *held in* a great many hands together." (*Swift.*) — *To hold off*, to keep at a distance or aloof from; to avoid contact with. — *To hold on*, to cling; to take firm hold; to continue without interruption.

"He *held on*, however, till he was on the very point of breaking." *L'Estrange.*

To hold out, to last; to endure; to continue; not to break down or give way; not to yield or be subdued; as, our provisions *hold out* well.

"My eyes grow womanish, but yet my heart *holds out*." — *Dryden.*

To hold over, to remain in possession of place, position, or residence beyond the usual limitation of term. — *To*

hold together, to remain in union; to be joined in coalition or cohesion; as, the insurgents cannot *hold together* long.

"These old Gothic castles *hold together* only, as it were, by rags and patches." — *Dryden.*

To hold to or *with*, to adhere to; to coöperate, or take sides with; as, he *held to* his own opinions. — *To hold up*, to sustain or support one's self; to continue firm and unbroken; as, they *hold up* wonderfully under their troubles. — To become fair, or stop raining, as the weather: to cease to be unpropitious or downcast. "Quoth Ralph, 'It may *hold up* and clear.'" (*Hudibras.*) — To keep up; to continue the same course or speed; not to lag or fall behind.

Hold, *n.* Act of holding; a grasping; manner of holding; clasp; embrace; seizure; gripe; — frequently used reflexively with the verbs *lay*, *take*, and *have*; as, to *take hold* by the hand.

"Let but them find courage to *lay hold* on this occasion." *Milton.*

—Something which may be seized for support; that which sustains one, or which one takes hold of, or hangs on by.

"Without a good *hold*, (a man) is ready to fall." — *Bacon.*

—Power or influence operating on the mind; advantage that may be employed in directing, persuading, or controlling another; as, I have a *hold* upon him.

"Fear is that passion . . . by which God and his laws take the surest *hold* of us." — *Tillotson.*

Authority, power, or claim to take and keep.

"On your vigour now, my *hold* of this new kingdom all depends." *Milton.*

—A prison or place of confinement; durance; custody.

"The prisoner to his *hold* retired." — *Dryden.*

—A place of security; a fortified place; a fort; a castle; a stronghold.

"Captain of the *hold*." — *Scott.*

(*Mar.*) The inner cavity of a vessel below decks, divided into compartments by bulkheads across, for the reception of ballast, water, provisions, and, chiefly, cargo. The divisions of a hold are termed the *after-hold*, *main-hold*, and *fore-hold*, respectively, with reference to their several positions in the ship.

(*Mus.*) Same as PAUSE, *q. v.*

Hold'back, *n.* Restraint; check; obstacle. — A contrivance, of iron or leather, attached to the thill of a vehicle, and connecting with the harness, to hold back the conveyance when going down hill, or in backing.

Hold'en, in *Maine*, a post-township of Penobscot co.

Holden, in *Massachusetts*, a post-township of Worcester co. *Pop.* (1895) 2,475.

Holden, in *Minnesota*, a post-township of Goodhue co.

Holden, in *Missouri*, a city of Johnson co., 43 m. W. of Sedalia, on the Mo. Pac. R.R.; has a fine trade with the farming region surrounding. *Pop.* (1897) abt. 2,650.

Hold'er, *n.* One who holds or grasps in his hand, or embraces with his arms; also, one who confines, maintains, possesses, &c. — That by which anything is held; as, a kettle-*holder*. — (*Naut.*) A person employed in a ship's hold.

Hold'er-forth, *n.* One who holds forth, harangues, preaches, or proclaims.

Hold'erness, a fertile district of England, in Yorkshire, lying between the Humber and the North Sea; *pop.* 28,000.

Hold'erness, in *New Hampshire*, a post-township of Grafton co.

Hold'fast, *n.* Any contrivance used to fasten or hold something else, as a catch, a hook, a button, &c.

Hold'ing, *n.* Act of keeping hold of or retaining. — A tenure; a farm held of a superior or manorial proprietor.

"*Holdings* were plentiful, and holders scarce." — *Carew.*

—Hold; influence; power; that which binds, holds, influences, or controls.

Hole, *n.* [A. S. *hol*, *hal*; D. and Icel. *hol*; Ger. *höhle*; akin to Gr. *hoilos*, hollow.] A hollow place or cavity in any solid body; a pit; a cavern; a cave; a concavity; an opening in, or through, a solid body; an aperture; an interstice; an excavation: a perforation, and the like; as, a *hole* in a wall. — A cell; a den; a burrow made by an animal for its habitation, or a natural aperture tenanted by an animal; — hence, by implication, any mean habitation, or narrow, dark lodging.

"Thou art content to live within this little *hole*." — *Dryden.*

—An opening or means of escape; a shift; a subterfuge; as, he found a *hole* whereby to creep out of the dilemma.

—*v. n.* To go into a hole.

—*v. a.* To cut, dig, or make a hole or holes in; as, to *hole* a boot for the insertion of pegs or nails. — To chase into a hole, as an animal, or into a pocket, as in billiards.

Hol'ibut, *n.* (*Zoöl.*) Same as HALIBUT, *q. v.*

Hol'idom, *n.* Same as HALIDOME, *q. v.*

Hol'iday, *n.* (Sometimes written *holy-day*.) [*Holy* and *day*.] A holy or sacred day; a day set apart for commemorating some important event in history; a religious anniversary; a public festival; as, the *holidays* of the Church. — A day of carnival, or of joy, gayety, or amusement; a day of exemption from labor.

—*a.* Pertaining, or having reference to a day of festivity, or cessation of labor; gay; sprightly; as, the people are in *holiday* costume.

"Courage is but a *holiday* kind of virtue." — *Dryden.*

Holigar'na, *n.* (*Bot.*) A genus of plants, order *Anacardiaceæ*. The fruits of the species *H. longifolia*, with those of another plant of the same order, furnish the black varnish of Sylhet, which is much used in India for lacquer-work. See SEMICARPUS.

Ho'lily, *adv.* [From *holy*.] In a holy manner: devotionally; piously; with sanctity. — Inviolably; sacredly; hermetically; as, the secret was kept *holily*.

Ho'liness, *n.* State or quality of being holy; moral purity and integrity; piety of heart, mind, or disposition; sanctity of character; freedom from sin; moral goodness.

—State of being hallowed or sanctified; consecration to divine things; sacredness.

His Holiness. (*Eccl.*) In the Roman Catholic Church, the title by which the Pope is addressed; equivalent to the Latin *sanctitas*.

Hol'ing-axe, *n.* A kind of axe employed to cut holes in posts, &c.

Holla, *interj.* See HOLA.

Hol'la, *v. n.* (*imp.* and *pp.* HOLLAED.) To halloo; to hollo.

"What *hollaing* and what stir is this to-day?" — *Shaks.*

Hol'land, or THE NETHERLANDS, comprising the territories formerly included within the SEVEN UNITED PROVINCES, now a secondary kingdom of Europe, but which, in the 17th and 18th centuries, was an independent republic, raised by the industry, economy, and enterprise of its inhabitants to the first rank as a maritime and commercial power. The kingdom of *H.* (inclusive of Dutch Limburg and Luxemburg) lies in the N.W. part of the European continent, between Lat. 51° 12′ and 53° 30′ N., and Lon. 3° 22′ and 7° 12′ E.; having E. the Prussian, Rhenish, and Hanoverian provs., S. Belgium, and W. and N. the German Ocean, or North Sea. Length, N.E. to S.W., abt. 200 m.; average breadth, abt. 65 m. The W. half of Limburg, which belongs to *H.*, joins the above territory on the S.E., and is inclosed by Belgium W. and S., and E. by Rhenish Prussia. That part of the grand-duchy of Luxemburg which belongs to *H.* is situated between Lat. 49° 28′ and 50° 13′ N., and Lon. 5° 45′ and 6° 30′ E.; it is detached from the rest of the Dutch dominions, and surrounded by Prussia, Belgium, and France.—*Political Divisions.* The following table shows the area and population of each of the eleven provinces of the kingdom, and the census of 1892:

Provinces.	*Area. sq. m.*	*Population, 1892.*	*Provincial Capital.*
Groningen	887	279,397	Groningen.
Friesland	1,280	336,442	Leeuwarden.
Drenthe	1,030	135,658	Assen.
Overyssel	1,291	302,508	Zwolle.
Guelderland	1,957	523,039	Arnhem.
Utrecht	530	229,054	Utrecht.
North Holland	1,070	878,896	Haarlem.
South Holland	1,160	1,002,144	The Hague.
Zeeland	690	202,709	Middleburg.
North Brabant	1,980	519,022	Bois-le-Duc.
Limburg	850	261,853	Maastricht.
TOTALS.	12,725	4,669,576	

The greatest density of population in the Holland provinces is explained by the character of the soil, the variety of industries, and the great number of large towns; all the towns with 100,000 inhab. and upwards (Amsterdam, Rotterdam and the Hague) being situated in the province of Holland. The pure Dutch, or *Netherlanders*, numbering from two and a half to three millions, inhabit the provs. of N. and S. Holland, Zealand, and Utrecht, and Guelderland; the Frisians, speaking a dialect of the Dutch language, are dispersed, to the number of perhaps half a million, through Overyssel, Drenthe, Groningen, and Friesland; while N. Brabant is almost entirely inhabited by a Flemish population. *Gen. Desc.* With the exception of some insignificant hill-ranges in Guelderland and Utrecht, and a few scattered heights in Overyssel, the whole kingdom is a continuous flat, partly formed by the deposits brought down by the rivers intersecting it, and partly won by human labor from the sea, which is above the level of a considerable portion of the country. Holland is consequently at all times liable to dangerous inundations. The west coast, however, from the Helder to the Hook of Holland, is partially protected by a natural barrier composed of a continuous range of sand-hills, or *dunes*, thrown up by the sea, of great breadth, and frequently 40 or 50 ft. in height. In other parts of the country, particularly in the provs. of Zealand, Friesland, and Guelderland, the sea is shut out by enormous artificial mounds or *dikes*, any failure in which would expose extensive districts to the risk of being submerged. In nothing, indeed, is the industry and perseverance of the people so exemplified as in the construction and maintenance of these dikes, the extent of which is immense, and the labor and expense required to keep them in repair very great. The most stupendous of these works are the dikes of West Capelle, in the island of Walcheren, and that of the Helder.—*Rivers.* The rivers of *H.* have mostly a W. or N. direction. The principal is the Rhine, which, for the most part, separates N. Brabant from Guelderland and S. Holland, and gives off several branches; the Meuse traverses the S.E. part of Holland: the Scheldt, its S.W. extremity. The Mense, Rhine, and Scheldt, all discharge into the N. Sea. The æstuary of the Ems forms the N. W. boundary of the kingdom. Lakes are extremely numerous, especially in the N. provs.; and there are also some extensive marshes.—*Islands.* The islands may be classed in groups: the S. group, composing a great part of the province Zealand and a portion of Holland, is formed at the mouths of the principal rivers, and comprises Cadsand, N. and S. Beveland, Walcheren, &c.; the N. group follows the coast-line stretching from the Helder to near the mouth of the Ems, and includes the Texel, Vlieland, Schelling, Amelland, &c. — *Clim.* The climate, generally, is variable, and the atmosphere much loaded with moisture, especially in the W. provs. The mean temperature of the year throughout the country is stated to be 47° Fahr. In winter, N. and N.E. winds are common; snow falls abundantly, and even the Zuyder-Zee is sometimes frozen over. — *Nat. Prod.* The soil is almost everywhere alluvial clay and sand. *H.* possesses little, if any, mineral wealth. It has no mines of any description. No coal deposits are found, but extensive beds of marine peat, of a most excellent quality, abound. Potter's clay, fuller's earth, and some calcareous products, are met with, but scarcely any stone is found from one end of the country to the other. The kingdom contains very little wood. There is some timber in the E. provinces; and at the Hague, Utrecht, and Haarlem, there are woods of oak, elm, and beech, but, generally speaking, most of the trees have been planted. The principal canals, especially in and near the towns, are lined with rows of willows and poplars; and in various places along the sandy shore, firs are produced. In other respects the vegetation is very similar to that of England. The zoölogy, also in most respects, is like that of the S. and central parts of Great Britain. Hares and rabbits are plentiful, but not winged game. The pools and marshy grounds abound with frogs and other reptiles, which form a favorite food for storks. These birds are particularly numerous in *H.*, and great favorites; — heavy penalties being enforced on their wilful destroyers. Water-fowl are very abundant. Fish is obtained in large quantities, and the herring-fishery forms a most important source of wealth. — *Canals, &c.* The general aspect of *H.* is different from that of any other country in Europe. Its surface presents one vast network of canals, the greater number of which are appropriated to land-drainage; many, however, are navigable by large vessels. The principal is the *Grand Ship Canal* of N. Holland, between Amsterdam and Nieuwdiep, on the Helder. This noble work, the greatest of its kind in Europe, is about 51 m. long, 125 feet wide at its surface, and 36 at bottom, with a depth of 20 feet 9 inches; constructed at a cost of $4,750,000. The facility with which the country may be laid under water, contributes materially to its strength in a military point of view. This, indeed, is not a resource to be resorted to, except on extreme occasions; but it was repeatedly made use of in the war of liberation, and also in 1672, when Louis XIV. of France invaded the country. The roads and private estates are commonly fenced by canals or ditches alone; hedges being extremely rare. The highways in the central provinces are among the best in Europe. Water-carriage is, however, the main system of transport which obtains in *H.* — *Agric.* The principal grains cultivated are rye and buckwheat; next to these come oats and barley. About 1,000,000 lasts of wheat are grown yearly, the bulk of which is consumed in distilleries, and starch and other manufactories. Pulse and garden vegetables are abundantly raised, besides woad, millet, and madder. Flax is also produced in large quantities. The vine is cultivated in Luxemburg. Utrecht and Guelderland are noted for their tobacco. Potatoes, hemp, chiccory, rape-seed, beet-root, hops, and



Fig. 1302.— THE TOWN-HALL, UTRECHT.

some medicinal herbs, are the other chief articles of produce. The ancient passion of the Dutch for tulips and other bulbous plants still exists, though now confined within reasonable limits; there are some large flower-gardens, in the neighborhood of Haarlem particularly, from which great numbers of bulbs are annually exported. The rearing of live-stock is a much more important source of national wealth than tillage. The horned cattle of N. Holland are celebrated for their beauty; in S. Holland, they resemble the Devon breed. The Dutch horses are good, and well adapted for draught; the best are those of Friesland. The breeds of sheep are bad or indifferent, but they yield a great deal of coarse wool. Dairy husbandry is carried on to a great and profitable extent; large quantities of butter, and an estimated annual export of 340,000 cwt. of cheese, are sent to England.—*Manuf.*

The principal manuf. are those of cotton and woollen cloths, particularly the former. There are, besides, others of silks, and velvets; of paper, leather, hats, cordage, needles, white-lead (the best in the world), borax and other chemicals, colors, tobacco, and liquors. Sugar-refining is largely operated in, and at Utrecht and Leyden immense quantities of bricks and tiles are made. Lapidaries' work obtains a famous repute for Amsterdam. Ship-building is another important branch of industry. —*Colonies and Com.* The commerce of the Dutch was formerly the most extensive carried on by a European power; and the wealth which it brought into the country furnished her with the means of supporting the vast expense of her lengthened struggle with Spain, and of her subsequent contests with France and England. The circumstances under which the Hollanders have been placed, the natural poverty of their soil, and the necessity of unremitting vigilance to prevent its being submerged, made industry and economy a condition of their existence. *H.* being destitute of iron, coal, timber, and many other indispensable articles, the prosecution of commerce is there not a matter of choice but of necessity; and hence it is that, in the earliest periods, we find the Batavians distinguished for their fisheries, their shipping, and their commercial enterprise. For a lengthened period they engrossed nearly the whole sea-fishery of Europe, and they were long the carriers and factors of the principal European states. Holland was still, at her emancipation from the French yoke, in 1814, the richest country in Europe. An abstract of the colonies possessed by Holland is as follows:

Foreign Possessions.	*Area Eng. sq. m.*	*Population.*
East Indies.		
Java, Madura, Borneo, Sumatra, and W. Coast of Celebes, the Molnccas, &c.	690,481	28,350,661
W. Indies and S. America.		
Curaçoa, Aruba, St. Martin, Bonaire, St. Eustache, Saba and Surinam	54,187	85,792
West Coast of Africa	10,625	110,118
Total.	755,293	28,546,571

The foreign trade, although less than it was formerly, still continues to be considerable in proportion to the size of the country. The total value of exports for the year 1895 was $451,200,000, of which $14,900,000 was to the U. S.; of imports, $577,520,000, $44,320,000 from the U. S. In these statistics the Dutch colonies include their quota.—*Govt. &c.* The Netherlands form a constitutional monarchy, under a fundamental charter (*grand ovet*) proclaimed in 1848. This charter vests the whole legislative authority in a parliament composed of two chambers, called the *States General.* Both chambers are elective, and the second has alone the initiative of new laws and the origination of financial measures. The executive power is in the hands of the sovereign, and exercised by him through a council of ministers, consisting of 7 depts., viz., those of the Interior, Finance, Justice, Colonies, Foreign Affairs, Marine, and War. There were on Jan. 1, 1896, 1,632 miles of railway in operation; while the State telegraphs had a total length of 3,497 miles, with 12,511 miles of wire. The army in 1896 had a total strength of 26,972 men and 1,882 officers; the navy comprised 10 ironclads, 12 ironclad monitors, 37 torpedo boats and other vessels. The revenue for 1896 was $52,343,318; expenditures, $54,312,584; public debt, $429,117,060.—*Religion, Education, &c.* The religion officially recognized by the state is Protestant, but the freest liberty of conscience, and complete social equality is granted to the members of all religious professions. Education is well conducted, and very generally diffused.—*Cities.* The Hague is the state cap., and, besides the chief provincial cities before mentioned, the principal places remaining are Leyden, Haarlem, Dordrecht, Nimegnen, Delft, Zwolle, Kampen, and The Helder. — *Hist.* In the time of the Romans, *H.* was inhabited chiefly by *Batavi* and *Frisii*, (q. v.) In the reign of Vitellius the Batavians endeavored unsuccessfully to free themselves from the Roman yoke; in the 2d century their country was overrun by the Saxons; in the 8th it was conquered by Charles Martel; and it subsequently formed a part of Charlemagne's dominions. From the 10th to the 14th century, the Netherlands were divided into many petty sovereignties, under the dukes of Brabant, the counts of Holland and Flanders, &c. In 1383, however, by marriage and otherwise, the whole passed into the hands of the dukes of Burgundy; thence to the house of Austria; and, lastly, in 1548, under the rule of Charles V. The union with Spain was a calamity for *H.* The Dutch had long been in the enjoyment of many political rights and privileges; they had extensive fisheries and trade, and they had, as a majority, embraced the doctrines of the Reformation. Philip II., who regarded the privileges enjoyed by the Hollanders as usurpations on his own prerogative, and who abhorred the Reformed faith, resolved to recover the former, and to suppress or extirpate the latter. To accomplish this double end, he sent in 1567 the Duke of Alva (*q. v.*), with a powerful army, into the Low Countries. But the proscriptions and massacres with which this sanguinary though able soldier filled the country failed of their object. The Dutch, instead of being subdued, were at length driven into open rebellion. The malcontents captured the Briel in 1572; and after a struggle unequalled for duration, for the sacrifices it imposed on the weaker party, and for the importance of its results, the independence of the republic of the *Seven United Provinces* was acknowledged by Spain in 1609. Except that it was occasionally darkened by intestine feuds, the half century that succeeded this event is the brightest in Batavian annals. The commerce of *H.* attained to an unrivalled magnitude; and while she extended her colonies and conquests over some of the most valuable provinces in the E. and W. Indies, she successfully resisted Louis XIV., contended with England for the empire of the sea, and was justly regarded as one of the bulwarks of the Protestant faith. From the death of Louis XIV. down to the French Revolution, the influence of *H.* gradually declined, not so much from any decay of her own resources as from the superior growth of commerce and manufactures in England and other states. The policy of *H.* had long been peaceful; but that did not protect her from being overrun by revolutionary France. In 1806, she was erected into a kingdom for Louis, a brother of Napoleon I.; and on the latter's downfall, she was united with Belgium, and formed into a monarchy under the house of Orange, the founders of her liberties; but this union was never cordial. The Dutch and Belgians are, in fact, totally dissimilar in their religion, character, and pursuits; and the connection between them was dissolved by the revolt of the Belgians soon after the French Revolution of 1830. *H.* therefore has now nearly the same limits as before her occupation by the French in 1795.

Rulers of Holland.

(From the date of revolt against the Spanish yoke.)

Stadtholders.

1559. William I. of Orange, (surnamed the Taciturn.)
1584. Maurice (of Nassau).
1625. Frederick Henry.
1647. William II.

Republic.

1650. John De Witt, (Grand-Pensionary.)

Stadtholder.

1672. William III., (elected king of England.)

Republic.

1720–1770. Heinsius, (Grand-Pensionary.)

Stadtholders.

1747. William IV.
1751. William V.

Republic.

1805. Schimmelpênuinck, (Grand-Pensionary.)

Kingdom of Holland.

1806. Louis Bonaparte.
1810. (United to France.)

Kingdom of the Netherlands.

1815. William I.
1840. William II.
1849. William III.
1890. Wilhelmina.

Hol'land, *n.* A sort of fine linen, first manufactured in Holland. See Linen, Manufacture.

Hol'land, in *Illinois*, a township of Shelby county.

Hol'land, in *Indiana*, a post-village of Dubois co., about 38 miles N.E. of Evansville. *Pop.* (1890) 548.

Hol'land, in *Massachusetts*, a post-town of Hampden co., about 70 m. W.S.W. of Boston.

Hol'land, in *Michigan* a flourishing city of Ottawa co., at the mouth of Black river, on the C. & W. M. R.R., 25 m. S.W. of Grand Rapids. Has extensive leather manufactures and other industries, and a fine local trade. Seat of Hope College (Dutch Reformed). *Pop* (1894) 6,307.

Hol'land, in *New Jersey*, a post-town of Hunterdon co.

Hol'land, in *New York*, a post-village and township of Erie co., about 25 m. S.E. of Buffalo. *Pop.* of village (1890) 582.

Hol'land, in *Ohio*, a post-village of Lucas co.

Hol'land, in *Vermont*, a post-town of Orleans co., about 55 m. N.N.E. of Montpelier. *Pop.* (1890) 878.

Hol'land, in *Wisconsin*, a post-township of Brown co.
—A township of La Crosse co.
—A township of Sheboygan co.

Hol'land, a name applied to a district of Lincolnshire, in England, embracing an area of 250,000 acres, with a *pop.* of 75,000.

Hol'land, Henry Richard Vassall Fox, (Lord,) an English statesman, b. 1773, was the only son of Stephen, second Lord Holland, elder brother of Charles James Fox (*q. v.*) During his travels in Italy, he formed an intimacy with the wife of Sir Godfrey Webster, Bart.; in consequence of which the latter brought an action against him, and obtained $30,000 damages. Lady Webster being subsequently divorced, Lord *H.* married her in 1797, and on that occasion took, by royal sign-manual, the surname of *Vassall.* During his parliamentary career, which commenced in 1798, he was the uncompromising advocate of the Catholic claims; a zealous promoter of every endeavor to soften the asperities of the law; and an asserter of popular rights in the most extensive sense of the term. When the Whig party came into power in 1830, he became a cabinet minister and Chancellor of the Duchy of Lancaster. D. 1840. During his life-time Holland House, at Kensington, (Fig. 1303,) presided over by Lady *H.*, who died in 1845, was the most renowned temple of wit, social graces, and hospitality in England.

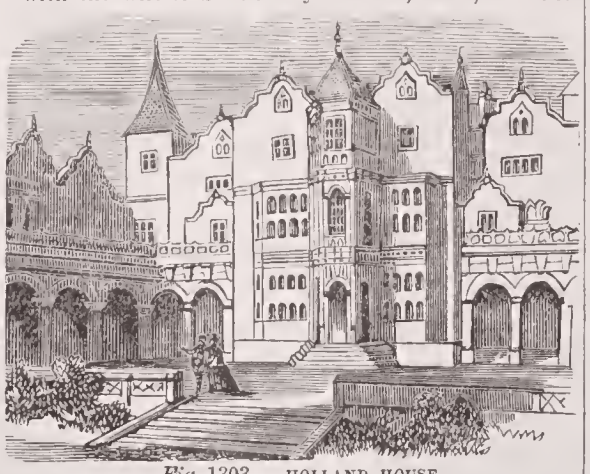


Fig. 1303.—HOLLAND HOUSE.
(Kensington, London.)

Hol'land Landing, is a village of prov. of Ontario, abt. 35 m. N. of Toronto.

Hol'land, (New.) See Australia.

Hol'land, (North and **South,)** two maritime provs. of the Netherlands, or kingdom of Holland, bounded W. by the German Ocean, S. by Zealand, E. by the Zuyder-Zee and the prov. of Utrecht. From the humidity of both soil and climate, not much land is under tillage, and that little is in S. Holland. The crops principally cultivated are wheat, madder, tobacco, hemp, and flax. The principal agricultural wealth consists in the pastures, which are almost unrivalled in the abundance and luxuriance of the grass which they produce; and on this are fed large numbers of cattle, many of which are exported to Great Britain. *Chief Towns* in *N. Holland*, Amsterdam, Haarlem, and Zaardam; in *S. Holland*, Rotterdam, the Hague, Leyden, and Dort.—See Holland.

Hol'lander, *n.* (*Geog.*) A Dutchman; a native or inhabitant of Holland, or the Netherlands.

Hol'landish, *a.* Pertaining or relating to Holland, or the Netherlands; resembling the people of Holland; Dutch.

Hol'land Patent, in *New York*, a post-village of Oneida co., abt. 11 m. N.N.E. of Utica.

Hol'lands, *n. sing.* Gin made in Holland; schiedam.

Hol'len, *n.* An old English writing of Holly, *q. v.*

Hol'lenback, in *Pennsylvania*, a township of Luzerne co.

Hol'ley, in *Florida*, a post-office of Santa Rosa co.

Hol'ley, in *New York*, a post-village of Orleans co., about 22 m. W. of Rochester. *Pop.* (1890) 1,381.

Hol'ley, in *Oregon*, a post-office of Linn co.

Hol'liday, in *Illinois*, a post-village of Shelby co.

Hol'lidaysburg, in *Pennsylvania*, a post-borough, cap. of Blair co., on the Juniata river, near the E. base of the Allegheny Mountains, 8 m. S. of Altoona, on Penna. R.R. *Pop.* (1897) about 3,150.

Hol'lis, in *Illinois*, a village and township of Peoria co., abt. 11 m. N.W. of Peoria.

Hol'lis, in *Maine*, a post-township of York co., abt. 60 m. S.W. of Augusta.

Hol'lis, in *New Hampshire*, a post-township of Hillsborough co., abt. 7 m. S. of Nashua.

Hol'lis Centre, in *Maine*, a post-office of York co.

Hol'listerville, in *Penna*, a P.O. of Wayne co.

Hol'liston, in *Massachusetts*, a post-village and township of Middlesex co., abt. 25 m. W.S.W. of the city of Boston.

Hol'lo, Hol'loa, Hol'la, *v. n.* [A. S *ahlowan*, to low or bellow again — *a*, intensive, and *hlowan*, to low. See Halloo.] To halloo; to hail; to call out or exclaim loudly.

"In his ear I'll *hollo* Mortimer!" —*Shaks.*

Hol'lo, Hol'loa, *interj.* and *n.* A shout; a loud call; a hail; also, a word used in calling, equivalent to *ho! hey! halloo!* (In frequent use, when hailing ships at sea.)

Hol'lock, *n.* A sort of sweet wine in use in the 16th century.

Hol'low, *a.* [A. S. *hol.* See Hole.] Containing an empty space; not solid; cavernous; concave; sunken; empty; void; evacuated in the interior; as, a *hollow* vessel, a *hollow* sphere.

"The *hollow* oak our palace is, our heritage the sea." *Cunningham.*

—Deep; low; resembling sound reverberated from a cavity, or designating such a sound: as, a *hollow* voice.

"'Twas when the sea was roaring with *hollow* blasts of wind." *Gay.*

—Insincere; faithless; deceitful; not sound; as, a *hollow* heart, *hollow* protestations.

Hollow eye, an eye sunk deep in its orbit. — *Hollow-ware*, hollow vessels or utensils; — a term generally given in commerce to cast-iron or tin cooking-vessels, earthenware, &c.

Hollow bastion. (*Fortif.*) A bastion in which the terre-plein is limited by a line parallel to the scarp, and along which the interior slope of the rampart extends continuously. — *Hollow shot.* (*Gun.*) Empty shells, with metal screw-plugs, sometimes used in the navy.

Hollow Revetment. See Revetement. — *Hollow newel.* (*Arch.*) An opening in the middle of a staircase, the steps only being supported at one end by the surrounding wall; the ends next the hollow are unsupported. — *Hollow quoin*, a pier of brick or stone made behind the lock-gates of canals.

Hollow square. (*Mil.*) See Square.

—*n.* A hole; a cavity; a place excavated; a cave or cavern; a den; as, the *hollow* of the hand.

"The happy *hollow* of a tree." — *Shaks.*

—Any depression of surface in a body; a concavity; a groove; a canal; a gut; a channel.

"The little springs are conveyed . . . into the main *hollow* of the aqueduct." — *Addison.*

—*v. a.* [A. S. *holian*; O. Ger. *holjan*, to hollow.] To make hollow; to excavate; to cause a depression of surface, as by digging, cutting, engraving, &c.

"Trees, rudely *hollow'd* did the waves sustain." — *Dryden.*

—*adv.* So as to render hollow or empty; utterly; completely; thoroughly; — generally following the verb *beat*; as, we *beat* the enemy *hollow*; and often with *all*; as, that girl's face *beats* the other *all hollow.*

Hol'low, *interj.* Same as Halloo, *q. v.*

—*v. n.* To shout; to call; to halloo; to hail.

"He, with his hounds, comes *hollowing* from the stable."—*Pope.*

—*v. a.* To urge on, call, or hail by shouting.

Hol'loway, a suburban disl. of London, the English metropolis, 4 m. N. of St. Paul's; *pop.* abt. 27,000.
Hol'loway ville, in *Illinois*, a post-office of Bureau co.
Hol'low-hearted, *a.* Faithless; insincere; deceitful; false; of practice or sentiment differing from profession; not sound and true.

"*Hollow-hearted,* disaffected malignants."—*Hudibras.*

Hol'lowly, *adv.* In a hollow manner; faithlessly; deceitfully.

"Try your penitence, if it be sound, or *hollowly* put on."—*Shaks.*

Hol'lowness, *n.* State of being hollow or concave; excavation; depression of surface.—Faithlessness insincerity; deceitfulness; treacherousness.
Hol'low-tree, *n.* (*Bot.*) See SAMBUCUS.
Hol'lowville, in *New York*, a P. O. of Columbia co.
Hol'ly, *n.* [A. S. *holegn, holen;* W. *celyn.* Etymol. uncertain.] (*Bot.*) See ILEX.
Hol'ly, in *Michigan*, a post-village and township of Oakland co., on 2 railroad lines, 7 m. S.E. of Flint. *Pop.* (1894) 1,231.
Holly Creek, in *Georgia*, a village of Murray co., about 10 m. S. of Spring Place.
Hol'lyhock, *n.* [A. S. *holihoc*, probably from *holig*, holy, and *hoc*; W. *hocys*, mallow.] (*Bot.*) The common name of *Althæa rosea* and *ficifolia*, a tall flowering plant of the genus *Althæa*, cultivated in gardens.
Holly Springs, in *North Carolina*, a post-village of Wake county.
Holly Spring, in *Arkansas*, a post-village of Dallas county.
Holly Springs, a city, cap. of Marshall co., on the Ill. Cent., and the K. C., M. & B. R. Rs., 46 m. S. E. of Memphis, Tenn.; an important trade and educational center. *Pop.* (1897) about 2,500.
Hollywood, a village and parish of Ireland, in the co. of Down, Ulster, about 4 m. N.E. of Belfast. *Pop.* 1,500.
Hollywood, in *Minnesota*, a post-township of Carver co.
Holm, Holme (*hōm*), *n.* [A. S. Low Ger., Ger. and Dan.; Swed. *holme.* Etymol. unknown.] A river isle; an islet; an ait.—A low, flat area of rich land skirting the banks of a river.

"The soft wind blowing over meadowy *holms.*"—*Tennyson.*

Holm, *n.* [See HOLLY.] (*Bot.*) See QUERCUS.
Holm'del, in *New Jersey*, a post-village and township of Monmouth co., about 35 m. N.N.E. of Trenton. *Pop.* of township (1890) 1,497.
Holmes (*homz*), OLIVER WENDELL, an eminent American physician and man of letters, son of the Rev. Abiel Holmes, author of the *Annals of America*, was born at Cambridge, Mass., Aug. 29, 1809. After graduating at Harvard in 1829, he studied law and medicine, receiving (after a two years' residence in Paris) his medical degree in 1836. In 1839–40 Dr. *H.* was appointed professor of Anatomy and Physiology in Dartmouth College, and, in 1847, Parkman professor of the same sciences in the Medical School of Harvard University, which position he continued to fill until his death. Dr. *H.*'s contributions to literature were many, varied and distinguished. In 1836 he made his maiden effort in the world of letters with a volume of *Poems*, which proved an encouraging venture. In 1842 appeared *Lectures on Homœopathy and its Kindred Delusions;* and in 1848 a *Report on Medical Literature.* In 1857–8, and the two following years, *The Autocrat of the Breakfast Table, The Professor at the Breakfast Table,* and *Elsie Venner*, successively delighted Dr. *H.*'s admirers, both in this country and in England, where his works are held in high estimation, the *Autocrat* alone possessing sufficient humor, and that of the highest order, to make an average literary reputation. These were succeeded in turn by *Currents and Counter-Currents,* in 1861; *Songs in Many Keys,* in 1861; *Soundings from the Atlantic,* 1864; *The Guardian Angel,* 1867; *Mechanism in Thought and Morals,* 1870; &c. Died Oct. 7, 1894.
Holmes, in *Florida*, a N.W. co., adjoining Alabama; *area*, about 535 sq. m. *Rivers.* Choctawatchie river, and numerous smaller streams. *Surface*, generally level; *soil*, moderately fertile. *Cap.* Westville. *Pop.* (1890) 6,232.
Holmes, in *Michigan*, a township of Mackinac co.
Holmes, in *Mississippi*, a central co., *area*, about 750 sq. m. *Rivers.* Yazoo and Big Black. *Surface*, level; *soil*, very fertile. *Cap.* Lexington. *Pop.* (1890) 30,790.
Holmes, in *Ohio*, a N.E. central co.; *area*, about 436 sq. m. *Rivers.* Walhonding river, Killbuck creek, and numerous smaller streams. *Surface*, hilly; *soil*, fertile. *Cap.* Millersburg. *Pop.* (1890) 21,139.
—A township of Crawford co.
Holmes'burg, in *Pennsylvania*, a suburban village within the incorporated limits of Philadelphia, about 10 miles N.E. of the City Hall.
Holmes City, in *Minnesota*, a post-town of Douglas co., about 11 m. S.W. of Alexandria. *Pop.* (1897) 910.
Holmes Hole (now VINEYARD HAVEN), in *Massachusetts*, a post-village of Dukes co., 60 m. S. E. of Boston. It has a fine harbor, at the entrance of which stands *H. H.* Lighthouse, exhibiting a fixed light, 60 feet above sea-level. Lat. 41° 29′ N.; Lon. 70° 36′ 40″.
Holmes Park, in *Missouri*, a P. O. of Jackson co.
Holmes'ville, in *Georgia*, a village, cap. of Appling co., about 115 m. S. E. of Milledgeville.
Holmesville, in *Louisiana*, a post-office of Union parish.
Holmesville, in *Mississippi*, a post-village of Pike co., on the Bogue Chitto river, about 90 m. S. of Jackson.
Holmesville, in *Ohio*, a post-village of Holmes co., about 85 miles N.E. of Columbus.
—A village of Marion co., about 48 m. N.N.W. of Columbus.
Holmite, *n.* (*Min.*) Same as SEYBERTITE, *q. v.*
Hol'ocaust, *n.* [Gr. *holokaustos* — *holos*, whole, and *kaiō*, I burn.] A solemn sacrifice among the ancients, in which the whole of the victim was consumed upon



Fig. 1304.—A BURNT-OFFERING.

the altar, in contradistinction to the usual custom of burning only a portion. A similar custom prevailed among the Jews; it is called in the Old Testament a *burnt-offering.*
Holocryp'tic, *a.* [Gr. *holos*, entire, and *krypteio*, to hide.] Concealing thoroughly: that cannot be understood or ascertained; as, a *holocryptic* cipher.
Holofer'nes. See JUDITH.
Holograph, (*hōl'o-graf,*) *n.* [Gr. *holos*, and *graphō*, to write.] Any writing, deed, testament, or memorandum, wholly in the handwriting of the person from whom it issues.
Holograph'ic, *a.* Pertaining or relating to holographs; of the character of a holograph.
Holohe'dral, *a.* [Gr. *holos*, and *hedra*, base.] (*Min.*) Having all the similar angles similarly replaced.
Holom'eter, *n.* [Gr. *holos*, and *metron*, measure.] A mathematical instrument for taking measures.
Holopty'chius, *n.* [Gr. *holos*, entire; *ptyche*, wrinkle — literally, "all-wrinkle."] (*Pal.*) A genus of sauroid fishes, belonging to the Devonian and Carboniferous periods. Their enamelled scales have corrugated or wrinkled surfaces, and this character suggested the generic name. The *Holoptychii*, judging from their fragmentary remains, must have been of great size — from 8 to 10, or even 12 feet in length. They were armed with numerous sharp-pointed fish-teeth, and also with larger reptilian teeth of conical form, placed at intervals in either jaw, evidently for the purpose of seizing and cutting up their bulkier prey.
Holoseri'ceous, *a.* [Gr. *holos*, whole, and Lat. *sericus*, silken.] (*Zoöl.*) Covered with thick-set, short, decumbent hairs; a kind of pubescence resembling satin.
Holothu'ria, *n.* (*Zoöl.*) A genus or order of marine Radiata, the distinguishing characters of which are, that the body is of an elongated form, defended by a coriaceous integument; open at both ends, and perforated by numerous small canals, through which suckers are protruded. At the anterior extremity is the mouth, furnished with many retractile tentacula, and at the opposite ends is the aperture of the cloaca. The species called *Bêche-de-mer*, or Trepang, *H. edulis*, is caught and dried in great quantities by the Malays for the Chinese markets, the inhabitants of the Celestial Empire being excessively fond of it as a principal ingredient in restorative soups.

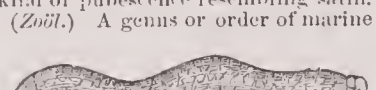


Fig. 1305.
EATABLE TREPANG, (*H. edulis.*)

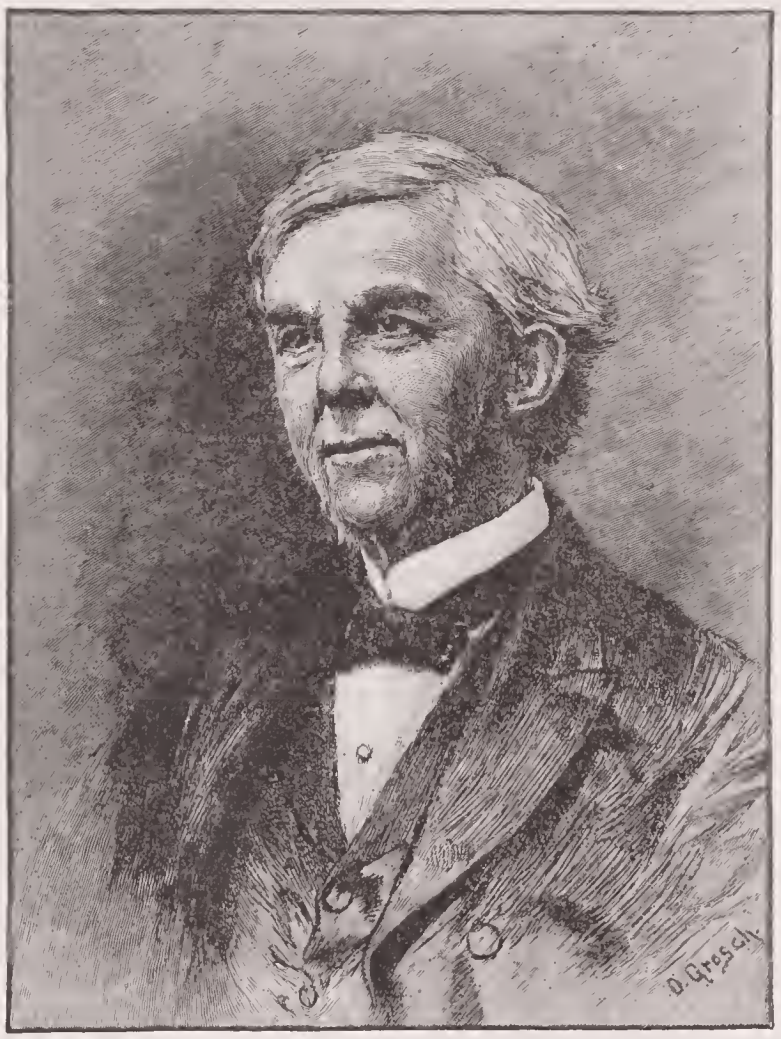
Holp, Holp'en, old form of *imp.* and *pp.* of HELP, *q. v.*
Holstein, (*hōl'stīn,*) (HOUSE OF,) a princely German family, which includes the royal line of Denmark, the collateral branches of *Holstein-Sonderburg-Augustenburg*, and the ducal race of *Holstein-Gottorp*, which last is again divided into two branches, — the elder being the reigning line of Russia, while the younger is represented by Gustavus, Prince of Wasa, a field-marshal in the Austrian service, and also by the Oldenburg family.
Hol'stein, a duchy of N. Germany, formerly belonging to Denmark, and now an appanage of the kingdom of Prussia. By decree of Jan. 1, 1869, the duchy of *H.* has been united to the duchy of Schleswig, to form the province of *Schleswig-Holstein.*
Hol'stein, in *Missouri*, a post-village of Warren co., about 50 m. W. of St. Louis co.
Hol'ster, *n.* [A. S. *healster*, from *helan*, to cover.] A cover or leathern case for a pistol, carried on a horseman's saddle-bow.
Hol'stered, *a.* Carrying holsters: as, a "*holstered* steed."—*Byron.*
Hols'ton, a river which rises in Wythe co., Virginia, and flowing a tortuous S.W. course through Smythe and Washington cos., enters Tennessee between Hawkins and Powell cos. Thence traversing Granger, Jefferson, and Knox cos., it unites with the Clinch River at Kingston in Roane co., to form the Tennessee River. *Length*, about 200 m
Holt, *n.* [A.S. and L. Ger., a grove or wood.] A wooded hill; a bosky eminence. (Used chiefly in poetry.) — A gully, or recess in a river; — also, a hole, cover, or place of refuge.

"The fox has gone to *holt.*"—*C. Kingsley.*

Holt, the name of numerous small towns, parishes, &c., in England.
Holt, in *Michigan*, a post-village of Ingham co.
Holt, in *Missouri*, a N.W. co., adjoining Nebraska and Kansas; *area*, about 462 sq. m. *Rivers.* Missouri, Nodaway, Tarkeo, and Little Tarkeo rivers. *Surface*, generally level; *soil*, fertile. *Cap.* Oregon. *Pop.* 15,469.
Holt, in *Ohio*, a post-office of Jefferson co.
Holt, in *Pennsylvania*, a post-village of Beaver co.
Hol'ton, in *Indiana*, a post-village of Ripley co., about 58 miles W. of Cincinnati, O. *Pop.* (1890) 366.
Holton, in *Kansas*, a city, cap. of Jackson co., on 3 R. R. lines, 30 miles N. of Topeka. *Pop.* (1895) 3,020.
Holts'burg, in *North Carolina*, a village of Davidson co., about 8 miles N.E. of Salisbury.
Holt's Corner, in *Tennessee*, a post-village of Marshall co.
Holt's Summit, in *Missouri*, a post-office of Callaway co.
Holt's Store, in *North Carolina*, a village of Alamance co.
Holts'ville, in *New York*, a post-village of Suffolk co.
Ho'ly, *a.* [A.S. *halig;* D. and Ger. *heilig;* Dan. *hellig.* See WHOLE.] Set apart to a sacred use; consecrated; devoted to the service of God: hallowed by divine worship; sanctified; as, the *holy* Sabbath; *holy* religion, the *holy* temple, &c. — Whole, entire, or perfect, in a moral sense: pure in heart, temper, or disposition; free from sin and corrupt affections; pious; devout; godly; divine; immaculate; proceeding from pious principles, or directed to religious purposes; pure; irreproachable; as, a *holy* life.

"And many a *holy* text around she strews."—*Gray.*

Holy Alli'ance, (The.) (*Hist.*) A celebrated compact, between the emperors of Russia and Austria and the king of Prussia, signed at Paris, Sept. 26, 1815. The act of this alliance is said to have been sent in the Czar's writing to the emperor of Austria and the king of Prussia, and signed by them. It is not supposed that the original terms of the league were other than indefinite; for the maintenance of justice, religion, &c., in the name of the Gospel. But it was subsequently connected with the determination of those monarchs to support, in conjunction with England and France, existing governments throughout Europe, by the Declaration of November, 1819. Afterwards the congresses of Troppau, Laybach, and Verona established the character of the alliance, to which the war of France against Spain, in 1823, gave additional illustration. But England may be said to have finally abandoned its principles in 1827, and France in 1830.
Holy Broth'erhood. See HERMANDAD.
Holy Cross, in *Wisconsin*, a post-office of Ozaukee co.
Ho'ly-cross, *n.* (*Eccl.*) The cross on which Christ suffered. — See CROSS.
Ho'ly-cross Day, *n.* The 14th of September, on which a festival is kept to commemorate the exaltation of the Holy Cross; — called also HOLY-ROOD DAY.
Ho'ly-eru'el, *a.* Cruel from religious fanaticism. (R.) *Shaks.*
Ho'ly-day, *n.* See HOLIDAY.
Holy Ghost, (The.) *n.* [A.S. *halig*, holy, and *gast*, spirit.] The Holy Spirit; the third person in the Trinity, whom the Saviour promised to send to comfort his disciples, (*John* xiv., xv., and xvi.) The doctrine of the "Filioque," asserting the "Procession" from the Father and the Son, formed one of the chief points of dispute which led to the separation of the Greek and Roman Churches, — the former contending that he proceed from the Father only. The Presbyterian Church maintains the doctrine held by the Roman Catholic Church.
Ho'lyhead, an island and seaport of Wales, situated off the W. coast of the isle of Anglesey, with which it is connected by a long causeway which may be crossed at low water, 23 m. N.W. of Bangor. The isle is but a barren rock. *H.* has a noble breakwater enclosing a harbor of refuge. *Pop.* (1897) 5,875. See SKERRIES.
Holy Island, jutting out into the German Ocean from the coast of Northumberland, Eng., but belonging to Durham, is really a peninsula, although isolated at high water. It is about 8 m. from Berwick and may be crossed by carriages every ebb-tide.
Holy Office. See INQUISITION.
Holyoke (*hōlyōk*), in *Massachusetts*, a thriving city of Hampden co., on Conn. river, and the B. & M. and N. Y., N. H. & H. R. Rs., 8 miles N. of Springfield. Has immense water power, proceeding from a dam laid entirely across the Connecticut river, and very important manuf. of paper, envelopes, machinery, cottons, and woollens, &c. *Pop.* (1897) about 41,000.
Holy One, The, *n.* The Supreme Being, by way of emphasis; Christ; "The *Holy One* of Israel." (*Is.* xliii. 14.)—One set apart to the service of God.
Holy Orders, *n. pl.* See ORDERS, HOLY.
Holy Roman Empire. See GERMANY.
Holyrood, or HOLYROOD PALACE, a celebrated abbey and palace at Edinburgh, Scotland, founded in 1128, by David I. The abbey was burned by the English in 1385, in 1544, and in 1547, on which occasion nothing was left



Oliver Wendell Holmes

1809–1894

standing but the body of the church, which, in its turn, was plundered and despoiled by the mob in 1688. Rizzio was murdered in one of the apartments of the palace, March 9, 1566. Charles I. was crowned here, June 18,



Fig. 1306. — HOLYROOD CHAPEL.

1633. The existing palace of Holyrood was designed by Sir William Bruce in 1669. The French royal family took up their residence at Holyrood in 1796.

Ho'ly Sepulchre, (Order of the,) (*sĕp'ul-kr.*) A military order, said to have been founded by St. James in 69, to guard the Holy Sepulchre against unbelievers. Other authorities say it was established by Helena, mother of Constantine I., in 326; others, by Godfrey of Bouillon, king of Jerusalem, in 1097; and some consider Baldwin I. (1100–1118) its founder. It was incorporated with the Hospitallers in 1484, but re-established by Pope Alexander VI. in 1496. Louis XVIII. of France restored it Aug. 29, 1814.

Holy-stone, *n.* (*Naut.*) A small stone used by hand, with sand and water, to scour a ship's deck. The larger stone, called the *bear*, is worked with ropes by two or more men. When dry sand only is used it is called *dry holy-stoning*, (Fr. *briquage de sec.*) Dr. Ruschenberger, of the United States navy, first recommended the use of *shellac* for the berth-deck of vessels, as being more healthy than either wet or dry holy-stoning.

—*v. a.* (*Naut.*) To scrub a vessel's deck, as with a holy-stone.

Ho'ly-thistle, *n.* (*Bot.*) The Blessed-thistle, *Centaurea benedicta*.

Holy-Thursday, *n.* The ASCENSION DAY, *q. v.*

Ho'ly-Trinity. See TRINITY.

Ho'ly Water, *n.* (*Eccl. Hist.*) In the Roman Catholic Church, water which has been blessed, or consecrated, by an appropriate service, and used to sprinkle the worshippers and the things used in the church. The custom of sprinkling churches, &c., with consecrated water is traced by some to the time of the Apostles. Pope Alexander I. (109–119) refers to it as an established custom in his time; and it is mentioned by Tertullian (160–240).

Ho'ly-week, *n.* (*Eccl.*) The last week in Lent, called also, in England, *Passion-week*, in commemoration of the Saviour's suffering and death.

Holywell, (*hol'li-well.*) a town of England, in Flintshire, N. Wales, 14 m. N. of Flint, on the Dee. *Manuf.* Cotton, brass goods, galloons, and copper. The stream issuing from the Holy well of St. Winifred boils up as from a caldron, sending out every minute 20 tons of water. It is the most copious spring in England.

Ho'ly Writ, (*-rĭt,*) *n.* The Sacred Book; the Scriptures.

Homage, (*hom'āj,*) *n.* [Fr. *hommage*, from L. Lat. *homagium*, or *hominium*, from *homo*, man, the usual term by which the vassal or dependant of a prince is designated in the old writers of the middle ages.] The symbolical acknowledgment of dependence due from a vassal to a fendal lord or superior when invested with a fief, or obtaining it by succession. In the earliest periods of the feudal system, fealty and homage appear to be confounded; but in later times the distinction was clearly established, and fealty might sometimes be due where homage was not. *H.* was either "homagium ligeum," *liege H.*, by which full and unreserved allegiance was rendered; or "homagium simplex," *simple H.*, a mere acknowledgment of feudal superiority, with a saving or exception of the rights of other feudal lords. The one was personal, and could not be renounced, hence the doctrine of *allegiance*; the other bound the vassal only so long as he held the fief in respect of which it was due.

—Obeisance; reverential regard; respect paid by external action or observance; deference.

—Reverence offered to the Supreme Being; devout respect; religious affection; devotional regard.

—*v. a.* To express reverence by external observance; to profess fealty or devotion to; to pay honor or regard to. (R.)

Hom'ageable, *a.* Subject to homage.

Hom'ager, *n.* One who holds by homage of some superior.

Homalia'ceæ, *n. pl.* (*Bot.*) Homaliads, an order of plants, alliance *Cactales*. DIAG. Distinct sepals and petals, separate styles, and pendulous ovules. — The Homaliaceæ are trees or shrubs, with alternate leaves; the calyx superior and funnel-shaped, with from 5 to 15 divisions. Petals equal in number to, and alternate with, the divisions of the calyx. Stamens opposite to the petals, and inserted on them, either distinct, or in bundles of three or six. Ovary 1-celled, with parietal placentas, numerous pendulous ovules, and from 3–5 styles. The fruit is a capsule, or berry, with small seeds, having the embryo in the axis of a little fleshy albumen. Some species of the typical genus Homalium are remarkable for their astringent properties. The order includes 8 genera and 30 species.

Hom'burg, a town of Prussia, and the former capital of the landgraviate of Hesse-Homburg, is situated at the foot of the Taunus Mountains, 9 m. N.W. of Frankfort-on-the-Maine. It has been much frequented on account of its mineral-waters; but since the suppression, in 1867, of its celebrated gaming-hall, it is now comparatively deserted.

Hom'burg's Sedative Salt, *n.* (*Chem.*) Same as BORACIC ACID, *q. v.*

Home, *n.* [A. S.; Ger. *heim*; Dan. *hjim*; allied to Gr. *kōmē*, a village, and probably to Lat. *domus*, Sansk. *dhâmar*, a house.] One's own abode; a dwelling-house; the house in which one resides; abode; residence; dwelling; habitation.

"*Home*, sweet *home!* there 's no place like *home*." —*Payne.*

—One's own country or place of birth; also, that which belongs to an abode or dwelling-place. — Seat, or place of constant residence.

"The land of the free, and the *home* of the brave."
Star-spangled Banner.

At home. At one's own place of residence; also applied to a social reception or entertainment; as, I attended Lady Blessington's *at home* yesterday.

H. Department. (*Pol.*) In the executive branch of government, that department which has control of all matters pertaining to the internal and civil polity of the state; department of interior; as, the Secretary of State for the *Home Department.* (Eng.)

To be at home on any subject. To have a thorough knowledge of, or familiar acquaintance with; as, he is quite *at home* in the Sanskrit language.

Home, *a.* Domestic; pertaining to one's dwelling-place or country; — opposed to *foreign*; as, *home* manufactures, *home* products. — Pointed; poignant; close; direct; as, a *home*-thrust.

(*Naut.*) Used on shipboard of anything that is close in its place. It is applied to the sheets of the sails, the shot and cartridge in a gun, and any article of stowage.

—*adv.* To one's own habitation or country; as, in the expressions go *home*, carry *home*, he came *home*, &c.

—Closely to the point; to the proper position or place of application; as, our sins come *home* to us, to drive a sword-thrust *home*.

"Accuse him *home* and *home*."—*Shaks.*

To come home. (*Naut.*) To become parted from its hold of the ground by violence of wind or sea; — said of an anchor.

To haul home the sheets of a sail. (*Naut.*) To haul the clues taut to the sheave-hole.

NOTE. — *Home* is used to form various self-explaining compound words; as, *home*-brewed, *home*-made, *home*-sick, &c.

Home, HENRY, (LORD KAIMES,) a Scotch judge and elegant writer, B. 1696. He wrote *Essays upon Several Subjects Concerning British Antiquities* (1764), *Essays on the Principles of Morality and Natural Religion*, *Historical Law*, *The Principles of Equity*, *The Elements of Criticism* (3 vols. 8vo.), *The History of Man.* D. 1782.

Home, in *Colorado*, a post-office of Larimer co.

Home, in *Illinois*, a post-office of Wayne co.

Home, in *Kansas*, a post-village of Marshall co., on the St. J. & G. I. R. R.

—A township of Nemaha co.

Home, in *Michigan*, a township of Montcalm co.

—A township of Newaygo co.

Home, in *Minnesota*, a post-township of Brown co.

Home, in *Pennsylvania*, a post-village of Indiana co., about 10 m. N. of Indiana.

Home, in *South Carolina*, a post-office of Union co.

Home, in *Tennessee*, a post-village of Greene co.

Home Bay, a small bay on the N. of Cumberland Island, British North America; Lat. 68° 30′ N., Lon. 68° W.

Home'-born, *a.* Native; natural; indigenous; as, "*home-born* harm."—*Donne.*

—Domestic; not exotic.

Home'-bound, *a.* See HOMEWARD-BOUND.

Home'-bred, *a.* Bred at home; native; natural; domestic; indigenous; as, "*home-bred* evil." (*Spenser.*)— Rude; unpolished; plain; unsophisticated; uncultivated.

Home City, in *Ohio*, a village of Hamilton co., on the Ohio river, about 10 m. below Cincinnati.

Home'dahl, in *Minnesota*, a P. O. of Faribault co.

Home'-driven, *a.* Driven home, or closely to the point, as a nail.

Home'-dwelling, *a.* Residing at home.

Home'like, in *Minnesota*, a township of Union co.

Home'land, in *Florida*, a post-office and small village of Polk co., on Florida Southern R. R.

Home'land, in *Virginia*, a post-office of Culpeper co.

Home'-farm, *n.* That portion of a nobleman's or gentleman's estate whereon the farm-buildings belonging to his hall or mansion are situated. (*English.*)

Home'-felt, *a.* Felt in one's own mind; inward; secretly appreciated.

"Happy joys of *home-felt* quiet please."—*Pope.*

Home'-keeping, *a.* Clinging to home; indisposed to roam or travel.

"*Home-keeping* youth have ever homely wits." — *Shaks.*

Home'less, *a.* Without a home; destitute of shelter.

Home'lessness, *n.* State of being homeless and vagrant.

Home'lily, *adv.* Plainly; rudely; inelegantly.

Home'liness, *n.* Quality of being homely; domesticity. — Plainness of features or personal appearance; want of beauty or attractive looks. — Plainness or bluntness of manners; rudeness; coarseness; brusquerie.

"Homer has opened a great field of raillery . . . by the *homeliness* of some of his sentiments."— *Addison.*

Home'-lot, *n.* An inclosure on or near which the mansion-house stands. (U. S.)— *Webster.* (This term is equivalent to that of *home-farm*, as used in England.)

Home'ly, *a.* Belonging to or partaking of the characteristics of home; domestic; familiar.

"Their *homely* joys, and destiny obscure." — *Gray.*

—Plain; unpretentious; rude or coarse in appearance; unpolished; homespun; as, *homely* fare, a *homely* strain.

—Unattractive or plain in features; not comely or handsome; as, a *homely* person.

"There is none so *homely* but loves a looking-glass." — *South.*

Home'lyn, Home, *n.* [Scot. *hommelin.*] (*Zoöl.*) The Sand-ray, *Raia miraletus*, a fish found on the British coasts.

Home'-made, *a.* Made or manufactured at home, or in one's own country; not brought from foreign parts; as, *home-made* bread, *home-made* wines.

Homeop'athy, *n.* See HOMŒOPATHY.

Ho'mer, COR, or CHOMER, *n.* [Heb. *khômer*, a dry measure.] The largest dry measure of the Hebrews, equal to 10 baths or ephahs, and containing abt. 8 of our bushels.

Ho'mer. This great name, or shadow of a great name, is retained here, not for the purpose of once more repeating the details of the traditional story attached to it since the days of Herodotus, but partly from reverence for its ancient glory and unwillingness to see it wholly disappear from the roll of famous names; partly on account of the place which it must for a long time hold in literature and in the common speech of men; and chiefly for the purpose of stating that there is simply no evidence at all for the common tale. That *H.* was the greatest poet of Greece and of the ancient world; that he lived about the 8th century B. C., and was an Asiatic Greek; that seven cities disputed for the honor of being his birthplace: that he was blind and poor, and went about reciting his verses for bread; that the *Iliad* and the *Odyssey* were his works: such are the main items of the almost universal and unquestioned belief respecting *H.* in the ancient world: a belief which modern criticism has not only shaken, but shown to be untenable. To sum up all doubts and denial on the matter in one word — no one knows even so much as the fact of the existence of a great poet named *H.* The *Iliad* and the *Odyssey* are facts beyond doubt; their high antiquity, their immense importance as sources not only of later poetic inspiration, but even of the popular religions faith of the Greeks, and their incalculable influence on all subsequent literature, are also unquestionable. But of the authorship of these wonderful poems we can only confess, like Socrates of vaster problems, that "we nothing know except that we know nothing." It is, however, established by recent criticism that the *Iliad* is not *one* poem but that this work, in common with the *Odyssey*, is made up of a series of antecedent lays of heroic and mythological character, bearing on one subject, and skillfully welded together, perhaps in great measure re-written, by the unknown person who gave these works to the world. The origin of these remarkable poems has been critically studied by many learned authors within the recent period, whose conclusions generally agree with the statements given above. Among the numerous English or American translations of *H.* we must name the earliest and very spirited version by Chapman, afterward republished; those by Pope in heroic verse, and by Cowper in blank verse; and, more recently, the *Iliad* in blank verse, by the Earl of Derby, and in the same metre by Wright; the *Odyssey* in blank verse, by Musgrave; the excellent translation of the *Iliad* in blank verse by W. C. Bryant, published in 1870 and which is still generally considered the best. One of the best modern translations is the German, in hexameter, by Voss. See HOMERIC POEMS, ILIAD, ODYSSEY.

Ho'mer, in *Georgia*, a post-village, cap. of Banks co., about 30 m. N. of Athens.

Homer, in *Illinois*, a post-town of Champaign co., 93 m. E. by N. of Springfield. *Pop.* (1897) about 1,100.

—A township of Will co.

Homer, in *Indiana*, a village of Jackson co., about 56 m. S. of Indianapolis.

—A post-village of Rush co.

Homer, in *Iowa*, a township of Benton co.

—A township of Buchanan co.

—A post-village of Hamilton co., about 20 m. S. E. of Fort Dodge.

Homer, in *Louisiana*, a city, cap. of Claiborne parish, about 200 m. N. W. of Baton Rouge. *Pop.* (1897) 1,132.

Homer, in *Michigan*, a post-village and township of Calhoun co., about 13 miles S. E. of Marshall. *Pop.* of village (1894) 1,157.

Homer, in *Minnesota*, a post-township of Winona co., on the Mississippi river, about 5 m. below Winona.

Homer, in *New York*, a post-town of Cortland co., on D., L. & W. R. R., 34 m. S. of Syracuse; has various manufactures. *Pop.* (1897) about 4,560.

Homer, in *Ohio*, a post-village of Licking co., abt. 46 m. N.E. of Columbus.
—A township of Medina co.
—A village and township of Morgan co.
Homer, in *Pennsylvania*, a post-township of Potter co.
Homer, in *Texas*, a post-village of Angelina co., abt. 220 m. E.N.E. of Austin.
Homer, in *Wisconsin*, a post-office of Grant co.
Homer'ic, *a.* [Gr. *homerikos*; Lat. *Homericus.*] Relating or pertaining to Homer, the "father of poetry," or to his poetry; resembling, or partaking of the spirit of the verse of Homer.

H. Poems. (*Lit.*) A title generally given to the *Iliad* and *Odyssey*, and the hymns which have been preserved to use in honor of Apollo, Dionysius, Hermes, and other Hellenic deities and heroes. But the poems which have come down to us are only a small portion of the treasures which were possessed by the Greeks of the age of Pisistratus or Pericles. (See EPIC CYCLE.) The "Iliad" relates the events of a few months in the Trojan war, which was caused by the theft of Helen by Paris, once called Alexandros; the "Odyssey" gives the narrative of the return of Odysseus or Ulysses from Ilion to Ithaca. An examination of these two poems goes to show certain discrepancies in their material and arrangement and some lack of consecutiveness, which go to indicate that they are not, at least in their original form the work of a single hand. Hence a presumption arises that these poems were the result of a very gradual growth, and that in them are combined several lays or poems written by several writers. See EPIC.

Homer'idæ, *n. pl.* A race of rhapsodists or singers, with regard to whom there are three theories: — 1. That they were the descendants of Homer. 2. That they were poets of an early epoch, but of a regular school, whose works, collected and arranged in a complete form, were attributed to Homer. 3. That they were a race of wandering minstrels, who, coming after Homer, imitated him, added to, and interpolated his works.
Home-Rule, (*Irish pol.*) that party advocating a separate Irish parliament for local legislation.
Home'sick, *a.* Pining for home; depressed in spirits at being separated from home; nostalgic.
Home'sickness, *n.* [Fr. *maladie du pays.*] A morbid longing to return home when separated from it; uncontrollable grief for the loss of home; nostalgia; maladie du pays. — See NOSTALGIA.
Home'-speaking, *n.* Direct and forcible application of speech.
Home'spun, *a.* Spun or wrought at home; of domestic make or manufacture; homely; plain; as, *homespun* cloth. — Plain or inelegant in style or manner; rude; countrified.

"Our *homespun* authors must forsake the field." — *Addison.*

Home'stall, Home'stead, *n.* A mansion, house, or home in the country. — Original seat or station of a family; an ancestral home. — A farm with the land immediately adjoining. A tract of land taken up from the Gov't under the Homestead laws, usually 160 acres.
Home'stead, in *Mich.*, a p. o. of Benzie co.
Home'ward, Home'wards, *adv.* Toward home or one's habitation; in the direction of one's own country.
Home'ward-bound, *a.* Bound or heading for home; as, a *homeward-bound* ship.
Home'wards, *adv.* Same as HOMEWARD.
Home'wood, in *Pennsylvania*, a post-village of Beaver co., abt. 35 m. N.W. of Pittsburg.
Hom'ichlin, *n.* (*Min.*) A bronze colored sulphuret of iron and copper, from Planen in Saxony. *Comp.* Sulphur 30·21, iron 25·81, copper 43·76. *Sp. gr.* 4·472.
Homici'dal, *a.* Relating or belonging to homicide; murderous; bloody.
Homicide, (*hŏm'i-sīd,*) *a.* [Fr., from Lat. *homicidium* — *homo*, man, and *cædo*, to kill.] (*Law.*) The killing of any human being. *H.* is of three kinds, — *justifiable*, *excusable*, and *felonious*. The first has no stain of guilt; the second very little; but the third is the highest crime that man is capable of committing against a fellow-creature. Justifiable homicide is of various kinds, including such as arise from unavoidable necessity or accident, without any imputation of blame or negligence in the person killing. *H.* in the course of justice, in the execution of any criminal or civil process, is of this kind. The necessity must, however, be real and apparent in all cases of this sort. *H.* is justifiable in the prevention of any atrocious crime, as an attempt to murder, or to break into a house during the night. Justifiable *H.* does not apply to crimes which are unaccompanied by violence, such as the picking of pockets, &c. The general principle of the law is, that when a crime in itself *capital* is endeavored to be committed by force, it is lawful to repel that force by the death of the party attempting it. Excusable *H.* is committed either by misadventure or in self-defence. *H.* by misadventure is where a man doing a lawful act, without any intention of hurt, and using proper precaution to prevent danger, unfortunately kills another; as when a man is at work with a hatchet, the head flies off and kills a bystander; for the act is lawful, and the effect is merely accidental. As prize-fighting and sword-playing are unlawful, if either of the parties engaged be killed, such killing is felony or manslaughter. *H.* in self-defence, from a sudden affray or quarrel, is rather excusable than justifiable in the English law. Felonious *H.* is an act of a very different character from the two former, being the killing of a human creature, of any age or sex, without justification or excuse. It is divided into three classes, — *murder*, *manslaughter*, and *self-destruction.*
—One who kills a man; a man-slayer.
Homilet'ic, Homilet'ical, *a.* [Gr. *homiletikos.*] Having the nature of, or pertaining to, familiar intercourse; affable; social; conversible; companionable.

"His virtues were active chiefly, and *homiletical.*" — *Atterbury.*

—Pertaining to homiletics.
Homilet'ics, *n. sing.* The science which treats of the nature and preparation of homilies or sermons.
Hom'ilist, *n.* One who delivers homilies, or who preaches to a congregation.
Hom'ily, *n.* [Fr. *homélie*; Gr. *homilia*, from *homilos* — *homos*, common, and *ile*, a crowd, company.] A sermon addressed to a congregation of people; a plain, familiar discourse on some religious topic.

Book of Homilies. (*Eccl. Hist.*) In the English Church, the name given to a collection of sermons, setting forth the principal doctrines of Christianity, and pointing out the principles of Protestantism, of which the first part was published by Archbishop Cranmer in the reign of Edward VI., and the second by order of Convocation in that of Elizabeth.
Hom'iny, *n.* [Of Indian derivation.] Coarse Indian corn meal.
Hom'mock, *n.* (Sometimes written *hummock.*) [Etymol. unknown.] A conical mound or hillock, often crowned with trees.
Homo-. [Gr. *homos*, one and the same.] A Greek prefix used in composition to denote *resemblance*, and thus opposed to *hetero*, which indicates difference.
Homocen'tric, *a.* [Gr. *homokentros.*] Having one and the same centre.
Homocercal, (*hō-mō-sĕr'kal,*) *a.* [Gr. *homos*, and *kerkos*, tail.] (*Zoöl.*) A term applied to those fishes which have tails with rays regularly diverging from the backbone, as in the herring and trout; — in opposition to *heterocercal.*
Homochromous, (*ho-mŏk'ro-mus,*) *a.* [Gr., one of color.] (*Bot.*) A term denoting that all the florets in the same flower-head are of one color.
Homochit'to, in *Mississippi*, a small river rising in Copiah co., and entering the Mississippi River in Adams county.
—A post-office of Franklin co.
Homœome'ria, *n.* [Gr., similarity of parts.] (*Philos.*) The name given to the physical theory of Anaxagoras of Clazomenæ, who flourished in the 5th cent. B. C. According to this hypothesis, every material substance is made up of infinitely small parts similar to itself. This theory bears some resemblance to that of the *monads* of Leibnitz in modern times.
Homœomer'ic, Homœomer'ical, *a.* Pertaining to, or exhibiting sameness of parts; having reference to the homogeneity of first principles.
Homœomor'phism, *n.* [Gr. *homoios*, alike, and *morphē*, form.] (*Anat.*) Same as HOMOLOGY.
Homœomor'phous, *a.* Same as HOMOLOGOUS.
Homœopath'ic, Homeopath'ic, *a.* Of, belonging, or relating to, homœopathy; as, *homœopathic* medicines.
Homœopath'ically, Homeopath'ically, *adv.* After the manner, or in the method, of homœopathy.
Homœop'athist, *n.* One who practises homœopathy; a believer in the homœopathic system.
Homœop'athy, *n.* [Gr. *omiopatheia*, likeness of conditions, from *omios*, like, or similar, and *pathos*, affection.] (*Med.*) A system of medical practice, of which the fundamental principle is the treatment of diseases by the administration of such remedies, as, when given to the healthy subject, will produce symptoms *similar* to those from which the patient is suffering. The relation between drugs and the diseases which they are capable of curing is expressed by the formula *similia similibus curantur*, or "like cures like." The Homœopathic school of medicine owes its existence to the genius of the eminent physician and chemist Samuel HAHNEMANN, *q. v.* In the year 1790, while engaged in

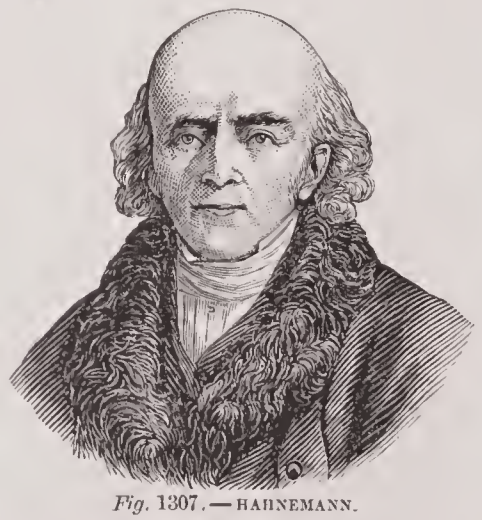


Fig. 1307. — HAHNEMANN.

translating Cullen's "Materia Medica," to his great surprise, he discovered that Peruvian bark was capable of exciting upon a healthy subject symptoms similar to those of fever and ague — a disease for the cure of which it had long been deemed a specific. With the true spirit of inductive philosophy, he set himself resolutely at work; — examining the records of ancient medical writers, to ascertain whether other examples might not be found of remedies which had cured symptoms similar to those which they were capable of producing, he was induced to believe that the case of Peruvian bark was not a peculiar one, and that the archives of medical history furnished the apparently singular disclosure of many cures accomplished by drugs capable of producing symptoms similar to those which had been cured, and thus strictly in accordance with the homœopathic principle. Hahnemann soon announced his discovery to the world, and formulated the doctrine of *H.* It is generally and erroneously believed that the *chief*, if not the *only* peculiarity of the Homœopathic system consists in the administration of infinitesimal doses of medicine. It may be seen from the above definition of *H.*, that the question of the *magnitude* of the dose has no connection with the *principle* itself, but is determined, as in all the modes of practice, by the circumstances of the individual case; every physician prescribing such doses as may be necessary to produce the desired effect, but always in strict accordance with the Homœopathic maxim. It must be said, however, that in homœopathic practice much smaller doses are generally used than in the allopathic or ordinary mode of treatment, on this fundamental principle of *H.*, that the remedies are to act *specifically* and *directly* on the diseased part which is more sensitive than in health, and consequently will not tolerate as large doses as might be prescribed under other and more indirect modes of treatment. The chief merit of Hahnemann, according to the best authorities of the new system, does not consist in the discovery of the efficacy of *small* doses, but in the demonstration and introduction of the great doctrine of curing maladies by impressing diseased tissue with medicines which operate *specifically* upon these tissues themselves, rather than on distant parts. The homœopathists do not, as has been frequently asserted, deem it unnecessary for physicians to possess a knowledge of anatomy, physiology, pathology, chemistry, &c., but, on the contrary, strenuously insist that the student shall be first educated in *all these*, and other requirements of medicine, and that the study of homœopathy is to be superadded, by which alone the student can be enabled to become a competent judge of the merits of both systems. The homœopathic school is divided into two branches, — *The Pure Hahnemannian Homœopathists*, and *The Rational and Liberal Homœopathists.* The former follow all the teachings of Hahnemann implicitly, and as a general rule confine themselves to the high dilutions or infinitesimal doses of medicine, and repudiate any deviation from this mode of practice, as anti-Hahnemannian and pernicious. The latter, while they revere Hahnemann as the Father of scientific medicine, and adhere tenaciously to the therapeutic maxim of *similia*, which he promulgated, yet reject many of his subsidiary doctrines as untenable, and adopt only those of his teachings which they consider as in accordance with their own sound experience. They claim that homœopathy is broad, catholic, and comprehensive, and that homœopathic remedies may, and probably do, effect a cure, by reason of the delicately, yet essentially *different*, or alterative action which they produce, and not by their *mere similarity* of action, and argue that if the greatest amount of *similarity* were the great point, *identity should be infallible.* They believe that if the power of curing disease by *medicines* is ever to be attained, it will be by the discovery of agents which shall act in a *specific* manner upon the tissues and organs of the body, and that the only possible manner of attaining a knowledge of the *specific* properties of medicines, and of the circumstances in which they will be useful, is by experiment upon the human subject. They hold, that, as remedies which act in a specific manner upon a particular tissue or organ of the body must, *ex necessitate rerum*, when administered in large or poisonous doses to the healthy subject, produce or evoke symptoms bearing a greater or less *similarity* to the symptoms produced by the action of *disease* upon the said tissue or organ; therefore, the remedy which will cure a disease must bear the homœopathic relation to the said disease, and that hence *similia similibus curantur* is the only available *guide* in selecting the appropriate drug for specifically impressing a tissue or organ when diseased. They, moreover, consider the belief of the maxim *similia similibus curantur* as the only *essential* principle of homœopathy — and as the only particular in which this school differs from other schools of medicine.—*Progress of Homœopathy.* At the period of the promulgation of *H.* no science of therapeutics existed, and the heroic treatment—as it was called—of even trifling ailments, caused greater mortality than disease itself. The doctrines of Hahnemann produced a revolution, many learned physicians adopted his methods, and before his death numerous hospitals and dispensaries of homœopathic practice were established in the principal cities of Europe, many of them under government control. The new system spread to Great Britain and the U. S., and though about 1845 a systematic effort to stamp it out was begun by the adherents of the "old school," and with much success, it has revived again, the U. S. having at the present time not less than 15,000 homœopathic physicians. The revival in Europe has been slower. The first homœopathic medical college in this country was established in Philadelphia. It has been followed by others in New York, Boston, and other cities, while a large number of hospitals and dispensaries have been founded, the Ophthalmic Hospital in New York treating some 15,000 patients a year, and taking position as one of the largest of its kind in the U. S. Doubtless the influence of *H.* has had much to do with the disappearance of the "heroic treatment," and the employment of milder remedies and more moderate doses than of old. This system has become highly popular in the treatment of children and adults of weak constitution, and it has been confidently asserted that numerous "old school"

physicians, by the great reduction of doses, habitually practice homœopathy in fact, though nominally adhering to allopathy. The sale of homœopathic specific remedies has also developed into an immense business.

Homog'amous, *a.* [Gr. *homos*, and *gamos*, wedlock.] (*Bot.*) Having flowers all tubular, similar, and perfect, as in *Eupatorium*, Liatris, &c.

Homogan'gliate, *a.* [Gr. *homos*, and *ganglion*, a ganglion.] (*Zoöl.*) Pertaining to the ganglionic system in animals, and symmetrical arrangement of the ganglions.

Homoge'neal, Homoge'neous, *a.* [Fr. *homogène*; Gr. *homogenēs* — *homos*, same, like, and *genos*, kind. See GENUS.] Of the same kind, genus, or nature; consisting of like elements, or similar parts.

(*Anat.*) Any substance or part made up of similar parts, as the lungs, composed of an immense collection of air-cells, and their surrounding tissue; the opposite of *heterogeneous*.

Homoge'nealness, Homogene'ity, Homoge'neousness, *n.* State or quality of being homogeneous; sameness of kind or nature.

Homographic, (*hō-mō-graf'ik,*) *a.* Using a single and distinct character to define each sound; — said of a particular method of spelling words.

Homog'raphy, *n.* [Gr. *homos*, and *graphē*, writing.] The art of reproducing copies of a printed work, engraving, or lithograph.

Homoiop'toton, *n.* [Gr. *homoioptotos*, from *homoios*, like, and *ptosis*, a falling.] (*Rhet.*) A figure in which the several parts of a sentence end with the same case or with a tense of like sound.

Homoiou'sian, *n.* [Gr. *homoios*, like, and *ousia*, substance], and **Homoön'sian,** *a.* [Gr. *homos*, the same, and *ousia*, substance.] (*Eccl Hist.*) The former of these terms was applied to the Arians, and the latter to the Orthodox party, at the council of Nicæa, A. D. 325. The Arian war-cry at the council of Seleucia, Sept. 27, 359, was Homoiousian.

Homol'ogate, *v. a.* [Gr. *homologeō*.] (*Law.*) To approve; to allow; as, the motion is *homologated*.

Homologa'tion, *n.* [Gr. *homologos*, agreeing with.] (*Law.*) Confirmation by a court of justice; a judgment which the execution of some act or decree rules.

Homolog'ical, *a.* Relating or pertaining to homology.

Homolog'ically, *adv.* In an homological manner.

Homol'ogize, *v. a.* To determine the structural relations of.

Homol'ogous, *a.* [Fr. *homologue*; Gr. *homos*, similar, and *logos*, ratio.] Speaking or agreeing together; assentiug.

(*Geom.*) Applied to quantities or magnitudes which correspond, or are like to one another.

(*Algebra.*) *H. quantities* are those which can be added to or subtracted from one another.

(*Chem.*) *H. series*, are series of chemical compounds, the formulæ of which differ from each other by one equivalent of carbon and two of hydrogen (CH_2), or a multiple of these numbers. Ethers, alcohols, and fatty acids are examples of *H. S.*

(*Zoöl.*) Corresponding in structure and position.

Homolograph'ic, *a.* [Gr. *homos*, and *graphein*, to write.] Maintaining equilibrium or justness of parts; preserving relative proportion.

Hom'ologue, *n.* That which is homologous to something else. — See HOMOLOGY.

Homol'ogy, *n.* [Gr. *homologia*, agreement.] State or quality of being homologous or correspondent; relation; affinity.

(*Anat.*) A term used to indicate structural correspondence, while the term *analogy* is employed to indicate functional resemblance. Thus, by homologue is implied "the same organ in different animals, under every variety of form and function;" while by analogue we understand "a part or organ in one animal which has the same functions as another part or organ in a different animal." For example, the wings of an insect are the analogues of those of a bat or bird, but not the homologues; while the latter are homologues with the arms of man, fore-legs of quadrupeds, and the pectoral fins of fishes.

Homom'alous, *a.* [Gr. *homos*, and *alesthai*, to rise.] (*Bot.*) Applied to leaves, &c., originating all round an organ, but directed or curved round to one side of it.

Homomorphous, (*hom'mo-mor'fus,*) *a.* [Gr. *homos*, and *morphē*, form.] (*Bot.*) A term applied to bodies of the same order when uniform, or shaped alike.

Hom'onym, Hom'onyme, *n.* A word which agrees with another in sound, but differs in signification, as the substantive *bear* and the verb *bear*.

Homon'ymous, *a.* [Fr. *homonime*; Gr. *homōnymos* — *homos*, and *onoma*, name.] Having the same name or sound, but differing in signification; equivocal; ambiguous.

Homon'ymously, *adv.* In an equivocal manner.

Homon'ymy, *n.* [Fr. *homonimie*; Gr. *homōnymia*.] Sameness or identity between words which differ only in signification; ambiguity.

Homoön'sian, *n.* and *a.* See HOMOIOUSIAN.

Hom'ophone, *n.* A character or symbolic expression, which assimilates with another in sound or letter.

Homophonous, (*ho-mŏf'o-nus,*) *a.* [Gr. *homophonos*, of the same tone.] Expressing similarity of sound or letter with another; as, an *homophonous* inscription.

(*Mus.*) Having the same pitch; unisonal. Two or more sounds are said to be homophonous when they are of exactly the same pitch.

Homoph'ony, *n.* (*Mus.*) Sameness of sound — Singing or chanting in unison; — correlative to *antiphony*.

Homop'ter, Homop'teran, *n.* [Gr. *homos*, and *pteron*, wing.] (*Zoöl.*) One of the HOMOPTERA, *q. v.*

Homop'tera, *n. pl.* [Gr. *homos*, and *pteron*, a wing.] (*Zoöl.*) A group of insects, sub-order *Hemiptera*, distinguished by their possessing two pairs of wings, usually composed of a firm membrane, and not covered by scales; and by having the anterior pair of the same substance throughout, and roof-like when folded. The mouth is adapted for suction, the tongue being channelled, and surrounded by lancet-like organs, with which the tissues of plants are pierced. Among the .. are the *Cicadas* (Fig. 598), the largest of the group.

Homop'terous, *a.* (*Zoöl.*) Pertaining or relating to the homoptera.

Homot'onous, *a.* [From Gr. *homos*, and *tonos*, tone.] Equable; proceeding in the same tenor from beginning to end; having the same sound.

Homot'ropal, Homot'ropous, *a.* [Gr. *homos*, and *tropos*, direction.] Having a turn concurring with the direction of another thing.

(*Bot.*) A term used in describing the direction of birds, to denote any one having the same direction as the body to which it belongs, but not being straight.

Hom'otype, *n.* [Gr. *homos*, and *typos*, type.] (*Anat.*) The correlative in one segment with any given part in another segment, or in the same segment, of one and the same animal. Thus the frontal bone is the homotype of the superoccipital bone; the humerus is the homotype of the femur; the parts on the right side are homotypes of those which are repeated on the left. It is the object of *serial homology* to determine *homotypal* parts.

Hous, Hums, or **Hems.** [Anc. *Emesa*, or *Emissa*.] A fortified city of Syria, 90 m. N.W. of Damascus, about 11 m. from the River Oasy, or Orontes; Lat. 24° 17′ N., Lon. 37° 34′ E. *Pop* about 20,000.

Homun'culus, *n.* [Lat., dim. of *homo*, man.] A dwarf; a manikin; a little man.

Hon. Abbreviation of *Honorable*, used as a prefix to proper names.

Ho'nan, a central prov. of China; *area*, 65,104 sq. m.: *pop.* 23,037,171. Its cap., Kaifung-fu, is situated on the Yellow River, from which it has often suffered, the river-bed being here elevated above the adjacent country. It has been overflowed 19 times. In the reign of Fuhi (2852 B. C.) it was the capital of China.

Honawar', a seaport on the W. coast of Hindostan, pres. of Madras, Lat. 14° 17′ N., Lon. 74° 30′ E.; 340 m. S.E. of Bombay.

Hon'cut, in *California*, a post-village of Butte co., on the So. Pacific railroad.

Hon'cut Creek, in *California*, enters the Feather river between Butte and Yuba cos.

Hon'da, [Sp. *onda*.] A town of the Republic of Colombia, on the Magdalena river, about 55 m. N. W. of Bogota. *Pop.* (1897) 5,156.—The bay of the same name lies on the N. coast, Lat. 12° 20′ N., Lon. 71° 50′ W.

Hon'da, a bay on the N. coast of Cuba, about 60 m. W. of Havana.

Hon'do Creek, in *Texas*, enters the Rio Frio in Frio county.

Hon'do, (Rio,) or *Rio Grande*, a river of Yucatan and British Honduras, enters the Caribbean Sea about 25 m. S.E. of Bacalar.

Hondu'ras, a republic of Central America, bounded N. and E. by the Bay of Honduras and the Caribbean Sea, S. by the republic of Nicaragua, S.W. by the republic of San Salvador, and N.W. by Guatemala. The republic lies wholly between Lat. 13° 10′ and 16° N., and Lon. 83° 11′ and 89° 47′ W. *Area*, 58,168 sq. m. *H.* is divided into 13 departments, generally named after their capitals, such as Tegucigalpa (cap. of the republic), Comayagua (former capital), Nacaome, Santa Barbara, Gracias, Yoro, Juticalpa, etc. The ports on the Atlantic side are Truxillo, Omoa, and Port Cortes, formerly Caballos. On the Pacific, in the Bay of Fonseca, the republic has two ports, San Lorenzo, and the free port of Amapala, on the island of Tigre, which has a fine anchorage and salubrious climate. *H.* has a coast-line of 400 miles on the Bay of Honduras and the Caribbean Sea, and 60 m. on the Bay of Fonseca, on the Pacific side. The rivers are numerous, and some of them of large size. The Chamelicon, Ulua, Aguan or Roman, Tinto, Patuca, and Segovia, falling into the Atlantic, and the Cholnteca, Nacaome, and Goascoran, flowing into the Bay of Fonseca, are the principal. In physical character, climate, production and political institutions, *H.* resembles GUATEMALA, *q. v.* The foreign trade is carried on chiefly with the U. States, Great Britain, and Spain. The population is mostly Indian. The eastern portion of the State is almost exclusively occupied by independent tribes, known under the general names of *Xicaques* and *Payas*. Portions of these have accepted the Roman Catholic faith, and live in good understanding with their white neighbors. The coast around Carataska lagoon, and near Cape Gracias, was for many years occupied by a mixed race of negroes and Indians, best known as *Sambos* or *Sambo Mosquitos*, corresponding generally with the people of the Mosquito coast. But of late years they have been gradually crowded out by the more vigorous race of the Caribs, descendants of the Cauls of San Vincent, one of the Leeward Islands, who were deported by the English, to the number of 5,000, and landed on the island of Ruatan, in 1796. They are now estimated to number about 30,000. They are industrious, active, and provident; a portion of them have a mixture of negro blood, and are hence called the black Caribs. They still retain their native language, which is the true Carib of the islands, although most, if not all of them, speak Spanish, as well as a little English. They profess the Catholic religion, but they are polygamists, and retain many of their native rites and superstitions. — *Hist. H.*, discovered by Columbus in 1502, was conquered by one of Cortes' associates in 1523. It joined the republic of Central American States in 1821, and became an independent State in 1839. The present constitution was voted in 1865. The president, Gen. Santos-Guardiola, was assassinated at Comayagua by Pablo Agurcia, commander of his body-guard, Jan. 11, 1862. *H.* united against Guatemala with St. Salvador, under Pres. Carrera, Mar. 3, 1863. Owing to military reverses, the president Montes was compelled to take flight, July 26, when José Maria Medina was provisionally elected in his stead. The election was confirmed in Feb., 1864. The president Medina was re-elected in 1869 for a term of 4 years. He was subsequently shot: his successor, M. A. Soto, was elected in 1876. Polycarpo Bonilla was elected president in 1894. In 1897 *H.* became a member of the Greater Republic of Central America. *Pop.* (1897) about 450,000.

Hondu'ras, Bay of, a large and commodious bay of Central America, bet. Cape Honduras, Lat. 15° N., and Cape Catoche, in 21° N., at the extreme E. of Yucatan.

Hondu'ras (BRITISH). See BELIZE.

Hone, *n.* [Swed. and Goth. *hen*; Icel. *hein*; probably allied to Gr. *akōne*, a whetstone.] A whetstone; a stone of a fine grit, used for sharpening tools and other instruments. They are usually talcose slate of very close texture, in which the particles of silica are very finely divided and evenly distributed. *Turkey oil-stones* are said to be the best of all the hones; after these are the *Arkansas oil-stones* from this country.

— *v. a.* To strap on a hone; to sharpen; as, to *hone* a razor.

Honeoye (*ho-ne-oy'*), in *New York*, a post-village of Ontario co., about 25 m. S. of Rochester.

Honeoye Falls, in *New York*, a post-village of Monroe co., on Leh. Val. and 2 other R. R. lines. *Pop.* (1897) about 1,260.

Honeoye' Lake, in *New York*, a small lake in the S. W. part of Ontario co. It covers an area of abt. 5 sq. m.

Hones'dale, in *Penna.*, a post-borough, cap. of Wayne co., 32 m. N. E. of Scranton. *Pop.* (1897) about 2,900.

Hon'est, *a.* [Fr. *honnête*, from Lat. *honestus* — *honor*, *honos*, honor. See HONOR.] Full of honor; honorable; reputable; decent; appropriate; suitable. — Creditable; upright; just; fair in dealing with others; disposed to act with fairness; free from fraud, duplicity, or trickiness.

"A prince can make a belted knight . . .
But an *honest* man's aboon his might." — *Burns.*

— Chaste; virtuous; faithful; pure.

"Wives may be merry, and yet *honest* too." — *Shaks.*

— Equitable; fair; just; trustworthy; as, an *honest* bargain. — Fair; good; unimpeachable.

"An *honest* tale speeds best, being plainly told." — *Shaks.*

— Candid; unreserved; frank; sincere; invested with truth.

"An *honest* confession is good for the soul." — *Eng. Proverbs.*

— Prompted by pure, just, or honorable principles; actuated by sincere, equitable, or impartial views; as, an *honest* endeavor, an *honest* motive.

Hon'estly, *adv.* In an honest manner; truthfully; uprightly; fairly; justly; equitably; truly; frankly; as, to act or live *honestly*.

Hon'esty, *n.* [Fr. *honnêteté*; Lat. *honestas*, from *honestus* — *honor*, *honos*, honor.] State or quality of being honest; integrity; uprightness of conduct; fairness of disposition.

(*Bot.*) See LUNARIA.

Hone'-wort, *n.* (*Bot.*) See CRYPTOTÆNIA.

Honey, (*hŭn'e,*) *n.* [A. S. *hunig*; D. and Ger. *honig*; Heb. *ghoneg*, delight.] A fluid, or semi-fluid substance, very similar in its properties to sugar. It is found in large quantities in a number of vegetables, and is collected by different kinds of bees from the nectiferous glands in the cup or chalice of flowers. *H.* in the ordinary sense of the word, however, cannot be called a purely vegetable production, for, after it is collected by the proboscis of the insect, it is transmitted to the sucking-stomach, or honey-bag, where it is elaborated, and afterwards disgorged, to be deposited in the cell of the honeycomb. When the bees are very young, the honey undergoes less change and remains nearly white; in this state it is called *virgin honey*. At all times it partakes of the qualities of the plant from which it has been derived. Hence, some varieties of honey obtained from the azalea, rhododendron, &c., are poisonous. The most wholesome kinds are derived from the genus *Erica*, called heather-honey, and from most labiate plants. *H.* differs much in color and consistence; it contains a considerable quantity of saccharine matter, and some mucilage, from which it derives its softness and viscosity. It ferments very readily, and yields a strong vinous liquor called *mead*. There are two varieties of *H.*, one yellow, transparent, and of the consistence of turpentine; the other white, and capable of assuming the solid form, and of concreting into regular spheres. These two species are often united, and may be separated by means of alcohol, which dissolves the liquid *H.* much more rapidly than the solid. *H.* is the production of most countries, but is more particularly abundant in the island of Candia, and in the greater part of the islands of the Archipelago. The *H.* of Sicily appears to be particularly high-flavored, and in some parts of the island to surpass even that of Minorca, owing, no doubt, to the quantity of aromatic plants which overspread that part of the country. This *H.* is gathered three times in the year, — in July, August, and October. It is found by the peasants in the hollows of trees and rocks. The country of the lesser Hybla is now, as of old, chiefly celebrated for its honey. *H.* is much used in making preserves and confectionery; and, in its natural state, to put on bread. It is also used as a demulcent medicine against hoarseness, catarrh, &c.; and externally to promote suppuration. In its clarified state, it is used to sweeten certain medicines. It is more aperient and detergent than sugar, and is particularly serviceable in

promoting expectoration in disorders of the breast. For these and other like purposes, it is often mixed with vinegar, and boiled down to a proper consistence over a slow fire, when it forms the oxymel of commerce. *H.* was one of the first articles of human nonrishment. The deities of ancient Greece were supposed to live on milk and *H.* Aristotle, and several other learned writers, and probably the ancients generally, did not know where *H.* originally came from; they imagined that it fell from heaven like rain. Pliny was unable to decide whether it descended from the heavens generally or from the stars, or was a juice formed by the purification of the air, and afterwards collected by bees. In all the works of the ancients, much importance is attached to *H.* and the care of bees. Bee-keeping is a branch of agriculture of great importance in some of our States, but as few bee-keepers keep an account of the product of their hives, the returns of the yield of honey are very imperfect. The average yield of *H.* throughout the U. States is 22·8 pounds per hive. The average price is 20 to 25 cents per pound. See BEE.

—Anything sweet or luscious, like honey.

"Matter . . . that forever mars the *honey* of his language." *Shaks.*

—Sweet one; my precious darling; dear one: —a word of tenderness. (Of common use among the Irish.)

"Ah, Katie, my *honey*, your eyes me bewilder." —*Mangan.*

Honey, *v. n.* To talk fondly or soothingly; to ply with endearments or soft language; to flatter; to fawn; to coax.

"*Honeying* and making love over the nasty sty." — *Shaks.*

—*v. a.* To sweeten, as with honey; to make agreeable.

"*Honeyed* lines of rhyme." — *Byron.*

Hon'ey-bag, *n.* The stomach of a honey-bee.

Hon'ey-bee, *n.* (*Zoöl.*) See BEE.

Hon'eybrook, in *Pennsylvania*, a post-township of Chester co.

Hon'ey-buzzard, *n.* (*Zoöl.*) A species of hawk, *Pernis apivorus.*

Hon'ey-comb, (*-kōm,*) *n.* A thick, viscid, tenacious substance, formed by bees into hexagonal cells for repositories of honey, and for the eggs which produce their young. — See BEE.

—Anything having little cells like a honey-comb.

Hon'ey-combed, *a.* Having little flaws, cells, or perforations resembling honey-combs; as, a *honey-combed* cannon.

Hon'ey Creek, in *Illinois*, a township of Adams co.

Honey Creek, in *Indiana*, enters the Wabash River in Vigo co.

—A post-village of Henry co.

- A township of Howard co.

—A township of Vigo co.

—A township of White co.

Honey Creek, in *Iowa*, a township of Delaware co.

—A township of Iowa co.

Honey Creek, in *Ohio*, enters the Sandusky river, in Seneca co.

Honey Creek, in *Missouri*, a village of McDonald co.

Honey Creek, in *Wisconsin*, enters the Wisconsin river in Sauk co.

—A village and township of Sauk co.

—A post-village of Walworth co., about 30 m. S.W. of Milwaukee.

Honey Cut, in *Alabama*, a village of Macon co.

Hon'ey-dew, *n.* A sweet substance ejected by insects of the genus APHIS (*q. v.*).

—A kind of tobacco sweetened with molasses, &c., and caked into a solid mass; as a plug of *honey-dew.*

Hon'eyed, Hon'ied, *a.* Covered with honey; containing honey.

—Sweet; tender; soothing; as, *honeyed* speech.

Hon'ey-flower, *n.* (*Bot.*) See MELIANTHUS.

Honey Grove, in *Penna.*, a post-village of Juniata co.

Honey Grove, in *Texas*, a city of Fannin co., 85 m. N.E. of Dallas, on Tex. Pac. R. R. *Pop.* (1897) abt. 2,050.

Honey-guide, *n.* (*Zoöl.*) A species of Cuckoo, *Cuculus indicator*, which inhabits various parts of Africa, and is celebrated for its curious habit of guiding the natives to the nests of wild bees, enticing them to the spot by flitting before them and reiterating a peculiar cry.

Honey-harvest, *n.* Store of honey collected.

Honey Hill, in *South Carolina*, a post-office of Berkeley co.

Honey Lake, in *California*, a remarkable lake in the north east part of Lassen, on a high plateau between two ridges of the Sierra Nevada. It covers an area of about 250 sq. m., and though it has no visible outlet, it is said to have entirely dried up in 1860.

Hon'eyless, *a.* Without honey.

Hon'ey-locust, *n.* (*Bot.*) See GLEDITSCHIA.

Hon'ey-moon, Hon'ey-month, *n.* The first month after marriage.

Hon'ey-mouthed, *a.* Smooth-spoken; glib; persuasive; soft-tongued.

Honey Point, in *Illinois*, a township of Maconpin county.

Hon'ey Springs, a locality in Kansas near Elk Creek, 25 m. S. of Fort Blunt. A sharp action of two hours duration was fought here, July 17, 1863, between 6,000 Confederate troops under Gen. Cooper, and 3,000 Union men commanded by Gen. Blunt. The former suffered a defeat, leaving 150 men dead on the field, and 77 prisoners, besides suffering a loss of 400 men wounded. National loss 77 men, of whom 17 were killed.

Hon'ey-stalk, (*-stawk,*) *n.* The clover-flower.

Hon'ey-stone, *n.* Same as MELLITE, *q. v.*

Hon'ey-sucker, *n.* (*Zoöl.*) A family of birds, closely allied to the Humming-birds, *Trochilidæ*, and peculiar to New-Holland.

Hon'eysuckle, *n.* (*Bot.*) See CAPRIFOLIACEÆ, and LONICERA.

Hon'eysuckled, (*-sŭkl'd,*) *a.* Covered with honeysuckles; as, a *honeysuckled* porch.

Hon'ey-sweet, *a.* Mellifluous; sweet or luscious as honey.

Hon'ey-tongued, (*-tŏngd,*) *a.* Soft and persuasive of speech.

Honfleur, (*hownġ'flar,*) a fortified town and seaport of France, dept. Calvados, on the left bank of the Seine, opposite to Havre, from which it is 6 m. distant. *Manuf.* Lace, hardware, butter, and alum. It has an excellent harbor sheltered by a pier. *Pop.* 10,361.

Hong, the name given by the Chinese to any factory belonging to European merchants at Canton. The Hong merchants were ten or twelve natives who were the only ones legally entitled to trade with foreigners, or "the outer barbarians." Since the last Chinese war (see CHINA), however, the facilities for trade have been greatly increased, and commerce, instead of being monopolized by the Hong merchants, has become more general.

Hong'-Kong, an island of China in the Bay of Canton, E. of Macao, Lat. 22° 16′ N., Lon. 111° 50′ E.; *area*, 32 sq. m. It was given to the British by the treaty of Nan-Kin in 1842, depends on the presidency of Calcutta, and has Victoria as capital. *Pop.* (1897) 236,200, of whom about 18,000 are Europeans.

Honied, (*hŭn'nid,*) *a.* See HONEYED.

Honi soit qui mal y pense. [O. Fr., evil be to him that evil thinks.] The motto of the Order of the GARTER, *q. v.*

Honolu'lu, capital of the Hawaiian Islands, in the island of Oahu, on the bay of the same name, Lat. 21° 18′ N., Long., 157° 55′ W. It is the residence of the king and of his government, and the centre of the chief interests of the islands. A line of steamers runs from San Francisco to Australia, touching at Honolulu.

Honor, Honour, (*ŏn'ur,*) *n.* [Lat. *honor, honos*; Fr. *honneur*; It. *onóre*; Sp. *honór*, akin to Ir. *onéir*, and probably allied to Gr. *ainos*, praise.] Esteem, respect, or consideration due, or paid, to worth; high estimation or praise; — when used in reference to the Creator, veneration; reverence.

"*Honour* and shame from no condition rise;
Act well your part, there all the *honour* lies." — *Pope.*

—Dignity; exalted place or rank; distinction; fame; high moral worth; true nobleness of mind; magnanimity; — more especially in men, probity; integrity; — in women, chastity; purity.

"We mutually pledge . . . our lives, our fortunes, and our sacred *honour*." — *Jefferson.*

—Scorn of meanness, springing from the fear of reproach; assumed appearance of nobleness; real or affected nicety of sense, as regards what is right, just, and proper.

"The jingling of the guinea helps the hurt that *Honour* feels." *Tennyson.*

—Any particular quality or virtue much valued; dignity of mien; noble appearance; high rank, and, sometimes, reputation; that which honors.

"He gave his *honours* to the world again." — *Shaks.*

—A testimony of esteem; any expression or token of respect or high estimation; a title of dignity or distinction; — generally in the plural; as, he was received with military *honors.*

—An ornament for the person; a decoration bestowed and worn as a badge of merit or distinction.

"Man . . . bears his blushing *honours* thick upon him."—*Shaks.*

—*pl.* (*Games.*) In card-playing, the four highest cards, or court-cards — the ace, king, queen, and knave; as, (in Whist,) two by *honors*, and the odd trick.

—*pl.* In the English universities, the highest academic prizes or distinctions; as, to read for *honors*; he took *honors* at Cambridge, &c.

(*Feud. Law.*) A seigniory of the nobler sort, having several inferior lordships and manors dependent upon it.

H. Court. (*Feud. Law.*) A court held in an honor or manorial jurisdiction. — *Court of H.* See CHIVALRY.

H. (*Legion of*). (*Fr. Hist.*) See LEGION OF HONOR.

H. (*Maids of*). In the courts of European sovereigns, ladies whose duty it is to attend the queen when she appears in public.

Honors of War. (*Mil.*) Certain stipulated terms granted to a beaten enemy, by which he is permitted to march out of a fortress or town, or from a camp or a line of intrenchments, with all the pomp and pageantry of military etiquette. The term is also used to signify the compliments offered to high personages or military heroes when they appear before a body of armed men, or such as are given to the remains of a deceased officer.

Code or *law of honor.* See CHIVALRY, DUELLING.

On one's honor. On the pledge of one's personal honor; on the stake of one's moral integrity; as, in England, the peers, or members of the upper house of parliament, give their opinions, not under oath, but *on their honor.*

"My hand to thee, *my honour on* my promise."—*Shaks.*

To do the honors. To perform the duties of a host; to show attention and civility to guests or visitors; to act the part of a guide or cicerone.

"To *do the honours*, and to give the word."—*Pope.*

—*v. a.* [Lat. *honoro*; Fr. *honorer.*] To hold in esteem, respect, repute, or regard; to revere; to treat with deference and submission; and when employed with reference to the Almighty, to reverence, to manifest the highest veneration for in words and actions, to entertain the most exalted thoughts of, to worship, to adore.

"Fear God, *honour* the king."—1 *Peter* ii. 17.

"All men should *honour* the Son, even as they *honour* the Father. *John* v. 23.

—To dignify; to raise to distinction; to bring into fame or notice; to elevate in rank, station, or reputation; to render celebrated or illustrious; to exalt; to treat with due ceremony, civility, or attention.

"How lov'd, how *honour'd* once, avails thee not."—*Pope.*

(*Com.*) To accept and pay when due, as a draft, &c.; as, to *honor* a bill of exchange.

Hon'orable, Hon'orable, *a.* [Fr. *honorable*; Lat. *honorabilis.*] Worthy of honor, regard, respect, or esteem: holding a high or distinguished rank in society; illustrious; noble; of gentle birth.

"Advance your name and *honourable* family."—*Shaks.*

—Possessing a high mind; governed by a nice sense of honor, rectitude, and propriety; actuated by a strict regard for veracity, probity, and fidelity.

"Cæsar was an *honourable* man."—*Shaks.*

—Achieved by prowess or noble actions; conferring honor, fame, or dignity; as, *honorable* wounds.

"Think'st thou it *honourable* for a nobleman
Still to remember wrongs?"—*Shaks.*

—Consistent with honor or reputation; proceeding from a laudable, fit, or reputable cause; not base; not mean; not reproachful; as, an *honorable* motive.

"The king's cause is just, and his quarrel *honourable*."—*Shaks.*

—Honest; fair; open; without deceit or hypocrisy; equitable; as, his intentions were perfectly *honorable.*— Not to be disgraced; above suspicion of wrong or ill.

"Let her descend, my chambers are *honourable*."—*Shaks.*

—Performed with marks of public honor; accompanied with testimonies of esteem and regard.

"Vouchsafe her an *honourable* tomb."—*Spenser.*

—An appellation or epithet of respect, distinction, or courtesy; as, the *honorable* gentleman, the *honorable* senator, the *honorable* court, the *honorable* member.— Appropriate or becoming persons of station and character; tending to support dignity, self-respect, and reputable position in life; as, an *honorable* salary.

Hon'orableness, Hon'orableness, *n.* State or quality of being honorable; distinction; elevation of station; eminence of reputation. — Fairness; probity; integrity; fidelity; moral rectitude.

Hon'orably, Hon'orably, *adv.* In an honorable manner; with tokens of honor or respect; magnanimously; generously; nobly; worthily; justly; equitably; fairly; reputably.

"Ye gods, why did I not more *honourably* starve?" — *Dryden.*

Honora'rium, Hon'orary, *n.* [Lat., from *honos*, honor.] A term used in Europe almost synonymously with *fee*, and, as applied at the present time, chiefly to the fees tendered to the professors in universities, and to medical or other professional gentlemen for their services. It was originally applied solely to the salaries of great officers of state, whose services it was considered were remunerated only, as it were, *honoris causa*,— a shade of meaning which is still perceptible in the present use of the term.

Hon'orary, *a.* [Fr. *honoraire*, from Lat. *honorarius.*] Possessing a title or position of dignity without performance of services or pecuniary recompense; as, an *honorary* secretary of a society.— Conferring honor, or designed simply to bestow honor or reputation; as, an *honorary* degree.

Honora'tus. There are two saints of this name in the Roman calendar. The *first*, bishop of Arles and founder of the monastery of Lerins, died 429. The *second*, bishop of Marseilles, and a religious writer, was born about 420 or 425.

Hon'orer, Hon'ourer, *n.* One who honors or reveres. (R.)

Hono'rius, son of Theodosius the Great, born 384, became emperor of the West, and his brother Arcadius emperor of the East, on the death of Theodosius, 395; died, after being shamefully subjugated by the Goths under Alaric, 423.

Honorius I., Pope, succeeded Boniface V. in 625, and governed with zeal and prudence. D. 638.

HONORIUS II., of Bologna, succeeded Calixtus II. in 1124, and, at the same time, Thibauld was chosen by another party, under the name of Celestin; but he resigned the chair to his rival. D. 1130.

HONORIUS III., was made pope after Innocent III., in 1216. D. 1227.

HONORIUS IV., a Roman, ascended the papal chair in 1285. He displayed great zeal for the church, and promoted the crusades. D. 1288.

Hon'orless, Hon'onrless, *a.* Without honor; unworthy of honor.

Hood, *n.* [A. S. *hōd*; German *hut*, a head-covering, from *hüten*, to guard; Sansk. *chad*, to cover. See HAT.] A covering for the head used by females. — A cowl; a covering for the head and shoulders worn by monks.

(*Sports.*) In falconry, a covering for a hawk's head or eyes.

—Anything to be drawn over the head to cover it; as, the *hood* of a

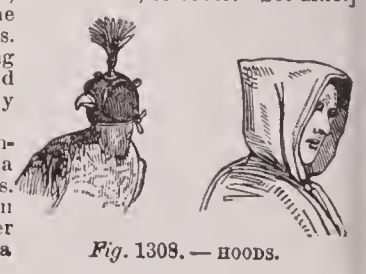


Fig. 1308. — HOODS.

cloak or sacque-laure. — A fold hanging from the neck of an academic gowu; as, a master-of-arts' *hood*, a graduate's *hood*.—Any covering resembling a hood, or answering the purpose of a hood; as: (1) The head of a carriage. (2) A cowl, often movable on a pivot; as, the *hood* of a chimney. (3) The top of a pump.

(*Naut.*) The cover or porch of a companion-way.

—*v. a.* To dress, as in a hood or cowl; to put on, as a hood; to furnish with any hood-shaped appendage; as, a *hooded* snake. — To cover; to blind; to hide; to conceal.

"While grace is saying, I 'll *hood* mine eyes." — *Shaks.*

Hood, (*hŭd.*) [A.S. *hud*; D. *hoed.*] A termination employed in the composition of words denoting quality, condition, character; as in man*hood*, child*hood*, knight*hood*. It is used, sometimes. after the German style, (*-heit*, -head,) as in god*head*, maiden*head*, &e.

Hood, Robin, a chivalrous outlaw of the reign of Richard I., whose exploits in Sherwood Forest are the subjects of many admired ballads. All the popular legends celebrate his generosity and skill in archery. The principal incidents of his history are to be found in Stow, and a complete collection of the ancient poems, songs, and ballads relating to him was published by Ritson in 1795.

Hood, Samuel, Viscount, an English commander, b. 1726; distinguished in several actions at the beginning of the war against France, particularly at the bombardment of Havre; the defeat of Admiral De Grasse under Rodney; siege of Toulon and the capture of Corsica; after which he was made Governor of Greenwich Hospital, and promoted to the rank of admiral. D. 1816.

Hood, Thomas, an English poet and humorist, b. in London, 1798. Early in life apprenticed to an engraver, *H.* soon neglected that art and applied himself wholly to literature. In 1821 he became sub-editor of the "London Magazine," and, consequently, a member of that brilliant coterie of writers, including Charles Lamb, Hazlitt, Hartley, Coleridge, Talfourd, Bowring, &c., whose utterances spoke through its pages. In 1826, *H.* brought out his *Whims and Oddities*, and in 1827 *National Tales*. In the latter year he also published a volume of "Poems," among which appeared the exquisite *Plea of the Midsummer Fairies*. In 1830, he began the publication of the *Comic Annual*, which continued for ten years. In the year following appeared his *Tylney Hall*, a novel. Retiring from the editorial chair of the "New Monthly Magazine," in 1843, he, the next year, started "Hood's Magazine," which flourished until his decease. In this year, too, he gave to the world, through the columns of "Punch," his immortal *Song of the Shirt*, along with its scarcely less powerful sister-poem, the *Bridge of Sighs*. While on a sick-bed, from which he never rose, *H.* received from the English govt. a pension of $500 per annum, which, after his death in 1845, was continued to his widow. The best editions of *H.'s* works published in this country have been published in Boston, one in 4 vols., 1856, and another in Professor Child's edition of the British Poets, (4 vols., 1859.)

Hood'ed, *a.* (*Bot.*) Hood-shaped.

Hood'ed-snake, *n.* (*Zoöl.*) See Viperidæ.

Hood'ings, Hood'ing-ends, *n. pl.* (*Naut.*) The ends of planks which fit into the rabbets of the stem- and stern-posts of a ship.

Hood'lum, *n.* A low fellow; a rowdy; a vagabond (*Local U. S.*)

Hood'-man-blind, *n.* See Blindman's Buff.

Hood'-mould, Hood'-moulding, *n.* (*Arch.*) A band or string over the head of a door, window, or other opening, in a mediæval building; so called from its enclosing, as within a hood, the inferior mouldings and the opening itself. The character of the mouldings differs slightly in Norman and Pointed architecture; being in the former merely a fillet accompanied by a splay, often ornamented with a billet and zigzag; and in the latter an ogee moulding with a hollow on the side of the tracery. In the English and the Perpendicular styles, the *H.-M.* are often terminated by brackets, shields, or heads. The term is also applied, in Gothic architecture, to the *label* or *label-moulding*, (q.v.) (Called also *drip-stone.*)

Hood River, in *Oregon*, enters the Columbia River in Wasco co., about 25 m. W. of Dallas City.

Hood's Canal, or Channel, in *Washington*, a narrow inlet extending S.W. from Admiralty Inlet.

Hood's Mills, in *Maryland*, a post-vill. of Carroll co.

Hood's River, a river of British N. America, enters Coronation Gulf about Lat. 109° W.

Hood'wink, *v. a.* [*Hood*, and *wink.*] To blind by covering the eyes of.

"We will blind and *hoodwink* him."—*Shaks.*

—To cover; to hide. — To deceive by external disguise; to impose on by practising on credulity or plastic disposition.

"His wife *hoodwinked* him to her infamy."—*Carew.*

Hoof, *n.*; *pl.* Hoofs, and (but rarely) Hooves. [A. S. *hóf*, *hófe*; D. *hoef*; Dan. *hov*; Ger. *huf*; Gr. *hoptē*, a tool, implement; *pl.* harness, armor.] The horny substance that shields or defends, covers or terminates the feet of certain animals, as the horse, &c.—An animal; a beast; — hence, by implication, any part, remains, or trace of a hoofed thing.

—*v. a.* To walk as cattle. (R.)

Hoof'-bound, *a.* (*Furriery.*) A term denoting that the horse or other hoofed animal has a pain in the fore-feet, occasioned by the dryness and contraction of the horn, which often occasions a lameness.

Hoofed, (*hōōft,*) *a.* Having hoofs; furnished with hoofs; as, *hoofed* quadrupeds.

Hoof'less, *a.* Without hoofs.

Hooghly, (*hoog'ly,*) a town of British India, in Bengal, cap. of a dist. of the same name, on the W. bank of the Hooghly, 23 m. N.W. of Calcutta; *pop.* 16,400.

Hooghly, (The,) a river of India, in Bengal, formed by the junction of two W. branches of the Ganges.—See Ganges.

Hook, *n.* [A. S. *hoc*, *hooc*; D. *haac*; Dan. *hage*; Icel. *haki*; Heb. *chakka*, akin to Lat. *uncus*, crooked, and Gr. *angkos*, a bend.] A piece of iron, or other metal, bent into a curve for catching, holding, or sustaining anything; as, a fish-*hook*, a hat-*hook*, a boot-*hook*, a tenter-*hook*, a pot-*hook*, a boat-*hook*, &c.—That which catches; a trap; a snare; a spring; as, "that *hook* of wiving." (*Shaks.*) — An instrument to cut or lop with; a sickle: as, a reaping-*hook*, a bill *hook*. — That part of a hinge which is fixed or inserted in a post or upright. — An advantage; a catch; a haul. (Vulgar.)

(*Naut.*) In a ship, a forked timber placed on the keel.

(*Mach.*) An eccentric hook. See V-hook.

(*Agric.*) An English provincialism, signifying a field sown two years successively.

—*pl.* The protuberant parts of the thigh-bones of cattle. (Sometimes called *hook-bones.*)

By hook or crook, one way or other; by any means or method, direct or indirect.

Off the hooks, unhinged; perturbed; disordered; out of temper.

"She was . . . easily put *off the hooks*, and monstrous hard to be pleased again."—*L'Estrange.*

On one's own hook, on one's own account; self-responsible; by one's self. (Colloq. and vulgar.)

—*v. a.* To catch with a hook; to seize and draw, as with a hook; as, to *hook* a salmon. — To draw, entice, or procure by artifice or stratagem; to entrap; to ensnare; as, "Her I can *hook* to me."—*Shaks.*

—To purloin; to pilfer; to steal; to rob; as, to *hook* a purse. (Cant.)

To hook it, to make one's escape; to decamp; to elope; as, *he hooked it* home. (Vulgar.)— *To hook on*, to fasten, fix, or attach by means of a hook. — (*Mach.*) To connect the valve-gear with the locomotive-engine, so as to give automatic motion to the valves.

—*v. n.* To be curved; to bend in a semi-elliptic manner.

Hook, a parish of Ireland, in Leinster, co. of Wexford, forming the S. extremity of the peninsula which protects the Waterford harbor. On its S. point there is an ancient and curious tower, now used as a light-house.

Hookah, *n.* See Pipe.

Hooked, (*hookt,*) *a.* Possessing the form of a hook; curvated. — Furnished with a hook or hooks; as, a "*hooked* chariot." — *Milton.*

Hook'edness, *n.* Incurvation; state of being bent semi-elliptically, or like a hook.

Hook'er, *n.* One who, or that which, hooks.—(*Naut.*) A fishing-smack; a small vessel peculiar to the Dutch and Irish coasts.

Hook'er, Joseph, an American general, b. at Old Hadley, Nov. 13, 1813. Entering West Point Academy in 1833, he graduated in 1837, and received the appointment of 2d Lieutenant in the 1st U. S. Artillery. He served first during the Florida War, and afterwards on the N. Frontier, where he was appointed to the rank of 1st Lieutenant. On the breaking out of the Mexican War, *H.* was attached to the staff of Brig. Gen. P. F. Smith, and distinguished himself in the battle of Monterey, Sept. 21–23, 1846, for which he was brevetted Captain. During the succeeding conflicts at Contreras, Cherubusco, Molino del Rey, and in the storming of Chapultepec, he also took an active part; but in 1853, resigning his commission, he settled upon a farm near Sonoma, California. In 1858 he was appointed Superintendent of Military Roads in Oregon, and surveyed a line from Stillicome to the 49th parallel on the E. bank of Puget Sound, in Washington Territory. From 1859 to 1861 he was Colonel of the California Militia, and on the commencement of the civil war was appointed Brig. Gen. of U. S. Volunteers, and assigned to the defence of Washington; he was afterwards engaged in the Siege of Yorktown, and, in May, 1862, promoted to the rank of Maj. Gen. of Volunteers. In the subsequent battles of Williamsburg, Fair Oaks, Glendale, Malvern Hill, and in many other less important engagements taking place between May and August, 1862, his conduct firmly established his right to the sobriquet of "Fighting Joe Hooker," given him by his soldiers. In the Northern Virginia Campaign Gen. *H.* commanded a division, and was engaged in the battles of Bristoe Station, Manassas, and Chantilly. At the battles of South Mountain and Antietam he was in command of the right wing of the army, and took so distinguished a part in these important actions as to elicit the highest praise from Gen. McClellan. In the latter battle Gen. *H.* received a severe wound in the foot, but by Nov. 10, however, he was again in the field, and assigned the command of the 5th Corps. Soon after he was placed in command of the Centre Grand Division, and finally of the entire Army of the Potomac, in which capacity he was present in the battles of Fredericksburg, Kelly's Ford, and Chancellorsville. Between Oct., 1863, and May, 1864, Gen. *H.* was engaged in the operations about Chattanooga, taking a conspicuous part in the battle of Lookout Valley, the capture of Lookout Mountain, and the battle of Missionary Ridge. On Jan. 28, 1864, he received the thanks of Congress "for the skill, energy, and endurance which first covered Washington and Baltimore from the meditated blow of the advancing and powerful army of rebels led by Gen. Robert E. Lee." In the invasion of Georgia he commanded the 20th Corps (Army of the Cumberland), and took part in the combat at Mill Creek Gap, and the battles of Resacca and Dallas, besides that memorable approach to Pine Mountain, May 26 to July 2, which was marked by almost daily severe engagements. Then followed in rapid succession the pursuit of the enemy to the Chattahoochie; the actions near Atlanta; the combat of Peach Tree Creek; and, finally, the siege and capture of Atlanta. From Sept. 28, 1864, to July 5, 1865, Gen. *H.* was in command of the Northern Dept., with his headquarters at Cincinnati, Ohio. He retired from active service, at his own request, on full rank of Maj. Gen., Oct. 15, 1868. D. Oct. 31, 1879.

Hook'er, Richard, an English divine, b. in Derbyshire, 1554. He took orders about 1581, and soon after married Joan Churchman, who brought him no beauty, nor money, nor peace. After holding some minor preferments he was named Master of the Temple, in 1585. The controversy in which he was there involved with the Puritan, Walter Travers, is said to have occasioned the project of his great work, *The Laws of Ecclesiastical Polity*. For quietness and leisure in its composition, he removed to Boscombe, in Wiltshire, in 1591, whence four years after he went to Bishopsbourne, in Kent, and he sought no higher preferment. Four books of his "Ecclesiastical Polity" were published in 1594, a fifth in 1597, and the last three after his death. Its profound philosophical groundwork, its vast learning, and dignity and eloquence of style, have given it a place among the masterpieces of English prose literature. D. 1600. His life was written by Izaak Walton.

Hooker, Sir William Jackson, an English botanist, b. at Norwich, 1785. He early devoted himself to the study of nature, and soon chose botany for his special pursuit. Between 1806–1814 he made extensive travels for the purpose of collecting plants, and became the friend and correspondent of the most eminent men of science of his day. He was knighted by King William IV. in 1836, and five years later was appointed Director of the Kew Gardens. His botanical works are very numerous and of standard authority. Among them are his *Tour in Iceland*, *Muscologia Britannica*, *Flora Scotica*, *Exotic Flora*, *British Flora*, and *Icones Filicum*, the last published in conjunction with Dr. Greville. *H.* was F.R.S., a vice-president of the Linnæan Society, Oxford, D.C.L., and a member of the Legion of Honor. D. 1865. — His son, Joseph Dalton *H.*, b. 1816, is a somewhat distinguished botanist, and author of many valuable works. He succeeded his father as Director of the Kew Gardens, holding that position until 1885.

Hook'er, in *Indiana*, a post-office of Washington co.

Hooker, in *Missouri*, a township of Laclede co.

Hooker, in *Pennsylvania*, a post-office of Butler co.

Hooker, in *South Dakota*, a post-office of Turner co.

Hook'erton, in *North Carolina*, a post-village of Greene co., about 82 m. S.E of Raleigh.

Hook'ersville, in *West Virginia*, a post-office of Nicholas co

Hook'ey, *n.* (*Games.*) Same as Hockey, *q. v.* —*Blind Hookey.* (*Games.*) See Blind Hookey.

Hook'-ladder, *n.* A ladder with hooks at one end, used at the extinguishing of fires.

Hook'-motion, *n.* (*Mach.*) A valve-gear in a steam-engine reversed by V-hooks.

Hook'-nosed, (*-nōzd,*) *a.* Having a curvated, aquiline or Roman nose; hawk-nosed.

Hook'-pins, *n. pl.* (*Carp.*) Taper iron pins, only with a hook-head, to pin the frame of a roof or floor together.

Hook'set, in *New Hampshire*, a post-township of Merrimac co., on the Merrimac River, abt. 9 m. S. by E. of Concord. *Pop.* (1897) about 1,900.

Hooks Mills, in *West Virginia*, a P. O. of Hampshire co.

Hooks'town, in *Mississippi*, a P. O. of Lauderdale co.

Hooks'town, in *Pennsylvania*, a post-borough of Beaver county, about 242 miles W. by N. of Harrisburg.

Hook'y, *a.* Relating or pertaining to, or full of hooks.

Hoop, *n.* [A. S. *hōp*, a band made of osiers; D. and Flem. *hoep*, a ring, the band of a cask. Probably allied to Coop, *q. v.*] That which goes round about, binds, or fastens; a ring; anything circular.

"A quarrel . . . about a *hoop* of gold, a paltry ring." — *Shaks.*

—A band of wood or metal used to confine and hold together the staves of casks, kegs, tubs, &c., or for similar purposes. — A farthingale; a circular frame-work of some elastic material, as whalebone, steel, &c., used for expanding the skirt of a woman's dress; crinoline.

"All that *hoops* are good for is to clean dirty shoes, and to keep the fellows at a distance." —*Richardson.*

—A quart pot or drinking measure. The original quart pot of our ancestors was bound with hoops (usually three) after the manner of a cask, so that, when filled with liquor, each drinker would take his *hoop*, or, in other words, the quantity contained between two hoops.

—An old measure of capacity, or dry measure, containing from one to four pecks, as variously estimated.

—*v. a.* To fasten, bind, or confine with hoops; as, to *hoop* a barrel. — To encircle; to surround; to clasp.

—*v. n.* To drive with a shout, yell, or outcry; to pursue with a halloo. — To call by a whooping shout or cry.

Hoop, *n.* A shout; a whoop; a hoarse call.

(*Zoöl.*) See Hoopoe.

—*v. n.* [See Whoop.] To hoop; to utter a loud cry; to emit a particular sound of voice by way of call or hue and cry; to halloo; to shout. (More correctly written Whoop.)—To whoop or cough, as in the whooping-cough.

Hoop'er, *n.* One who hoops casks, tubs, &c.; a cooper.

(*Zoöl.*) The Wild Swan, *Cygnus ferus.*

Hoop'er, John, an English martyr of the reformation, b. in Somersetshire, 1495. He was appointed bishop of Worcester by Edward VI.; but on the accession of Mary, he was required to recant his opinions, and on his refusal was condemned to the flames, in 1555. He wrote several books, including *Twelve Lectures on the Creed.*

Hoop'er's Valley, in *New York*, a P.O. of Tioga co.
Hoop'ersville, in *Maryland*, a P. O. of Dorchester co.
Hoop'ing-cough, Whooping-cough, *n.* (*Med.*) A cough in which the patient hoops or whoops with a deep inspiration of breath. On account of the violence of the cough attending this disease, the term *pertussis* has been applied to it; and on account of the recurrence of the cough in paroxysms, it is also known by the name of "chin" or "kink" cough. *H.-C.* seems to have been unknown to the ancients, as no mention of it is made in the medical works of the Greeks, Romans, and Arabians. It has, however, prevailed for several centuries in various countries of Europe, and on account of its frequent occurrence, and the danger with which it is often accompanied, it has occupied the attention of physicians considerably. The symptoms commence with a simple catarrh, indicated by a cough, and the expectoration of a limpid fluid; by redness of the conjunctivæ, a watery discharge from the eyes and nostrils; hoarseness, and occasional sneezing. These symptoms are generally accompanied by slight feverishness, and the patient is low-spirited and languid. Thus far the disease closely resembles a common cold; but at the end of about one or two weeks, the character of the affection changes. The fits of coughing become more long and frequent; a sensation of tickling in the larynx and trachea accompanies each fit, during which the inspirations are irregular, especially in the case of children, whose faces bear an expression of anxiety and fear. When the fit comes on, they cling firmly to the persons or objects near, and, if asleep, start up. The efforts of coughing then become so rapid and violent as to take away the breath; during the intervals, it is difficult to perceive any inspiratory movements, excepting at times when the cough is interrupted by a peculiar whooping sound, which has given this disease its common name. In young children, hooping-cough often becomes complicated with other diseases. The most common complication with children at the breast is cerebral congestion, giving rise to violent convulsions. *H.-C.* prevails as an epidemic disease, and children from birth to the period of second dentition are chiefly liable to it. Adult persons, however, are not exempt from it, and it sometimes happens in old age. The disease is very contagious, and when it once finds admission into a house, very few young persons, who have not had it previously, escape. It rarely affects the same individual twice, although this sometimes occurs. *H.-C.* is a very fatal malady; it is readily distinguished from any other disease by the paroxysmal character of the cough. Hitherto, no treatment of hooping-cough has been discovered by which its progress can be arrested; its severity, however, can be mitigated, and its duration diminished. It must, necessarily, run a certain course, which often, in spite of skilful treatment, may be long. The administration of emetics, in the earliest stages of the disease, is often efficacious; and tartar emetic, on account of its easy solubility and certain action, seems to be best suited for the purpose. In protracted cases, nothing appears to be so effective in putting a stop to the cough as change of air, which frequently succeeds when all other methods have failed. The diet should always be of the mildest description at the commencement, but afterwards it is advantageous to adopt a more tonic and nourishing regimen.
Hoop'oe, Hoopoo, Hoop, *n.* (*Zoöl.*) The common name of the insessorial birds comprising the genus *Upupa*, fam. *Certhiadeæ*. The species are natives of warm parts of Asia, Australia, and Africa, and are generally remarkable for magnificence of plumage. *U. epops*, the common *H.* (Fig. 1309), is an African bird, a summer visitant of most parts of Europe, found also in some parts of Asia. It is about the size of a missel-thrush; its plumage exhibits a fine mixture of white, buff, and black; and it has a large crest of two parallel rows of feathers. The *H.* derives its name from its very frequent utterance of a low, soft sound resembling the syllable *hoop*.



Fig. 1309. — THE HOOPOE, (*Upupa epops.*)

Hoop'pole, in *Ohio*, a post-office of Ross co.
Hoop'-skirt, Hoop'-pet'ticoat, *n.* Same as Crinoline, *q. v.*
Hoorn, (*hoarn,*) a fortified seaport of N. Holland, on the Zuyder-Zee, 20 m. N.E. of Amsterdam. *Manuf.* Woollen cloths and carpets; ship-building is also carried on to a considerable extent. It had, in past centuries, a large foreign commerce, and still exports much butter and cheese. *Pop.* (1897) 11,100.
Hoo'sic, in *New York*, a township of Rensselaer co., about 27 m. N.E. of Troy. *Pop.* (1890) 10,471.
Hoo'sic Falls, in *New York*, a manuf. town in above township, on Fitchburg R. R. *Pop.* (1897) about 7,250.
Hoo'sic (or **Hoo'sac**) **River,** in *Massachusetts, Vermont*, and *New York*. Rising in Berkshire co. of the former State, and flowing N.W. through the N.W. corner of Bennington co., Vermont, it enters New York in Rensselaer co., and joins the Hudson river about 15 m. N. of Troy, in Washington co.
Hoosier (*hōō'zher*), *n.* An appellation given to citizens of the State of Indiana.
Hoot, *v. n.* [Fr. *huer;* most probably formed from the sound.] To utter a call or shout in contempt; to hiss or cry out against in derision.

"Atheism . . . *hooting* at the glorious Sun in Heaven."—*Coleridge.*

—To cry or make a sound like that emitted by an owl.

"The clamorous owl that nightly *hoots*."—*Shaks.*

—To drive with shouts and cries uttered in contempt or disapprobation: as, to *hoot* a traitor.
—*n.* A cry or shout in contempt, derision, or disapprobation; as, "the *hoot* of the rabble."—*Glanville.*
Hoove, Hov'en, *n.* [See Heaves.] A disease in the stomachs of cattle, caused by inflation of the gases thrown off by an excess of green fodder.
Hoov'en, Hov'en, *a.* Suffering from the disease called *hoove*, or *hoven*, as cattle.
Hoov'er, in *Indiana*, a post-village of Cass co., located on the Wabash R.R.
Hoover's Run, in *Penna.*, a post-office of Greene co.
Hoov'ersville, in *Pennsylvania*, a post-village of Somerset co.
Hoov'erton, in *Penna.*, a P. O. of Montgomery co.
Hop, *v. n.* [A.S. *hoppan;* D. *huppelen;* Ger. *hüpfen;* Dan. *hoppe;* W. *hobelw*, to hop, to caper. See Hip.] To skip; to jump; to leap or spring on one leg; to spring forward by leaps; to skip, as birds.

"Companions of the spring, *hopping* from spray to spray."*Dryden.*

—To limp; to halt in one's gait; to walk lame.

"The limping smith . . . *hopping* here and there."—*Dryden.*

—To dance: to caper; as, to *hop* the mazurka.
—*n.* A jump; a leap; a spring; a caper on one leg.

"I can go above a hundred yards at a *hop*, step, and jump."
Addison.

—An improvised dance; also, and in a vulgar sense, a dancing-assembly; a ball.
Hop, *n.* [D.; Belg. *hoppe;* Fr. *houblon;* Ger. *hopfen*, from *haupt*, head, top, with reference to the climbing nature of the plant.] (*Bot.*) A climbing plant, the flowers of which, also called *hops*, are used in brewing. — See Humulus.
—The berry or fruit of the dog-rose. — See Hip.
—*v. a.* To impregnate with hops.

"Brew in October, and *hop* it for long keeping."—*Mortimer.*

—*v. n.* To gather hops; to collect the hop harvest.
Hopah'ka, in *Mississippi*, a village of Leake co., about 65 m. N.E. of Jackson.
Hop'-bind, *n.* The stalk on which hops grow.
Hop Bottom, in *Pennsylvania*, a post-borough of Susquehanna co.
Hope, *n.* [A.S. *hopa;* Dr. *hoop;* Dan. *haab;* Ger. *hoffnung;* akin to Gr. *opeuō*, for *opipteuō*, to lie in wait for, to watch] An expectation of some good; an expectation indulged with pleasure; a desire of some benefit or good thing, with at least a slight expectation of obtaining it; confidence in a future event; the highest degree of well-founded expectation of good; anticipation; trust.

"*Hope!* thou nurse of young desire."—*Bickerstaff.*

—That which gives hope; the person or thing which supplies basis of expectation, or promises the good fruition of one's wishes or desires; an opinion or belief grounded on substantial evidence.

"She was his care, his *hope*, and his delight."—*Dryden.*

—*v. n.* [A. S. *hopian;* D. *hopen;* Dan. *haabe.*] To expect, with anticipation of, some good; to entertain a belief that some good is obtainable; to indulge in hope; not to give way to despair; as, to *hope* for the best.
—To place confidence in; to trust in with assured expectation of good.

"He shall strengthen your heart, all ye that *hope* in the Lord."
Psalms xxxi. 24.

—*v. a.* To expect with pleasurable anticipations, or a belief that it may be obtained; to live in hope; to look forward to possession or fruition of something desirable.

"Cold, biting winter mars our *hop'd* for hay."—*Shaks.*

Hope, Thomas, an English gentleman of large fortune, celebrated for his works in illustrations of art, especially of ancient costume and the life of the Greeks. D. 1831.
Hope, in *Alabama*, a village of Lauderdale co.
Hope, in *Arkansas*, a post-town of Hempstead co., on the St. L., Iron Mt. & S. R.R. *Pop.* (1890) 1,937.
Hope, in *Illinois*, a flourishing township of La Salle co.
Hope, in *Indiana*, a post-town of Bartholomew co., on the C., C., C. & St. L. R.R., about 12 m. N.E. of Columbus. *Pop.* (1890) 1,009.
Hope, in *Maine*, a post-township of Knox co.
Hope, in *Michigan*, a township of Barry co.
Hope, in *New Jersey*, a post-town and township of Warren co., about 10 m. N.E. of Belvidere.
Hope, in *New York*, a post-town and township of Hamilton co., about 55 m. N.W. of the city of Albany. *Pop.* (1897) about 600.
Hope, in *Ohio*, a post-office of Washington co.
Hope, in *Pennsylvania*, a post-office of Greene co., about 8 m. N. of Waynesburg.
Hope, in *Rhode Island*, a post-village of Providence co.
Hope, in *Texas*, a post-village of Lavaca co.
Hope Advance Bay, on the N. coast of Labrador, British N. America, Lat. 60° N., Lon. 70° W.
Hope Centre, in *New York*, a village of Hamilton co., about 60 m. N.W. of Albany.
Hope'dale, in *Illinois*, a post-village and township of Tazewell co.
Hope'dale Hopedale Community, in *Massachusetts*, a post-town of Worcester co., about 35 miles S.W. of Boston. *Pop.* 1,100.
Hope'dale, in *Ohio*, a post-village of Harrison co., about 124 m. N. by E. of Columbus. *Pop.* (1897) about 450.
Hope Falls, in *New York*, a post-village of Hamilton co., about 54 m. N.W. of Albany.
Hope'field, in *Arkansas*, a village of Crittenden co., on the Mississippi River, opposite Memphis, Tennessee.
Hope'ful, *a.* Full of hope; filled with expectant desire; feeling anticipation of success.

"*Hopeful* of your aid, he hopes in vain."—*Pope.*

—Authorizing grounds for hope; promising or presaging success; anticipative of good; as, a *hopeful* prospect.

"What to the old can greater pleasure be,
Than *hopeful* and ingenious youth to see?"—*Sir J. Denham.*

Hopeful, in *Virginia*, a post-office of Louisa co.
Hope'fully, *adv.* In a hopeful sense or manner; with ground to anticipate good; in a manner to excite or raise hope; trustfully; confidently.
Hope'fulness, *n.* State or quality of being hopeful; promise of good; ground to expect or anticipate what is desirable.
Hope Hull, in *Alabama*, a post-village of Montgomery county.
Hop'eite, *n.* (*Min.*) A transparent, whitish, sometimes brown mineral, from the calamine mines of Altenberg, near Aix-la-Chapelle, supposed to contain phosphoric acid, oxide of zinc, and cadmium; *sp. gr.* 2·76–2·85.
Hope'less, *a.* Without hope; deprived of hope; despairing.

"Alas! I am a woman, friendless, *hopeless*."—*Shaks.*

—Giving no cause or ground for expectation of good; having no promise of hope for a thing desirable; irretrievable; desperate; as, a *hopeless* cause, a *hopeless* attempt.

"The *hopeless* word of never to return."—*Shaks.*

—Unhoped for; without anticipation; unexpected; despaired of.

"Thrice happy eyes, to view the *hopeless* presence of thy brother."
Marston.

Hope'lessly, *adv.* Without hope.
Hope'lessness, *n.* State of being hopeless; abandonment of hope; a state of being desperate, or affording no hope.
Hop'er, *n.* One who hopes or anticipates.
Hope Town, a village of British Guiana, S. America, about 1 m. from Fort Wellington.
Hope Valley, in *Rhode Island*, a post-village of Washington co. *Pop.* (1897) about 920.
Hope'ville, in *Iowa*, a post-village of Clarke co., about 50 m. S.S.W. of Des Moines.
Hope'well, a town of the province of New Brunswick, in Albert co.
Hopewell, in *Illinois*, a township of Marshall co.
Hopewell, in *Indiana*, a village of Jennings co., about 20 m. N.W. of Madison.
Hopewell, in *Iowa*, a village of Mahaska co., about 11 m. E.N.E. of Oskaloosa.
Hopewell, in *Maryland*, a post-village of Somerset co., on the N. Y., P. & N. R.R.
Hopewell, in *Mississippi*, a post-office of Calhoun co.
Hopewell, in *Missouri*, a post-office of Washington county.
Hopewell, in *North Carolina*, a post-village of Mecklenburg co., about 160 m. W.S.W. of Raleigh.
Hopewell, in *New Jersey*, a prosperous township of Cumberland co.
—A post-town and township of Mercer co., about 12 m. N.E. of Trenton. *Pop.* of town (1897) about 700.
Hopewell, in *New York*, a post-town and township of Ontario co., about 12 m. W. of the city of Geneva. *Pop.* (1890) 1,655.
Hopewell, in *Ohio*, a township of Licking co.
—A township of Mercer co.
—A post-village and township of Muskingum co., about 46 m. E. of Columbus.
—A township of Perry co.
—A township of Seneca co.
Hopewell, in *Pennsylvania*, a prosperous township of Beaver co.
—A post-township of Bedford co.
—A township of Cumberland co.
—A township of Huntingdon co.
—A township of Washington co.
—A township of York co.
Hope'well, in *South Carolina*, a post-office of York co., about 90 m. N. of Columbia.
Hope'well Academy, in *Missouri*, a post-village of Warren co.
Hope'well Centre, in *New York*, a post-office of Ontario co.
Hopewell Centre, in *Pennsylvania*, a post-village of York co. *Pop.* (1897) about 100.
Hopewell Cotton Works, in *Pennsylvania*, a post-office of Chester co.
Hopewell Cross Roads, in *Maryland*, a post-village of Harford co. *Pop.* (1897) about 180.
Hope'well Head, a cape of Labrador, between Lat. 57° N., and Lon. 77° W. It projects into Hudson's Bay, B. America.
Hop'-garden, Hop'-yard, *n.* A garden, field, or inclosure where hops are cultivated and raised; as, Kentish *hop-gardens*.
Hop-horn'beam, *n.* (*Bot.*) See Ostrya.
Hop'ingly, *adv.* With hope, expectation, or anticipation of good.
Hôpital, (L'.) See L'Hôpital.
Hop'kins, Samuel, an American divine, founder of the *Hopkinsian* theology, b. at Waterbury, Conn., 1721. He was a pious and zealous man, with considerable talents, and almost incredible powers of application; but his theological opinions have given rise to much controversy. He published numerous sermons, and earnestly advocated the abolition of slavery in the American States. From the year 1780 he presided over a congregation at Newport, Rhode Island, where he d. in 1803.

Hop'kins, Stephen, an American statesman, and one of those who signed the Declaration of Independence, was b. in 1707, in that part of Providence which now forms the town of Scituate. In 1732 he was elected a representative to the general assembly from Scituate, and was chosen speaker of that body in 1741. In 1751 he was appointed chief justice of the superior court of Rhode Island, and, in 1756, was elected its governor. After this he was several times chosen a member of Congress, and d. in 1785. He was a clear and convincing speaker, and a good mathematician; and though he had received but a very limited education, his knowledge of literature, science, and political economy was varied and extensive.

Hop'kins, in *Kentucky*, a W. co.; *area*, about 550 sq. m. *Rivers.* Green and Pond rivers, and Tradewater creek. *Surface*, diversified; *soil*, generally fertile. *Cap.* Madisonville. *Pop.* (1890) 23,505.

Hop'kins, in *Michigan*, a post-township of Allegan co. *Pop.* (1897) about 2,000.

Hop'kins, in *Minnesota*, a post-village of Hennepin co., on C., M. & St. Paul and 2 other R. Rs.

Hop'kins, in *Texas*, a N. E. co.; *area*, about 750 sq. m. *Rivers.* White Oak Bayou and Lake Fork of Sabine river. *Surface*, diversified; *soil*, fertile. *Cap.* Sulphur Springs. *Pop.* (1890) 20,572.

Hopkin'sians, *n. pl.* (*Eccl. Hist.*) The name given to those who adopt the theological opinions of Dr. Hopkins, *q. v.* They are not a distinct sect, but are pretty numerous in America, in some of the Christian bodies of which the tenets are generally Calvinistic. They hold most of the Calvinistic doctrines, and even in their most extreme form, but they entirely reject the doctrine of imputation, both the imputation of Adam's sin and of Christ's righteousness. The fundamental doctrine of the *H.* system, however, is, that all virtue and true holiness consist in *disinterested benevolence*, and that all sin is *selfishness* — the self-love which leads a man to give his first regard even to his own eternal interests being condemned as sinful.

Hop'kin's Mill, in *Pennsylvania*, a post-office of Greene co.

Hop'kinson, Francis, an American author and statesman, and one of the signers of the Declaration of American Independence, was b. at Philadelphia in 1737. His father was the intimate friend and scientific coadjutor of Franklin. After graduating at the College of Philadelphia, and making the law his study, Francis visited England, and in a few years after his return entered Congress as a delegate from New Jersey. He produced many satires and ironical pieces, such as the *Prophecy*, the *Political Catechism*, &c., tending to ridicule the old country; while, at the same time, he directed his efforts against the ribaldry of the newspapers, and the exaggerations and prejudices with which the Federal Constitution was at first assailed. After his retirement from Congress, he was appointed judge of the admiralty for Pennsylvania, and d. in 1791. Among his works, the greater part of which are of a political character, there are many sound essays and scientific papers, acute and learned judicial decisions, and a variety of songs possessing much sweetness and delicacy, which were rendered still more popular by the airs he composed for them.

Hopkins' Station, in *Michigan*, a post-village of Allegan co.

Hop'kinsville, in *Kentucky*, a city, capital of Christian co., on L. & N. and O. V. R. Rs. and the Little river, 74 m. S. of Henderson. *Pop.* (1890) about 6,250.

Hop'kinsville, in *Michigan*, a village and former post-office of Grand Traverse co.

Hop'kinsville, in *Ohio*, a post-village of Warren co., about 85 m. S. W. of Columbus.

Hop'kinton, in *Iowa*, a post-town of Delaware co.

Hop'kinton, in *Massachusetts*, a post-town of Middlesex co., about 25 m. W. S. W. of the city of Boston. *Pop.* (1897) about 3,000.

Hop'kinton, in *New Hampshire*, a post-town and township of Merrimac co., about 6 m. west by south of Concord. *Pop.* (1890) 1,817.

Hop'kinton, in *New York*, a post-town and township of St. Lawrence co., about 38 m. east of Ogdensburg. *Pop.* (1890) about 1,900.

Hop'kinton, in *Rhode Island*, a post-town and township of Washington co., about 35 m. southwest of Providence. *Pop.* (1897) about 2,850.

Hop'lite, *n.* [Gr. *hoplitēs.*] (*Gr. Hist.*) A heavy-armed infantry soldier.

Hop'-oast, (*-ōst.*) *n.* In some English countries, the name given to a kiln for drying hops.

Hop'-o'-my-thumb, *n.* ["Hop over my thumb."] A vulgar colloquialism for a dwarf or diminutive person.

Hopped, (*hŏp'd,*) *p. a.* Impregnated with hops; as, a *hopped* drink.

Hop'penville, in *Pennsylvania*, a post-office of Montgomery co.

Hop'per, *n.* One who hops, leaps, jumps on one leg, or capers.

(*Mach.*) A wooden trough or funnel, through which grain passes into a mill to be ground: so called from its *hopping* or leaping motion. — A basket or utensil in which seed-corn is carried for sowing.

(*Games.*) See Hop-scotch.

Hop'per-boy, *n.* (*Mach.*) A kind of rake, moving circularly, and used for spreading meal or flour for drying in mills, while at the same time it pushes it towards an opening in the centre, through which it falls.

Hop'pet, *n.* A hand-basket. — A vessel used by Cornish miners to measure ore in. (Eng.) — An English provincialism for a baby at nurse or in arms.

Hop'-picker, *n.* One who picks or gathers hops.

Hop'ping, *n.* A leaping; a springing on one leg; a capering.

— A meeting or assembly for dancing.

— A picking or gathering of hops; as, the *hopping* season.

Hop'ple, *v. a.* To fasten or fetter the legs of an unruly horse. — See Hobble.

— *n. pl.* A fetter or shackle for hitching horses' feet together.

Hop'-pole, *n.* (*Agric.*) A pole or upright set annually in the ground at the roots of hop-plants for their stems to twine around. When a hop-plantation is first made, as the plants are weak, the poles are not required to be more than 5 or 6 feet in length, but in the third or fourth year they require to be 10 or 12 feet in length. Any kind of young trees or saplings may be used as hop-poles; but the most durable are those of the oak, the ash, the sweet-chestnut, and the larch.

Hop River, in *Connecticut*, enters the Willimantic River from Tolland co.

Hop'-scotch, Hop'per, *n.* (*Games.*) A childish diversion, in which a stone is pushed forward by the foot of the player from one division to another of a square figure delineated or *scotched* upon the ground.

Hop'-vine, *n.* The stalk of the hop.

Hop'-yard, *n.* See Hop-garden.

Ho'quaim, in *Washington*, a post-town of Chehalis co. *Pop.* (1897) about 1,500.

Ho'quiam River, in *Washington*, enters Gray's Harbor in Chehalis co.

Hor, in Arabia Petræa, a mountain of a conical form in the range of mount Seir, on the east side of the Arabah, or great valley running from the Dead Sea to the Elanitic Gulf. It is an irregularly truncated cone, with three rugged peaks, overlooking a wilderness of heights, cliffs, ravines, and deserts. On this mountain Aaron died, alone with his brother and son, (*Num.* xx. 22–29; xxxiii. 38.) It is still called *Jabel Neby Harboom*, "mount of the prophet Aaron;" and on its summit stands a Mohammedan tomb of Aaron (Fig. 1310), on the site of a



Fig. 1310. — Mount Hor.

still more ancient structure, and marking perhaps the place of his burial.

Hor'ace, Quintus Horatius Flaccus, a Roman poet, b. near Venusia (now Venosa), a town of S. Italy, on the confines of Apulia and Lucania, B. C. 65. His father, although following the calling of a tax-gatherer, was a man of elevated and liberal sentiments, and took the greatest pains in providing for his son's education. At the age of 18 years he went to Athens to complete his studies; and while there, Marcus Brutus passing through the city on his way to Macedonia, Horace, accompanied by other Roman youths, joined the army; became military tribune; fought in the last battle for the freedom of Rome at Philippi, and saved himself by flight. Though he saved his life, he forfeited his estate, and was reduced to great want, till Virgil introduced him to Mæcenas, through whose interest he recovered his patrimony. Augustus now became his friend, and offered to make him his secretary, which Horace declined. When Mæcenas was sent to Brundusium to conclude a treaty between Augustus and Anthony he took with him Horace, Virgil, and other literary friends; and, not long after, he presented Horace with the Sabine villa; to which, having witnessed such striking examples of the instability of fortune, he withdrew from the tumult of Rome, preferring retirement to a more brilliant life. His *Odes* are models of that kind of composition, and his *Epistles* and *Satires* abound with acute and vivacious observations on life and manners; while his *Ars Poetica*, so often quoted, presents, under the form of a letter to the Pisos, but with graceful precision, the difficulties of poetical composition, and the principles which should guide the poet in his work. Want of space prevents us from dwelling on the peculiar merits of a classical poet; but we may say with a competent authority, that "the easy, agreeable manner in which he philosophizes without appearing to do it, the salt with which he seasons his thoughts, and the delicacy and ease with which he expresses himself, afford the most agreeable entertainment. His descriptions are still applicable and interesting, and the poet will therefore ever remain the favorite of those whose morality does not exclude the refinements of life." Horace died suddenly, in the year of Rome 746, and 8 B. C.

Ho'rae, *n. pl.* [Lat.; Gr. *orai.*] (*Myt.*) Divinities regarded in two points of view — as the goddesses of the seasons, and of the hours of the day. Their duty was to hold the gates of heaven, which they opened to send forth the chariot of the sun in the morning, and receive it again in the evening. No classical poet has described them with greater beauty than Shelley, in his *Prometheus Unbound*. These goddesses are often depicted as forming the train of Aphroditē or Venus.

Ho'ral, *a.* [Lat. *horalis*, from *hora*, an hour.] Relating or belonging to an hour or hours; as, "the *horal* orbit." — *Prior.*

Ho'rary, *a.* [Lat. *horarius*, from *hora.*] Pertaining to an hour; noting the hours; as, a "*horary* inspection." *Butler.* — Continuing an hour; hourly; happening once an hour.

H. motion. (*Astron.*) The apparent motion of a celestial body in an hour. The apparent horary motion of the heavenly bodies in their diurnal revolution is 15°: for as the whole circle is completed in 24 hours, the twenty-fourth part of it, or 15°, must be passed over in one hour.

Horatian, (*ho-rā'shan,*) *a.* Relating, pertaining, or having reference to the Latin poet Horace; after the manner or style of the writings of Horace.

Hora'tii and Curia'tii, (*Rom. Hist.*) The Albans having invaded Rome B. C. 670, it was resolved to decide the contest by a battle between three champions on each side. Three twin brothers having been found in both armies, the Romans named the Horatii, and the Albans the Curiatii, the issue of the struggle was intrusted to them, and the Curiatii having been vanquished in the fight which followed, Alba was forthwith united to Rome.

Hora'tio, in *Ohio*, a post-office of Darke co.

Hora'tius Cocles. See Cocles.

Horcasitas, (*or-ka-see'tas,*) a town of Mexico, abt. 70 m. S. of Nuevo Santander.

Hord, in *Illinois*, a post-office of Clay co.

Horde, *n.* [Dn. and Ger. *horde*; Tartar. *horda*; A. S. *hoord*; Goth. *huirda.* See Herd.] A herd; a tribe or clan; especially, a company of wandering people dwelling in tents or wagons, and pursuing a migratory course of existence from place to place; as, a *horde* of barbarians.

"Martial *horde* on *horde* with dreadful sweep." — *Thomson.*

Hor'deine, *n.* [From Lat. *hordeum*, barley.] (*Chem.*) A modification of starch, constituting about 55 per cent. of barley meal.

Horde'olum, *n.* [Lat. *hordeolus.*] (*Med.*) A small tumor on the eyelid, somewhat resembling a barley-corn: it is a little boil projecting from the edge of the eyelid, and is commonly called a *stye.*

Hor'deum, *n.* [Lat.] (*Bot.*) The Barley, a genus of plants, order *Graminaceæ.* The genus is distinguished by spiked inflorescence, three spikelets being always situated upon each tooth of the rachis, of which sometimes only the middle one is fertile, and sometimes all the three, so that in the former case the fruit-bearing spike is two-rowed, and in the latter case, six-rowed; the glumes are two, containing a single floret; the paleæ two, the outer one awned: and the seed is surrounded by the paleæ. The species of this genus are almost all annual, although some varieties of barley are sown in the end of autumn, and the cultivation of them extends over the winter. *B.* is mentioned in the books of Moses and other books of the Old Testament, also by the Greek and Roman writers, and has been

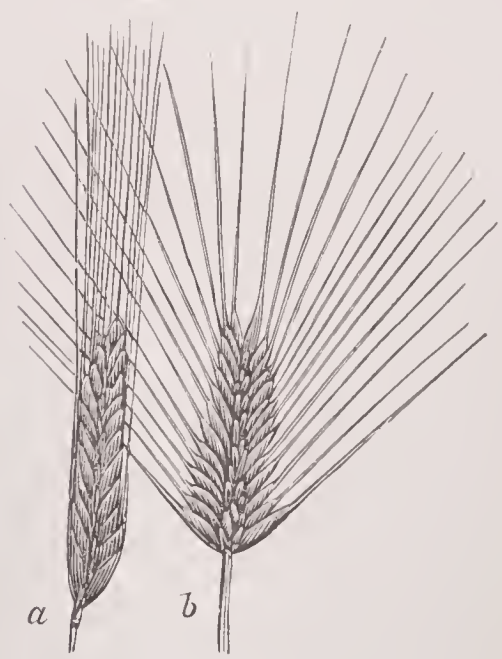


Fig. 1311. — Barley.

a, two-rowed barley; *b*, sprat or brattledore barley.

extensively cultivated from remote antiquity. Beer made from it was known to the Greeks, the Egyptians, and the ancient Germans. The cultivation of it appears to have extended from Italy northwards in Europe, but

it is better adapted than any other grain to the most northern regions, some of its varieties being cultivated with advantage where the climate is too cold, or the summer too short, for any other cereal crops; and it is deemed probable that its native country is northern or Central Asia. It is capable, however, of being cultivated in very warm climates, and extends over a wider climate range than any of the other grains. *B. meat* is used for bread in some places, but it is more generally converted into malt for the making of beer (see BREWING), or merely deprived of its outer skin, and so used as an article of food. *B.* intended for brewing is first subjected to the process of *malting*, by which it is converted into MALT (*q. v.*) *B.* simply deprived of the husk (*palea*) in a mill is called *Pot B.* or *Scotch Barley*. When the pellicle of the seed is also removed, and the seed itself rounded and polished, it is *Pearl Barley*.—What is sometimes called *Patent B.*, is a farina obtained by grinding pearl *B.*, and differs from *B. meal* in being quite free from a degree of acridity which the latter derives from the integuments of the seed. It is doubtful if this grain is produced by more than one species, or whether what have been described as distinct species by botanists are not really mere varieties, the result of long cultivation. *H. vulgare* is usually distinguished as having the grains disposed in four rows; *H. hexastichon*, as having them in six rows; and *H. distichon*, as having the lateral spikelets abortive, and the grains, therefore, in two rows. But the lower part of the spike in the varieties ranked under *H. vulgare* is often six-rowed, and only the upper part four-rowed; and in rich soils, a tendency to resume the six-rowed form is otherwise manifest. Nor are the kinds known as *Naked Barley*, in which the seed separates readily from the paleæ, to be looked upon as more distinct. The four-rowed or six-rowed varieties are generally coarser, but more productive than the two-rowed; and some of them, often called BEAR, or BIGG, are regarded as most suitable for exposed situations and inferior soils. Of the two-rowed *B.* there are many varieties, of which the Common *B.*, the Italian *B*, and the *Chevalier B.* are among the most esteemed.—The *Sprat* or *Brattledore B.* (*H. zeocriton* of many botanists) is also two-rowed, but is distinguished by the grains standing out from the spike, their awns spreading very widely. It is sometimes called *German Rice*, as it swells by boiling in the way that rice does, and for some purposes forms a good substitute for it. It is much esteemed in Germany, and succeeds well in the Alps at an elevation of 3,360 feet. The grains of Barley, when husked, form what is known as *pearl barley*, used in soups and for invalids.

Ho'reb. See SINAI.

Hore'hound, Hoar'hound, *n.* [A.S. *harahune—har*, white, and *hune*, from Goth. *hunds*, a dog.] (*Bot.*) See MARRUBIUM.

Ho'rem, in *Ohio*, a village of Brown co., about 40 m. E. of Cincinnati.

Hor'icon, in *Minnesota*, a post-office of Martin co.

Hor'icon, in *New York*, a post-village and township of Warren co., about 18 m. N. of Caldwell. *Surface*, mountainous.

Horicon, in *Wisconsin*, a post-village of Dodge co., about 40 m. N.E. of Madison.

Hor'icon, (Lake,) in *New York*. See GEORGE, (LAKE.)

Horicon Lake, formerly WINNEBAGO MARSH, in *Wisconsin*, an expansion of Rock River, in the N. part of Dodge co. It covers an area of about 84 sq. m.

Hori'zon, *n.* [Fr., from Gr. *horizōn*, from *horizō*, to bound—*horos*, a limit.] The circular line which bounds the view of the sky and the earth, formed by the apparent junction or meeting of the two.

(*Astron.* and *Naut.*) When one is on a level plain of great extent or at sea, the *H.* will assume the form of a circle. This is termed the *physical* or *natural H.* In this case its extent is limited by a circle traced out by the revolution of a point about the position of the spectator as the centre, at which point a line drawn from his eye forms a tangent to any great circle described on the earth's surface, and passing through the spot on which he is standing. It should, however, be stated that the effect of the refraction of light causes the actual limit of vision to be extended a little beyond the circle that would be traced in the manner indicated above. The higher the position of the observer, the greater will be the field of view, or the more distant the *H.* will appear; thus a man at the mast-head of a vessel can see what is invisible to those who are on deck. To find the distance of the *H.* at sea approximately, first ascertain the height of the observer above the sea-level in feet, extract the square root of this quantity, and add to the result three-tenths of the same; the amount thus obtained will give the distance of the *H.* pretty closely in miles. The astronomical *H.*, theoretically, is formed by a plane passing through the centre of the earth at right angles to another passing through the meridian of the spectator, which divides the heavens into two equal parts or hemispheres; but, practically, this is effected by the natural *H.*, which divides the field of the heavens into two parts, and constantly changes as the spectator varies his position on the earth's surface. Thus, if he were at the north pole, he would see the stars in the northern hemisphere; at the south pole, the stars in the southern hemisphere; while at the equator he would see a hemisphere of the heavens embracing part of the stars in the northern hemisphere, and part of those in the southern. The distance between the earth and the fixed stars is so great, and the radius of the earth so insignificant in proportion to it, that the physical *H.*, as it appears to a spectator on the earth's surface, and the astronomical *H.*, in which he is supposed to be at its centre, may be considered as coincident for all practical purposes. Observations on land are frequently taken by the aid of what is termed an artificial *H.*, which consists of the level surface of a trough of mercury, which is parallel to the plane of the horizon, and in which the image of the heavenly body is reflected.

Horizon'tal, *a.* Pertaining or relating to the horizon; near the horizon.—Parallel to the horizon; on a level, as indicated by the surface of water at rest; as, an *horizontal* line.—Lying in a plane of the horizon; measured with a plane of the horizon; as, *horizontal* distance.

Horizon'tally, *a.* In a direction parallel to the horizon; in the plane of the horizon; on a level, as indicated by the surface of water at rest.

Horizontal'ity, *n.* [Sp. *horizontalidad.*] The state of being horizontal.

Horn, *n.* [A.S., Ger., Dan., and Swed. *horn*; W. *corn*; Lat. *cornu*; Ar. *garnum*; Æthiopic *kárn.*] A hard substance growing on the heads of certain animals, and particularly on cloven-footed quadrupeds, usually projecting to some length, and terminating in a point. (See below, § *Manuf.*)

—Something resembling a horn, or shaped like a horn; as:—(1.) (*Mus.*) A wind-instrument, made originally of horn, but now of metal; a trumpet; as, a *sax-horn*, a *bugle-horn*, a *Swiss-horn*, &c. See BUGLE, FRENCH HORN, &c.—(2.) A drinking-cup; a beaker;—originally made of horn.—(3.) (*Fine Arts.*) See CORNUCOPIA.—(4.) A flask or vessel for holding gunpowder.—(5.) A cusp or extremity of the moon, when it is waxing or waning, and forming a crescent.—(6.) The feeler of a snail, insect, &c. "The tender *horns* of cockled snails." (*Shaks.*)—(7.) Any pointed excrescence or projecting limb; as, the *horn* of a beetle, the *horn* of a flower, the *horn* of an altar, &c.—(8.) (*Mil.*) The curvature of the wing of a body of troops drawn up in the form of a crescent.

—The substance which forms the composition of horns in their various kinds; as, a *horn* book, a *horn* comb, a *horn* spoon.—The emblematic antlers of a cornuted or cuckolded husband.

"Thicker than a cuckold's *horn*."—*Shaks.*

(*Script.*) A symbol of might, strength, power, exaltation, &c.—*To draw in the horns, to pull in the horns*, to repress one's ardor; to withdraw from assumption or pretension; to retract arrogant or high-flown words;—derived from the practice of snails, &c., taking in their feelers when alarmed.—*To raise* or *lift the horns.* (*Script.*) To become self-sufficient; to raise to self-exaltation, &c.—*To take a horn*, to take a drink of liquor from a horn; as, *to take a horn* of ale.

(*Manuf.*) The substance called horn may be divided into two distinct classes. First, the branched, bony horns of the stag genus, and the simple, laminated horns of the ox genus and other kindred genera. The first of these kinds of *H.* is applied to the same purposes as bone and ivory, and the manufacture is almost similar. The other kind of *H.*, found in the ox, antelope, goat, and sheep, consists of a number of conical sheaths inserted one into another, the innermost resting upon the vascular membrane covering the bony core. The tip is very dense, and the layers of which it is composed are scarcely distinguishable. This kind of *H.* appears to consist of coagulated albumen; and there is a regular connection between horns, nails, claws, hoofs, scales, hair, feathers, and even skin. The horns of oxen are the principal ones used for manufacturing purposes; the horns of bulls and cows being preferred to those of bullocks, which are thin and of a coarse texture. The horns of goats and sheep are whiter and more transparent than those of any other animals. In *H.* manufacture, the first process necessary is to remove the core. This is effected by steeping the *H.* in water for about a month, when the horny sheath becomes so softened that the core can be readily withdrawn. The cores are not wasted, but are afterwards burnt, forming bone-ash, a substance valuable in making crucibles for assaying purposes. They are also used in other ways,—for making glue, stiffening for cloth-dresses, and for manure. The solid tip of the *H.*, after being sawn off, is used for making knife-handles, umbrella-handles, &c. After being divided into thin laminæ, the remainder of the *H.* is used for various purposes. The lower part is frequently used for making combs, while the middle is used for making lanterns, &c. To prepare the horn for use, it is softened by means of boiling water, and then usually held in the flame of a fire till it gains the temperature of melting lead, and becomes so soft as to be semi-fluid. While in this state, the slitting is performed by means of a pointed knife resembling a pruning-knife; then, by means of two pairs of pincers, the cylinder, or cone of horn, is opened till it is nearly flat. A number of pieces are then exposed to pressure between plates of iron previously heated and greased. The degree of the pressure depends upon the required use of the horn. The thin sheets of *H.* are then scraped with a blunt or wire-edged draw-knife upon a board covered with hide. After being smoothed and brought to the required thinness, they are polished with a woollen rag dipped in charcoal-dust, a little water being added at times. After being rubbed with rotten-stone, they are finally polished with *H.* shavings. When *H.* is to be converted into combs, the pressure requires to be as slight as possible, lest, by the breaking of the grain, the teeth become liable to split. Horns for combs are roughly cut by a hatchet or saw to the required shape, and then finished by rasping and scraping. Ornamental *H.* combs, with open work, are largely manufactured in France. Snuff-boxes, combs, and other ornamental articles, are often made by pressing *H.* shavings, after reducing them to a soft state by means of heat. Drinking-horns are made by sawing the *H.* to the required length, scalding and roasting it over a fire, placing it in a conical wooden mould, and bringing it into the required shape by driving a wooden plug firmly into the interior. It is afterwards fixed on a lathe, when cold and hard, and turned and polished both on the inside and outside. The bottom, a round flat piece of *H.*, is dropped in at the larger end of the cone of *H.*, while the latter is warm. At the smaller end of the vessel is a groove into which the bottom slips, and as the *H.* contracts in cooling, so the bottom becomes firmly fixed, and the drinking-*H.* water-tight. The process of dyeing *H.* of different colors is very easy. It is usually colored of a rich reddish-brown, and spotted so as to imitate tortoise-shell. The whole of the refuse of horn manufacture is valuable. Hoofs and *H.* cuttings are used for making prussiate of potash and Prussian blue; and the clippings of the comb-maker are used as manure. An artificial *H.* is made from the gelatine obtained from bones by muriatic acid, and converting it into a horny substance by tanning.

Horn, *v. a.* To furnish with horns; to form in the shape of a horn.

—To cuckold; to cornute.

Horn, (Cape.) See CAPE HORN.

Horn-Afvan, a lake of Lappmark, in N. Sweden, falling by the river Skelleftea into the Gulf of Bothnia; Lat. 66° N., Lon. 16° to 18° E. *Length*, 50 m. by 9 m. of mean width.

Horn'beam, *n.* (*Bot.*) See CARPINUS.

Horn'-bill, *n.* (*Zoöl.*) See BUCERIDÆ.

Horn'blende, *n.* [Ger.] (*Min.*) A var. of Amphibole, *q. v.* It is a tough mineral, of black or greenish-black color from the presence of a large percentage of oxide of iron. It enters into the composition of several kinds of rock, as trap, syenite, and hornblende slate; the latter is a tough slate and an excellent material for flagging.

Horn'blende Rock, *n.* (*Geol.*) A rock composed principally of hornblende. Granite rock in which the mica is replaced by hornblende is called *syenite*, q. v. Its color is greenish-black to black.—*H.-Schist.* A name given to several slaty varieties of hornblende rock.

Hornblen'dic, *a.* Consisting principally of hornblende.

Hornblen'dic Por'phyry, *n.* (*Geol.*) See PORPHYRY.

Horn'-blower, *n.* One who blows upon the horn; a player on the horn.

Horn'-book, *n.* The first book of children instructing them in the letters and first rudiments of a language: a primer;—so called from its being formerly backed with horn, with a view to its protection from ill-usage, &c.

"He teaches boys the *horn-book*."—*Shaks.*

—Any rudimentary book; a hand-book; a vade-mecum; a guide-book; a manual; an itinerary.

Horn'brook, in *Pennsylvania*, a P. O. of Bradford co.

Horn'-bug, *n.* (*Zoöl.*) See LUCANIDÆ.

Horn'by, a village of Halton co., Upper Canada, abt. 30 m. S.W. of Toronto.

Horn'by, in *New York*, a post-village and township of Steuben county, about 17 miles south-east of the city of Bath.

Horncastle, (*horn'cas-sel,*) a town of Lincolnshire, on the Bane, 18 m. E. of Lincoln. *Manuf.* Leather; and has an extensive trade in corn and wool. *Pop.* 5,720.

Horn'-distemper, *n.* (*Farriery.*) A disease incident to horned cattle, affecting the pith of the horn, which it insensibly wastes, and leaves the horn hollow.

Horned, (*hôrnd,*) *a.* Furnished with horns, or projections resembling horns; as, *horned* cattle.—Shaped like a crescent, or the new moon.

Horn'ed-hog, *n.* (*Zoöl.*) See BABYROUSSA.

Horn'edness, *n.* State or condition of being horned.

Horned-owl, *n.* (*Zoöl.*) See HORN-OWL.

Horned-pop'py, *n.* (*Bot.*) Same as HORN-POPPY, *q. v.*

Horned-pout, *n.* (*Zoöl.*) See HORN-POUT.

Horned-toad, HORNED-FROG, *n.* A lizard of the genus *Phrynosoma*, family *Iguanidæ*,—so called from somewhat resembling a frog in its general aspect. All the species are in N. America, and characterized by a more or less circular or oval body, flattened and covered with tuberculated scales; head short, triangular, with prominent vertex, and sharp spines or roughness; neck very short, and with transverse folds underneath; tail short and conical. The species are found in the S. W. States, California, Oregon, &c. The best known species is *P. cornutum* (Fig. 1312), about 4½ inches long; the general color above is a dusky gray, with black bars and markings; below, silvery white. It passes the winter in a state of lethargy in holes dug by various rodents.



Fig. 1312.—HORNED-TOAD, (*Phrynosoma cornutum.*)

Horned-viper, *n.* (*Zoöl.*) See CERASTES.

Hor'nellsville, in *New York*, a city and railroad center of Steuben co., on the Erie and Cent. N. Y. & W. R. Rs., 60 m. S. of Rochester. *Pop.* (1897) about 11,100.

Hor'nerstown, in *New Jersey*, a post-village of Monmouth co., about 16 m. S. E. of Trenton.

Horn'er, *n.* A worker or dealer in horn.—One who winds a horn; a horn-player.—One who plants horns on a cuckold's brows.—In Scotland, a term for the sand-eel.

Hor'net, *n.* [A. S. *hyrnet, hyrnete;* Ger. *horniss,* from *horn,* a horn.] (*Zoöl.*) See VESPARIÆ.

Horn'-foot, *a.* Hoofed; possessing a hoof; as, "*horn-foot* horses." — *Hakewell.*

Horn'head, a promontory on the N. coast of Donegal, Ireland.

Horn'ify, *v. a.* [Eng. *horn,* and Lat. *facere,* to make.] To horn; to supply with horns. (R.)

Horn'ing, *n.* Aspect of the moon when increasing, or assuming the crescent form.

(*Scots Law.*) A species of *diligence* (*i. e.* process) against a debtor. They are writs in the sovereign's name, proceeding on the warrant of a decree of the Court of Session, or of the magistracy of boroughs, and of various other inferior authorities; but in these cases a warrant of the Court of Session must also be obtained. They direct the debt to be paid within a limited number of days, (according to the nature of the debt.) In default of such payment the debtor incurs the charge of rebellion, and is thereupon liable to caption or arrest. (Termed, also, *Letters of Horning.*)

Horn'ish, *a.* Having the characteristics of horn: like horn; hard.

Hor'nito, *n.* [Sp., little oven.] (*Geol.*) An oven-like cavity in volcanic regions.

Hornitos, (*hor-nee'toce,*) in *California,* a post-village of Mariposa co., about 18 m. N.N.W. of Mariposa.

Horn'-lead, *n.* A term sometimes given to chloride of lead.

Horn'less, *a.* Without horns; dispossessed of horns.

Horn'let, *n.* A little horn.

Horn'-mad, *a.* Mad as a man who has been cuckolded; — hence, stark mad; frantic; raving.

"Mr. Garrick . . . the town are *horn-mad* after."—*Gray.*

Horn'-maker, *n.* One who makes a cuckold of another man; a cornutor.

Horn-manganese, *n.* (*Min.*) A variety of Rhodonite called PHOTICITE, *q. v.*

Horn-mercury, *n.* (*Min.*) See HORN-QUICKSILVER.

Hornos Islands, (*or'noce,*) a small group of islands in the Rio-de-la-Plata, S. America, about 31 m N.E. of Buenos Ayres.

Horn'-owl, Horned-owl, *n.* (*Zoöl.*) See BUBO.

Horn'pipe, *n.* [W. *pib-gorn.*] (*Mus.*) An old Welsh musical instrument, consisting of a wooden tube with holes, and a reed and a horn at each end. — A lively air or tune, of triple time, played originally on the above-named instrument.

(*Dancing.*) The name of a well-known dance, for the skilful performance of which British sailors have long been celebrated.

Horn'-poppy, (also HORNED-POPPY,) *n.* (*Bot.*) See GLAUCIUM.

Horn'-pout, or HORNED POUT, *n.* (*Zoöl.*) See SILURIDÆ.

Horn'-pox, *n.* (*Med.*) See VARICELLA.

Horn-quicksilver, *n.* (*Min.*) The native subchloride of mercury, or Calomel, *q. v.* It occurs in the mines of Idria, in Carniola, and Almaden, in Spain.

Horns'by, in *Illinois,* a post-office of Macoupin co.

Horn's Mills, in *New Hampshire,* a post-office of Carroll co.

Horn'-silver, *n.* (*Min.*) Chloride of silver, AgCl. A transparent, waxy-looking mineral, of a gray, grayish-green, or whitish color. It occurs with native silver in the mines of Mexico, Peru, and Chili, also in the mines of Idaho, Nevada, and Arizona. *Sp. gr.* 5·55. *Comp.* Chlorine 24·7, silver 75·3. Heated with the blow-pipe on charcoal, it yields metallic silver; also placed on zinc and moistened with water, it is reduced to silver. A variety containing a large percentage of alumina is found at Andreasberg, which the Germans call *butter-milk ore.*

Horn'stone, *n.* (*Min.*) A variety of quartz resembling flint, but more brittle.

Horn'town, in *Virginia,* a post-village of Accomac co., about 26 m. N.E. of Accomac Court-House.

Horn'-work, *n.* (*Fortif.*) A work having one front only, thrown out beyond the glacis of a fortress, with a view — 1. To strengthen a weak salient in the general outline; 2. To occupy a plateau in advance of the place, or to protect buildings, the including of which in the original enceinte would have extended it to an inconvenient degree; 3. To occupy a tongue of land protected on its sides; 4. To bar a defile; 5. To cover the head of a bridge; 6. To occupy rising ground, the possession of which would render the enemy more than necessarily dangerous. The front of a horn-work consists of two demi-bastions connected by a curtain, and usually defended in front, as in the fortress itself, by tenaille, ravelin, and covert-way. The flanks, protected by ditches, run straight upon the ravelin, bastion, or curtain of the main defences, so that the ditch may be swept by the fire of the latter. The flanks should not be too long for easy musketry range.

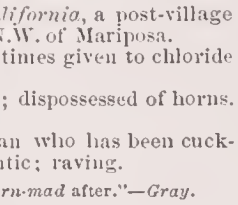


Fig. 1313.
A, HORN-WORK, COVERING A BASTION *B*.

Horn'wort, *n.* (*Bot.*) See CERATOPHYLLACEÆ.

Horn'-wrack, (*-rack,*) *n.* A coralline.

Horn'y, *a.* Consisting of horn or horns.—Made of horn, or some substance resembling horn; as, a *horny* beak.

"Rough are her ears, and broad her *horny* feet."—*Dryden.*

—Hard; callous; indurate.

"Tyrrheus . . . clenched a hatchet in his *horny* fist."—*Dryden.*

Horog'raphy, *n.* [Gr. *hōra,* hour, and *graphō,* I write.] The art of drawing hour-lines, or of constructing dials.—An account of the hours.

Horologe, (*hōr'o-lōj,*) *n.* [Lat. *hōrologium;* Gr. *horologion;* Fr. *horloge.*] A time-piece, hour-glass, or any instrument which indicates the time of day.

Horol'oger, *n.* A maker of, or dealer in, clocks, watches, time-pieces, &c.

Horolog'ical, *a.* [Gr. *hōrologikos.*] Pertaining or relating to a horologe, or to horology.

Horologiograph'ic, *a.* Belonging to the art of dialling.

Horologiog'raphy, *n.* [Gr. *hōrologion,* and *graphein,* to describe.] An account of time-keeping instruments.—Horography.

Horol'ogist, *n.* A person versed in horology.

Horolo'gium, *n.* [Lat., an horologe.] (*Astron.*) A constellation of the southern hemisphere, formed by Lacaille, situated between Canopus and Eridanus, and formed entirely of stars of the 5th and 6th magnitudes.

Horolo'gium Flo'ræ, *n.* [Lat.] A time-table of flowers, formed by noting the hours when they respectively open and close.

Horol'ogy, *n.* [Gr. *hōra,* any limited time or period—an hour, and *logos,* treatise.] That branch of science which treats of the principles and construction of machines for measuring and indicating portions of time. It is a difficult thing to give a good definition of time. According to Locke, it is "the consideration of the duration, as set out by certain periods and marked by certain measures or epochs." According to Aristotle, "our conception of time originates in that of motion, and particularly in those regular and equable motions carried on in the heavens, the parts of which, from their perfect similarity to each other, are correct measures of the continuous and successive quantity called *time,* with which they are conceived to co-exist. Time, therefore, may be said to be in the perceived number of successive movements." Undoubtedly the motions of the heavenly bodies form the best standard for measuring time included within lengthened periods; but for the computation of such short divisions as hours, minutes, and seconds, we must call to our aid certain mathematically adjusted machines, the knowledge of whose construction is regulated by the science of *H.* The "father of history" ascribes the invention of the earliest time-measurers to the Babylonians. Pliny claims the honor for Anaximenes; while Phavorinus wishes us to accept Anaximander as the real inventor. At any rate, the first horologia of which we find mention are the *Polos* and *Gnomon.* The latter, which was the more simple, and, it may be inferred, older instrument, consisted merely of a staff or pole set up perpendicularly in a sunny spot, its shadow being measured upon the place where it fell, and time computed thereby. The *Polos,* or *Heliotropion,* was formed of a basin in which the twelve divisions of the day were marked by lines, and upon these the shadow of a perpendicular staff, set up in the centre of the instrument, was thrown by the sun. (See SUN-DIALS.) Such instruments as these must have been known to the Jews, who are inferred to have derived their knowledge of them from the Babylonians; for we find mention made in *Isaiah* xxxviii. 8, of the dial of Ahaz, whose reign commenced 741 B. C. In 293 B. C., we learn that the Roman general Papirius Cursor set up a sun-dial near the temple of Quirinus, at Rome; and upon the walls of the still standing Temple of the Winds, at Athens (Fig. 850), may be seen the lines of a dial, together with the holes in which were fixed the perpendicular pillars or gnomons. But these contrivances could only be of service in marking the progress of time during the bright days of summer. At night, and during the cloudy days of winter, they would be useless. Invention, therefore, had to be further spurred, that a more perfect instrument might be produced. The *Clepsydra* (q. v.) would appear to be the machine which was called upon to make up for the shortcomings of its progenitor, the sun-dial. The Clepsydra, or water-clock, of the Greeks and Romans, was an instrument in which water escaped, as it were, by stealth, in a more or less regular flow, from one vessel to another. Closely resembling this was the *sand-glass,* a more accurate instrument, because a column of sand, of a great or moderate height, will run through an orifice into another vessel at a uniform rate; while, in the case of a column of water, no uniform rate of velocity can be obtained, unless the cylinder containing the water be kept constantly full. Another rude form of marking time was the burning of graduated candles, a time-measurer employed by king Alfred. In a general way, all those pieces of mechanism which have for their motive power a weight, or the elastic force of a spring, are called *clocks* and *watches;* but they are also distinguished by certain names, indicative, either of their construction, or of the peculiar offices they are intended to perform. For example, — the name *timepiece* is given to any piece of horological machinery which merely marks the time without striking the hours: a *clock,* besides showing the time, strikes every hour on a bell or spring; a *quarter-clock* strikes the quarters of every hour; an *astronomical clock* is one which indicates sidereal time; a *watch* is a portable or pocket timepiece; a *repeater* is a watch provided with a mechanical contrivance, by means of which it can be made, at any time, to repeat the hours; a *chronometer* is a watch of the most superior character, or one that may be used for astronomical or maritime purposes. It is almost an impossibility to state who was the individual that invented either a clock or a watch; and a great deal of the obscurity attaching to the early history of clocks is due to the fact that formerly the term horologium was applied to a sun-dial or a clock indiscriminately, thereby rendering it a task of the utmost difficulty to state at what particular period it came to mean a clock. As far back as the close of the 13th or the beginning of the 14th century, striking-clocks were known in Italy. In 1288, as we are told by Coke, a stone clock-tower was erected opposite Westminster Hall, and in it was placed a clock, the cost of which was defrayed out of a fine of 800 marks imposed upon a corrupt chief-justice of the Queen's Bench. About 1364, a German horologer, Henry de Wick, de Vick, de Wyk, or de Wyck, set up a clock in the tower of the palace of Charles V. of France. This clock (Fig. 1314) was probably the basis of all the principal time-keepers in use in the 16th cent. It was very simple; and without entering into any minute explanation, it may be readily understood, that, as the weight A tends to uncoil the cord and set in motion the cylinder B round its axis, the motion will be successively communicated to the various toothed wheels in the figure, and finally to the crown-wheel, or escapement-wheel, I; the teeth of which so act on the two small levers or pallets, *i h,* projecting from, and forming part of the suspended upright spindle or vertical axis, KM, on which is fixed the regulator or balance, L L, that an alterating or vibratory, instead of a circular, motion of the balance itself is the result. The hands of the clock are attached to the wheel N, also set in motion by the cylinder B. Now, unless there were some check upon the motion, it is manifest that the heavy weight A would go rapidly to the ground, causing the wheels to rotate, the balance to vibrate, and the hands to go round with increasing velocity. In order to prevent this rapid unwinding of the clock-work, and adjust it to the more deliberate measurement of time, the balance is, in De Wick's clock, loaded with two weights, *m, m;* and the farther these are removed from the axis or spindle, KM, the more heavily they will resist and counteract the escapement of the levers, and the rapidity of the rotation of the escapement-wheel, till the clock be brought to go neither too quick nor too slow. — In a letter written by Ambrosius Camaldulensis to Nicholaus of Florence, it is stated that clocks were by no means uncommon in private houses on the continent towards the close of the 15th century. Reviewing all the evidence we have before us, the conclusion may be drawn that the name of the inventor of a clock is unknown, that an horological machine driven by a weight is of more ancient date than is commonly allowed; that the clock of Henry de Wick, which, on account of its having a balance for a regulator, marked the first great æra in the art of horology, and was not the invention of one man, but the result of a series of inventions made at different times by different persons. According to M. Ferdinand Berthoud, the progression of the successive improvements in horology was as follows: 1. Toothed wheel-work was known in ancient times, and particularly to Archimedes, whose instrument was provided with a motive power, but had no regulating or controlling mechanism. 2. The weight applied as a motor had, at first, a fly, most probably similar to that of a kitchen-jack. 3. The ratchet-wheel and click for winding up the weight, without detaching the teeth of the great wheel. 4. The regulation of the fly depending upon the state of the air, it was abandoned, and a balance substituted. 5. An escapement-wheel next became indispensable, as constituting, with the balance, a more regular check than the fly, upon the tendency which a falling weight had to accelerate its velocity. 6. The application of a dial-plate and hands to indicate the hours, was a consequence of the regularity introduced into the going part. 7. The striking portion, to proclaim at a distance, without the aid of a watcher, the hour that was indicated; and this was followed by the alarm. 8. The reduction and accommodation of all this bulky machinery to a compact and portable size, as in watches. — The date at which the size of clocks was so far reduced as to render them portable, is uncertain; it must, however, have been anterior to 1544; for in this latter year the corporation of master clock-makers at Paris procured from Francis I. a statute precluding all but master clock-makers from constructing clocks or watches, large or *small.* At any rate, no clock or watch could be made small enough to be portable, without having a "mainspring" substituted for a weight, as the moving power; and whenever this object was attained, then was the second great æra in horology reached, as from this period may be dated the application of the fusee, and the consequent total alteration in the form and application of horological machinery. The

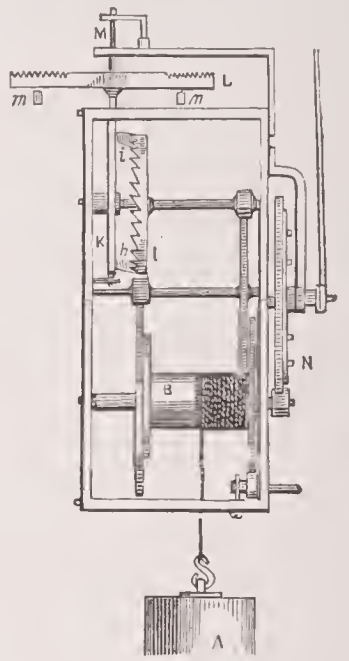


Fig. 1314. — DE WICK'S CLOCK.

third æra in clock-work was the application of the pendulum. Galileo was the first who remarked, or at least the first who formally announced, in his work on mechanics and motions, which was published in 1639, the isochronal property of oscillating bodies suspended by strings of the same length; and it has been pretended that he actually applied a pendulum to a clock for the purposes of observing eclipses and determining longitudes. There is, however, no absolute proof of this fact. Sanctorius, in his *Commentary on Avicenna*, describes an instrument to which he had applied a pendulum in 1612. Richard Harris is said to have constructed, in 1641, a pendulum clock in London for the church of St. Paul, Covent Garden. Vincenzo Galilei, a son of Galileo, is stated, on the authority of the *Academy del Cimento*, to have applied the pendulum in 1649. It was applied by Huygens in 1656; and by Hooke, for whom the invention has been claimed, about 1670. But to whomsoever the merit may belong for having first made the application, Huygens is unquestionably the first who accurately explained the theory of the pendulum; and hence, perhaps, the invention of the pendulum-clock has been usually ascribed to him. Huygens demonstrated that the vibrations in circular arcs are not independent of the length of the arc, and that in order to obtain perfect isochronism, the ball of the pendulum must move in the arc of a cycloid; and ingeniously applying a property of the cycloid, of which he was the discoverer, namely that its involute is a curve similar to itself, he procured the requisite motion by causing the pendulum to vibrate between cycloidal cheeks about which the upper and flexible part of the suspending rod wrapped itself in its motion. But it was found that no practical advantage could be obtained from this beautiful contrivance; and, in fact, it was soon rendered unnecessary by the invention of the anchor escapement, which gives the means of rendering the arcs of vibration very small, in which case the error depending on the length of the arc becomes insensible. The application of the spiral spring to the balance is the undoubted invention of Hooke. Another invention, which marks an epoch in the history of horology, is that of a method of counteracting the effect of changes of temperature on the pendulum rod and balance. The mercurial compensation pendulum was invented by Graham about the year 1715. Graham likewise suggested the method of effecting the compensation by means of the unequal expansions of different metals,—an idea which was subsequently realized by Harrison in the construction of the gridiron pendulum, which is not very generally used. The compensating apparatus in the watch balance depends upon the same principle, but the mechanical arrangement is necessarily very different.—In a general view, horological machines may be regarded as consisting of three essential parts: 1. A moving power, which produces a rotary motion about an axle; 2. A train of wheel-work, by means of which a velocity is obtained having any required ratio to that of the primary axle; 3. A regulator, by which the rapidity of the revolution is determined, and uniformity of motion produced. The moving power is either a heavy weight, which descends by the force of gravity, or a spring which is coiled up within a barrel and unwinds itself by the force of its elasticity: the first is preferred on account of the perfect regularity of its action when the instrument is to remain fixed in a place; the second is necessary for pocket timepieces and those which cannot be kept in a fixed position, as on shipboard. The train of wheel-work is chiefly remarkable on account of the delicacy and accuracy of its construction. The regulator is either a pendulum, of which, by the theory of falling bodies, the oscillations are isochronal or performed in equal terms; or a heavy balance, the reciprocal vibrations of which are also isochronal. Of the various mechanical contrivances introduced into horological machines for accomplishing particular purposes, it would be useless to attempt a description in this place, as our limits will not permit them to be given with that minuteness of detail which is indispensable in order to convey a clear idea of their action. The most important is the *escapement* (or scapement), or that part of the mechanism by which the original rotatory motion is converted into a reciprocating motion, and gives impetus to the pendulum or balance. Some other parts are also of primary importance: as the *maintaining power*, a contrivance by means of which the motion is maintained, or the machine kept going, while the weight or spring is being wound up; the *fusee*, by which in watches and spring-clocks the force acting on the wheel-work is rendered equal in all states of the tension of the spring. The general arrangement of the wheel-work of a clock or watch may be understood from the following description. Fig. 1315 represents the movement of a common vertical watch, the frame plates being omitted, and the dial being supposed to be turned downwards. A is the *barrel* containing the spring which produces the

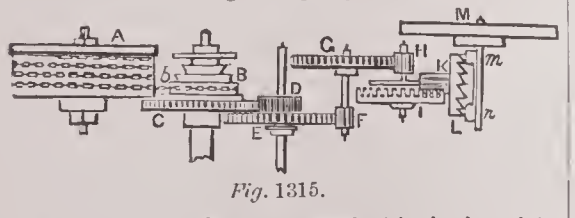


Fig. 1315.

motion. B is the *fusee*, connected with the barrel by the chain *b*. C is the *fusee-wheel*, called also the *first* or *great wheel*, which turns with the fusee, and works into the pinion D, called the *centre-wheel pinion:* this pinion, with the *centre wheel* or *second wheel* E, turns once in an hour. The centre wheel E works into the *third-wheel pinion* F; and on the same arbor is G, the *third wheel*, which drives the fourth or *centrate-wheel pinion* H, and along with it the *centrate-wheel* I. The teeth of this wheel are placed at right angles to its plane, and act in the pinion K, called the *balance-wheel pinion*, L being the *balance-wheel*, or *scape-wheel*, or *crown-wheel*, attached to the same arbor. The balance-wheel acts on the two pallets *m* and *n* attached to the *verge* or arbor of the balance M; and these being placed at a distance from each other equal to the diameter of the balance-wheel, and in different planes, receive alternately from the scape-wheel an impetus in opposite directions which keeps up the vibratory motion of the balance.—Numerous modifications of the escapement have been proposed, and some of them carried successfully into effect; but for their description we must refer to the works in which the subject is technically treated. There are two, however, which, by reason of the greater ingenuity displayed in their contrivance, and their almost universal application to the best kinds of pocket-watches, require particular notice. These are the *duplex* and the *detached* escapement, the latter being that which is used in modern chronometers. The *duplex* (Fig. 1316) closely approaches the chronometer. A is the escape-wheel, the teeth of which fall upon the roller E (made of ruby), fitted upon the axis of the balance C, and which has a notch, F, cut through it vertically. When the balance returns towards the left, the point B of the teeth of the wheel falls into the notch F, and meets with a very small recoil from the balance, in what may be termed the returning vibration. This goes so far as to make the tooth for a little while to have the notch at the side opposite to that by which it came in. The balance on returning, in the course of the vibration, receives impulse from the wheel, immediately on the tooth of the wheel of repose B, leaving the notch F, and the small cylinder; at this moment the pallet of the impulse D has its face presented, ready to receive the cog I (or upper right tooth of the escape-wheel), which falls and gives impulse to the balance. So soon as the tooth of impulse escapes from the pallet, the next tooth of repose falls, and rests on the small cylinder of ruby. E; and so on. The *Detached*, or *chronometer escapement* (Fig. 1317), was invented in France about 1780. A is the escape-wheel; B the escape-wheel teeth; C the roller, let on the verge or axis of the balance. This roller is a circle of polished steel, with a notch cut out of it, into one side of which, D, a flat polished piece of ruby is inserted for the acting part. Below this steel roller, carried on the same verge, is a smaller roller of steel, E, called the discharging pallet, having a sapphire fixed on its outer edge. F is a slender spring which is screwed at I to the stouter one, having its fixture at the stud L, and polished away very thin at K, in order that it may bend readily, so as to cause very little resistance to the balance while forcing it on one side. G is a projecting piece carrying an upright pin made of ruby, against which the wheel-tooth B rests. At B is a small screw against which the spring LKG strikes, and thus prevents it from springing too far back. The action of these parts is as follows:—When at rest, the circular edge of C is just clear of the two teeth of the wheel B; but yet, if set in motion, the teeth could not pass both F and G whilst they remain quiescent. G rests against the screw at B, and the tooth resting against the locking pallet G, the escapement-wheel cannot turn. To set the chronometer going, it is necessary to give it a rotary motion, which sets the balance in action. This causes the lower piece on the verge (called the *lifting-piece* or *discharging-pallet*) to strike against the end of the spring F, which, from its overlapping the curved end of the prolonged spring K G, pushes it back, and thus releases the pin or locking-stone G from before the tooth of the wheel; that is, it unlocks the escapement-wheel, which is immediately set in motion on the action of the mainspring. The same vibration given to balance and verge brings the ruby pallet D round before the tooth B, which strikes against it and carries it round. The recoil of the spring F has now brought the locking-pallet G to catch the tooth B, the escapement-wheel being again stopped. But the stroke of the tooth from the face of the ruby pallet D has carried the balance on in its vibration till it is counteracted by the tension of the balance-spring, which brings it back again in this return vibration; the lifting pallet E, by its curved back, pushes the slender spring F before it, and passes it without affecting K G, which is still enough to remain unmoved by E, even when this strikes and rests against it in recoiling. The wheel, therefore, continues locked on the upright pallet G, and the vibration proceeds uncontrolled till the great pallet is again brought round, and the balance-spring again checks the vibration, the above process being repeated. In this escapement, consequently, part of one vibration in one direction, and the whole of that in another, is performed without the balance being in any way under the influence of the maintaining power; while the parts are so contrived that the impulse given by the tooth of the escape-wheel affects very minutely the natural motion of the balance. It can be easily understood that the lifting-pallet E can pass in one direction the spring F without moving K and G; while in the other it carries F, and therefore G with it.—Electrical clocks are now more or less employed, but their introduction has not been as universal as at one time anticipated. See Electric Time. They are of two kinds—electrical dials and electrical clocks. The electrical dial has no body belonging to it, but is connected by means of a wire with a standard clock at some other place. An apparatus is also provided for sending a galvanic current through the wire at certain regular intervals of time. By this means the dial-hands are made to leap over a small portion of their compass whenever a current is transmitted through the wire; and the time-valve of the movement is marked by the figures on the dial. An electric clock, however, is one that carries with it its sources of power, and is independent of any wire connected with another place.—For information regarding the watch trade of the United States, see Watches. See also Pneumatic and Air Clocks.

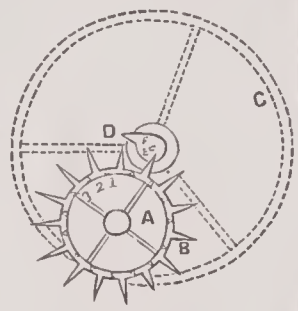


Fig. 1316.
DUPLEX ESCAPEMENT.

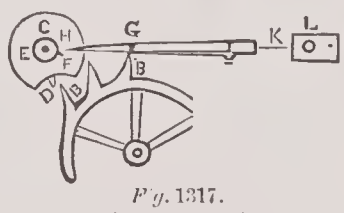


Fig. 1317.
DETACHED ESCAPEMENT.

Horom'eter, *n.* [Gr. *hōra*, and *metron*, measure.] An instrument for measuring time by.

Horomet'rical, *a.* [Fr. *horométrique*.] Pertaining or relating to horometry, or the measurement of intervals or divisions of time.

Horom'etry, *n.* The art or practice of measuring time.

Horop'ter, *n.* [Gr. *hōros*, limit, and *ōpter*, a beholder.] (*Optics.*) The surface of sing'e vision corresponding to any given binocular parallax is thus named.

Hor'oscope, *n.* [Fr.; Gr. *hōroskopos*—*hōra*, and *skopeō*, to view or observe.] A diligent observation of the exact hour or time of a person's birth.

(*Astrol.*) A figure or scheme of the heavens from which to cast nativities; the point of the heavens arising above the eastern point of the horison at any given time when a prediction is to be made of a future event.—A species of planisphere, invented by Jean Padnanus.—A synopsis or conspectus of the duration of the days and nights at all places.

Hor'oscoper, Horos'copist, *n.* One versed in horoscopy; an astrologer.

Horoscop'ic, Horoscop'ical, *a.* Relating or pertaining to horoscopy.

Horos'copist, *n.* See Horoscoper.

Horos'copy, *n.* [See Horoscope.] Aspect of the planets at the time of one's birth.—The pretended art or practice of predicting future events by the disposition of the stars or planets.

Hor'rel, in *Pennsylvania*, a village of Blair co., located on the Penna. R.R.

Hor'rent, *a.* [Lat. *horrens*—*horreo*. See Horror.] Bristled; standing erect as bristles; pointing upward.

Horrible, (*hŏr'ri-bl,*) *a.* [Fr.; Lat. *horribilis*, from *horreō*.] Exciting, or calculated to excite horror; dreadful; frightful; fearful; awful; terrific; hideous; horrid; shocking; as, a *horrible* sight, a *horrible* catastrophe, a *horrible* story.

Hor'ribleness, *n.* State of being horrible; qualities exciting horror; dreadfulness; awfulness; hideousness; fearfulness.

Hor'ribly, *adv.* In a manner excitive of fear or horror; dreadfully; terribly; hideously; shockingly; as, he is *horribly* afraid of ghosts.

Hor'rid, *a.* [Lat. *horridus*. See Horror.] That does or may excite horror; frightful; hideous; dreadful; awful; shocking;—hence, anything highly disgusting, offensive, or disagreeable; as, a *horrid* crime.—Rough; ragged; shaggy; bristling; prickly.

"*Horrid* with fern, and intricate with thorn."—*Dryden.*

Hor'ridly, *adv.* In a manner to occasion or excite horror; fearfully; dreadfully; shockingly: as, he was *horridly* nervous after his debauch.

Hor'ridness, *n.* The qualities that do or may excite horror; hideousness; dreadfulness; enormity: as, "the *horridness* of the act."—*Hammond.*

Horrif'ic, *a.* [Lat. *horrificus*. See Horrify.] Exciting horror; causing terror; dreadful; frightful; hideous.

"Jaws *horrific* arm'd . . . the direful shark."—*Thomson.*

Hor'rify, *v. a.* [*Lat. horror*, and *facio*, to make.] To make horrible; to strike with horror; to shock with terror; as, he *horrified* her delicate sensibilities in alluding to legs.

Horripila'tion, *n.* [Lat. *horripilatio*.] (*Med.*) General chilliness, preceding fear, and accompanied with bristling of the hairs over the body.

Hor'ror, *n.* [Fr. *horreur;* Lat. *horror*—*horreō*, to stand on end, to bristle.] A standing on end or erect, as hair or bristles; a bristling; roughness; stiffness. (R.)—An excessive degree of fear, or a painful emotion which makes a person tremble: terror: a shuddering with fear; terror, accompanied with hatred.

"A trembling *horror* in our souls we find."—*Davies.*

—That may excite horror, dread, or fear; dreadful thoughts; distressing scenes; dreariness; gloom; pangs of conscience.

"I have supp'd full with *horrors.*"—*Shaks.*

(*Med.*) A shuddering or chilliness preceding fear; horripilation. *Dunglison.*—*The horrors*, delirium-tremens; mania-a-potu; the blue-devils;—a morbid state of the nervous system, brought on by excessive drinking, or by the habitual use of narcotics, &c.

Hor'ror-stricken, *a.* Struck or confounded with horror.

Hor'ry, in *S. Carolina*, an extreme E. district adjoining N. Carolina on the N.E., and washed by the Atlantic Ocean on tho S.E. border; *area*, about 980 sq. m. *Rivers.* Wacamaw, Great and Little Pedee rivers. *Surface*, low, and in some places marshy; *soil*, not very fertile. *Cap.* Conway. *Pop.* (1890) 19,256.

Hor'sa, a Saxon prince, the brother of Henglst, and one of the founders of the kingdom of Kent. He was killed in the battle at Eaglesford, now Aylesford, 455.

Hors-de-combat, (*or-de-kong'ba.*) [Fr., out of the battle.] Disabled from fighting; as, our regimeut had a fifth of its numher placed *hors-de-combat.*

Horse, *n.* [A. S. *hors;* Fris. *hars, hors;* O. Gcr. *hros,* from Sansk. *hrésh,* to neigh.] (*Zoöl.*) The *Equus caballus,* an animal of thc fam. *Equidæ,* a branch of quadrupeds distinguished by a single digit and hoof on each foot. Although, however, the *Equidæ* possess but one developed toe, there are on each side of the metacarpus and metatarsus joints two small rudimentary processes which represent lateral toes. The system of thc dentition of the family is represented by the following formula:

$$\text{Incisors } \frac{6}{6}, \text{ canines, } \frac{1-1}{1-1}, \text{ molars } \frac{7-7}{6-6}; \text{ total } 42.$$

Of the three great divisions into which the *Equidæ* are separated, — namely, the horse, the ass, the zebra, — the former is the largest, the most docile, the most valuable, and, finally, more fully distributed over the surface of the globe, than auy of the others. That the horse existed at a remote date, the researches of geologists afford the most satisfactory evideuce; for there is not a portion of Europe, Asia or America in which the fossil remains of this animal have not been discovered, mingled with the bones of the elephant, the hippopotamus, and the deer, as well as the mastodon and other animals which have passed away from the surface of the earth. In most cases these fossils agree with the size of the horse which exists in the present day, though the horse is represented in these fossil remains by more than a dozen species. The first allusion in literature to the horse occurs in the book of Genesis (xxxvi. 24), where it is said that Anah, son of Zibeon, found the mules — the progeny of the ass and the horse — in the wilderness, as he fed the asses of his father. From the remains of Grecian art and writings, we find, also, that the horse was used for chariot-races, and other purposes, about 1450 B. C., from which date it became more and more employed for the use of man. It is questionable whether, in the present day, there exist auy real wild horses, as those which are so called have been proved, in the case of America, to have been the descendants of horses let loose by the Spaniards; and those of Asia are but the progeny of horses which have escaped from the haunts of civilization. Both fore and hind legs of the horse have, on the inner side, an oval, horny, wrinkled plate, called a wart, sallender, or chestnut. The canine teeth are wanting in mares. The sense of touch, in general, is extremely delicate; the tongue soft; the upper lip capable of elongation and considerable mobility; and the senses of taste and hearing well developed and very acute. The eyes are large, and the sight capahle of distinguishing objects at night; while thc sense of smell is so fine, that horses which run in a wild state are said to be ahle to scent their enemies at the distance of morc than a league. Thc skin is generally covered with a coat of short hair, smooth in summer, and becoming rough and much more elongated during the winter season. The best of the wild Asiatic horses are those which inhabit the northern slopes of the mountains of the Caucasus. The principal varieties of these, according to Pallas, are, — first, the "moustachioed" horse, characterized by numerous strong bristles on the upper lip; next, the "woolly horse," a Russian variety, covered with a crisp woolly hair, and common among the Baschkirs; thirdly, a "naked" or hairless horse, which is found among the valleys of Tartary, by the natives of which it is kept always clothed; and, lastly, a variety delineated by Johnston, in which a sort of woolly mane is continued from the neck along the back, right down to tho tail, which specimen Pallas asserts that he saw among the Buracti. The wild horses appear to be free from nearly all those diseases and ills which prove such a burden to the domestic breed. They are generally of a pale or grayish-brown color, with brown mane and tail, and a whitish muzzle, which subsides into a black color about the mouth. They are less in size than the domestic horse, and have a larger head, larger ears, hoofs more contracted, and the mane more erect, whilc the tail is much shorter. They do not wander beyond the 50th degree of north latitude. They generally move about in droves, headed by a large gray or black stallion, who constitutes himself the leader. On the Pampas of South America they are exceedingly abundant, and thc Guachos, a semi-civilized race of men, live among them. Their mode of capturing and breaking-in these horses is very curious. The *capitar,* or chief, mounted on a powerful steady horse, rides into the *corral* (a large space inclosed by an impregnable boundary of wooden stakes, into which herds of wild horses are driven by the Indians), and, picking out the animal to be broken in, throws his lasso over his head, and drags him to the gate. For some few moments the idea in the horse is an unwillingness to lose his companions, but when once out of the gate of the corral, he endeavors to escape over the plains; but a timely check of the lasso stops him. The peons then run after him, and throw a lasso over his four legs, and by a jerk throw him on the ground. In an instant a Guacho seats himself on his head, and cuts off the whole of his mane, while another cuts the hair from the end of the tail, in order to show that the animal has once been mounted. They then put a piece of hide in his mouth to serve for a bit, and a strong hide halter on his head; the Guacho who is to mount him next arranges his spurs, which are unusually long and sharp, and while the two peons hold down the horse, he girths on the saddle very tightly. He then jumps into the saddle, and the other men giving the horse his head, the rider grasps the halter and prepares for action. At first the animal jumps about, sometimes with all four of his legs off the ground at once; but the spurs of the Guacho soon set him going, and off he gallops, doing everything he possibly can to unseat his rider. After galloping him about, and flogging him until every bit of spirit seems taken out of him, the Guacho rides back slowly to the corral, and the horse, so lately unruly, is quite tamed, and fit for domestic use. Immense quantities of the skin of the horse are exported annually from South America. The horse is naturally an herbivorous animal, as his thin muscular lips, with his compressed mouth and sharp incisor teeth, are well fitted for seizing and cropping various species of grass. In a domesticated state, however, he is obliged to eat other and harder food, as oats and corn; and for this a provision is made by nature, who supplies him with a peculiar adaptation of the boues of the face, hy means of which the horse can comminute and grind down his food better than carnivorous animals. As the teeth of a horse indicate his age, as well as being distingnished for their adaptation tor masticating purposes, it will be necessary to give them some slight consideration. The colt is generally dropped with the first and second molar and grinding teeth apparent. When eight days old, the two incisor teeth (central) come out, and in the next five or six weeks he has the two next incisor teeth supplied. In three months' time these teeth will all be uniform, and a third grinder appears; and, after the colt has attained his eighth month, the third nipper

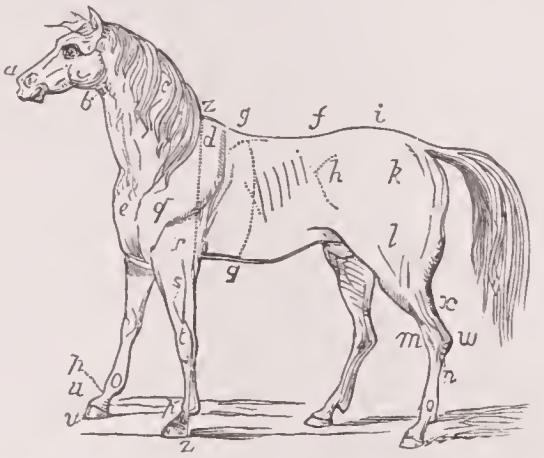


Fig. 1318.

a, Muzzle. *b,* Gullet. *c,* Crest. *d,* Withers. *e,* Chest. *f,* Loins. *g g,* Girth. *h,* Hip or ilium. *i,* Croup. *k,* Haunch or quarters. *l,* Thigh. *m,* Hock. *n,* Shank or cannon. o, Fetlock. *p,* Pastern. *q,* Shoulder-bone or scapula. *r,* Elbow. *s,* Fore-thigh or arm. *t,* Knee. *u,* Coronet. *v,* Hoof. *w,* Point of hock. *x,* Hamstring. *z z,* Height.

above and below, on each side, will appear, and the colt will be found furnished with his full complement of front teeth. These teeth are provided with an elevated cutting edge of enamel, and this edge is bent inwards and over the tooth, so as to produce a sort of cavity or depression behind it, which constitutes *the mark:* it is gradually worn down by chipping the grass, and is at length totally obliterated. By the degree in which this mark is effaced, we are enabled to judge of the age of the animal. It may also be added that the deciduous teeth are lost in the order of their acquisition; the two middle incisors of both the upper and lower jaws being displaced between the second and third years. A three-year-old colt has the permanent middle incisors above the gum, hut not on a level with the adjoining deciduous incisors; these are also characterized by a large deep groove containing a black substance crossing transversely the working edge of the corner of the tooth, and the sixth grinder is also coming into place. At four years the sixth grinder is on a level with the others, the third deciduous grinder is shed, and the mark is fainter. At six years thc fissnre on the middle incisors is worn away, but the discoloration still exists; at seven years the mark is worn away from the four middle incisors in both jaws; and at eight years the mark will be found gone from all thc lower incisors, and ceases to afford any indication of the age of the animal. It may be added, that these marks are sooner worn away in a stall-fed horse (in consequence of its eating more oats and harder substances) than one at grass; and also that they are sometimes prematurely worn away in a "crib-biter." The mare goes with young upward of eleven months, and foals standing. The age to which horses would reach, if untouched by disease, is not correctly known; many have exceeded thirty and even forty years, hut the majority arrive at their end before they have attained their ninth or tenth year. The first change which domestication makes in this animal is in increasing the bulk of his trunk in comparison with his head and limbs; and of all varieties this change is more observed in the Arabian than any other. The head is not only proportionately smaller, but is remarkable for the breadth and squareness of the forehead, the shortness and fineness of the muzzle, prominence and brilliancy of the eyes, and the smallness of the ears. The neck of the Arabian horse is long and arched, and beautifully

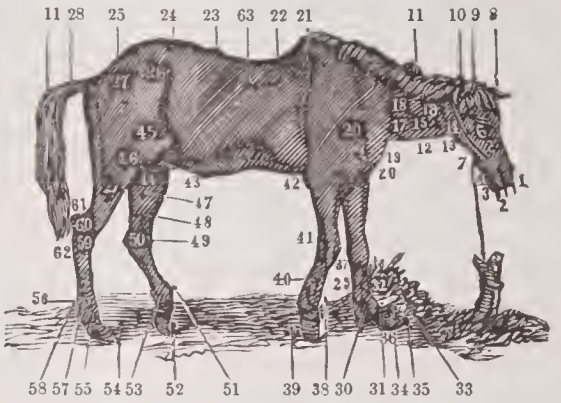


Fig. 1319. — A HORSE AFFECTED WITH 63 DISEASES.

1 Glanders. 2 Slabbering. 3 Parrot-mouth. 4 Lower jaw, fistula. 5 Upper jaw, fistula. 6 Blind. 7 Jaw, fistula. 8 Lopped ears. 9 Rabbit ears. 10 Poll evil. 11 Mange. 12 Deer or Goat neck. 13 Fistulous parotid duct. 14 Swelling of the glands. 15 Enlargement of the vein. 16 Enlargement of the parotid glands. 17 Fistula of the vein. 18 Worm-boils. 19 Abscess on the breast. 20 Enlargement of the chest. 21 Fistula of the withers. 22 Hollow back. 23 Saddle tumor. 24 Roach back. 25 Lowering back. 26 Hip-shot. 27 Wasting of muscle. 28 Rat-tail. 29 Sprain of the back tendons. 30 Splint. 31 Wind-galls. 32 Enlargement of fetlock. 33 Side-bone. 34 Ring-bone. 35 Ox-foot. 36 Quarter crack. 37 Swelling of knee. 38 Stiff joints. 39 Contraction of the hoof. 40 Enlargement of pastern. 41 Weak joint. 42 Tumor on elbow. 43 Rupture. 44 Rupture of scrotum. 45 Rupture in flank. 46 Dislocated Stifle. 47 Farcy. 48 Inflammation of lymphatics. 49 Sellenders. 50 Spavin. 51 Knuckling. 52 Ring-bone. 53 Contraction. 54 Flat foot. 55 Quiltor. 56 Scratches. 57 Sprained joints. 58 Wind galls. 59 Blood Spavin. 60 Thorough-pin. 61 Capped hock. 62 Curb. 63 Saddle-galls.

joined to the chest; the withers are high, and the shoulder-blade has its proper inclination backwards; while the fineness of his legs and the oblique position of the pasterns might be supposed by the uninitiated to lessen his apparent strength; but the leg, although small, is deep, and composed of bone of the densest character. Besides, the tendons are sufficiently distinct from the bone, and the starting muscles of the fore-arm and the thigh indicate that he is fully capable of accomplishing many of those feats which the wandering Bedouins and Arabs of the desert relate of their horses. The Arabian horse generally stands in height fourteen hands two inches. The Barb is another variety of the horse, and is smaller than the Arabian, which, however, it eclipses in general excellence, although it has not the Arabian's unflagging speed and spirit. The Persian horse is larger than the last-mentioned variety, and is more adapted for warlike purposes than for speed and endurance. The East India horse is from fourteen to fifteen hands high, and is remarkable for a want of bone below the knee, and a fulness of the hocks, which places it far below the Arabian in the scale of excellence. The Burman horse is very small, but spirited and strong; he is generally abont 12 hands high. The Tartar horse is of moderate size, but full of spirit, and very bold, active, and muscular. The flesh of this horse is a frequent article of food among the Tartars, who also regularly employ the milk of their mares for domestic purposes. The Spanish horse formerly borea considerable resemblance to the Arabian, in consequence of an admixture of their blood; but the breed has now hecome much deteriorated. The Flemish horse is a large muscular animal, strongly and beautifully formed. It is very hardy, and able to endure the service of military campaigns better than any other horses. It furnishes also the best blood for draught-horses. The English have paid the most attention to the hreeding of horses, and have surpassed all other nations iu the one quality of speed. The principal varieties of the English *H.* are: the Road-*H.,* the Coach-*H.,* and the Race-*H.* With regard to the hackney, or *road-horse,* Mr. Youatt says: "he should be a hunter in miniature, with these exceptions: his height should rarely exceed 15 hands and an inch; he will be more strong and more pleasant for general work below that standard; he certainly should be of a more compact form than the hunter, and have more bulk according to his height. It is of essential consequence that the hones beneath the knee should be deep and flat, and the tendon not tied in; the pastern should he short, and although oblique or slanting, far less so than that of the race-horse or hunter. The foot is a matter of the greatest consequence in a hackney; it should bc of a size corresponding with the bulk of the animal, neither too hollow nor too flat, open at the heels, and free from corns and thrnshes. The fore-legs should be perfectly straight; the back should be straight and short, yet sufficiently long to leave comfortable room for the saddle between the shoulders and the *huck,* without pressing ou either; the road-horse should also be high in the forehead, round in the barrel, and deep in the chest." According, also, to Mr. Youatt, the origin of the better class of *coach-horse* is the Cleveland bay, which breed is confined principally to Yorkshire and Durham. Another breed of horses is termed the "Suffolk punch," from its round punchy form, which is supposed to have originated from a cross between a Norman battle-horse and a Suffolk cart-mare; this, however, is only a supposition. According to our author, it was "the very horse to throw his whole weight in his collar, with sufficient activity to do it effectually, and

hardihood to stand a long day's work." The best *dray-horses*, of which so many splendid specimens are exhibited in brewers' wagons, are produced by a cross between a Suffolk punch and a Flemish mare. The fleetest var. is the English *race-horse* (Fig. 1320), the breed of which is traced back to an Arabian stallion introdueed into Great Britain by a Mr. Darley; whence it was termed "the Darley Arabian." This horse was the sire of Flying Childers, and the great-grandsire of Eclipse, which latter horse ran a mile in one minute. — The horse inhabited America during the post-pliocene period, contemporaneously with the mastodon and megalonyx; its fossil remains, chiefly molar teeth, have been so frequently found, chiefly in the Southern States, and have been so carefully examined by competent palæontologists, that no doubt can remain of the the existence of the horse in the Western World. There is no doubt, however, that it was unknown to the natives of America at the time of its discovery. America has taken advantage of the best breeds of the Old World, and can compete favorably with any country; her trotting-horses have no superior. See HORSE-RACING.



Fig. 1320. — THE RACE-HORSE.

Horse, *n.* The male of the equine kind — as opposed to the female, or *mare*. — A body of troops serving on horseback; mounted soldiers; cavalry; — used without the terminative plural; as, a regiment of *horse*, a squadron of light-*horse*. — In this sense formerly used in opposition to *foot*, as, by modern usage, *cavalry* in distinction from *infantry*.

(*Mil.*) In England, a wooden contrivance shaped in the form of a horse, for soldiers to ride upon by way of punishment. (Also termed a *timber-mare*.)

—A framework with legs, used as a prop or support for something; a rail; as, a clothes-*horse*.

(*Naut.*) A foot-rope to support the feet of seamen while leaning over a yard or boom to furl the sail. (Generally in the plural; as, the *horses*, or *horses of the yards*.)

—Also, a rod or rope, along which the edge or the corner of a sail traverses by means of hanks. — Also, a large round bar of iron fixed in the head of a ship.

To take horse, to set out to ride on horseback; to be mounted for a journey. "I *took horse* to the Lake of Constance." (*Addison.*) — To be covered, as a mare; as, she *takes* the *horse* kindly.

(*Mining.*) To divide a vein into branches for a distance.

Horse, *v. a.* To furnish with a horse or horses; to mount on horseback. — To ride astride, as on horseback; to sit astraddle. — To take or carry on the back; as, "*horsing* a deer." (*Butler.*) — To place on the back, or on a wooden block for the punishment of flagellation; as, to *horse* a school-boy. — To cover, as a mare; as, she was *horsed* by a blood-stallion.

—*v. n.* To get on horseback; as, the lady was *horsed* with ease.

Horse'-ant, *n.* (*Zoöl.*) A species of large ant; horse-emmet; *Formica rufa*.

Horse Artil'lery, *n.* (*Mil.*) See ARTILLERY CORPS.

Horse'back, *n.* The back of a horse. — The state of being mounted on a horse; posture of riding on a horse; expressed especially in the phrase *on horseback*.

"I've seen the French, and they can well *on horseback*." *Shaks.*

Horse'-ball, *n.* In veterinary surgery, a large pill, or bolus, administered as medicine to horses.

Horse'-balm, *n.* (*Bot.*) See COLLINSONIA.

Horse'-bean, *n.* A sort of small bean, used as food for horses.

Horse'-block, *n.* A block of wood or stone, placed as a convenience to assist persons in mounting and dismounting from a horse.

Horse'-boat, *n.* A boat or barge used in transporting horses over a river or other water. — A boat hauled along by horses; a kind of ferry-boat.

Horse'-boy, *n.* A stable-boy; a helper; a boy employed in tending and cleaning horses.

Horse'-breaker, (*-brāk'r,*) *n.* One who breaks in or tames horses, or educates them for draught or the saddle.

—A term brought into recent use in England to designate a lady-equestrian belonging to the demi-monde.

Horse'-car, *n.* A car on a railroad drawn by horses.

Horse'-cassia, (*-kāsh'ya,*) *n.* (*Bot.*) See CASSIA.

Horse'-chaunter, (*-chänt'er,*) *n.* One who cobbles up broken-winded or spavined horses, and passes them off as sound. (Cant.)

Horse'-chestnut, (*-ches'nut,*) *n.* (*Bot.*) See ÆSCULUS.

Horse'-cloth, *n.* A covering for a horse; a rug.

Horse'-clothing, *n.* The equipments of a horse, consisting of a cloth cover, saddle, &c.

Horse'-courser, *n.* One who runs horses, or keeps horses for racing.

—A dealer in horses.

Horse Cave, in *Kentucky*, a post-village of Hart co.

Horse Creek, in *Alabama*, enters the Tombigbee river in Marengo co.

—A post-office of Walker co.

Horse Creek, in *Missouri*, enters the Sac river in Cedar co.

Horse Creek, in *N. Carolina*, enters the Neuse river in Wake co.

Horse Creek, in *Tennessee*, a P. O. of Greene co.

Horse Creek, in *N. Carolina*, a P.O. of Ashe co.

Horse'-cucumber, *n.* A large, green kind of cucumber.

Horse'-dealer, *n.* One who buys and sells horses; one who traffics in horseflesh.

Horse'-doctor, *n.* A veterinary surgeon; a farrier.

Horse'-drench, *n.* A dose of physic administered to a horse.

Horse'-dung, *n.* The excrement of horses.

Horse'-emmet, *n.* Same as HORSE-ANT, *q. v.*

Horse'-faced, (*-fāst,*) *a.* Having a long, lantern-jawed face.

Horse'-ferry, *n.* A ferry over which a horse-boat crosses.

Horse'flesh, *n.* A term applied to horses generally; as, he is a good judge of *horseflesh*.

Horse'-fly, *n.* (*Zoöl.*) See ŒSTRIDÆ.

Horse'foot, *n.* (*Bot.*) See TUSSILAGO.

(*Zoöt.*) The King-crab or Horse-shoe, *Limulus Americanus*, a crustacean so called from its resemblance to the hoof of a horse.

Horse'-gentian, *n.* (*Bot.*) See TRIOSTEUM.

Horse'-guards, (*-gärds,*) *n. pl.* (*Mil.*) See GUARDS.

The Horse-Guards, (in England,) the name given to the head-quarters of the British army. It is situated in London, and takes its title from two mounted troopers of the "Royal Horse-Guards," who are posted as sentries at the entrance. It forms a distinct establishment from that of the *War Office*, the latter monopolizing the financial or legislative dept. of military affairs under the control of the Secretary-at-War, while the Horse-Guards has the executive charge under the orders of the commander-in-chief.

Horse'-hair, *n.* The long hair of horses, as that of the mane, tail, &c.

—*a.* Made of horse-hair; as, a *horse-hair* cushion, a *horse-hair* chignon.

Horse'head, in *Arkansas*, a village and township of Johnson co., about 90 m. W. of Clarksville.

—A post-office of Columbia co.

Horse'head, in *Maryland*, a post-village of Prince George co.

Horse'heads, formerly FAIRPORT, in *New York*, a post-village and township of Chemung co., about 6 m. N. of Elmira. *Pop.* of village (1897) about 1,780.

Horse Island, an islet off the coast of the co. Cork, Munster, Ireland.

Horse'-hoe, *n.* A hoe for cleaning a field by the aid of horses.

Horse'-jockey, *n.* A buyer or vender of horses; a horse-dealer.

Horse'-knop, (*-nop,*) *n.* (*Bot.*) See CENTAUREA.

Horse'-laugh, (*-läf,*) *n.* A loud, rude, boisterous laugh.

"A *horse-laugh*, if you please, at honesty. —*Pope.*

Horse'-leech, *n.* A large leech that bites horses.

"Like *horse-leeches* . . . the very blood to suck."—*Shaks.*

—A veterinary surgeon; a horse-doctor; a farrier.

Horse'-leechery, *n.* Farriery; art of veterinary surgery.

Horse'-litter, *n.* A litter suspended on poles between two horses.

Horse'ly, *a.* Possessing horse-like qualities; — applying to a horse, as *manly* to a man.

Horse'-mackerel, *n.* (*Zool.*) The *Thynnus vulgaris*, a gigantic species of mackerel; or the blue-fish, *Tenmodon salvador*.

Horse'man, *n.; pl.* HORSEMEN. A rider on horseback; a mounted man; an equestrian; a man skilled in horsemanship or the manege.—A cavalry soldier; one who serves on horseback.—A variety of the pigeon kind.

Horse'manship, *n.* Act or art of riding; manege; practice of training and managing horses; equestrianism.

"And 'witch the world with noble *horsemanship*."—*Shaks.*

—The natural paces of the horse may be thus enumerated, in their proper order: — the walk, the trot, the gallop, the canter; and perhaps leaping may also be included, as it is undoubtedly a pace belonging to the horse, as to other saltatory animals. First, with reference to the walk, it is considered, when slow, to be the simplest of all paces; but when accelerated, even in the slightest degree, it is not so simple as imagined, for it is often intermixed with motions appertaining to other paces, by a successional displacement of the limbs, out of the more common course. It is stated by a writer in Blaine's "Encyclopædia of Rural Sports," with regard to the description of this mode of progression adopted by the horse, that he found that, supposing the off fore-leg to begin, it was immediately succeeded by the near hind one, but the off hind-leg seemed not to follow the fore-leg at the same time as before, *i. e.* that was in the walk of the pace which he had been previously noticing; but this was nothing more than the alteration of the form of the body, when either the one walk or the other took place. For when the off hind-leg began, it was succeeded by the off fore being lifted up, and when the off hind-leg was set down, the near hind-leg was lifted up. But the off fore and the near hind-legs seemed so connected together by the poise being on the same side, that it was the near hind-leg which appeared to begin the action. The poise being altered by the will of the horse, the off fore seemed to begin, and not to be succeeded by the off hind-foot being set down at the same time after it, as in the walk of the pace. The near hind-leg is in both paces (*i. e.* the common walk and the pacing walk) taken up after the off hind-foot is set down, and when the off fore-foot is set down, the near fore-foot is taken up, to make room for the near hind-foot to be set down. In order to render the walk agreeable to the rider, it should be true; that is, it should be conducted by an harmonious and symmetrical elevation and depression or setting down of the feet. To walk fast requires great liberty in the angles of the limbs, but particularly so in the elevation of the fore-parts, and obliquity of the shoulders; a corresponding length and angularity in the hind legs is also requisite for the perfection of the pace. In the language of Blaine, the walk as a pace should be performed as harmoniously as any artificial cadence of the *manege*, and that whether it is quick or slow, each foot being dropped flat on the ground, and not, as is too often the case, the toe being placed first, and then the heel. The breaking of a horse will have much influence on his method of walking; the angles of his limbs will have much more; and not a little will depend on the hand of the rider. One horseman by seat and hand will force the horse to carry his head in the right place, and to elevate and extend his limbs, the one in unison with the other; and another rider, by his bad seat and coarse hand, will bring his horse to stop short and irregularly, and thus so mix the trot with the walk as to do little more than shuffle over the ground. The maximum of speed in the true walk of the horse is six miles an hour. There are few animals, however, that have accomplished this; and consequently, five miles per hour is a good rate of speed for a fast walker. The trot is the next pace after the walk, and it is always performed diagonally, the limbs being differently employed, according to the rate of progression, whether fast or slow. There are three varieties of the trot; namely, the moderate, the extended, and the running trot. In the moderate, or slow trot, the diagonal legs (as the off fore- and near hind-legs) are elevated, and replaced on the ground together; while the two other legs remain on the ground to support the weight of the horse and his rider. The extended trot of a horse and the run of a man are nearly identical in their manner of employing motive power, as the fore and hind diagonal legs acting in unison form themselves into a sole support, like the single leg of a man; the only difference being that the centre of motion is placed diagonally across it; by which means the superincumbent weight, although moving on two distinct members, produces but one effect. The space of ground usually gone over at each change of the limbs in the fast trot is a sufficient proof that a spring is made in the action, which tends to detach the horse, at one particular moment in the pace, completely from the ground; and that, mathematically speaking, the body is propelled through a space corresponding in ratio to the force employed to gain the impetus. The running-trot is often confounded with the darting or elongated trot, from a very erroneous impression that the method of procedure is identical; really, this pace is a compound of the true trot and the "amble," and it is not conducted diagonally, as the other varieties are. With regard to the gallop, it is stated by Blaine that it may be properly divided into three varieties, all effected, however, by a propulsive effort of the hind-quarters. Of gallops there are, — the racing, or gallop at full speed: the slow, or hand-gallop; and the canter; which latter, although treated as a separate pace of the horse, is really but a slow gallop. The first of these varieties, or the racing gallop, is nothing more than a succession of leaps. Simple as it is, it nevertheless cannot be commenced without the intervention of the slower gallop, in which one of the hinder legs is first advanced to establish a new centre, for it would require too great an effort to raise the fore parts at once from a state of rest by means of the loins, and to throw them forward at the first action to a considerable distance by means of the haunches and thighs. "In the extended gallop, the fore parts when raised are forced forwards by the alternate flexions and extensions of the angles of the hinder parts, and as both of the fore and both of the hind legs, in the racing gallop, become opposed to the ground in succession at the same moment, that is, as the two fore-feet beat the ground together and then the two hind, so it is evident that the gallop of full speed is nothing more than a repetition of leaps. Quickly as these leaps are repeated, yet the surface of ground passed over at each of them must necessarily be great to accomplish the pace at which the good racer goes. *Hambletonian*, in his match against *Diamond*, is said to have covered 83½ feet of ground in a second; and by the calculations of Mons. St. Bel, *Eclipse* covered 85 feet of ground in the same time when at the top of his speed." (*Blaine.*) The hand-gallop is a pace between the amble and the racing-gallop, and differs from both, from the fact of its not being performed diagonally, and from the limbs not being thrown out and contracted equally, one generally taking the lead, as it were, of the other, and being pushed further forward, while the other is more curved. The canter differs from the gallop in consequence of the movements of the legs, instead of being simultaneous, being directly the reverse. At no period of time is the animal wholly in the air, one of his legs being always touching the ground; and this it is that gives the pace its peculiar effect. When it is performed, say, on the right, the horse commences by first placing his off hind-leg a little beyond the other; at nearly the same instant he elevates the fore-hand and places first the near fore-leg on the ground, when the off, doubling over and beyond, is placed in an instant after it. In the next movement, the hind-legs are thrown in, and, while elevated, the off fore-leg is never elevated until the hinder ones are replaced on *terra-firma*. In order to insure the safety of progression of the horse, the Parthians used to place pieces of chalk and stones in the paths of their young horses, so as to accustom them to look to their steps, and to elevate their feet sufficiently; while the Romans tied clogs to the pasterns of their colts for a similar purpose. As *leaping* will be treated of in the

article Hunting, enough has now been said with reference to the natural paces of the horse. It would be impossible to find out who was the first horseman; but there is little doubt that even in the remotest ages of antiquity, men were accustomed to mount their steeds, causing them to career along with that irresistible speed and endurance with which the genus *Equidæ* are so highly gifted. Good horsemanship seems more innate with Englishmen than with the natives of other countries in Europe, and it has always been considered as one of the corporeal accomplishments of a gentleman. There is a great difference between a regimental riding and that of a genuine sportsman, as the following distinction, taken from an article in the *Encyclopædia Britannica*, will show: "The military seat approaches nearer than any other to that of the *manège;* and, by reason of the horse-soldier having, in general, but one hand to hold his bridle with, is one which gives him great command over his horse, without disturbing his seat. He sits well down in his saddle, or his fork, or twist, with his body erect, and in perfect equilibrium with his horse; his legs well stretched down the sides, with a firm pressure of the calves, as well as of the knees and thighs, and the feet firm in the stirrups. But it is not by any *one* of these aids that he becomes a good horseman. He must be in perfect unison, as it were, with his horse's actions and paces to maintain a good and graceful seat; and in proportion to the just balance of his body will he be able to have a steady hand, a point of vast importance to the dragoon. The importance of this balance, and keeping himself in a proper equilibrium with his horse, is increased by the fact of his not being allowed to rise to the horse's trot, and, therefore, requires a still finer use of the bridle-hand." To quote another authority: "The man who rides with the aid of the proper equilibrium," says Colonel Peters, "will, in case of necessity, know when to apply the strength he has retained with a steady, light hand, and govern every motion according as he finds it necessary for his purpose; play light with his own weight upon the saddle (by a gentle spring in the instep of both feet on the stirrups), with an easy pressure of both thighs, knees, and calves of the legs. When the horse jumps or plunges, then these aids are also requisite to keep the seat; but in an easy, steady pace *forward*, it is most particularly to be pointed out to a young man, and cannot be too often repeated, that to become an easy, elegant, or proper horseman, he must learn to ride with comfort and pleasure to his horse as well as to himself; he must learn to seek his balance from his hip upwards, to keep the body with a slight inclination backwards from the perpendicular, and balance himself thus gradually on his horse in all the different paces; which, of course, cannot be expected all at once. A man that rides by the force of his knees alone, shaking his arms and hands, although he rides his distance in the same period of time that the good rider would, yet he cannot be said to *ride* his horse, or to have any part of his body in the proper equilibrium; but the man who rides his horse with a light, steady hand, and elastic body (which, when disturbed even, has the power of restoring itself to its former seat), in unison with the horse's action, may be truly said to ride in the proper equilibrium." Mounting is the first step in horsemanship; and a certain precaution is necessary in this, as in everything pertaining to horses. The person must approach the animal by walking up to him on the left side, not directly in front, as this might alarm him and make him strike out. The rider is recommended by old writers on the subject to take the reins and the pommel of the saddle in his left hand, after having placed his left foot firmly in the stirrup, and by laying his right hand fast on the hinder part of the saddle, to vault into his seat. When mounted, the first thing to set about is the proper adjustment of the reins. If the horse is to be ridden with a single-bridle rein, the reins must be drawn with the rider's right hand through his left, until the horse's mouth has been placed equally on both sides, and then the left hand must be shut, allowing the little finger to separate the two reins. With a double-rein bridle the same must be done. "The bridle-reins should be held at a convenient length; for, if short, they will discompose the attitude of the body, by pulling the left shoulder forward; and they should be held with a firm grasp, dividing them, as before mentioned, with the little finger. When a horse pulls at his rider, he should advance his arm a little, but not the shoulder, towards the horse's head, raising his hand towards his breast, and the lower part of the palm rather than the upper; but he should not shorten the rein in his hand if he can command his horse without it, or he may lose the proper *appui*, or bearing of his mouth. Old writers recommend the bridle-hand to be held perpendicularly, the thumb being uppermost and placed on the bridle. Modern practice is in favor of the knuckles being uppermost. The perpendicular hand may do very well in the school, or with the severe bit of the highly-drilled dragoon-horse; but no man could ride a free-going race-horse over a course, or a hasty hunter over a country in that form." After due attention has been paid to the holding of the bridle, the *seat* must be the next consideration of the learner. A great improvement has been made in this respect, by substituting the long stirrup-leathers for the shorter ones which were formerly in vogue. With short stirrup-leathers the rider's seat is thrown back in the saddle, instead of keeping the central equipoise, and, consequently, his weight is thrown on the horse's loins, the weakest part in the body of the animal. The thighs are the most essential parts of a horseman, in giving him a good, firm seat, and on their form will depend the position of the knees, also important to the acquisition of a firm seat. The thighs should touch the saddle and the sides of the horse with their inner surface chiefly, and the knees and toes should not protrude too much. The toes should be turned a little outward and upward; for the toes being turned in, necessarily cramps the knees, and prevents the animal from exerting his strength. The manner in which the foot is placed in the stirrup varies considerably with different riders. "The soldier always, the rider for pleasure or on the road generally, rests on the ball of the foot, with a gentle play of the instep; but the man who rides after hounds, and the jockey when he rides a race, find it necessary to have the foot more home in the stirrup, with the toes turned a little upward, as well as a little outward. The advantages of all this are twofold. First, it gives them more power over their horses, by furnishing them with a more substantial fulcrum; and, secondly, to the man following hounds, it is a great security against the foot being chucked out of the stirrup, by the seat being disturbed in a leap, or from any of those causes which perpetually occur in crossing a country." As an easy seat



Fig. 1321.

(Fig. 1321) is most important to persons who are obliged, whether by necessity or pleasure, to ride many hours in succession on the road, the following rules should be carefully observed, in order to obtain the same: The rider should, in the first place, sit well down in the middle of the saddle, with just that length of stirrup-leather as will admit of the fork clearing the pommel of the saddle. The body of the rider should also incline forwards in the trot, as he thus furnishes a proper counter-balance to the movements of the horse: and, above all things, a steady seat must be maintained, as, unless such is the case, the latter will be incommoded in his pace and distressed beyond measure. (See Hunting.)—"Nothing sets off the appearance of a horse and his rider more than a good saddle and bridle: nor does anything contribute more to the comfort and safety of the latter than a well-made roomy saddle, with spring-bars for the stirrup-leathers; stirrups rather heavy than otherwise, and sufficiently large for the feet."

Horse'-marten, *n.* (*Zoöl.*) A large bee, belonging to the genus *Bombus.*—See Apidæ.

Horse'-meat, *n.* Fodder for horses; provender; forage.

Horse'-mill, *n.* A mill worked by a horse.

Horse'-milliner, *n.* One who furnishes fancy articles for the decoration of horses.

Horse'-mint, *n.* (*Bot.*) See Mentha.

Horse'-mussel, *n.* A large kind of mussel.

Horse'-nettle, *n.* (*Bot.*) See Solanum.

Hor'sens, a seaport of Denmark, in Jütland, on the Horsens Fiord, 25 m. S.W. of Aarhuns, Lat. 55° 52′ N., Lon. 9° 52′ E. It has a fine harbor, and carries on a trade in corn and tallow. *Pop.* 5,500.

Horse'-play, *n.* Rough, rude, boisterous play.

"He is too much given to *horse-play* in his raillery."—*Dryden.*

Horse'-pond, *n.* A pool or pond for watering horses.

Horse'-power, *n.* (*Mech.*) The power of a single horse, or its equivalent power, which will raise from 30 to 33,000 lbs. avoirdupois one foot high per minute. As applied to steam-engines, it refers to the weight they are capable of raising to a given height in a given time. It has been proved by experiment that the heat expended in the vaporization of 34 lbs. of water per hour, will develop a force equal to 33,000 foot-pounds; and as it takes about 4 lbs. of coal per hour to vaporize that quantity of water, it follows that the heat developed by the burning of 4 lbs. of coal per hour, vaporizing during that time 34 lbs. of water, develops the same amount of force as that exercised by an average horse exerting his full strength at any ordinary work.

—A horse-engine; a machine worked by a horse or horses.

Horse'-race, *n.* A race by horses; a match of speed contested by horses.

Horse'-racing, *n.* (*Sports.*) The practice of running horses in matches for a certain stake or honorable trophy. This popular sport of the ancient Greeks and Romans may be said to have been revived in modern times as an English institution, from which people it has spread and become popularized over the principal countries of Europe, as well as in this country. Referring to the heads Horse and Horsemanship for the natural history, management and training of the horse, we propose to consider here the special training of horses intended for *H.-R.* The first thing which has to be attended to in the education of the racer, is *breaking-in* the colt: and this is commenced generally when the animal is about twelve months old. The great points are, to command obedience and inspire confidence; for if these are not well grounded into the colt at an early age, his future career will meet with many obstacles. The application of the cavesson is the first active restraint applied to all colts, whether destined for the turf or not; but with racers the colts are generally *booted* first, in order to prevent them from rubbing their legs together while *lounging*. The colt is bitted, and a long halter attached to the front part of the nose-strap, which the trainer holds in his hand, while a lad walks behind the animal with a whip, and urges him on by cracking it, without, however, whipping him. In three or four days, when they go boldly and freely at full length of the rein each way in the lounge, for fifteen or twenty minutes, having by degrees been brought to this pace and time of lounging, the mouthing-bits, rollers, and cruppers may be put on; and when the colt has become accustomed to them, the saddling him is the next step to be gained. For the first time this operation requires the greatest caution and care; the girths should not be drawn tight, and the stirrups should not be left hanging loose; while the *bearing up* of the bridle should be gradual, and *reining back* must not be too roughly pressed on the colt, by way of suppling his shoulders and giving sensation to the mouth. Mounting him should be only very carefully attempted, and when he seems to be quite at home with the saddle on his back; and the colt should be familiar with the person who first essays to *back him*. In Darvill's work "on training," it is truly stated that the giving a good mouth to the young racer must be thus undertaken: "To accomplish it requires a light hand in the application of the pressure with the bit in the colt's mouth. It should be done by the rider's giving and taking by gentle pulls, and thereby keeping the colt's mouth alive to the pressure of the bit. The rider should occasionally gently press the calves of his legs and heels to the colt's sides, to urge him on and up to the bit, pulling him up, and letting him stand for a few moments, and then reining him back a little, and again moving him forward, teaching him to turn and go in any direction that may be required of him; treating him at the same time with kindness." It is only by patience and gentleness that the colt can thus be trained properly; and when the mouth is very hard, a check-rein is sometimes necessary. Colts must be early accustomed to crowds, and all sorts of noises and bustling, in order to obviate any tendency they may have to starting. Blaine, in the *Encyclopædia of Rural Sports*, remarks, that "the full breaking of horses, however, at periods so early as is now not uncommon, has laid the foundation of the deterioration so complained of among the breeds in general. Nevertheless, as the habit is fixed, we also are forced to recommend that a very early handling of all colts may be a common practice. They should also, when yearlings, be accustomed to wear a head-stall, and, occasionally, a surcingle, that they may be led about, to inspire them with confidence, and teach them obedience. It would likewise be prudent to supple them thus early, by a little lounging in a circle; but, further than this, were the horses only concerned, we would not recommend: indeed, were the real welfare of our blood-breeds consulted, instead of two-year olds being brought to the starting-post, none would appear there before they had seen at least four summers; and if five had passed over their heads, it would be better for themselves." The training of race-horses depends naturally on their age, condition, and constitution; and the processes by which they are rendered capable of racing vary accordingly. A four- or five-year old must be trained so as to be able to run a course of from two to four miles; therefore, such a horse must in his exercises be habituated to go, at a good telling pace, a much longer distance than that which he will be obliged to do when he comes to the post. If he be deprived of the good training made commensurate with the length of the course he will have to run, he cannot obviously be expected to continue at a winning pace any considerable distance. It is also highly important that he should have his training-sweats and gallops carried up to the time of his going to the post. If he is a hearty feeding horse, not a sweat must be lost, as, if so, he would be found to have superfluous flesh on the day of the race, which would consequently incapacitate him for his trial. The careful trainer will also calculate what flesh best supports a horse, some horses being able to perform well under a load, and others not, unless nearly skin and bone. According to the authority quoted, training exercises for race-horses are confined to walking, cantering, and galloping; trotting forming no part of turf-practice. Early in the morning, the horses having been rubbed over and combed, each being mounted by a boy, the whole are ridden out of the stable in their body-clothes and hoods, into the stable-yard, where they continue to walk round and round as long as it is thought necessary to steady the colts, and settle the saddles to their backs, which it is very necessary to do to prevent the vice of kicking from growing on them. In very bad weather the court-yard is often the limit of their exercise; but at all other times they proceed to the ground, or "tar-gallop," where they walk for a longer or shorter period, in proportion to their fitness for light or strong work. Sweatings are important agents in training, as by this process the body of the horse is relieved from all unnecessary matter; they promote speed by

lightening the body, and give increased endurance by clearing the air-vessels. The process by which this is done is to envelop the horse in blankets and heavy clothes, and start him into a canter; after which he is stripped and rubbed down, and his clothes resumed. Racers are generally clipped once in the winter; but if their coats are extremely rough, the process is repeated a second time. So much for the horse itself; but as one or two other incidental circumstances are connected with horse-racing, the jockey may be mentioned next. According to "Nimrod," he should "possess the following not every-day qualifications:—considerable bodily power in a very small compass; much personal intrepidity; a kind of habitual insensibility to provocation, bordering upon apathy, which no efforts of an opponent in a race can get the better of; and an habitual check to the tongue. Exclusive of the peril with which the actual race is attended, his profession lays a heavy tax on the constitution. The jockey must at all times work hard; but, the hardest of all tasks, he must work upon an empty stomach. During his preparation for the race, he must have the abstinence of an Asiatic; indeed, it too often happens that at meals he can only be a spectator,—we mean during the period of his wasting. To sum up all, he has to work hard, and deprive himself of every comfort, risking his neck into the bargain,—and for what? Why, in England for $25 if he wins, and $15 if he loses a race. The famous Pratt, the jockey of the no less famous *Gimcrack*, rode eleven races over the Beacon course in one day, making, with returning to post on his back, a distance of eighty-eight miles in his saddle." In riding a race, the length which the man rides should be so regulated that he should be able to stand easily in his stirrups, so as not to be so much raised above the saddle that the bridle is required as a means of support. Just before a race commences, the horses are ushered forth from their stables, and brought up to the "paddock" with their clothes on, when the business of stripping and saddling is commenced; and few things take the eye of the spectator more than the smallness and lightness of the jockeys' saddles, some of which weigh barely two pounds. A four-pound saddle is generally preferred by light weights, although a seven-pound saddle is often the favorite with some race-riders. All racing-saddles are made of the very best materials, in order to avert any evil consequences which might accrue both to the horse and his rider from the accidental slipping of a strap or the rupture of a girth, or similar casualties. The horses after being saddled are mounted by their jockeys, who take a preliminary canter to get them in heat for the forthcoming race. They are then pulled up and ranged in a line at the starting-post, from which they go off at the signal given by the starter, who drops a flag for the purpose. As some horses are restless and uneasy, a reasonable indulgence is given by the judge for "false starts," and the whole batch are called back to the post and started once more. In a short course the speed is generally husbanded until the finish, when the jockeys go to work with spur and whip to make the most of their various chances. In a long race, however, of three or four miles, if a jockey is mounted on an aged horse, and the rest of the competitors on two- or three-year olds, he generally puts forth the best speed at first, in consequence of his own horse being able to last twice the distance that the others can, and when they are exhausted he is able to go in and win. See PHOTOGRAPHY, INSTANTANEOUS; HORSE-RACING, in SECTION II.

Horse'-radish, *n.* (*Bot.*) See COCHLEARIA.

Horse'-radish Tree, *n.* (*Bot.*) *Moringa pterygosperma.*

Horse'-railroad, *n.* See TRAM-WAY.

Horse'-rake, *n.* (*Agric.*) A tool, of the toothed kind, of various sizes and forms, used for different agricultural purposes, and worked by horses. The drag-rake, in its simplest form, is merely a long cross-head with a row of teeth placed in it. In some these are straight; they are, however, generally bent, with their points projecting forwards. Rakes of this kind are used on fallows to remove the stones, and act as a harrow in getting together the rubbish. In harvest-time they are sometimes used as an ordinary rake, to collect the loose corn which may have escaped from the scythe or sickle.

Horse'-riding, *n.* The art or practice of equestrianism.

Horse'-run, *n.* A contrivance for drawing up loaded wheelbarrows, by a horse, from deep excavations, for railroads, canals, &c.

Horse'-shoe, (*-shōō,*) *n.* A semi-circular plate of iron nailed to a horse's hoof, to serve as a shoe.

—Anything formed after the manner of a horse-shoe.

—*a.* Having the shape of a horse-shoe; as, a *horse-shoe* arch.

Horse'shoe-head, *n.* (*Med.*) A disease in infants in which the sutures of the skull are too open; — opposed to *headmould-shot.*

Horse'shoe-vetch, Horse'-vetch, *n.* (*Bot.*) See HIPPOCREPIS.

Horse'-shoeing, *n.* Act or art of shoeing horses.

Horse'-stealer, Horse'-thief, *n.* A thief who abstracts horses and makes away with them.

Horse'-stinger, *n.* See DRAGON-FLY.

Horse'-sugar, (*-shoog'ar,*) *n.* (*Bot.*) See SYMPLOCOS.

Horse'-tail, *n.* (*Bot.*) See EQUICETACEÆ.

—A Turkish standard symbolizing a degree of rank.

Horse'-tamer, *n.* One who subdues wild, intractable horses; a horse-breaker; as, Rarey, the *horse-tamer.*

Horse'-thistle, (*-this'l,*) *n.* (*Bot.*) A name sometimes given to plants of the genus CNICUS, *q. v.*

Horse'-tongue, (*-tŭng,*) *n.* (*Bot.*) See RUSCUS.

Horse'town, in *California*, a post-village of Shasta co., about 8 m. S. of Shasta.

Horse'-trainer, *n.* One who trains horses; one who practises the manege.

Horse'-trough, (*-trawf,*) *n.* A cistern or drinking-place for horses; as, to duck a person in a *horse-trough.*

Horse'-veteh, *n.* (*Bot.*) See HORSESHOE-VETCH.

Horse'-way, Horse'-road, *n.* A bridle-road; a way which is accessible to horses.

Horse'-weed, *n.* (*Bot.*) A species of plants, genus ERIGERON, *q. v.*

Horse'-whip, *n.* A whip for striking or driving horses.

—*v. a.* To strike, lash, or flog with a horse-whip; as, I *horse-whipped* the scoundrel within an inch of his life.

Horse'-whipping, *n.* Flagellation with a horse-whip; — hence, any castigation with a lash or thong; as, he deserves a *horse-whipping.*

Horse'woman, *n.; pl.* HORSEWOMEN, *n.* A female who rides on horseback; a lady-rider; an equestrienne.

"My lady was the best *horsewoman* that ever topped a bull-finch." — *Peyton.*

Horse'-worm, *n.* A bot; a worm to which horses are liable.

Hor'sham, a town of Sussex co., on the Arun, 26 m. N.E. of Chichester. *Manuf.* Linens, cottons, and indigo blue. *Pop.* 6,700.

Hor'sham, in *Pennsylvania*, a post-village and township of Montgomery co., about 10 m. E. by N. of Norristown; *pop.* of township.

Hortation, (*hor-tā'shon.*) *n.* [Lat. *hortatio.*] Act of giving advice; exhortation; encouraging counsel; hortatory precept.

Hor'tative, *a.* [Lat. *hortativus.*] Advisory; preceptative; giving counsel or exhortation.

—*n.* An exhortation or exordium calculated to incite and encourage.

Hor'tatory, *a.* [From Lat. *hortor, hortatus*, to urge, to incite.] Bestowing exhortation, advice, or precept; stimulating; inciting; encouraging; heartening; as, a *hortatory* speech.

Hor'ten, a town of Norway, prov. Aggerhuis, on the Gulf of Christiana, 32 m. S. of Christiana. It is the station of the Norwegian naval fleet, and furnishes hence employment to the inhabitants in the various details of ship-building. The arsenal of the government is located here.

Hortense, EUGÉNIE DE BEAUHARNAIS, daughter of Josephine, the consort of Napoleon I., and of the Vicomte de Beauharnais, her first husband, was B. at Paris, 1783, and married to Louis Bonaparte, the brother of Napoleon, in 1802. The match had been desired by the consul for political reasons, and it proved a most unhappy one. In 1806, *H.* became queen-consort of Holland, and about a year afterwards was separated from her husband after giving birth to three sons:— 1. NAPOLEON CHARLES, who died in infancy, and whose intended adoption by Napoleon was refused by Louis. 2. NAPOLEON LOUIS, who was baptized by the pope Pius VII., and instead of attaining the high destiny proposed for him, was killed in an insurrection at Romagna, 1832; and 3. LOUIS NAPOLEON, the last emperor of the French. On the divorce of her mother, Josephine, Queen *H.* joined her in her retirement of Malmaison, and after her death, in 1814, so soon followed by the fall of Napoleon, became an unprotected and calumniated wanderer, until her residence was fixed at Augsburg by the king of Bavaria. D. Oct. 5, 1837. Her disposition was modest and retiring; her influence at the court of Napoleon was generously exercised in favor of the distressed, and her affectionate solicitude for the emperor was fully manifested after the disaster of Waterloo. *H.* was duchess of St. Leu in virtue of a settlement made by the allies between the first fall of Napoleon and the Hundred Days.

Horten'sius, QUINTUS, a celebrated Roman orator, B. B. C. 114, who, till his great rival Cicero, bore away the palm, and eclipsed all others in the grace and splendor of his eloquence. He was elegant in his style, and acute in the conception and distribution of his matter. He held many civil and military offices; was made consul 69 B. C.; was Cicero's colleague as augur; and D., immensely rich, B. C. His works are unfortunately lost. — His daughter Hortensia inherited his eloquence, and when the Roman women were required to render an oath on account of their property, she pleaded the cause of her sex with such force, that the decree was annulled.

Hor'ticultor, *n.* [From *hortus*, garden, and *cultor*, cultivator.] A person who cultivates a garden.

Horticult'ural, *a.* Relating or pertaining to garden-culture.

Hor'ticulture, *n.* [Fr., from Lat. *hortus*, garden, and *colo*, I till.] In its most extensive signification, the cultivation of esculent vegetables, fruits, and ornamental plants, and the formation and management of rural scenery for the purposes of utility and embellishment. The principles upon which the art of *H.* depends are borrowed from the general sciences. For the facts and theories of vegetable physiology it is indebted to botany; for assistance in regard to the nature of soils and manures, to chemistry; and for a knowledge of many circumstances affecting garden-labor, to meteorology. Until lately, *H.* was practised and treated superficially,—hence it advanced slowly. But in recent times it has progressed rapidly, since it has been placed on a strictly scientific basis; and a close adherence to the laws of vegetable physiology has taken the place of the prejudices of former times. In the article GARDENING will be found a history of that branch of rural economy, considered as an art of design and taste. In this article the three great divisions of *H.* — fruit, kitchen, and flower garden—will be more particularly alluded to. In many works on *H.*, fruits and culinary vegetables are treated as inseparable; but it is best in practice, especially where high culture is attempted, to keep the kitchen-garden distinct from the fruit-garden. This systematic arrangement, however, applies more particularly to large establishments, where order and system are leading features. In forming gardens of this sort, great attention is required to the size and situation. Ground having a gentle inclination towards the S. is considered very desirable. On such a slope the greatest possible benefit is derived from the sun's rays, and the process of draining is easily effected. Shelter is another object especially necessary. Either natural rising grounds, or masses of trees, supply the shelter required; but the latter should not be nearer than 150 or 200 feet. The purpose of such screens is to break the force of the winds. Water is one of the most important elements in vegetation, and it is "the life and soul of a garden." In form, gardens are generally either square or oblong, and ought to be protected by an outer boundary, formed by a sunk wall or ha-ha, surrounded by a hedge and low wire fence on its inner side. Peaches, apricots, hardy grapes, and most of the delicate French and Flemish pears, require walls for their protection in the N. regions. Walls facing the S. are set apart for the more tender kinds of fruit-trees, while the E. and W. walls are set apart for fruits of a more hardy character. These walls are made either of brick or stone, but brick is preferable on account of its more perfect adaptation to fruit-trees. A considerable portion of the wall facing the south is usually covered in with glazed structures, called hot-houses or forcing-houses. (See FORCING, HOT-HOUSE.) In many cases, the houses for ornamental plants are attached to these; but their position is properly in the flower-garden. The principal operations in the fruit-garden are propagation, planting, training, and protection of the blossom. Fruit-trees are propagated by seed, by layers, by grafting, and by budding. The process of laying is not much used in *H.*; but is occasionally employed as the means of dwarfing trees. It is thus described by Lindley: "Laying is nothing but striking from cuttings, which are still allowed to maintain their connection with the mother-plant by means of a portion at least of their stem." Apple and pear trees, and sometimes plum and cherry trees, are propagated by grafting. (See GRAFTING.) Most kinds of fruit-trees may be propagated by budding. The process consists in removing a portion of the bark from one tree and inserting it in a slit of the bark of another tree. A strong shoot is thrown out in the next spring, and to this the stock is headed down in the course of the summer. There are several other important divisions of this branch of *H.*; namely, the planting of fruit-trees, and the training of standard and wall trees, and, lastly, the culture of fruits. Although the fruit and kitchen gardens afford the most useful occupation to the horticulturist, the cultivation of flowers affords the most pleasing. At first, it is probable that flowers were confined to small portions, or borders in a garden, as is still the case in many old places. But with the advancement of the art, separate departments have been allotted to them, under the name of flower-gardens. Two varieties of flower-gardens have prevailed in England: one in which the ground is turf, with a variety of patterns cut out of it, and planted with flowers and shrubs; and another where the flower-beds are separated by gravel walks, without any turf. Flower-gardens being objects of pleasure, taste must be the guide in laying them out. In all ages, flowers have been universally cherished. The ancients paid particular attention to them, and they were in great request at the entertainments of the wealthy. They were scattered before the triumphal cars of conquerors, and formed the distinguishing symbol of many of the deities. "Who does not love flowers? They embellish our gardens; they give a more brilliant lustre to our festivals; they are the interpreters of our affections: they are the testimonial of our gratitude; they are often necessary to the pomp of our religious ceremonies; and they seem to associate and mingle their perfumes with the purity of our prayers, and the homage which we address to the Almighty. Happy are those who love and cultivate them." We are told that Descartes prosecuted, with equal ardor, astronomy and the culture of flowers. The great Condé devoted his leisure hours to that delightful pursuit; and the vase of flowers was daily renewed upon the table of Lord Bacon, while composing the volumes of his sublime philosophy. In the cities of Europe, flower-markets, for the sale of bouquets and ornamental plants, are as common as those for fruits. Holland has been distinguished, since the period of the crusades, for her flower-gardens, culinary vegetables, and plantations of fruit-trees. The north of Europe and the U. States are still dependent upon her florists for the most splendid varieties of bulbous rooted plants. From St. Petersburg to the shores of the Mediterranean, *H.* has made a rapid progress, and each nation is emulous to perfect its culture, in accordance with the most improved principles of science, art, and taste. In the United States, a like spirit has been more recently developed. Horticultural societies have been instituted in New York, Philadelphia, Boston, Albany, Geneva, and in many other towns, and a zealous disposition evinced to compete with the nations of the eastern continent.

Horticult'urist, *n.* One who is skilled in the art of cultivating gardens.

Hor'ton, a seaport-town of Nova Scotia, co. King's, on an arm of Minas Basin, opposite of Cornwallis.

Hor'ton, in *Kansas*, a thriving city of Brown co., 13 m. S. of Hiawatha, on the C., R. I. & P. R.R., whose shops are here located. *Pop.* (1895) 3,157

Horto'na, in *Wisconsin*, a village of Outagamie co.

Hor'tonite, *n.* (*Min.*) A steatitic variety of PYROXENE (*q. v.*), found in Orange co., N. Y.

Hor'ton's, in *Pennsylvania*, a post-vill. of Indiana co.
Hor'tonville, in *Vermont*, a post-vill. of Rutland co.
Hor'tonville, in *Wisconsin*, a post-village of Outagamie co., abt. 16 m. W.N.W. of Appleton.
Hort'ulan, *a.* [Lat. *hortulanus*; Sp. *hortolano.*] Belonging or having reference to a garden; as, a "*hortulan* calendar."
Hor'tus Sic'cus, *n.* [Lat., dry garden. An HERBARIUM, *q. v.*
Ho'rus, (*My.h.*) an Egyptian deity, whose name, *Har*, means "the day," or "the sun's path," and is generally written in hieroglyphics by the sparrow-hawk, which was sacred to him. The old derivation from the Hebrew *aur*, light, is now recognized as incorrect. Under the name of Horus were included several deities, as *Haroeris*, the elder Horus, and *Harpocrates*, q. v., or the younger Horus: *Har-sam-ta*, Horus, the uniter of the upper and lower world, who was the second son of Athor, resided in Annu, Heliopolis, and emanated from the eye of the sun; and *Har-net-ta*, another form of the same god, represented as a boy wearing a triple crown, who existed from the commencement of things, a self-created being, and emanated from the *Nu*, or firmament; besides several others. But the principal Horus was *H.* the son of Isis (*Har-si-hesi*), represented as a naked child standing wearing a skullcap, or the crown of Upper and Lower Egypt. When he reached manhood, he attacked his enemy Typhon, the god of darkness, and avenged on him the death of his father. (See OSIRIS.) He afterwards travelled through Egypt, introducing everywhere civilization and the arts. His career greatly resembles that of the Apollo of the Greeks.
Hosan'na, *n.*; *pl.* HOSANNAS. [Heb., "Save, I beseech thee," — from *yasagh*, to be rich, to be opulent; in one form, to deliver, to help.] An exclamatory utterance of praise to God, or an invocation of benedictions. This Hebrew word occurs only once in the Old Testament, viz. Psalm cxviii. 25. This psalm is the last of those which compose the *great Hallel*. It was commonly adopted in the Christian Church.

"Through the vast of heav'n it sounded . . . *hosanna* to the Highest." — *Milton.*

Hose, (*hōz*,) *n.*; *pl.* HOSE, old form HOSEN, (*hōz'n.*) [Dan. *hose*; Ger. *hosen*; O. Ger. and Icel. *hosa*; W. *hosan*, from *heus*, a covering.] A covering for the thighs and legs; close-fitting breeches or trowsers formerly worn, extending from the loins to the knees.

"His *hose*, a world too wide for his shrunk shanks." — *Shaks.*

—A close-fitting covering for the legs, including the feet; stockings; socks.

"Will she thy linen wash, or *hosen* darn?" — *Dryden.*

(*Printing.*) An apparatus consisting of upright irons with screws at each end for tightening or loosening the platen cords of a printing-press.
Hose'a, (*Script.*) The first of the twelve minor prophets as arranged in the Bible. He prophesied for a long time, from Uzziah to Hezekiah, about 785–725 B. C. The *Book of Hosea* contains properly two parts. The first three chapters contain a series of symbolical actions directed against the idolatries of Israel. The remaining chapters are chiefly occupied with denunciation against Israel, and especially Samaria, for the worship of idols which prevailed there. Hosea's warnings are mingled with tender and pathetic expostulations. His style is obscure, and it is difficult to fix the periods or the divisions of his various predictions. He shows a joyful faith in the coming Redeemer, and is several times quoted in the New Testament, (*Matt.* ix. 13; *Rom.* ix. 25, 26; I *Pet.* ii. 10.)
Hose'-hooks, *n. pl.* (*Printing.*) Four iron hooks at the bottom corners of the hose, to which the platen is tied.
Ho'sensack, in *Pennsylvania*, a post-vill. of Lehigh co.
Hose'-man, *n.* One who carries the hose-pipe of a fire-engine.
Hose'-pipe, *n.* In locomotive-engines, an elastic pipe or tube made of vulcanized gutta-percha, or of canvas saturated with a solution of india-rubber, sometimes galvanized, and forming a good elastic connection between the engine and tender feed-pipes. They are now generally used in preference to ball-and-socket connections for conveying the stream to the tender. Also, the flexible tube attached to a fire-engine, for conveying water or steam to extinguish a conflagration.
Hoshe'a, the last king of Israel, the successor of Pekah, whom he slew, (2 *Kings* xv. 30,) B. C. 730. He reigned nine years, and was then carried away captive by Shalmaneser, B. C. 721.
Hoshungabad, a town of Central India, on the Nerbudda, Lat. 22° 44′ N., Lon. 77° 44′ E.
Hosier, (*hō'zher,*) *n.* One who deals in knitted or woven goods, as stockings, socks, nmffetees, &c.

"As arrant a Cockney as any *hosier* in Cheapside." — *Swift.*

Ho'siery, *n.* The business or calling of a hosier. — Stockings and hose in general; socks; knitted or woven goods, as comforts, mittens, &c.
Hos'kinsville, in *Ohio*, a village of Morgan co., abt. 90 m. E. by S. of Columbus.
Hos'mer, HARRIET, a distinguished American sculptor, B. in Watertown, Mass., in 1831. Early imbued with a decided inclination for art, she, in 1852, proceeded to Rome, where she entered the studio of the celebrated John Gibson, (*q. v.*) Making considerable progress in sculptural art, she executed for the city of St. Louis a statue of *Oënone*, and a *Beatrice Cenci*. In 1855 her *Puck* was purchased by the Prince of Wales, a copy of the same statue being executed for the Duke of Hamilton. In the latter part of 1859, she finished her most ambitious performance, a statue of colossal size, representing *Zenobia in Chains*, which has been pronounced her chef-d'œuvre. Miss *H.* continues to reside in the Eternal City.
Hospice, (*hōs'pēz,*) *n.* [Fr., from Lat. *hospitium*, a place of entertainment for strangers.] A place of refuge or entertainment for travellers in some wild or desolate country; especially, a convent in the Alps, kept by monks, who receive and hospitably care for wayfarers. The great St. Bernard hospice was founded on the Alps by Bernard de Menthon, a Savoyard nobleman, in 962, and the St. Gothard hospice in the 13th century.
Hos'pitable, *a.* [O. Fr., from Lat. *hospitalis* — *hospes, hospitis*, a stranger who is treated as a guest.] Relating to a host or guest; receiving and entertaining strangers kindly, and without recompense; welcoming strangers and visitors; wishful to treat guests with hearty and generous kindness and liberality; as, a *hospitable* man. —Manifesting generous kindness; proceeding or indicating a spirit of hearty welcome; inviting to strangers; indicating hospitality and cordial reception; as, a *hospitable* table.

"She turns . . . on *hospitable* thoughts intent." — *Milton.*

Hos'pitably, *adv.* With kindness to strangers or guests; with welcome provision of liberal entertainment; in a hospitable manner.

"*Hospitably* live, and strangers with good cheer receive."—*Prior.*

Hos'pital, *n.* [Lat. *hospitalis*, an apartment for strangers.] A place built for the reception of the sick, or support of the poor. The *H.* of the United States, which are now very numerous in the large cities, are either endowed, or supported by voluntary contributions, and have at their command the best medical and surgical talent in the country. Each *H.* has two or more resident physicians, and an attending or consulting staff of eminent physicians and surgeons who give their time and services *gratuitously*. In every institution intended for the relief of the sick, there are a certain number of free beds, but persons who are able to afford it are usually charged a small sum for their board. *H.* construction has been greatly improved within the past twenty years. The old-fashioned and very objectionable plan of building upon three or four sides of a square, as in Guy's Hospital, London, has been abandoned, and more commodious and better ventilated structures have been erected in all the principal cities of the North. The *Boston Free H.*, designed by Henry G. Clark, M. D., one of the surgeons of the Massachusetts General Hospital, is a magnificent specimen of the modern style of Renaissance architecture, built on the pavilion plan with a central administrative building, and in some respects is superior to any hospital yet constructed in any part of the world. The *Penna. H.* and *Epis. H. of Philadelphia* — the last built after the plan of the celebrated Lariboisière at Paris — appear to fulfil nearly all the requirements of sanitary science, and in all that regards the comfort and hygienic condition of the patients, are not excelled by any similar establishment in Europe. Many of the charitable institutions in Great Britain and on the Continent are called *H.*, and are incorporated bodies possessed of great wealth, which is expended in the support of schools, &c.
Hospitality, *n.* [Lat. *hospitalitas*; Sp. *hospitalidad.*] State or quality of being hospitable; act of receiving and entertaining strangers or guests; practice of welcoming visitors with hearty and generous kindness.
Hos'pitaller, *n.* In its original acceptation, this name was applied to certain religious bodies, who held it their duty to provide lodging and entertainment for persons engaged in pilgrimages; — hence, in a modernized sense, one who resides in an hospital to receive and care for the destitute stranger, the disabled, or the sick.
Hos'pitallers, or ORDER OF ST. JOHN OF JERUSALEM, *n. pl.* (*Hist.*) This celebrated military order originated in a monastery, chapel, and hospital, founded at Jerusalem by some merchants of Amalphi in 1048. In 1099 the hospital received increased territories from Godfrey de Bouileon, who transferred its government from the monks to his knights. In 1113 they were confirmed as a spiritual order by Pope Pascal II. The *H.* greatly distinguished themselves in the crusades, especially at Jerusalem in 1152, and at Acre in 1191. In 1308 their order was united with that of St. Samson of Jerusalem. They conquered Rhodes, Aug. 15, 1309, and from their settlement in that island are sometimes called the *Knights of Rhodes*. Their wealth was much increased in 1311 by the addition of the possessions of the suppressed Templars, which were granted them by the Council of Vienna. In 1321 they defeated the Turks in a great naval battle, and in 1341 took Smyrna. They took Alexandria in 1365, and in 1480 compelled Mohammed II. to retreat from Rhodes, which he had besieged with 100,000 men and 160 ships. In 1484 the possessions of the dissolved orders of the Holy Sepulchre and of St. Lazarus were bestowed upon the *H.* In 1522 they were compelled to quit Rhodes by Soliman II., who besieged their garrison of 600 knights and 4,500 soldiers with a force of 140,000 men and 400 vessels, and in 1530 they were allowed to settle in Malta by the Emperor Charles V. Hence they are often spoken of as the *Knights of Malta*. The order was suppressed in England by Henry VIII., 1540, and lost all its privileges in France, Sept. 19, 1792. In 1798 it was expelled from Malta by the French, and has never recovered its political importance. They followed the rules of the Augustines, and wore (Fig. 1322) a black habit with a white cross embroidered upon it.



Fig. 1322.
KNIGHT-HOSPITALLER.

Hospitium, (*hos-pish'e-ŭm,*) *n.* [Lat.] See HOSPICE. (*Law.*) An inn; an hotel; an hostel; a place of public entertainment for travellers.
Hos'podar, *n.* [Slav. *gospodin.*] The title assumed by the princes of Moldavia and Wallachia, who are invested with the authority of the Ottoman Porte, whose lieutenants they are. The Porte also gives them a standard, and they are under her protection, and obliged to serve her. She can depose them at any time she likes; but in other respects they are esteemed as sovereigns in their own dominions. By the treaty between Russia and Turkey, in 1829, these officers were appointed to hold their appointment for life, and are obliged to pay a fixed annual tribute to the Porte. The present government of both the principalities of Moldavia and Wallachia is vested in one *H.* alone. In consequence of some difficulties which arose with Turkey in 1861-62, these principalities may be now deemed almost independent.
Host, *n.* [O. Fr. *hoste*; Fr. *hôte*, from Lat. *hospes, hospitis.*] One who entertains a stranger or guest at his own house without reward; an innkeeper: a landlord; — opposed to *guest*.

"Good mine *host* o' the Garter, a word with you." *Shaks.*

Host, *n.* [O. Fr. *host*: Norm. *houst*; Sp. *huéste*: L. Lat. *hostis*, an army, a camp, a warlike expedition, from Lat. *hostis*, an enemy, a foreign enemy in arms.] An enemy in arms; an army; a number of men organized into a warlike body.

"A *host* so great as covered all the field."—*Dryden.*

—Any great multitude; a myriad; a vast assemblage; as, a *host* of people.

"Hesperus, that led the starry *host*."—*Milton.*

Host, *n.* [Lat. *hostia*, from *hostio*, to strike, as a victim.] (*Theol.*) The consecrated bread or wafer used by the Roman Catholic Church in her celebration of the eucharist. It is unleavened, thin, flat, and of circular form, and has certain mystic signs impressed on its surface. The host is supposed after being blessed to be no longer bread and wine, but to be transformed into the real body and blood of Christ. (See TRANSUBSTANTIATION.) In all Catholic countries, the elevation of the host is a ceremony which is generally adopted at certain times and seasons, when the consecrated wafer is raised aloft and carried in procession through the churches and streets of the city, the people falling on their knees and worshipping it in its passage past them. This custom is said to have originated in the 12th century, when it was thought necessary to make this public and conspicuous declaration of the eucharist, on the occasion of Berengarius (*q. v.*) promulgating his opinions against transubstantiation.
Host, in *Pennsylvania*, a post-office of Berks co.
Hostage, (*hōst'āj,*) *n.* [O. Fr.; Fr. *otage*; L. Lat. *hostagius*, from Lat. *hostis*, an enemy, because hostages were exacted from a conquered enemy.] A pledge or surety, — particularly, a person to an enemy or hostile power, as a pledge to secure the performance of certain conditions or stipulations, as of a treaty.
Hoste, (*os'ta,*) an island of Terra del Fuego: Lat. 55° 40′ S., Lon. 68° W.; *area*, abt. 4,500 sq. m.
Hostel', Hos'telry, *n.* An inn; a tavern; a place of entertainment and rest for travellers. (O.)
Hos'teller, *n.* The keeper of a hostelry or inn; a landlord; a host. (O.)
Host'ess, *n.* A female host; a woman who receives and entertains guests; a cateress for travellers; a woman who keeps an inn; a landlady.

"He chuck'd the buxom *hostess* 'neath the chin, and buss'd her." *D'Urfey.*

Host'essship, *n.* Character or vocation of a hostess.
Hos'tile, *a.* [Fr.; Lat. *hostilis*, from *hostis*, enemy.] Belonging to a public enemy; designating enmity, — particularly public antagonism, or a state of war; warlike: inimical; contrary; adverse; unfriendly; repugnant; as, a *hostile* army, a *hostile* nation, *hostile* intentions or preparations.
Hos'tilely, *adv.* In a hostile or adverse manner.
Hostil'ity, *n.* State or quality of being hostile; state of war between nations or states; public or private enmity or antagonism: animosity; opposition; repugnance. — Act of an open enemy; hostile attack; warlike deed; — used generally in the plural.

"We have carried on even our *hostilities* with humanity."*Atterbury.*

Host'ing, *n.* A battle; a conflict; a warlike action. — A review; a muster or assembly of troops.
Hostler, (*ōs'ler.*) *n.* [O Fr. *hostelier*; Fr. *hôtelier*, from *hôtel*, a palace, an inn, from Lat. *hospes, hospitis*, an entertainer of guests.] Originally, an innkeeper who formerly attended to the care of his guests' horses; — in the modern sense, a man employed to take charge of horses at an inn; a stable-man; a helper; a groom. (Sometimes written *ostler.*)
Host'ry, *n.* [Sp. *hosteria*. See HOST.] A hostel; an inn. — A stable for horses. (R.)
Hot, *a.* [A. S. *hat*. See HEAT.] Having a high degree of sensible heat; very warm; burning; fiery; ardent; glowing; — opposed to *cold*; as, a *hot* fire, a *hot* dinner, *hot* water, &c. — Possessing the characteristics of heat; ardent in temper; easily excited or incensed; vehement; highly vehement; violent; eager; furious; as, *hot* blood, a *hot* temper, a *hot* engagement.

"Achilles is impatient, *hot*, revengeful."—*Dryden.*

—Lustful; lewd; lascivious; lecherous; amorous. — Acrid; piquant; pungent; poignant; biting; stimulating; as, *hot* as pepper.

Hot'-bed, *n.* (*Gardening.*) A garden-bed of earth and horse-dung, covered with glass (Fig. 1323) to produce

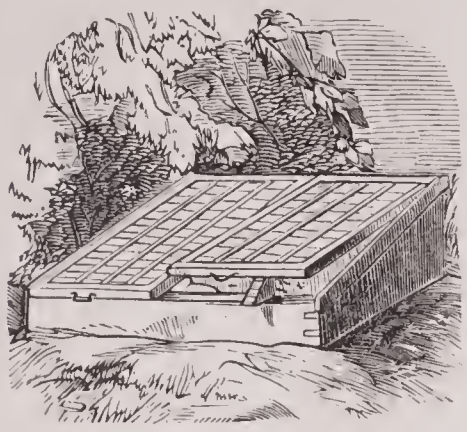


Fig. 1323. — HOT-BED.

and promote warmth, for rearing tender plants. Hence any place which favors forced growth or precocious development; as, a *hot-bed* of sedition.

Hot Blast, *n.* When the stream of air forced through a furnace is heated to 500° or 600°, it is called a *H. B.* The combustible gases from the stack are generally used to heat the air. For this purpose a kind of oven is built near the top of the stack, surmounted by a kind of chimney which draws off a portion of the inflamed gas. In this oven is a series of pipes through which the air is forced before it enters the stack. The *H. B.* effects a saving of heat, and accomplishes the reduction of the most refractory ores in less time and with a less expenditure of fuel than the cold blast. As the fusing metal is brought in contact with less fuel, and as less air is passed through the furnace, the chemical reactions are probably somewhat modified, but it is thought the quality of the product is not injured.

Hot'-blooded, *a.* Having hot blood; ardent; impetuous; highly excitable in temper or disposition; high-spirited; irritable; choleric.

"Now the *hot-blooded* gods assist me! remember, Jove, thou wast a bull for thy Europa."—*Shaks.*

Hot'-brained, *a.* Vehement; rash; precipitate; impulsive; ardent in temper.

Hoteh'kiss' Shot, *n.* (*Gun.*) See SHOT.

Hotch'kissville, in *Connecticut*, a post-village of Litchfield co., about 42 m. W. by S. of Hartford.

Hotch'pot, Hotch'potch, *n.* [Fr. *hochepot* — probably from *hocher*, to shake, and *pot*, a pot or dish; D. *hutspot*, from *hutselen*, to jumble together.] A mixture of various things shaken together in the same pot; a medley; a jumble; a hodge-podge; a pot-pourri; an olla podrida.

(*Law.*) The blending and mixing property belonging to different persons, in order to divide it equally.

Hot'-cockles, (*-kŏk-lz,*) *n.* [Eng. *hot* and *cockle.*] (*Games.*) A pastime of children, in which one covers his eyes and guesses who strikes him.

"As at *hot-cockles* once I laid me down."—*Gay.*

Hotel, (*o-tĕl',*) *n.* [O. Fr. *hostel:* Fr. *hôtel*, from Lat. *hospitalis*, a guest; *hospitalia*, guest-chambers.] A superior house of public entertainment for travellers or temporary sojourners; an inn. — In France, the palace or town-house of a nobleman, or person of high rank or great wealth; as, the *Hôtel* de Soynes. In another sense it is nearly synonymous with the term hospital, and is applied to buildings set apart for the reception of sick and infirm paupers; as, the *Hôtel*-Dieu, *Hôtel* des Invalides.

Hôtel-de-Ville, (*o-tĕl'dŭ-veel,*) *n.* In France, a city-hall; a town-hall; a building forming the head-quarters of a municipal body or corporation; as, the *Hôtel-de-ville de Paris* (Fig. 1060).

Hôtel-Dieu, (*o-tĕl-de-ū',*) *n.* In France, the name given to a hospital.

Hot'-flue, *n.* A room heated by hot-air pipes, in which printed calicoes are dried.

Hot'-headed, *a.* Of ardent or impetuous passions; impulsive; vehement; rash; hair-brained; violent; as, "*hot-headed*, hair-brained coxcomb."—*Arbuthnot.*

Hot'-house, *n.* (*Gardening.*) A building constructed in a garden, or elsewhere, and warmed by artificial means, for the purpose of rearing exotics and other tender plants, which require more heat than our climate affords. Mr. Loudon, in his "Encyclopædia of Gardening," observes, — "The imitation of warm climates by hot-houses must not be confounded with the art of forcing the vegetables of temperate climates into the premature production of their flowers and fruits. The former was the first object for which hot-houses were erected; and conservatories, green-houses, and plant-stoves existed before any description of forcing-houses; even pineries are of subsequent introduction to botanic and ornamental hot-houses. The various climates and constitutions of plants require atmospheres of different degrees of temperature and moisture." The three great principles on which the construction of hot-houses naturally depends, are *heat*, *moisture*, and *light*. With regard to the first consideration, heat, the structure must provide enough of this article to raise the internal temperature of the building from that of the lowest degree of the exterior atmosphere of this climate to that of the highest which prevails for any length of time in the country of which the plants to be introduced are natives. Moisture, to arrive at our second consideration, is more difficult to maintain in the hot-house than heat, and it is vitally necessary to the plants that an adequate supply of it should at all times be present in the atmosphere of the building. It follows, therefore, that that mode of heating is best which admits of the greatest quantity of vapor remaining uncondensed in the atmosphere of the hot-house. Thirdly, light cannot be admitted too copiously into these structures, and the transparent medium through which it enters should be such as reflects the greatest proportion of the sun's rays, which impinge obliquely on its surface. Hot water has now superseded the old method of heating by dry flues, and by this improvement the distribution of heat can be better regulated, and the uniformity of temperature better maintained, than by any other means. Ventilation should also be provided for in hot-houses, that it may be sufficiently effective in preventing excess of



Fig. 1324. — HOT-HOUSE.

heat, while, at the same time, it is perfectly at command, so as to be employed, when requisite, in the most limited degree.

Hot'-livered, (*-liv'erd,*) *a.* Of an excitable, irascible, or choleric temperament; as, a *hot-livered* man.

Hot'ly, *adv.* With heat; ardently; impetuously; vehemently; violently; as, the election was *hotly* contested. — Lustfully; salaciously.

Hot'-mouthed, *a.* Headstrong; ungovernable; intractable.

Hot'ness, *n.* State of being hot or heated; sensible heat beyond a moderate degree of warmth. — Heat of the temper or disposition; vehemence; choler; violence; fury.

Hot'-press, *v. a.* To press between hot plates, &c., in order to impart a smooth, glossy surface; as, to *hot-press* paper, cloth, &c.

Hot'-pressed, (*-prĕst,*) *a.* Pressed while undergoing the application of heat, for the purpose of imparting a smooth and shining surface; as, *hot-pressed* paper.

Hot'-pressing, *n.* (*Printing.*) A method of giving a glossy appearance to printed paper. The sheets are placed between glazed or milled boards to a thickness together of about 5 inches, and laid on two cold iron plates at the bottom of an hydraulic or screw press, then a cold plate, a hot plate, another cold plate, a further supply of sheets between glazed boards, and so on till the press is full. The latter is then pumped up, or screwed down with a powerful lever, and left for a short time.

Hot'-short, *a.* More or less brittle while in a heated state; as, *hot-short* iron.

Hot Shot, *n.* (*Gunnery.*) Common shot heated in a furnace, and fired against shipping and other combustible material. When shot are heated, it is necessary to reduce the charge of powder.

Hot'-spirited, *a.* High-spirited; fiery; impetuous; choleric.

Hot Springs, in *Arkansas*, a S.W. central county, *area*, about 626 sq. m. *Rivers.* Saline and Washita rivers, besides some smaller streams. *Surface*, diversified; *soil*, fertile. *Min.* Magnetic iron in such abundance, it is said that some districts cannot be surveyed with a compass. There are also numerous springs in this county, and large quarries of oil-stone have been opened. *Cap.* Malvern. *Pop.* (1890) 11,603.

Hot Springs, in *Arkansas*, a city, cap. of Garland co., 56 m. W.S.W. of Little Rock, on the Hot Springs R. R. Celebrated for its wonderful curative springs; has some manufactures. *Pop.* (1897) about 8,300.

Hot Springs, in *South Dakota*, a post-village, cap. of Fall River co., in the Black Hills, on two railroad lines. Here is a Soldiers' Home. *Pop.* (1895) 1,642.

Hot Springs, in *Virginia*, a post-village of Bath co., about 175 m. W. N.W. of Richmond.

Hot'spur, *a.* Vehement; fiery; irascible; rashly impulsive.

—*n.* A rash, violent, precipitate, ungovernable man, who acts as if urging on his steed with fiery spurs.

—A kind of pea that comes early to maturity.

Hot'spurred, (*-spŭrd,*) *a.* Heady; rash; violent; unmanageable.

Hot'-tempered, *a.* Hot-blooded; irascible; irritable; choleric; of a fiery, wrathful temper; as, a *hot-tempered* vixen.

Hot'tentots, *n. pl.* [Etymol. unknown.] A people of S. Africa, the original inhabitants of the territory now occupied by the British colony of the Cape of Good Hope. This country extends eastward along the sea-coast to the territory of the Kaffirs, and is bounded N. by the Orange River, which separates them from the Beehuanas and Damaras. The people call themselves *Quiquae.* Neither in color nor general aspect do the *H.* resemble the dark races around them. Their complexion is sallow, and much like that of a very dark person suffering from the jaundice. Indeed, the complexion of the *H.* much resembles that of the Chinese, and the general similarity between them is very remarkable. The person of the *H.*, when young, is remarkable for its symmetry. The joints and extremities are small, and the males look almost as effeminate as the women (Fig. 1325.) The face, however, is in general extremely ugly, and with age this ugliness increases. Sir John Barrow, in describing the Hottentot women, observes of them that before child-bearing they are models of proportion, every joint and limb rounded and well turned, their hands and feet small and delicate, and their gait by no means deficient in grace. "Their charms, however, are very fleeting. At an early period of life, and immediately after the first child, their breasts begin to grow loose and flaccid, and as old age approaches, become distended to an enormous size; the belly protrudes; and the hinder part swelling out to incredible dimensions, give to the spine a degree of curvature inwards that makes it appear as if the *os coccygis*, or bone at the lower extremity of the spine, was elongated and bent outwards, which is not the case." The appearance of the Bosjesmans (*q. v.*), who are the most degraded tribe of the *H.*, is still more revolting. The language of the *H.* is quite as singular as their personal appearance. It has been called "the *click* language," and has also been compared to the clucking of a hen when she has laid an egg. The *H.* live in kraals or villages, consisting of a number of circular huts like bee-hives. They have both oxen and sheep, in the management of which they show great skill. They are also addicted to the chase, in which they use poisoned arrows, javelins, and spears. Of religion there appears to be but very little notion among the *H.*, and they have no particular observances at either births, marriages, or funerals. Dr. Prichard, however, observes of them: "Although the wild tribes of the *H.* race display ferocity and all the other vices of savage life, yet we have abundant proof that these people are not insusceptible of the blessings of civilization and Christianity. No uncultivated people appear to have received the instructions of the Moravian missionaries more readily than the *H.*, or to have been more fully reclaimed and Christianized." Capt. Wilkes of the U. S. exploring expedition, who visited Cape Town in 1842, says, "that in the Colony the *H.* do not bear a very high character for honesty and faithfulness. They are deemed an improvident race, though there are some instances of their showing great attachment to individuals who have treated them well." Their number is variously stated from 10,000 to 30,000.



Fig. 1325. — YOUNG HOTTENTOT.

Hot'tentots' Bread, *n.* (*Bot.*) See TAMUS.

Hotto'nia, *n.* [In honor of *Peter Hotton*, professor at the University of Leyden, D. 1709.] (*Bot.*) A genus of plants, order *Primulaceæ*. They are fleshy, aquatic perennial herbs, with pectinate-pinnatifid, submersed, radical leaves. *H. inflata*, the Water-Feather, is found in swamps and stagnant waters along the Atlantic States, from Massachusetts to Florida.

Hot'-wall, *n.* (*Gardening.*) A wall for the growth of fruit-trees, which is built with a flue or other contrivance for being heated in severe weather, so as to facilitate the ripening of the wood or the maturation of the fruit. The most common form of *H.* is that in which flues or tunnels are conducted through them, into which the smoke and heated air from fires are made to ascend from a furnace at the bottom of the wall to a chimney on the top; but in some cases *H.* are formed by constructing the entire wall hollow, tying the two sides together by cross-stones or bricks, and introducing heat by means of metal pipes containing steam or hot water along the bottom of the vacuity, the heat of which rises to the top of the wall, and heats every part in its progress.

Hot'-well, *n.* (*Mach.*) The reservoir for the water pumped out of the condenser of a steam-engine by the air-pump.

Hou'dah, *n.* See HOWDAH.

Houdon, (*hoo'dawng,*) a French sculptor, B. at Versailles, 1741, when, after studying in Italy, he returned to Paris, and executed the busts of Voltaire, Rousseau, Molière, Franklin, Buffon, Catharine II., &c. He became, in 1778, member and professor of the Academy of Fine Arts. He was invited to America to carve the statue

of Washington, which now stands in the State House at Richmond, and is the most authentic likeness of our great statesman. *H.* died at Paris, 1828.

Hough, (*hŏk,*) *n.* [A. S. *hoh*, a heel, hough, ham; Ger. *hacke*, a heel; Icel. *hökt*, a limping.] The heel; the ham behind the knee-joint, in quadrupeds; the lower part of the thigh, in man.

—*v. a.* To hamstring; to cut the sinews of the ham.

Hough'ite, *n.* (*Min.*) Hydrotalcite (*q. v.*), from St. Lawreuce couuty, N. Y., formed from the alteratiou of spinel.

Hough'ton, in *Iowa*, a post-office of Lee co.

Houghton (*hō'ton*), in *Michigan*, a N.W. co. of the upper peninsula, washed on the E. and N.W. sides by Lake Michigan; *area*, about 1,000 sq. m. *Rivers.* Sturgeon river, and numerous smaller streams. The N.E. coast is deeply indented by Kewceuaw Bay. *Surface*, uneven; *soil*, fertile. *Min.* Silver, copper and iron. *Cap.* Houghton. *Pop.* (1894) 44,174.

—A mining town, cap. of above county, on Portage Lake, with ship canal to Lake Superior, 1 m. from Hancock. Has 2 R.R. lines; here are rich copper mines. *Pop.* (1894) 2,178.

Houghton, in *New York*, a post-village of Allegany co.

Hough'tonville, in *Vermont*, a post-office of Windham co.

Houlton (*hōl'ton*), in *Maine*, a post-town and township, cap. of Aroostook co, about 190 m. N.E. of Augusta. *Pop.* (1897) about 4,120.

Houma (*hoo'ma*), in *Louisiana*, a post-town, cap. of Terre Boune parish, on Bayou Terre Bonne, and So. Pac. R.R., 70 m. W.S.W. of New Orleans. *Pop.* (1890) 1,280.

Hound, *n.* [A.S., Ger., D., and Swed. *hund;* Dan. *hond;* Goth. *hunds:* Esth. *hunt*, a wolf; Lat. *canis;* Gr. *kwōn;* W. *cwn;* Chin. *kiuun*, a dog.] Originally, a generic name for dogs, now applied to a dog employed in hunting or in the chase, and which effects its object by the sense of smell; as, a fox-*hound*, a stag-*hound*, a blood-*hound*, a grey*hound*, q. v. under their different names. The characteristic of a hound is its long pendulous ears.

—*pl.* In England, a term generally used as a contraction for *fox-hounds;* as, a pack of *hounds*, to ride to *hounds*, a master of *hounds*, &c.

—*pl.* (*Naut.*) The projecting parts of the sides of a mast, near its head, which, like shoulders, support the tops or trestle-trees.

—*v. a.* To set on in chase; to urge to pursuit of game or prey, as a hound. — To chase; to hunt; to pursue; as, "wolves *hounded* by tigers." — *L'Estrange.*

—To harry; to egg on, or incite; to urge on, as by hounds; to compel to action by persisteut demands; as, to *hound* a man on to the gallows.

Hound'-fish, *n.* (*Zoöl.*) The Dog-fish, *q. v.*

Hounds'field, in *New York*, a township of Jefferson co.

Hound's-tongue, *n.* (*Bot.*) See Cynoglossum.

Hounslow, a town of England, in Middlesex, on the Colne, on the verge of the celebrated Hounslow Heath, 9 m. of London;

Hour, (*our,*) *n.* [L. Sax. *hure;* Ger. *uhr;* Fr. *heure;* Lat. *hora;* W. *awr;* Gr. *hōra*, any limited time or period.] The twenty-fourth part of the space of time that elapses between two successive periods of midnight or midday, or the time during which the earth completes an entire revolution about its axis, and in which a complete apparent revolution of the sun through the heavens is effected. An hour, in angular measurement, is equivalent to 15 degrees of space, being the tweuty-fourth part of 360 degrees. The hour is subdivided into 60 minutes in time, and each minute into 60 seconds In this and most European countries the day is reckoned from midnight to midday 12 hours, and midday to midnight 12 hours. In Italy the day is reckoned from sunset to sunset, and the hours are counted from 1 to 24. The Chinese reckon from an hour (in our time) before midnight till the corresponding time next night 12 hours, each hour being equal to two of ours. The Japanese still follow the old custom of reckoniug from sunrise till sunset. Astronomers reckon from midday (on the previous day) to midday, counting from 1 to 24.

—The time marked or indicated by a chronometer, clock, or watch; the particular time of the day; as, what is the *hour?* — Fixed, appointed, or specified time; time or occasion; conjuncture; critical period of time.

—*pl.* (*Eccl. Hist.*) See Canonical Hours.

—*pl.* (*Myth.*) See Horæ.

To keep good hours, to be at home betimes; to return home in good season; not to be abroad late; to dispense with a latch-key.

"Our neighbour let her floor to a genteelman, who *kept good hours.*" — *Tatler.*

Hour'-angle, *n.* (*Astron.*) The angle at the pole, between the celestial meridian and the circle of declination passing through the place of the body.

Hour'-circle, *n.* (*Astron*) The meridian of any place, or auy great circle of the globe passing through the poles, is so called, because the hour of the day at any place can be ascertained, when the great circle on which the sun happens to be at that time is known.

Hour'-glass, *n.* A species of chronometer or clepsydra, measuring intervals of time by the running of water or sand from one glass into another. The quantity of sand is so proportioned as to measure different spaces of time, as an hour, half-hour, quarter, or minute; the last-meutioned being generally used at sea when "heaving the log," to ascertain the speed of the ship.

Hour'-hand, *n.* The hand which serves to index the hour on a chronometer, clock, &c.

Hou'ri, *n.* [Pers. *hûrâ*, from Ar. *hûr al oyûn*, black-eyed.] The name given by Europeans to nymphs of the Mohammedan paradise, whose compauy is to form the chief felicity of all *true believers.* From the description given iu the book on which the Mohammedan faith is grounded, it appears that the *houris* surpass both pearls and rubies in their dazzling beauty; they are subject to no impurity; are always represented with dark eyes concealed by long jet eyelashes, the languishing glances of which they reserve for the voluptuous enjoyment of "true believers" alone. They are not created of clay, like mortal women, but of pure musk, and are endowed with immortal youth, and every intellectual and corporeal charm. They dwell in green gardens, which are beautiful beyond what imagination can conceive, and they are always reclining on green cushions placed in fragrant bowers, where they await the advent of their possessors into paradise. The name houris is derived from the Arabic *hûr al oyûn*, signifying *black-eyed.* Mahomet omitted nothing to render his heaven enjoyable to his disciples; and here he followed the traditions of the Hindoo religion, among which there is one concerning the paradise, called *behisht* and *menou*, which was furnished with *hurani beshisht*, or *black-eyed nymphs*, eudowed with similar attractions to those which the houris possess.

Hour'-line, *n.* (*Astron.*) A line denoting the hour; hour-circle.

Hour'ly, *a.* Occurring or performed every hour; often repeated; frequent; continual.

—*adv.* Every hour; continually; frequently

Hour'-plate, *n.* The dial or plate of a clock, chronometer, &c., on which the hours are indicated by inscription.

Housaton'ic, in *Massachusetts*, a post-village of Berkshire co., about 120 m. S.W. of Boston.

Housaton'ic, a river which rises in Berkshire co., Massachusetts, and entering Connecticut in Litchfield co., continues a general S., S.E., and S. course to Long Island Sound, which it falls into betweeu New Haveu and Fairfield cos. *Length*, about 150 m.

House, *n.* [A.S., O. Sax., O.M.H. Ger., O. Fris., and Icel. *hus;* Ger. *haus;* D. *huis;* Dan. *huus;* allied to Lat. *casa*, and Ar. *kâsa*, to cover.] A building or edifice for the habitation of man; a dwelling-place, mansion, or abode for any of the human species; also a covering or shelter for animals of whatsoever kind. — The first form of the house, considered generally as a dwelling, may be found in the conical huts and wigwams constructed by uncivilized nations. These consist chiefly of a simple framework of sticks, tied tightly together at the top, and covered with various materials, in accordance with the climate of the country in which they are erected. When implements and tools fit for hewing and shaping timber, and working stone, had been brought into use, and men had attained a degree of semi-civilization, the buildings that they reared were most probably somewhat similar to the rude blockhouses formed by settlers in the woods, from which the transition to more durable abodes, built of brick and stone, but still of one story only in height, and covered with thatch supported on an inclined framework, would be rapid. The houses of the ancient Egyptians, and those of all Eastern nations, in the early ages of the world, consisted of a series of contiguous apartments opening into a central court, that was frequently adorned with shrubs and a fountain in the centre (Fig. 1326), aud always separated from the



Fig. 1326. — AN ANCIENT JEWISH HOUSE.

street by a high blank wall with a single door in it, for the purpose of affording the means of ingress and egress to the inmates. The walls were built of sun-dried bricks plastered over with stucco; the windows were small, the heat, rain, and wind being excluded by wooden shutters that moved on hinges; the floors were paved with stone, or formed of cement; and the roof, which was often used as a terrace on which the occupants of the building were accustomed to sit and walk in the cool of the morning and evening, and even sleep during the sultry nights of summer, was flat, being formed of tiles and earth, supported on beams of timber, and of sufficient thickness to prevent the entrance of the rain. When the house was two stories in height, the upper rooms were used as sitting-rooms and bedrooms, while the lower oues served as receptacles for grain and stores. The houses of the Greeks and Romans were built on a similar plan. In Greece, the dwelling-house was situated at the lower end of a court, which was entered from the street through a passage, on either side of which were stables and offices. It was generally two stories in height, the women occupying the upper rooms, and the men those on the ground-floor. On this floor large chambers were also formed, one of which served as a work-room for the female part of the household, and the other as a common dining-hall. Round this hall, and opening into it, were apartments which were devoted to the accommodation of guests and strangers. The general arrangement of the houses of the Romans is described under House. Roman, *q. v.* The method of construction adopted by the Greeks and Romans, the main feature of which was a central court with chambers opening into it on every side, was followed, with a few modifications, in all Europeau countries during the Middle Ages. Entrance into an inner quadrangle was afforded by a large arched gateway in one of the sides; the parlors, kitchens, and living-rooms being placed round this square court on the ground floor, and the sleeping-rooms on the floor above, all opening into a cloister, or gallery. In the houses of the mediæval period, the walls of the basement story were strongly built, to afford protection to the inmates against the attacks of robbers and personal foes. The shop and store-rooms, and sometimes the stables of the owner of the house, were to be found on this floor. The principal apartments were situated on the floor immediately above, to which access was gained by a small winding staircase, lighted by narrow windows in the wall, which could be defended by a single resolute swordsman against a score of hostile visitants. In France, Scotland, and Belgium, the houses were often many stories in height, and of great size. The roofs were high and steep, and a picturesque character was given to many of these old buildings by the peaked gables, which were often richly adorned by carved woodwork (Fig. 1124). Another peculiar feature in mediæval houses was the projection of one floor over that which was immediately below it; so that in a street in which the houses were of considerable height, the upper stories of the buildings on either side were only a few feet apart. There were no ceilings; the floors were generally dirty, even in houses that were occupied by the nobility and the higher classes; and the rooms were dark, the light being admitted through pieces of horn, or small diamond-shaped panes of ill-made glass, defective in transparency, and commonly of a greenish hue. Although the houses of Italy, Holland, Belgium, Flanders, and France, that were built during the 12th and 13th centuries, are frequently marked by great architectural beauty externally, yet little improvement was made in domestic architecture in England, especially in the interior arrangements, until the reign of Elizabeth, when the architects of the day began to construct dwelling-houses with some regard to the locality in which they were situated, and the purposes for which they were specially required, and also in accordance with the tastes, habits, and pursuits of the persons for whom they were erected. The houses of the 18th century, consisting chiefly of large square piles of red brick, pierced with numerous windows in front and at the back, with a porch over the entrance, and a heavy slated roof projecting beyond the face of the walls, and supported by a bold but simple cornice, were roomy and comfortable, if not picturesque and ornate in appearance; but those of the present age, as exemplified in our principal cities, as New York, Philadelphia, Boston, Baltimore, Chicago, Cincinnati, New Orleans, &c., combine external elegance of structure with judiciously contrived internal arrangements that tend to the comfort and conveuience of the occupants in every respect. Practical details respecting house-building and matters in immediate connection with it, are given elsewhere. — See Building, Brick-work, &c.

—A temple; a church; a monastery; as, a religious *house.*

—A household; a family circle.

"I am all the daughters of my father's *house.*" — *Shaks.*

—Manner of living; household affairs; domestic routine; concerns of housekeeping; regulation of the table; as, he keeps a good *house*, they have set up *house* together. — A family of ancestors, descendants, and kindred; a tribe: a clan; a race of persons from the same stock; lineage; as, the *house* of Brandenburg. — A body of men united in their legislative capacity; one of the estates or political bodies of a kingdom or state assembled in parliament, congress, diet, or any legislative session; as, the *House* of Commons, *House* of Representatives, the upper *house*, lower *house*, &c.

(*Games.*) In chess, a square on the board, looked upon as the rightful place of a piece.

—A house of public entertainment; an hotel; an inn; as, the Girard *House*, Philadelphia.

(*Astrol.*) The station of a planet in the heavens.

(*Com.*) A firm; a commercial establishment; a mercantile or business concern; as, the *house* of Rothschild, Sons & Co.

House of call, a tavern, or other house of public resort, where operatives assemble when unemployed, ready for any *call* upon their services: — hence, in England, a drinking-saloon, tavern, or gin-palace, frequented by its own set of customers.

House of correction, a prison; a jail; a house of detention. — *House of God*, a temple, church, or other sacred edifice. — *To bring down the house*, to elicit a general hurricane of applause from an auditory in a theatre or other place of popular entertainment; as, Garrick, in "Richard," *brought down the house.*

House, *v. a.* To shelter; to cover, as from inclement weather; to protect by placing under cover; as, to *house* cattle.

"Wit . . . like orange-trees . . . *hous'd* from snow."—*Dryden.*

—To drive to a shelter or place of refuge. — To harbor; to admit to residence.

"Mere cottagers are but *hous'd* beggars."— *Bacon.*

—To place in and cover up, as in the grave.

"He . . . now is *hous'd* in his sepulchre."— *Sandys.*

—*v. n.* To take lodgings; to occupy a place of shelter; to dwell; to reside; to take up one's abode; as, to *house* a visitor.

"To *house* with darkness and with death."— *Milton.*

—To have an astrological station in the heavens.

House'-boat, *n.* (*Naut.*) A boat covered with an awning.

House'-breaker, (*brāk'r,*) *n.* One who breaks into a house by day for the purpose of robbery, or with other felonious intent; a burglar, (when entering by *night.*)

House'-breaking, *n.* Act of, or forcibly entering a person's house with intent to plunder; when the offence is committed at night, it is termed *burglary.*

House Creek, in *Georgia*, a village of Wilcox co.

House Creek, in *North Carolina*, a P. O. of Pitt co.

—A township of Wake co.

House'-dog, *n.* A watch-dog; a dog kept to guard one's house or premises.

House'ful, *a.* As much as a house will hold.

House'hold, *n.* Those who keep together and dwell under the same roof, and compose a family.

—*a.* Belonging to the house and family; domestic.

House'holder, *n.* The master or chief of a household or family; one who keeps house with his family.

House'holds, *n. pl.* The best flour made from red-wheat, with a small portion of white-wheat mixed.

House'hold-stuff, *n.* The furniture of a house; the vessels, utensils, and goods of a family.

House'keeper, *n.* One who occupies a house with his family; a householder. — A female servant who has the chief care of the family.

House'keeping, *n.* The family state in a dwelling; care of domestic concerns.

—*a.* Domestic; useful to a family.

House'leek, *n.* (*Bot.*) See SEMPERVIVUM.

House'less, *a.* Destitute of a house or habitation; destitute of shelter.

House'line, *n.* (*Naut.*) A small cord made of three small yarns, and used for seizings.

House'maid, *n.* A female servant employed to keep a house clean, &c.

House'-pigeon, *n.* A domesticated or tame pigeon.

House of Commons, House of Lords. See PARLIAMENT.

House of Correction. See PRISON.

House of Representatives. See CONGRESS.

House, (**Ro'man,**) *n.* (*Arch.*) The houses of the poorer classes in Rome were extremely simple in structure, and plain in appearance. It is said that they were exactly the same in every respect in the later days of the empire as they were when the republic was established. They were built of earth and unbaked bricks, and were thatched with straw or reeds. They were not more than a single story in height; and an old drawing of a Roman cottage, a copy of which is given in Mazois' *Ruines de Pompéi*, represents them as being circular in form, with a wide doorway in front, and an overhanging roof not unlike a mushroom in shape. The houses of the wealthy Romans, which were built of marble, and richly adorned with paintings and sculpture, exhibited a striking contrast to the hovels of the poorer citizens —*pauperum tabernas*, as they are termed by Horace. Their general plan and character may be gathered from the houses that were discovered when excavations were made in 1755, and subsequent years, on the site of the buried city of Pompeii, which was destroyed by an eruption of Mt. Vesuvius in the year 79. A description of that which is known as the house of Pansa, which is more perfect than any other which has yet been cleared of the superincumbent mass of ashes and scoriæ, will serve to furnish some idea of the manner in which the best houses of Rome were constructed. That part of the house which faces the street is divided into a number of small shops of two stories in height, as it is supposed, which were let out for different purposes. A passage between two of the shops leads into an open court or *atrium* (q. v.), which was surrounded on all sides with a covered gallery or cloister resembling a wide veranda. The servants' chambers, a summer dining-hall or *tablinum*, and reception-rooms for the accommodation of persons who desired to see the owner of the mansion on business, are ranged round this court, which contains a tank of water in the centre. A passage by the side of the summer dining-hall leads into an inner court, also surrounded by a covered gallery, the roof of which was also supported on columns, and round which were placed the picture-gallery, the private dining-room or *triclinium*, and the private apartments of the family.

House-steward, (*-stū'ėrd,*) *n.* A domestic employed in the care and management of a family.

House's Springs, in *Missouri*, a post-village of Jefferson co., about 28 m. S.W. of St. Louis.

House'ville, in *New York*, a post-village of Lewis co., about 120 m. N.W. of Albany.

House'ville, in *Pennsylvania*, a P. O. of Centre co.

House'-warming, *n.* A feast of merry-making at the time a family enters a new house.

House'wife, *n.* The mistress of a family; a female economist; a good manager. — A little case or bag for articles of female work; — pronounced *huz'if.*

House'wifely, *a.* Pertaining to the mistress of a family; economical; frugal; thrifty.

—*adv.* With the economy of a careful housewife.

House'wifery, *n.* The business of a mistress of a family; female business in the economy of a family; female management of domestic concerns.

House'wright, *n.* A builder of houses; an architect.

Hous'ing, *n.* [Fr. *housse*, a horse-cloth.] A horse-cloth; an ornamental covering for a horse; a saddle-cloth.

—*pl.* The trappings of a horse.

(*Arch.*) The space taken out of one solid to admit the insertion of another.

(*Naut.*) A HOUSELINE (*q. v.*).

Hous'sa, Haus'sa, a former empire of Central Africa, bounded N. by the Sahara, E. by Borneo, S. by Nufi or Tappa, and W. by the Juliba. The people are negroes; and the Foolahs are the ruling race. Kareo, the chief town, is in Lat. 12° 0′ 19″ N., Lon. 80° 30′ E. The country is well watered and cultivated. It comprises the present kingdoms of Sokoto and Gondo.

Houssaye (*hūs-sā'*), ARSÈNE, a French author and art critic, born at Bruyères in 1815. After contending seven years against poverty, he became connected, in 1838, with the *Revue de Paris*, in which he commenced the publication of his *Men and Women of the Eighteenth Century*, afterwards collected in two volumes; and in 1846 he published his *History of Dutch and Flemish Painting.* On the accession of Louis Napoleon, *H.* was appointed to the direction of the Théâter Français, then at a very low ebb, into which he infused new life, and having in 1856 resigned the directorship, was succeeded by M. Empis. His most noted works were: *L'Histoire du Quarante-et-Unième Fauteuil de l'Académie Française* (1855); *Le Roi Voltaire* (1858); *Histoire de l'Art Français* (1860); *Mademoiselle Cléopatre*, and *Blanche et Marguerite* (1864). Died Feb. 26, 1896.

Hous'ton, SAM., general, governor, and ex-president of Texas, B. near Lexington, Rockbridge co., Va., 1793. His mother having settled in Blount co., Tennessee, 8 m. from the Cherokee country, *H.* absconded, taking up his abode with the Indians, with whom he lived after their own fashion for about 3 years. In 1811 he abruptly returned to his family. In 1813, during the war against Great Britain, he enlisted as a common soldier; was chosen ensign, and fought under Jackson with a courage that won his lasting friendship. In 1823 he was chosen member of Congress, and in 1827 governor of Tennessee. In January, 1829, he married the daughter of an ex-governor; and in the following April, for reasons never made public, abandoned wife, country, and civilization, was adopted as a son by the chief of the Cherokee nation, and was formally admitted as a chief. In 1832 he went to Washington, and procured the removal of several United States Indian agents, on charges of fraud, but got into personal difficulties with their friends. The Texan war offered a new field to his ambition. *H.* was made commander-in-chief. The Americans at first sustained some severe defeats, and *H.* was obliged to retreat before the Mexicans under Santa-Anna for nearly 300 m., but suddenly turning on his pursuers, *H.* fought the remarkable and decisive battle of San Jacinto, 21st April, 1836, at one blow annihilated the Mexican army, and achieved the independence of Texas. The hero of San Jacinto was elected first president of Texas, and re-elected in 1841; and on the annexation of Texas to the U. S., in 1845, he was sent to the national senate, where he remained until 1859, when he retired, and was elected governor of Texas. He opposed secession, but retired into private life when he found that opposition was fruitless. D. 1863.

Hous'ton, in *Arkansas*, a post-village of Winston co.

Houston, in *Delaware*, a post-office of Perry co.

Houston, in *Georgia*, a central co.; *area*, about 570 sq. m. *Rivers.* Ocmulgee river, and Echaconnee, Big Indian, Lumpkin's, Mossy, and Sandy Run creeks. *Surface*, level; *soil*, very fertile. *Cap.* Perry. *Pop.* 21,613.

—A post-village of Heard co., 9 m. S.W. of Franklin.

Houston, in *Florida*, a post-village of Suwannee co., about 78 m. W. of Jacksonville.

Houston, in *Illinois*, a township of Adams co.

—A post-village of Randolph co.

Houston, in *Indiana*, a post-village of Jackson co., about 15 m. N. W. of Brownstown.

Houston, in *Ind. Ter.*, a P. O. of Choctaw Nation.

Houston, in *Kansas.* See MANHATTAN.

Houston, in *Minnesota*, an extreme S. E. co., adjoining Iowa and Wisconsin; *area*, about 565 sq. m. *Rivers.* Mississippi, Houston, and Root rivers. *Surface*, undulating; *soil*, fertile. *Cap.* Caledonia. *Pop.* (1895) 15,556.

—A post-town of Houston co.

Houston, in *Mississippi*, a post-town, cap. of Chickasaw co., on the Oktibbeha creek, about 850 m. N. N. E. of Jackson. *Pop.* (1897) about 900.

Houston, in *Missouri*, a post-village, cap. of Texas co., about 100 m. S. of Jefferson city.

Houston, in *Nebraska*, a post-office of York co.

Houston, in *Ohio*, a post-village of Shelby co.

Houston, in *Pennsylvania*, a village of Allegheny co.

Houston, in *South Dakota*, a post-office of Presho co.

Houston, in *Tennessee*, a post-office of Wayne co., about 110 m. S. W. of Nashville.

Houston, in *Texas*, an E. co.; *area*, about 1,200 sq. m. *Rivers.* Neches and Trinity rivers, besides some smaller streams. *Surface*, generally level; *soil*, fertile. *Cap.* Crockett. *Pop.* (1890) 19,360.

—A city, cap. of Harris co., on Buffalo Bayou, the Southern Pac. and 8 other R. Rs., 49 m. N. W. of Galveston; has extensive and varied manufactures and a very large trade. *Pop.* (1880) 13,000; (1897) about 29,750.

Houston Station, in *Del.*, a post-vill. of Kent co.

Hous'touville, in *N. C.*, a post-village of Iredell co.

Hove, *imp.* of HEAVE, *q.v.*

—*n.* A disease of sheep; wind colic.

Hove, a town of England, in Sussex, 1 m. from Brighton. *pop.* 5,500.

Hov'el, *n.* [A.S. *hofel*, dim. of *hof*, *hofa*, a house, a cave.] A small house; a cottage; a mean house; an open shed for sheltering cattle, protecting produce, &c., from the weather.

—*v. a.* To put in a hovel; to shelter.

Hov'elling, *n.* A mode of preventing chimneys from smoking by carrying up two of the sides least exposed to the current of air higher than the other two, or by covering the top and leaving the orifices on all the sides.

Hov'er, *v. n.* [W. *hofiaso.*] To flap the wings; to hang over or about, fluttering or flapping the wings; to hang over or around, with irregular motion. — To stand in suspense or expectation; to wander about from place to place in the neighborhood.

Hov'eringly, *adv.* In a hovering manner.

Ho'vite, *n.* (*Min.*) A white, soft, crumbly mineral from Hove, near Brighton, England. *Comp.* Carbonic acid 44·4, carbonate of lime 28·3, water 27·3. This compound is often called bicarbonate of lime.

How, (*hou,*) *adv.* [A. S. *hu*; Ger. *wie*; D. *hoe*; Dan. *hocr*; O. Slav. *rako*, from the Sansk. *kas*, *kau*, *ku*, who? which? what?] In what way, method, or manner; by what means.

"We wonder *how* the devil they got there."— *Pope.*

—To what degree, amount, or extent; by what quantity or measure; in what number or proportion.

"Alas! *how* light a cause may move
Dissension between hearts that love."—*Moore.*

—For what reason; from what cause.

"*How* now, my love? Why is your cheek so pale?
How chance the roses there do fade so fast?"— *Shaks.*

—In what state, condition, case, predicament, or plight.

"Lord help 'em, *how* I pities them unhappy folks on shore now."
William Pitt.

NOTE. *How* is used alike in the interjectional, relative, and interrogative sense; it is also often used in a personal sense as an exclamation, interrogation, or interjection.

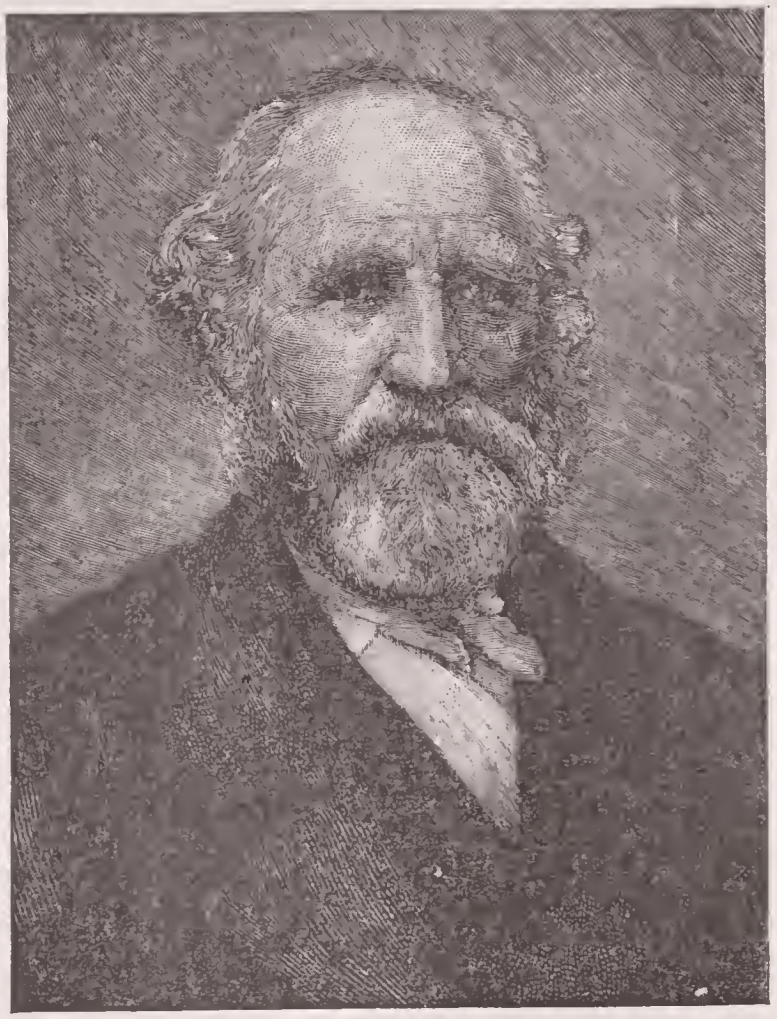
"*How* the wit brightens! *how* the style refines!"— *Pope.*

Howadji, (*how-ăj'y,*) *n.* [Ar.] A traveller; also, a merchant, in Oriental countries.

How'ard, one of the eldest families of England. The principal are: — THOMAS HOWARD, earl of Surrey, and third duke of Norfolk, an eminent statesman and naval and military commander, distinguished at the battle of Flodden, 1488–1554. EDWARD, a younger brother of the preceding, and admiral of England, killed in action with the French, 1512. HENRY, earl of Surrey, eldest son of Thomas, an accomplished chevalier, and the first polite writer of love-verses in the English tongue, beheaded on a trumpery charge of high treason, 1516–1546. HENRY, second son of the poet, and earl of Northampton, known as a trimmer at court and as a man of letters, implicated in the murder of Overbury, 1539–1614. CHARLES, known as Lord Effingham and earl of Nottingham, and grandson of the duke of Norfolk, commander of the channel fleet on the invasion of England by the Spanish Armada, 1536–1624. THOMAS, earl of Arundel, and earl marshal in the reign of Charles I., known as a diplomatist and antiquary, died 1646. HENRY, his second son, and sixth duke of Norfolk, by whom the Arundelian marbles, collected by his father, were presented to the university of Oxford, about 1668. CHARLES, eleventh duke of Norfolk, and formerly earl of Surrey, known as a statesman in opposition to Lord North and Pitt, 1746–1815.

How'ard, CATHERINE, fifth wife of Henry VIII., B. about 1520, was the daughter of Edmund Howard, 3d son of the second duke of Norfolk. She was married, in 1540, to the king; but, two years afterwards, he sent her to the scaffold, under pretext of unfaithfulness.

Howard, JOHN, an English philanthropist, B. at Hackney, 1726. In 1756 he embarked for Lisbon, in order to view the effects of the recent earthquake, but on the passage the ship was taken and carried to France. The hardships he suffered and witnessed during his imprisonment first roused his attention to the subject of his future labors. On being released, *H.* retired to a villa in the New Forest, and in 1758 he married a second wife, who died in childbed in 1765, leaving him one son. He at this time resided at Cardington, near Bedford, where he indulged the benevolence of his disposition by continually assisting and ameliorating the condition of the poor. In 1773 he served the office of sheriff, which, as he declared, "brought the distress of the prisoners more immediately under his notice," and led him to form the design of visiting the jails throughout England, in order to devise means for alleviating the miseries of the prisoners. Having done so, he laid the result of his inquiries before the House of Commons, for which he received a vote of thanks. He next made a tour through the principal parts of Europe, and published his *State of the Prisons*, with a view to render them both more humane and more efficacious. A new subject now engaged his attention, namely, the management of lazarettos, and the means of preventing the communication of the plague and other contagious diseases. In this he encountered every danger that can be conceived, and having become personally acquainted with the subject, in 1789 he published *An Account of the Principal Lazarettos in Europe, with Papers relative to the Plague*," &c. Actively pursuing this salutary and benevolent object, Mr. Howard took up his residence at the town of Cherson, a Russian settlement on the Black Sea. A malignant fever prevailed there, and having been prompted by humanity to visit one of the sufferers, he caught the infection, and died, Jan. 20, 1790. His body was there



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interred, and every respect was shown to his memory by the Russian authorities. — Edmund Burke, adverting to the merits of this great philanthropist in a speech previous to the election at Bristol, in 1780, thus eulogizes him: — "He has visited all Europe, not to survey the sumptuousness of palaces, or the stateliness of temples; not to make accurate measurements of the remains of ancient grandeur, nor to form a scale of the curiosity of modern art; not to collect metals or to collate manuscripts; but to dive into the depths of dungeons; to plunge into the infection of hospitals; to survey the mansions of sorrow and pain; to take the gauge and dimensions of misery, depression, and contempt; to remember the forgotten, to attend to the neglected, to visit the forsaken, and to compare and collate the distresses of all men in all countries. His plan is original, and it is as full of genius as it is of humanity. It was a voyage of discovery — a circumnavigation of charity." A statue, in a Roman garb, by Bacon, was erected to his memory in St. Paul's cathedral. His Life was written by Dr. Aikin, and more recently have appeared a Memoir by Mr. Hepworth Dixon, and his Correspondence, edited by Field. A portrait of Howard, by Mather Brown, is in the National Portrait Gallery.

Howard, Oliver Otis, an American major-general, b. in Leeds, Maine, 1830, graduated at Bowdoin College in 1850, entered West Point Academy where he graduated in 1854, and was appointed to the Ordnance Department. In July, 1857, he was made first lieutenant, and was attached to the West Point Academic Class, as Acting Assistant Professor of Mathematics, in which capacity he continued until 1861. Upon the breaking out of the war, Lieut. *H.* resigned his commission in the Ordnance Department, and accepted the Colonelcy of a regiment of volunteers. He commanded a brigade in the first battle of Bull Run, and for his gallant conduct was appointed Brigadier-General of Volunteers, Sept. 3, 1863. His brigade formed part of Gen. McClellan's army of the Potomac, and in the battle of Fair Oaks, May 31, 1862, he lost his right arm. After the battle of Antietam, he took Gen. Sedgwick's division, in Sumner's corps, which formed part of the right wing of the army of the Potomac. *H.* was made Major-Gen. of Vols., Nov. 29, 1862, and his division, with Newton's, was the first to cross the Rappahannock, at the time of Burnside's battle at Fredericksburg, in Dec. 1862. Successively commander of the 11th corps (army of the Potomac), and of the 4th corps (army of the Cumberland), Gen. *H.* greatly distinguished himself during the campaigns of 1863, 1864, &c. He commanded the army of the Tennessee from Jan. 4th, and was engaged in the actions of Pocotaligo, River's Bridge, Bentonville, during the campaign terminating with the surrender of the Confederate army under Gen. Johnson at Durham Station, April 26, 1865. On Dec. 21, 1864, he was appointed Brigadier-General of the U. States army, and on March 13, 1865, he received the brevet of Major-General of the U. States army for gallant and meritorious services at the battle of Erza Church, and during the campaign against Augusta, Ga. On May 12, 1865, he was appointed Commissioner of the Freedmen's Bureau, his duties lasting until 1872. The affairs of this bureau were mismanaged by some of the officials, and he was tried by court-martial, but was honorably acquitted. He commanded the expedition against the Nez Percés Indians (1877), and served in other Indian campaigns; was in command at West Point (1881–82), in the Department of the Platte (1882–86); promoted major-general (1886), and became commander of the Department of the Atlantic (1888); retired in 1894.

How'ard, in *Indiana*, a N. central co.; *area*, 300 sq. m. *Surface*, level, *soil*, fertile. In the natural gas belt. *Products*, corn, wheat, oats, butter, wool, live stock. *Cap.* Kokomo. *Pop.* (1890) 26,186.

How'ard, in *Iowa*, a N.N.E. co., adjoining Minnesota; *area*, about 480 sq. m. *Rivers.* Turkey and Upper Iowa rivers. *Surface*, gently sloping toward the S.E.; *soil*, fertile. *Cap.* Cresco. *Pop.* (1895) 13,221.

—A township of Howard co.

—A township of Story co.

How'ard, in *Maryland*, a central co.; *area*, about 250 sq. m. *Rivers*, Patapsco, and Patuxent rivers. *Surface*, uneven; *soil*, fertile. *Cap.* Elizabeth City. *Pop.* (1890) 16,269.

How'ard, in *Michigan*, a post-village of Montcalm co., on the G. R. & I. R.R., 34 m. N.E. of Grand Rapids. *Pop.* (1894) 1,391.

How'ard, in *Missouri*, a N. central co.; *area*, about 450 sq. m. *Rivers.* Missouri river, and Boune Femme and Moniteau creeks. *Surface*, undulating; *soil*, extremely fertile. *Cap.* Fayette. *Pop.* (1890) 17,371.

How'ard, in *Montana*, a post-office of Custer co.

How'ard, in *New York*, a post-town and township of Steuben co., about 66 m. S. of the city of Rochester. *Pop.* (1890) 1,938.

How'ard, in *Ohio*, a flourishing post-township of Knox co.

How'ard, in *Pennsylvania*, a post-borough and township of Centre co., about 10 m. N.E. of Bellefonte. *Pop.* (1897) about 600.

How'ard, in *Texas*, a post-office of Ellis co.

How'ard, in *Wisconsin*, a township of Brown co.

—A post-village of Sheboygan co., about 7 m. N.W. of Sheboygan.

How'ard Centre, in *Iowa*, a post-township of Howard co.

How'ard Lake, in *Minn.*, a post-vill. of Wright co.

How'ardsville, in *Illinois*, a P. O. of Jo Daviess co.

—A village of Stephenson co., 208 m. N. of Springfield.

How'ardsville, in *Maryland*, a post-village of Baltimore co., on the West. Maryland R.R.

How'ardsville, in *Mich.*, a p.-vill. of St. Joseph co.

How'ardsville, in *Virginia*, a post-village of Albemarle co., on the James river and the Chesapeake & Ohio R.R., about 80 m. W. by N. of Richmond.

How'ardsville, in *New York*, a P. O. of Oswego co.

Howbeit, (*hou-bē'it,*) *adv.* [*how, be,* and *it.*] Be it as it may; nevertheless; notwithstanding; however; yet; but.

"*Howbeit* the English colonies in Ireland did win ground upon the Irish." — *Davies.*

How'dah, Hou'dah, *n.* [Hind. *haudah.*] A seat (Fig. 212) erected on an elephant's back. It is of various forms, and usually covered in overhead.

Howe, Elias, b. in Spenser, Mass., 1819; d. 1867. The inventor of the Sewing-machine.

Howe, Richard, Earl, a British admiral, b. 1725, was the second son of Lord Viscount Howe; entered the navy at 14, and distinguished himself for courage and seamanship as he rose through the various ranks of the service to that of post-captain. In 1758 he succeeded (by his elder brother's death) to the family estates and honors; but he was true to the sea, and was in constant active employment to the end of the Seven Years' War. When France took part against England in the American war, *H.* was admiral of the English fleet off the American coast, and gained great credit by successfully keeping the French admiral D'Estaing in check throughout 1778. At the end of that year *H.* returned to Europe, and performed the important service of relieving Gibraltar. In 1788 he was made an earl. At the commencement of the war against France in 1793, *H.* took the command of the western channel fleet at the king's earnest and personal request. In the next year he succeeded in bringing the main French republican fleet to action, and gained a decisive and important victory, called by the English the *Battle of the First of June.* In 1797, Lord *H.* exerted himself with great success to quell the mutiny among the seamen at Portsmouth, and d. 1799. — Sir William, brother of the preceding, called by Lee "the most indolent of mortals," succeeded General Gage in the chief command of the British forces in America, having landed at Boston in May, 1775. He commanded at the attack on Bunker Hill, was besieged in Boston during the next winter, evacuated that town in the ensuing spring, and retired to Halifax. In August, 1776, he defeated the Americans on Long Island, and took possession of New York in September. After the campaign of the Jerseys, he set sail from New York, and entered Chesapeake Bay. Having previously secured the command of the Schuylkill, he crossed it with his army, and repelled the attack of the Americans at Germantown. In May, 1778, he was succeeded in the command by General Clinton. D. 1814.

Howe, Samuel Gridley, ll. d., an American physician and philanthropist, b. in Boston, Mass., 1801. After graduating at Brown University, he studied medicine in Boston; and becoming interested in the cause of Greek independence, he embarked for Greece in 1824. Landing in the Peloponnesus at the darkest period of the war, he joined the feeble band which was trying to oppose Ibrahim Pasha. *H.* endeavored to organize an ambulance and hospital service, but failed, owing to the Greeks being only able to maintain a guerrilla warfare. In 1826 he accompanied an expedition to Crete, and was shut up for some time in the fortress of Grabura, from which he at length escaped. In 1827 he was present at the engagements of the Piræus, Ovopo, Volo, &c., and was subsequently placed by Mavrocordato at the head of the snrgical staff, with the title of *Archichirungos.* Famine now threatened the Greeks, and Dr. *H.* returned to his own country to procure supplies which would avert this calamity. These were liberally given by the U. States people, and *H.* re-embarked for Greece, followed by other vessels carrying material of war and volunteers. This help in their darkest hour has never been forgotten by the Greek people. Dr. *H.* superintended in person the distribution of these supplies in various parts of the country. Afterwards he obtained a tract of land from the Greek govt., and established on the isthmus of Corinth a colony made up of Greek refugees, driven from their homes by the Turks, and remained in Greece until her independence was secured. The Greek govt. bestowed upon him the order of St. Sauveur. After visiting Switzerland, *H.* was in Paris during the revolution of July, 1830, and was one of the few who escorted La-Fayette across the barricaded streets to take possession of the Hotel-de-Ville, and put himself at the head of the revolutionary movement. After pursuing his medical studies in Paris, Dr. *H.* returned home in 1832. Becoming interested in the condition of the blind, he offered to organize and put in operation a habitation for their special instruction, a charter for which had already been obtained, but no beginning made. After certain preliminaries he went to Europe to obtain teachers, also to carry supplies which had been raised here for the Poles, then in insurrection. While in Paris he was made President of the Polish Revolutionary Committee, and undertook the critical service (in which several had failed) of carrying supplies to the Polish corps d'armée which had crossed the Prussian frontier, but refused to lay down their arms. He succeeded in this; but was arrested and thrown into prison by the Prussian gov. After a brief detention, his liberation was effected by the U. States authorities. Returning to Mass., he resumed the enterprise in behalf of the blind, gathering a half-dozen blind children into his father's house, and thus forming the germ of the Massachusetts Institution for the Education of the Blind, of which Dr. *H.* has ever since been the director. His labors have become known throughout the civilized world, through his success in imparting the elements of language to Laura Bridgeman, a blind deaf mute, the first person of that class known to have acquired the free use of words. Equal success crowned his efforts to teach other blind deaf-mutes. Dr. *H.* so modified and improved the existing mode of printing for the blind as to make it really available and useful. His method was pronounced the best by the elaborate report of the jury of the British Great Exhibition in 1851, and he received a medal, as also another at the Art Exhibition of Paris in 1867. Partly as an acknowledgment of services to humanity, and partly, perhaps, as an atonement for wrong done him, the king of Prussia sent him a costly gold medal. When the Cretan revolt broke out, Dr. *H.* appealed to the sympathies of his countrymen in behalf of those islanders. A system of contributions was organized, and Dr. *H.* revisited Greece after an interval of 40 years, as the almoner of America, and, as before, he carefully superintended in person the distribution of the supplies. Dr. *H.* was the first person in this country who demonstrated the educability of idiots by systematically training several blind idiotic children. He subsequently organized the first public institution for the training of this class of unfortunates. He labored during 20 years to introduce articulate speech into the education of deaf-mutes. The recent adoption of this measure under the sanction of the commonwealth is principally due to his exertions in its behalf. D. 1876.

How'el, *n.* A smoothing-tool used by coopers.

—*v. a.* To make smooth by tooling: as, to *howel* a cask.

How'ell, in *Michigan*, a post-village and township, cap. of Livingston county, about 33 miles E.S.E. of Lansing. *Pop.* of village (1894) 2,560.

Howell, in *Missouri*, a S. county, adjoining Arkansas; *area*, about 920 sq. m. *Rivers.* Spring river, and numerous smaller streams. *Surface.* hilly; *soil*, in some parts fertile. *Cap.* West Plains. *Pop.* (1890) 18,618.

Howell, in *New Jersey*, a post-township of Monmouth county.

Howell, in *Ohio*, a post-office of Lawrence co.

Howell, in *South Dakota*, a township of Hand co.

Howell's Depot, in *New York*, a post-village of Orange co.

How'ellsville, in *North Carolina*, a post-township in Robeson co.

How'ellville, in *Penna.*, a post-office of Montour co.

How'erton's, in *Virginia*, a post-office of Essex co.

Howe's Corner, in *Maine*, a post-office of Androscoggin co.

Howev'er, *adv.* [*How* and *ever.*] In whatever manner, way, or degree; as, *however* anxious he may be.

—At all events; happen what will; at least.

"Our chief end is to . . . enjoy, if it may be, all good, *however* the chiefest." — *Tillotson.*

Howev'er, *conj.* Nevertheless; notwithstanding; yet; though; as, I shall not, *however*, revoke my decision.

"You might *howe'er* have took a fairer way." — *Dryden.*

How'itt, William, an English author, b. 1795. He was brought up in the principles of the Society of Friends, and, in 1823, in conjunction with his wife Mary, brought out a volume of poems entitled the *Forest Minstrel*, which was favorably received. Becoming established as a popular writer, *H.* produced, during a decade of years, the *Book of the Seasons; History of Priestcraft* (which has passed through 10 editions); *The Rural Life of England*, &c. In 1840, the Howitts took up their abode in Germany, where Mr. *H.* produced, in 1841, his popular *Student Life in Germany*, and in 1841, the *Rural and Domestic Life of Germany.* Following these, appeared, in 1846, his *Homes and Haunts of the English Poets*; *The Hall and the Hamlet* (1847); and, in 1852, the *History of Scandinavian Literature*, the joint work of himself and wife. In 1852, Mr. *H.* proceeded to Australia, where he remained for two years, and on his return published the results of his travel under the title, *Land, Labor, and Gold*, or *Two Years in Victoria.* During the period 1854-61, the *Illustrated History of England* (6 vols.), and *The Ruined Castles and Abbeys of Great Britain and Ireland*, proceeded from his pen. In 1865 he published the *History of Discovery in Australia, Tasmania, and New Zealand.* Mr. *H* for some years was proprietor and editor of *Howitt's Journal.* His wife was one of the most charming of English novelists. Wm. Howitt d. in 1879. Mary d. 1888.

Howitzer, (*hou-its'r,*) *n.* [Ger. *haubitz*, probably from *haube*, a dome or cupola, from its shape.] (*Gun.*) A kind of gun, from which large shot and shell may be thrown at short ranges. These guns are constructed in brass and iron. Brass howitzers form part of a field-battery, and are used for firing shell to clear a village, or any similar position that it is necessary to occupy. They vary in length from 2 feet to 4 feet 9 inches, and will throw 4¾ inch and 5½ inch shells. Iron howitzers, from 4 to 5 feet in length, which throw 8-inch and 10-inch shells, are used in sieges, especially for ricochet firing. Howitzers are longer than mortars, and shorter than guns of the same calibre; they require a small charge of powder, but the angle of elevation at which they are fired is high. They were first used in the British service about the end of the 17th century.

Howk'er, *n.* [D. *hocker.*] (*Naut.*) Same as Hooker, *q.v.*

Howl, *v. n.* [D. *huilen;* Ger. *heulen;* L. Sax. *hulen;* Dan. *hyle;* akin to Lat. *ulŭlo;* Gr. *ololuzō;* Heb. *yalal,* to wail, to howl.] To cry as a dog or wolf; to utter a particular kind of loud, long-drawn, and mournful sound; to make a prolonged deep cry. — To utter a loud, mournful sound, expressive of pain or distress: to wail; to yell.

"New widows *howl*, new orphans cry." — *Shaks.*

—To roar, as a tempest; to make a loud uproar; as, the *howling* winds.

(*Ship-building.*) To scarf a ship's futtocks into the ground-timbers.

Howling wilderness, a desert, or wild desolate tract, inhabited by wild beasts, reptiles, &c.

Howl, *v. n.* To utter or speak with outcry.

"Tell thy horrid tale to savages, and *howl* it out in deserts." *Philips.*

—*n.* A loud, protracted wail; the cry of a dog or wolf, or other like sound; the cry of a human being in horror and angnish; a yell.

How'laud, in *Maine*, a post-township of Penobscot co., abt. 90 m. N.E. of Augusta.

How'laud, in *Ohio*, a township of Trumbull co.

How'laud, in *Missouri*, a post-office of Putnam co.

How'laud's, in *Indiana*, a post-office of Mariou co.

Howl'er, *n.* One who yells.

(*Zoöl.*) See MYCETES.

Howlet, *n.* [Fr. *hulotte.*] (*Ornith.*) A bird of the owl family, *Strix flammea;* so called frem its monrnful, howling voice.

How'lett, in *New York*, a village of Suffolk co. Its post-office is QUOGUE.

Howlett Hill, in *New York*, a P. O. of Onoudaga co.

Howling Moukey, *n.* See MYCETES.

Howlite, *n.* (*Min.*) A white mineral found in small rounded nodules in Nova Scotia; *sp. gr.* 2·55. *Comp.* Boric acid 43·0, silica 15·8, lime 29·4, water 11·8.

Howqua, (*hou'kwă,*) *a.* [From the name of a fameus Chinese tea-merchant at Canton.] Relating to, or consisting of a certain fine description of tea.

Howsoev'er, *adv.* [*how, so,* and *ever.*] In what manner soever; to whatever degree. — Although; though.

"The man doth fear God, *howsoever* it seems not in him." *Shaks.*

Howth, a town of Ireland, on the peninsula which forms the N. boundary of the bay of Dublin, 8 m. E.N.E. of the city. It is a watering-place much resorted by tho residents of Dublin. *Pop.* 2,600. The Hill of Howth, which forms a high rocky peninsula at the extremity of the bay, is celebrated in history and literature.

Hoy, one of the Orkney Islands, 2 m. from Stromness. *Area*, 75 sq. m. Fishing engages the inhabitants.

Hoy, *n.* [Dan. and Swed.; Ger. and Fr. *heu.*] (*Naut.*) A small sloop-rigged vessel, frequently used as a convoyance for passengers and goods coastwise; as, a Margate *hoy.*

"The *hoy* went to London every week loaded with mackerel." *Cowper.*

Hoy, *interj.* [See AHOY.] An exclamation equivalent to ahoy! hey! hallo!

Hoy'man, *n.*; *pl.* HOYMEN. One who commands or navigates a hoy.

Hoys'ville, in *Virginia*, a village of Loudou co., abt. 165 m. N. of Richmond.

H. P. Abbreviation of *horse-power*, as relating to a steam-engine; also of *half-pay.*

H. R. H. Abbreviation of *His* or *Her Royal Highness.*

Huachapure, (*hwa-cha-pōō'ra,*) a promontory of Chili, S. America, Lat. 34° 58′ S., Lon. 72° 17′ W.

Huacho, (*hwā'cho,*) a small bay of Peru, abt. 63 m. N. N.W. of Callao. There is a small town of the same name about 1 m. from the coast.

Hua'fo, an island in the Pacific Ocean. See GUAFO.

Huailas, a province of Peru. See HUAYLAS.

Huallaga, (*ōō-al-yā'ga,*) a river of Peru, rising in the Andes, and after a N.E. course of about 500 m. joining the Amazon, Lat. 5° S., Lon. 75° 40′ W. It rises 13,200 feet above the sea-level, and forms in its course quite a number of cataracts.

Huamachuco, (*hwă-ma-chōō'ko,*) or GUAMACHUCO, a town of Peru, in the dept. and cap. of the prov. of Trujillo, about 55 m. E.N.E. of Trujillo.

Huamalies, (*hwă-ma-lēēs',*) or GUAMALIES, a prov. of Peru, dept. of Junin, on the W. side of the central ridge of the Andes. *Area*, abt. 3,870 sq. m. *Min.* Mercury and silver. There are ruins of ancient Peruvian temples, palaces, and fortresses. *Pop.* 35,000.

Huamanga, (*hwā-măng'ga,*) or GUAMANGA, a city of Peru, cap. of a prov. of its own name and of the dept. of Ayacucho, on a tributary of the Apurimac, about 140 m. N.N.W. of Cuzco. This city was founded by Pizarro in 1539, and in this vicinity, in 1824, Sucré defeated the Spaniards, and thereby ended their rule in S. America. *Pop.* 20,000.

Huamantla, (*hwa-mant'la,*) a town of Mexico, State of Puebla. It was the scene of an engagement, Oct. 9, 1847, between the Mexicans under Santa Anna, and a small force of Americans, in which the former were defeated with considerable loss.

Huamblin, (*wam-bleen',*) or SOCORRO, an island off the W. coast of Patagonia; Lat. 44° 49′ S., Lon. 75° 15′ W.

Huanaco, (*hwa-nā'ko.*) *n.* [Peruv.] (*Zoöl.*) The Guanaco, a variety of the LLAMA, *q. v.*

Huancane, (*wan-ka'ne,*) a prov. of Peru, dept. of Puno; *pop.* 56,765.

Huancaveliea, (*wan-ka-va-lee'ka,*) or GUANCABELICA, a town of Peru, cap. of a dept. of its own name, abt. 80 m. W.N.W. of Guamanga. It is built in the Andes, 11,000 ft. above the sea. Extensive mines of gold, silver, and mercury are worked in the vicinity. *Pop.* of town 10,000, of the dept. 90,000.

Huanta, (*wan'ta,*) or GUANTA, or HUANCAYO, a town of Peru, cap. of a prov. of its own name, in the dept. of Junin, abt. 25 m. S.E. of Janja; *pop.* of prov. 30,000.

Huanuco, (*wa-noo'ko,*) or GUANUCO, a town of Peru, dept. of Jnnin, abt. 180 m. N.N.E. of Lima; *pop.* 5,000.

Huaqui, a river of Mexico. See YAQUI.

Huaraz, (*wa-ras',*) a town of Peru, cap. of the dept. of Ancach, abt. 130 m. S.E. of Trujillo; *pop.* 6,000.

Huari, (*wa-ree',*) a town of Peru, abt. 160 m. E.S.E. of Trujillo; *pop.* 5,500.

Huaroehiri, (*wa-ro-che-ree',*) or GUAROCHIRI, a town of Peru, dept. of Lima, abt. 60 m. E. of Lima; *pop.* 4,000.

Huasacualco, (*hwas-a-kwal'ko,*) or GUAZACUALCO, a river of Mexico, enters the Gulf of Mexico between the States of Vera Cruz and Tobasco.

Huasco, (*hwas'co,*) or GUASCO, a town of Chili, abt. 110 m. N. of Coquimbo.

Huas'colite, *n.* (*Min.*) A sulphuret of lead and zinc resembling galena, *q. v.*, from Ingahaus, prov. of Huasco.

Huatulco, a port of Mexico. See GUATULCO.

Huawra, (*hwow'ra,*) or GUAWRA, a sea-port town of Peru, in the prov. of Chaucay, dept. of Lima, and about 50 m. N.W. of Chancay.

Huaylas, (*hwī'las,*) or HUAILAS, or GUAILAS, a prov. of Peru, on the W. side of the Andes; *area*, abt. 4,640 sq. m. *Rivers.* Salta, and numerous smaller streams. *Min.* Gold and silver in considerable quantities. *Pop.* 95,000.

Hub, *n.* [See HOB.] The nave, or central cylindrical part of a wheel.

—A goal or mark at which quoits, &c., are thrown. — The hilt or haft of a weapen; as, te drive a dirk home to the *hub.* — In the U. States, a pretuberant obstructiou in a public read. — A projecting piece on a wheel, for the insertion of a crank-piu.

Up to the hub, sunk in a quandary, like a wheel sunk to the hub in a slough; greatly embarrassed; heavily iuvolved.

Hub of the universe. A burlesque designatiou popularly applied to the city of Bosten, Mass.

"Boston State-House is the *hub* of the Solar System." *O. W. Holmes.*

Hub'bard, in *Ohio*, a post-village and township of Trumbull co., 8 m. N.E. of Youngstown, on Erie R.R. Has irou mills. *Pop.* of village (1897) about 1,580.

Hub'bard, in *Wisconsin*, a township of Dodge co.

Hub'bardstou, in *Massachusetts*, a post-town and township of Worcester co. *Pop.* (1895) 1,327.

Hubbardstou, in *Michigan*, a post-village of Ionia co.

Hub'bardstown, in *W. Virginia*, a P. O. of Wayne co.

Hub'bardsville, in *New York*, a post-village of Madison co.

Hub'bardtou, in *Vermont*, a post-town of Rutland co., about 45 m. S.S.W. of Montpelier. *Pop.* (1890) 506.

Hub'bardtou River, in *Vermont*, enters Poultney river from Addison co.

Hub'ble-bub'ble, *n.* A kind of tobacco-pipe, generally formed of the shell of a cocoa-nut, with a bowl inserted at one part, and a reed for the mouthpiece at another. The shell is partially filled with water, and the smoke being drawn through it produces a gurgling noise; hence the name. The hubble-bubble is commonly used by the natives of the East Indies.

Hub'bleton, in *Wisconsin*, a post-village of Jeffersou co., abt. 10 m. W. of Waterton.

Hub'bub, *n.* [Probably formed from the repetition of *hoop* or *whoop.*] A great noise of many confined voices; a tumult; riot; uproar.

"An universal *hubbub* wild of stunning sounds."—*Milton.*

Hubbub-boo', *n.* [Formed from *hubbub.*] A howling.

Hub'by, *a.* Full of hubs, or projections of surface; as, a *hubby* road. (American.)

Hub'elsville, in *Pennsylvania*, a post-office of Huntingdon co.

Hu'bert, (ORDER OF ST.,) the highest Bavariau order of knighthood, fouuded in 1444.

Hub'lersburg, in *Pennsylvania*, a post-village of Centre co., abt. 88 m. N.W. of Harrisburg;

Hüb'nerite, *n.* (*Min.*) A mineral found in some of the silver mines of Nevada, of a browuish-red color and opaque. Occurs in columnar masses or foliated. *Sp. gr.* 7·14. *Comp.* Tungstic acid 76·6, protoxide of manganese 23·4.

Hue, EVARISTE REGIS, ABBÉ, (*hook,*) a French missionary priest, B. at Toulouse, 1813. After being ordained, he embarked in 1839 for China, arrived at Macao, and entered upon the functions of a former missionary, who had been put to death. For five years he travelled throughout China and Tartary, and at length took up a residence in a Buddhist monastery, to study the language and literature of Buddhism. Commanded by the emperor of China to return, he travelled back to Macao, and embarked there, in 1852, for France, but stopped at Ceylon, whence he wandered through India, Egypt, and Palestine. On his return to France, at the beginniug of 1853, he collated and arranged his notes of travel, and published *Annals of the Propagation of the Faith in China; Travels in Tartary, Thibet, and China; The Chinese Empire and Christianity in China,* — all of which becamo very popular, and were translated into most of the European languages. Several of his works have been reproduced in an English form, and have attracted considerable attention. D. 1860.

Huck, *n.* A species of German river-trout.

Huck'aback, *n.* A kind of linen ornamented with raised figures, used for table-cloths, towels, pinafores, &c.

Huckle, (*hŭk'l,*) *n.* [Dim. of L. Ger. *hucke*, the back.] The hip; anything projecting in the form of a hip.

Huc'kle-backed, (*-băkt,*) *a.* Round-shouldered.

Huc'kleberry, *n.* [Ger. *prickelbeere.*] (*Bot.*) See VACCINIUM.

Hucklebone, (*hŭk'l-bōn,*) *n.* [Ger. *höcker*, and *bein*, bone.] The hip-bone.

Huck'ster, (sometimes, and improperly, written HUXTER,) *n.* [L. Ger. *hocke*, the back, *höcker*, a retailer; allied to *hocken*, to take on the back.] A peddler who carries wares on his back; a retailer, or itinerant vender of small articles, as fruit, &c.; a hawker; a mean, low, trickish person.

—*v. n.* To deal in small articles, as a huckster.

Huck'sterage, *n.* Peddling; small dealings; business or vocation of a huckster.

"Ignoble *huckstерage* of peddling tithes."—*Milton.*

Huck'stress, *n.* A female huckster or peddler.

Hud, *n.* [O. Eng.] The hull, shell, or husk of a nut.

Hud'dersfield, a town of England, in Yorkshire, on the Colne, 15 m. S.W. of Leeds. *Manuf.* Narrow and broad cloths, serges, kerseymeres, and various fancy goods. Near it are medicinal springs. *Pop.* 70,253.

Hud'dle, *v. n.* [Ger. *hudeln.*] To crowd; to press or squeeze together promiscuously, without order or regularity; to move in a promiscuous throng with order; to press or hurry in disorder.

Hud'dler, *n.* One who makes a confused medley of things; a bungler; a mixer.

Hud'dy, JOSHUA, of New Jersey, a brave partisan officer of the Revolutionary War, hung by the Tories, April 12, 1782. His death caused the greatest indignation throughout the country, and the British authorities disclaimed and reprobated the act. In retaliation, the Continental Congress, by resolution, ordered Gen. Washington to select for execution a British officer of equal rank (captain) from among the prisoners. The lot fell upon Captain Asgill, son of Sir Charles Asgill, of London. Congress afterwards spared Asgill's life through the urgent intercession of the French Minister, Count de Vergennes, and the States-General of Hollaud. Madame de Sevigné made the story of Captain Asgill the subject of a tragic drama.

Hu'dibras, *n.* (*Lit.*) The title and hero of a celebrated satirical poem written by Samuel Butler, (*q. v.*) The hero, *H.*, is a sort of Quixotic adventurer, who sets out, accompanied by Ralpho, his "Sancho Panza," on a crusade against the sports, pastimes, and amusements of the English people, as tabooed and ordered to be suppressed by Cromwell's Puritan parliament. The work, although tainted with some coarse passages, and but little known nowadays except to readers of old English literature, is a wonderful example of biting wit and caustic humor, levelled against the far-fetched religious fanaticism of the period immediately preceding the restoration of Charles II.

Hudibras'tic, *a.* After the style or manner of Hudibras; in doggerel fashion, as applying to verse.

Hud'son, HENRY, a navigator, B. in England, entered the service of Holland. After making three voyages to find a north-east or north-west passage to China, in the second of which he discovered the river Hudson, he set sail a fourth time, April 17, 1610, in a bark named the "Discovery," and proceeding westward, reached in latitude 60° the strait bearing his name. Through this he advanced along the coast of Labrador, until it issued into the vast bay which is also called after him. Here, with his son and seven infirm sailors, he was turned adrift by a mutinous crew, and was no more heard of.

Hudsou, the principal river of New York, and one of the most important of the United States. It rises near 44° N., aud flows a general S. course to its mouth in the Atlantic Ocean, below New York city, about Lat. 40° 40′ N. Throughout the greater part of its course (that is, from where it passes over a ledge of primitive rock, and forms what are called Glenn's Falls about Lat. 43° 15′ N.) it runs through a very remarkable depression or valley. This valley exteuds from the Atlantic to the St. Lawrence, having in its N. part the Lake Champlain with its outlet the Richelieu River, and, though enclosed by lofty mountain ranges on either side, the highest level of its surface is only 147 feet above the level of the tides in the Hudson. Its banks are picturesque and beautiful throughout nearly its whole course. The total length of *H. R.* is about 280 m., 120 of which, or up to 5 m. beyond the town of Hudson, are navigable for the largest ships. Sloops pass as far up as Troy, 150 miles from the sea, to which distance the influence of the tide is felt, and thence through a lock to Waterford, a few miles further. Near the head of the tide the mean breadth of the *H. R.* does not reach a mile; but in the lower part of its course it is much wider, and below New York it expands into a spacious basin 4 m. broad, which forms the harbor of that city. Its only tributary worthy of notice is the Mohawk, which joins it from tho W. in Albany co. Owing to its small rate of descent, the current of the *H. R.* is slow; and except in the season of flood, it appears rather like an inland bay. At Albany, about the middle of its course, its navigation is at an average closed by frost for about ninety days annually.

Hud'son, in *Georgia*, a post-office of Sumter co.

Hudsou, in *Illinois*, a post-village and township of McLean co., about 9 m. N. of Bloomington.

Hudsou, in *Indiana*, a village aud township of La Porte co.

Hudsou, in *Iowa*, a post-village of Black Hawk co., about 10 m. S.W. of Waterloo.

Hudsou, in *Kansas*, a post-office of Stafford co., on the Mo. Pac. R. R., 18 m. S. E. of Larned.

Hudsou, in *Maine*, a post-town and township of Penobscot co., about 14 m. N. of the city of Bangor. *Pop.* (1897) about 520.

Hudsou, in *Massachusetts*, a post-town of Middlesex co. *Pop.* (1897) about 5,000.

Hudsou, in *Michigan*, a post-village and township of Lenawee co., about 16 m. W. of the city of Adriau. *Pop.* of village (1894) 2,346.

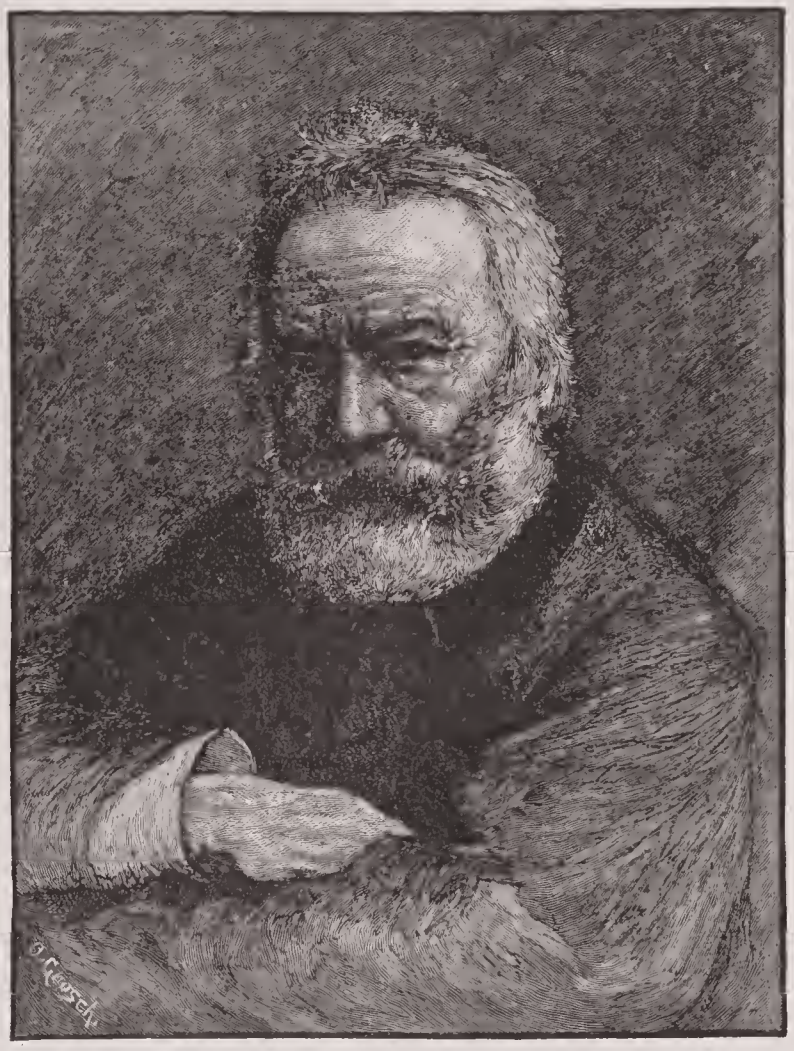
—A village of Washtenaw co., on Huron river, about 50 m. W. of Detroit.

Hudsou, in *Missouri*, a village and township of Macon co., about 55 m. N. by E. of Boonville.

Hudsou, in *North Carolina*, a post-office of Caldwell co.

Hudsou, in *New Hampshire*, a post-town and township of Hillsborough co., about 36 m. S. by E. of Concord. *Pop.* (1897) about 1,120.

Hudsou, in *New Mexico*, a post-office of Graut co.



Victor Hugo

1802–1885

Hud'son, in *New Jersey*, a N.E. co.; *area*, about 43 sq. m. *Rivers.* Passaic, Hudson, Hackensack, and Saddle. *Surface*, diversified; *soil*, in some parts fertile. *Min.* Copper, magnetic iron, and limestone. *Cap.* Jersey City. *Pop.* (1895) 328,080.

—A town of the above co., which was merged with Jersey City in 1870.

Hudson, in *New York*, a city, cap. of Columbia co., on the Hudson river, about 116 m. N. of New York City; Lat. 42° 14′ N., Lon. 73° 46′ W. The city is handsomely built upon an elevation rising from the river, and is an important manuf. center. *Pop.* (1897) about 10,800.

Hudson, in *Ohio*, a post-village and township of Summit co., about 123 m. N.E. of Columbus. It is the seat of Western Reserve College. *Pop.* of village (1890) 1,143.

Hudson, in *Oregon*, a post-office of Columbia co.

Hudson, in *Pennsylvania*, a post-office of Luzerne co.

Hudson, in *West Virginia*, a post-office of Preston co.

Hudson, in *Wisconsin*, a city, cap. of St. Croix co., on St. Croix Lake, at the mouth of Willow river, 19 m. E. of St. Paul, on the C., St. P., M. & O. R.R. Its former name was WILLOW RIVER. *Pop.* (1895) 3,338.

Hudso'nia, *n.* [In honor of *Wm. Hudson*, author of *Flora Anglica.*] (*Bot.*) A genus of plants, order *Cistaceæ*. They are low shrubs, with very numerous branches and minute exstipulate leaves. *H. tomentosa*, the Downy *H.*, found on the sea and lake shores from New Jersey N. to New Hampshire and W. to Wisconsin, consists of numerous slender, asceuding stems from the same root, and a multitude of tufted branches, all covered with whitish down.

Hud'sonite, *n.* (*Min.*) A black, aluminous, iron-lime pyroxene (*q. v.*), from Cornwall, Orange co., N. Y.

Hud'son's Bay, an inland sea of British N. America, between Lat. 51° and 64° N., and Lon. 77° and 95° W. Corinthian Gulf, Gulf of Boothia, and Fox Channel connect it with the Arctic Ocean on the N., and Hudson's Strait connects it with Davis Strait on the E. It covers an area of about 510,000 sq. m., the S. part of which, embracing about one fourth of the bay, is called James Bay. *H. B.* contains numerous islands, reefs, and sandbanks; and its shores are for the most part high, bold, and rocky; and though free from ice, is only navigable during a few months in the year. It was discovered by Henry Hudson, (*q. v.*)

Hud'son's Bay Company, an English company, established for carrying on the fur-trade, to which Charles II. in 1670 granted a charter, empowering it to trade exclusively with the aborigines in and about Hudson's Bay. Prince Rupert was at the head of the Hudson's Bay Company, and as the fur-trade was then very lucrative, the association soon rose to prosperity. In the winter of 1783, a new company, calling itself the Northwest Fur Company, was established at Montreal, and actively opposed the Hudson's Bay Company. The earl of Selkirk was then at the head of the old company, and conceived the plan of establishing a colony on the Red River of Lake Winnipeg. The Northwest Company was jealous of this movement; and in consequence of the evil feelings arising out of opposing interests, a war broke out between the servants of the two companies. In this calamitous affair, many outrages and much barbarity were displayed. However, the companies wearied of the strife at last, and united under the name of the Hudson's Bay Fur Company, which at the present time engrosses most of the fur-trade of British America. The new company established factories and settlements in various parts,—on the S. chiefly on the W. coast of Labrador, in the countries enclosing James' Bay, and along the banks of Albany River. The principal settlements in the N. were on Hayes and Mackenzie Rivers. They had numerous mart-houses, besides these factories, dispersed in all directions for upwards of a thousand miles in the interior, to exchange cloths, blankets, trinkets, &c., for furs, skins, feathers, &c. The monopoly of this Co. ceased in 1859.

Hud'son's Bay Ter'ritory. Under this name is comprised a large proportion of N.W. America, extending from Lat. 49° to 70° N., and from Cape Charles, Labrador, to the mouth of the Mackenzie River; *area*, bet. 2,000,000 and 3,000,000 sq. m. *Rivers.* The chief are the Moose, Abbitibbe, Mackenzie, Nelson, Churchill, and Coppermine. *Zoöl.* Reindeer, musk-ox, moose-deer or elk, and other kinds of deer, bears, wolves, wolverines, foxes, beavers, otters, racoons, and other small animals, valuable on account of their skins or flesh. There are also numbers of water-fowl, and fish is abundant in the numerous lakes. *Races.* Esquimaux and Indians. The former occupy the country on both sides of Hudson's Bay, while the latter are dispersed over the whole of the other regions. The number of Europeans settled here is considerable, amounting to some thousands, who are generally connected with the Hudson's Bay Company, (*q. v.*) In 1870 this immense territory was ceded to the Dom. of Canada, and now forms the prov. of British Columbia and Manitoba and the N.W. Territories (*q. v.*).

Hud'son's Strait, a considerable strait, connecting Hudson's Bay with Davis Strait and the ocean. It is about 450 m. long, and averages 100 m. in width.

Hud'son Mill, in *Virginia*, a post-office of Culpeper county.

Hud'sonville, in *Michigan*, a post-village of Ottawa co., on the Chicago & W. Mich. R.R.

Hudsonville, in *Mississippi*, a post-village of Marshall co., about 200 m. N.N.E. of Jackson.

Hue (*hū*), *n.* [A. S. *hui, heaw;* probably from *ywan*, to show, open, reveal.] Color; tint; dye; tincture.

"Flowers of all *hue*, and without thorn the rose."—*Milton.*

Hue, *n.* [From Fr. *huer*, to hoot, to shout.] A clamorous vociferation; a shouting; an outery; an alarm; almost invariably joined with *cry;* as, *hue* and *cry.*

Hue and cry. (*Eng. Law.*) A phrase used to describe the body of persons joining in the pursuit of a felon. Whoever arrests the person pursued is so far protected, that he requires no warrant to justify the arrest; and even if the party turn out to be no felon, no action can be brought if the arrest was *bonâ fide.* But it is not only a ground of action, but an offence subject to fine and imprisonment, to maliciously and wantonly raise the hue and cry against a person. It is the duty of all persons to join in a hue and cry, and if a person who has been robbed, or knows of a robbery, fail to raise the hue and cry, he is liable to fine or imprisonment, or, according to some authors, to indictment; but these punishments are never inflicted.

Hue, Hue'fo, THUA-THUEN, or SHUNUAN, (*hoo'ay,*) the capital of Anam, Cochin China, on a river of the same name, abt. 10 m. from its mouth in the China Sea; Lat. 16° 19′ N., Lon. 107° 12′ E. The city was thoroughly fortified by French engineers under the direction of the king of Cochin Chiua. *Manuf.* Silks and crape shawls. *Pop.* 132,000.

Huehuetoca, (*hwa-wa-tō'ka,*) or GUEGUETOKA, a vill. of Mexico, about 30 m. N. of the city of Mexico.

Huejociugo, (*hwa-ho-seeng'go,*) or HUEXOCINGO, a vill. of Mexico, about 18 m. N.W. of the city of La Puebla.

Hu'el, *n.* In Cornwall, Eng., a local term denoting a tin mine.

Huelva, (*wel'va.*) [Lat. *Onuba.*] A city and port of Spain, in Andalusia, 57 m. W. of Seville. In the vicinity are mines of sulphur, copper, and manganese. The inhabitants are engaged either in mining or in the dockyards. *Pop.* 7,973.

Hu'er, *n.* Same as BALKER (*q. v.*).

Huer'fano, in *Colorado*, a S. central co. It is bounded W. by the Sangre de Cristo range; Spanish Peak is in its S.E. boundary; *area*, 1,600 sq. m. *Rivers.* Huerfano river and numerous creeks. *Surface*, mountainous; *Cap.* Walsenburg. Pop. (1890) 6,882.

Huer'fano River, in *Colorado*, enters the Arkausas river in Pueblo co.

Huesca (*wēs'cä*). [Lat. *Osca.*] A city of Spain, in Aragon, 30 m. N.E. of Saragossa, on the Isuela. *Manuf.* Leather and linens. Here occurred the incident so well known in history as the *Massacre of the bell. Pop.* 11,100.

Huesear (*wēs'cär*), a town of Spain, in Grenada, and 83 m. N.E. of Grenada. *Manuf.* Woollens and linens. *Pop.* (1890) 5,070.

Hufeland, CHRISTOPH WILHELM, (*hoofe'land,*) an eminent German physician, B. at Langensalza, Thuringia, 1762, who pursued his profession at Weimar, and became, in 1793, professor in the university of Jena. In 1801 he was appointed physician to the king of Prussia, in 1809 professor of medicine in the university of Berlin, and finally director of the academy of military medicine and surgery in 1819. His celebrated work *The Art of Prolonging Life* was published in 1799; his *Counsels to Mothers on Physical Education*, in 1800; and his *History of Health*, in 1812. D. 1836.

Huff, in *Indiana*, a flourishing township of Spencer co.

Huff, *n.* [A. S. *heafen, hcafen*, raised, elevated, *pp.* of *hebban*, to raise; Sp. *chufár*, to mock, to hector, *chufa*, rhodomontade.] A rising of sudden petulance, anger, or arrogance; a fit of spleen or disappointment; a state of sulky humor.—A boaster; a braggart; a braggadocio; a bumptious, self-conceited person.

—*v. a.* To swell; to puff up: to enlarge. "The diaphragm may be easily *huffed* up with air." (*Grew.*)—To hector; to browbeat: to treat with hauteur or insolence; to bluster; to rebuke in a bullying manner.

"You must not presume to *huff* us."—*Echard.*

—*v. n.* To dilate or enlarge, as bread; to swell up, or become distended or inflated.—To swell with pride, arrogance, or self-esteem; to bluster or storm with auger; to bounce or brag; as, a *huffing* coward.

"When Peg received John's message, she *huffed* and stormed like the deuce."—*Arbuthnot.*

—To take away a piece from the board, as in chess or draughts; as, I *huffed* his king.

Huffer, *n.* A blusterer; a bully; a fire-eater; a braggart; as, a "braggadocio *huffer*."—*Hudibras.*

Huffiness, *n.* State or condition of being huffed, puffed up, or sulky; petulance; noisy bluster; huffishness.

Huffish, *a.* Arrogant; petulant; having a disposition to assume blustering or bullying airs.

Huffishness, *n.* See HUFFINESS.

Huffy, *a.* Swelled; distended; puffed up; as, *huffy* bread.—Petulant; being in ill-humor; exhibiting bluster, arrogance, or pique; as, a *huffy* person.

Hug, *v. a.* [Ger. *hegen;* O. Ger. *hagjan*, to foster, to cherish; Goth. *hubjan*, to treasure up.] To press close in an embrace; to enfold closely; to clasp to the breast; to hold to the heart; to grasp or gripe; as, to *hug* a pretty girl. "He *hugg'd* me in his arms." (*Shaks.*)—To clasp or embrace with some degree of pressure; to hold fast; to fondle; to treat with tenderness.

"Admire yourself . . . and *hug* your darling book." *Lord Rosc.*

—To gripe in wrestling or scuffling.

(*Naut.*) To keep in the vicinity of, or close to; as, the ship *hugs* the land, to *hug* the wind.

To hug one's self, to indulge in self-gratulation; to flatter one's self; to chuckle with inward glee.

—*v. n.* To close up; to cuddle; to mass or crowd together; as, to *hug* with cattle.

—*n.* A close embrace; a forcible clasp.—A particular gripe or grasp in wrestling; as, the Cornish *hug.*

Huge, (*hūj,*) *a.* (*comp.* HUGER, *superl.* HUGEST.) [A. S. *heag:* Dan. *hoog*, high; Swed. & Goth. *hög*, high, great. See HIGH.] High, with breadth and bulk; enormous; immense; gigantic; of great or excessive size; prodigious; as, a *huge* mountain.—Very large in extent; carried to a great or extended degree or compass;—commonly applied to space, distance, &c.; as, a *huge* difference, a *huge* feeder, a *huge* folly.

Huge'ly, *adv.* Enormously; immensely; very greatly; as, *hugely* deceived.

Huge'ness, *n.* State or quality of being huge; enormous bulk; excessive size; as, the *hugeness* of an elephant.

Hugeous, (*hū'jus,*) *a.* Huge. (A vulgarism.)

Hug'ger, *n.* One who hugs, clasps, or closely embraces.

Hug'ger-mugger, *n.* [O. Eng.; Scot. *huggrie-muggrie.*] Secrecy; privacy; ambush.

"A thing that's done in *hugger-mugger*, under the seal of secresy and concealment."—*L'Estrange.*

—*a.* Clandestine; surreptitious; secret; sly; underhand; as, *hugger-mugger* love-making.—Mean; paltry; contemptible; sordid; disorderly; higgledy-piggledy; as, a *hugger-mugger* way of living.

Hugh Capet, founder of the third race of French monarchs, was count of Paris and Orleans. *H.* was proclaimed king of France at Noyen, 987, and D. 996, aged 57.

Hughes, THOMAS, a popular English novelist, B. 1823, and educated at Rugby (under Dr. Arnold), and at Oxford. He was called to the Bar in 1848. In 1856, he published *Tom Brown's School-days*, which proved eminently popular, and has gone through many editions both in England and in this country. A sequel to this work, entitled *Tom Brown at Oxford*, appeared in 1861, but failed to achieve the popularity of its predecessor. In 1858, he produced *The Scouring of the White Horse*, and, in 1865, was returned to the British House of Commons as member for Lambeth, which he continued to represent till 1874. In 1880 he took a prominent part in founding the town of Rugby, Tenn., and in 1882 became judge of the county court. The town was not a success, and *H.* returned to England. Died March 22, 1896.

Hughes River, in *West Virginia*, enters the Little Kanawha river in Wirt co.

Hughes'ville, in *Maryland*, a post-vill. of Charles co.

Hughes'ville, in *New Jersey*, a village of Warren co., about 18 m. S. by W. of Belvidere.

Hughes'ville, in *Pennsylvania*, a post-borough of Lycoming co., 19 m. E. of Williamsport. *Pop.* 1,358.

Hughes'ville, in *Virginia*, a P. O. of Loudoun co.

Hugh'sonville, in *New York*, a post-village of Dutchess co., abt. 60 m. N. of New York city.

Hu'go, VICTOR MARIE, VICOMTE, a distinguished French poet, politician, and man of letters, B. at Besançon, 1802, his father being a colonel in the French army. He received a classical education in a religious house, and, in 1822, brought out the 1st vol. of his *Odes and Ballads;* and his tales *Hans of Iceland*, and *Bug Jargal*, were also written about this time. In 1826 he published a second vol. of the *Odes and Ballads*, which exhibited a change in his political and literary opinions, and, in 1827, he composed his drama *Cromwell.* In 1829 he published his *Last Days of a Condemned Criminal*, a work which, owing to its fearful interest, secured an immense success. *H.* prepared a further attack on the classical style of French dramatic literature in his *Hernani*, first played at the Théâtre Français in 1830, when it caused a scene of riotous confusion. The French Academy went so far as to lodge a complaint against

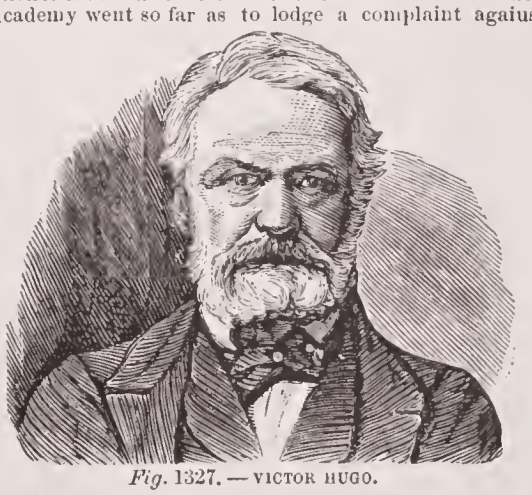


Fig. 1327.—VICTOR HUGO.

H.'s attempted innovations at the foot of the throne. Charles X. sensibly replied, that "in matters of art he was no more than a private person." Shortly after the revolution of July, 1830, his *Marion de Lorme*, which had been suppressed by the censorship under the Restoration, was performed with success. *Le Roi s'Amuse* was also performed at the Théâtre Français in Jan., 1832, but was indicted by the govt. the day after. His lyrical poems, *Les Orientales*, published in 1828, and *Les Feuilles d'Automne*, which appeared in 1832, were received with enthusiasm. *H.*, who published afterwards a number of dramatic pieces of various merit, was, after much opposition, admitted into the Academy in 1841, and was created a peer of France by Louis-Philippe. In 1849 he was chosen president of the Peace Congress of which he had been a leading member. On the *coup d'état* of Dec. 2, 1851, *H.*, then a member of the legislative assembly, was among those deputies who vainly attempted to assert the rights of the assembly and to propose the constitution. His conduct led to his proscription. He took refuge in the island of Jersey, and subsequently in that of Guernsey, having steadfastly refused to avail himself of the general amnesties issued in 1859 and in 1869. He wrote much after he had left France. His very trenchant satire, *Napoléon le Petit* (Napoléon the

Little,") appeared at Brussels in 1852, and was rigorously suppressed in France, into which country it had been smuggled. *Les Châtiments* was brought ont in 1852, also in Brussels; and in 1856 he published, under the title *Les Contemplations*, a collection of lyrical and personal poems which are among his best performances. *H.*'s admirable romance *Notre-Dame de Paris* has been translated into most European languages, and is known in England and the U. States under the title of the *Hunchback of Notre-Dame*. His social romance, *Les Misérables*, in which the author, with great splendor of sentiment, keenness of analysis, and passionate dramatic force, handles, in the form of a story, some of the most important social questions, appeared in 1862. On the fall of the empire in 1870 he returned to France, was elected to the National Assembly, but soon resigned and repaired to Brussels, whence he was expelled by the government on account of the violence of his political writings and his sympathy with the Communists. Returning to Paris, he was (1876) elected a senator for six years. Of his later works may be mentioned *The Man Who Laughs*, *The History of a Crime*, and *Les Quatre Vents de L'Esprit*, a volume containing some of his most charming lyrics. Died in Paris, May 22, 1885, and was buried in the Pantheon.

Huguenot, (*hu'je-not,*) *n.* (*French Hist.*) A term of contempt formerly applied in France to the early followers of Luther and Calvin. The origin of the word is uncertain; but it is stated to be derived from *eidgenossen*, "bound together by oath," a term borrowed from the motto of the confederate cantons of Switzerland by certain inhabitants of Geneva, who were among the earliest to introduce reformed notions upon religion into France. The word has now fallen into disuse in the French language, the followers of Calvin being called Réformés, while the disciples of Luther are included, together with the former, under the general appellation of Protestant. The history of the rise and progress of the Huguenots forms one of the chief chapters in the annals of France. For some time after their establishment as a sect, the Huguenots continued to increase in numbers, although they were troubled with occasional persecutions under the reigns of Francis I. and Henry II., until the year 1560, when they took part in the conspiracy of Amboise. By the edict of January, 1562, the right of the free exercise of their religion was restored to them; but in truth this edict was worthless to them, and they were forced to rise *en masse* to save themselves from the persecutions of the government. The leaders were the Prince de Condé, Admiral Coligny; and, indeed, they numbered among them some of the noblest and most influential houses in France. Although thus powerful, the wars of the 16th century soon decimated them, and they gradually lost ground under the continual aggressions of the Catholic body. After the conversion — or perversion — of Henry IV., most of the nobles abandoned the failing cause of the Huguenots. They, however, managed to sustain two civil wars against Louis XIII. in the following century. The history of the Protestant Church in France then ceased to have any political bearing, and the name Huguenot itself soon passed out of ordinary use. See *Hist. of the Rise of the H. of France*, Baird (N. Y., 1879).

Hu'guenotism, *n.* [Fr. *huguenotisme.*] The religion of the French Huguenots.

Hulk, *n.* [A.S. *hulc*, a den, cabin; D. *hulk*, a kind of ship; M. H. Ger. *holche*, from Gr. *holkas*, a ship of burden, from *helkō*, to draw.] The body of an old vessel, unfit for further service at sea; as, a battered *hulk*. See Hull. — Any thing bulky or unwieldy; — in Scotland, applied to a man.

"Harry Monmouth's *hulk*, Sir John, is prisoner." — *Shaks.*

(*Mining.*) In Cornwall, England, an old excavated working.

Sheer hulk. (*Naval.*) An old vessel of war, usually a 74-gunship, razeed or cut down to the lower and fitted up with a pair of sheers, for the purpose of taking out and replacing the lower masts of ships fitting out for sea.

The hulks. In England, the name given to worn-out or dismasted ships, formerly used as floating prisons.

—*v. a.* To eviscerate; to take out the entrails of; to gut; as, to *hulk* a rabbit.

Hulk'y, *a.* Bulky; clumsy: unwieldy; as, a big *hulky* fellow. (Used as provincial English.)

Hull, *n.* [A. S. *hul;* Ger. *hülle*, a covering; W. *hul, hulian;* Sansk. *hul*, to cover.] The husk, integument, or outer covering of anything, particularly of grain, nuts, &c.; a pod.

(*Naut.*) The frame or body of a ship or other vessel, excluding masts, yards, sails, and all running and standing gear and rigging. (When dismantled, as being unfit for further service, it is called a *hulk*, q. v.)

"Dead in their *hulls* our deadly bullets light." — *Dryden.*

Hull down. (*Naut.*) The position of a ship at sea, whose hull is below the horizon, while her upper masts are visible to a distant observer. — *To lie a-hull*, to lie as a ship when not under sail, and with helm lashed a-lee. — *To strike a-hull*, to take in sail during heavy weather, and lash the helm a-lee; — said of a ship.

—*v. a.* To husk; to strip off the outer covering, skin, or other integument; as, to *hull* peas. — To pierce the hull of a ship with a cannon-shot, or with a broadside from heavy guns; as, we *hulled* her under the water-line.

—*v. n.* To float, or drive to and fro on the water, like a ship without sails or rudder.

"He looked, and saw the ark *hull* on the flood." — *Milton.*

Hull, Isaac, a commodore in the U. States service, b. in Derby, Conn., 1775. He distinguished himself during the war with Tripoli, 1802–5, but is chiefly recorded for his gallant conduct at the opening of the war between the U. States and Great Britain, and especially, July, 1812, the capture of the English frigate, the *Guerriere*, which surrendered after having lost all its masts and 79 men killed and wounded. *H.* was then in command of the frigate *Constitution*. D. in Philadelphia, 1843.

Hull, a river of England in Yorkshire, flows from the E. Wolds into the Humber, at Hull. Length 30 m.

Hull, or Kingston-upon-Hull, a parliamentary borough and seaport of England, in Yorkshire, 36 m. S.E. of York, and 150 m. N. of London, at the confluence of the Hull and Humber. *H.* has magnificent docks, and is the great outlet for the woollen and cotton goods of the midland counties, with all of which it is in direct communication, by means of railroad, river, or canal. Many shipbuilding yards are in operation here, and the chief manufactures are those principally to which a flourishing port gives rise, as ropes, canvas, chain, chain-cables, machinery, &c. Many mills of various kinds are here carried on, as well as chemical factories, tanneries, potteries, and sugar-refineries. Immense commercial intercourse exists between *H.* and the countries of northern Europe. *Pop.* (1897) abt. 201,500.

Hull, a village of prov. Quebec, co. of Ottawa, on the Ottawa river, opposite Ottawa.

Hull, in *Massachusetts*, a post-town and township of Plymouth co., about 9 miles S.E. of the city of Boston. *Pop.* (1895) 1,044.

Hull, in *Wisconsin*, a flourishing post-township of Portage co.

Hull'er, *n.* One who, or that which, hulls; particularly, an agricultural implement for hulling or husking corn.

Hull'-gull, *n.* A pastime for children.

Hull's Mills, in *New York*, a P. O. of Dutchess co.

Hul'ly, *n.* Having hulls, husks, or pods; siliquose; cuticular.

Hulme'ville, in *Pennsylvania*, a post-borough of Bucks co., about 20 m. N.E. of Philadelphia.

Hu'loist, *n.* Same as Hyloist, (*q. v.*).

Huloth'eism, *n.* Same as Hylotheism, (*q. v.*).

Hul'ton, in *Penna.*, a village of Allegheny co., 12 m. N.E. of Pittsburgh. Its P. O. is Oakmont. *Pop.*(1897) about 2,100.

Hul'ver, *n.* [O. Eng. *hulfere.*] The Holly, *Ilex aquifolium.* — See Ilex.

Hum, *v. n.* [Ger. *hummen*, allied to *summen*, to hum as bees; Gr. *bombos*, a humming; formed from the sound.] To utter a sound like that of bees; to buzz; to make a dull, protracted, nasal sound; to drone; to make a murmurous noise; as, the *humming* of a top.

—To pause in speaking, and make an audible noise, like the humming of bees; to make a drawling, nasal utterance, whether from embarrassment or affection; as, to *hum* and haw. — See Haw.

"I . . . never *humm'd* and haw'd sedition." —*Hudibras.*

—To make an inarticulate, buzzing sound; to drone; to mumble; to utter in a sing-song tone of voice.

"To bite his lip, and *hum* at good Cominius, much unhearts me." *Shaks.*

—To make a dull, heavy, deep noise, like a drone.

"Still *humming* on, their drowsy course they keep."—*Pope.*

—*v. a.* To sing in a low voice, or in a murmurous tone; to sing or utter inarticulately; as, to *hum* an air.

—To applaud or greet with a murmuring noise; to receive a buzz of approbation. — To cajole; to dupe, by a plausible tone of voice; to flatter by soothing words. (Colloquially used.)

—*n.* The noise made by bees or insects during flight; the sound given forth by a revolving top, or whirling-wheel, &c.; a murmur; a buzz; a droning sound.

"The shard-borne beetle with his drowsy *hums*."—*Shaks.*

—Any inarticulate, or murmurous and buzzing sound; as, (1.) A low, confused sound, as of crowds at a distance. (2.) A low, inarticulate sound, uttered by a speaker in a pause of hesitation or embarrassment. "*Hum* and ha will not do the business." (*Dryden.*) (3.) A subdued expression of applause; a buzz or murmured utterance of approbation.

"Ye hear a *hum* in the right place."—*Spectator.*

—A hoax; a deception; an imposition; a bam.

Hum, *interj.* Ahem; hem: a sound given with a pause, implying hesitation, doubt, embarrassment, or deliberation.

"*Hum!* I guess at it."—*Shaks.*

Hu'man, *a.* [Fr. *humain;* Lat. *humanus*, from *homo*, a man, a human being. Etymol. unknown.] Belonging to man, or mankind; having the faculties, qualities, or attributes of a man; pertaining or having reference to the race of man; as, *human* nature, *human* life, a *human* voice.

"To err is *human*, to forgive divine."—*Pope.*

—*n.* A human being; a creature of mankind. (R.)

Humane', *a.* [Fr. *humain;* Lat. *humanus.*] Having the feelings or dispositions proper to man; possessing and exhibiting tenderness and compassion; kind; benevolent; pitiful; compassionate; merciful; inclined to treat the brute creation with kindness; — opposed to *cruel.*

Humane'ly, *adv.* In a humane manner; kindly; tenderly; compassionately; benevolently; as, he was treated *humanely.*

Humane'ness, *n.* State or quality of being humane; humanity; tenderness; compassion.

Human'ics, *n. sing.* The science of human nature; the doctrine of humanity.

Human'ify, *v. a.* [Lat. *humanus*, human, and *facere*, to make.] To make human; to endue with the personality of human nature; to incarnate. (R.)

Hu'manist, *n.* A student of humanity. — Polite literature, (*belles-lettres;*) — used in some of the European universities.

—One skilled in the knowledge of human nature.

Humanita'riau, *n.* [Fr. *humanitaire.*] A term sometimes applied to those who deny the divinity of Christ, and assert Him to have been *mere man.* The term, however, is also sometimes applied to the disciples of St. Simon, and in general to those who look to the perfectibility of human nature as their great moral and social dogma, and ignore altogether the dependence of man upon supernatural aid, believing in the all-sufficiency of his own innate powers. — See Socinian, Unitarian.

—*a.* Relating or belonging to humanitarians, or to the doctrines held by them.

Humanita'rianism, *n.* The doctrines advanced by the humanitarians.

Humanity, *n.* [Fr. *humanité;* Lat. *humanitas*, from *humanus*, human.] The peculiar nature or individuality of man by which he is distinguished from other beings; state or quality of being human, or of the race of mankind. — The human race; the collective body of mankind.

"A suffering, sad *humanity!*" — *Longfellow.*

—The kind feelings, dispositions, and sympathies of man, by which he is distinguished from the lower orders of animals.—Quality of being humane; kindness; benevolence; compassion; exercise of philanthropy; acts of tenderness and charity.

"How few, like thee, enquire the wretched out,
And court the offices of soft *humanity?*" — *Rowe.*

—Liberal education, or mental education; training and polishing of the faculties given to man; teaching in classical studies, and polite literature.

—*pl.* The branches of elegant learning or polite literature, including grammar, rhetoric, poetry, and the study of the ancient classics.

Humaniza'tion, *n.* Act of humanizing, or rendering human.

Hu'manize, *v. a.* [Fr. *humaniser.*] To make human; to civilize; to render humane; to subdue or eradicate barbarous dispositions in, and convert to susceptibility of kind feelings and benevolent actions.

"My tears shall flow to *humanize* the flints."— *Wotton.*

—*v. n.* To become human; to be made humane or more humane; to become civilized, improved, or made more excellent.

Hu'manizer, *n.* One who humanizes or renders humane.

Hu'mankind, *n.* Mankind; the race of man; the human species of beings.

"This is the porcelain clay of *humankind.*" — *Dryden.*

Hu'manly, *adv.* In a human manner; after the manner of mankind; according to the notions, opinions, power, or knowledge of men.

Hu'mansville, in *Missouri*, a post-village of Polk co., abt. 110 m. S.W. of Jefferson City.

Humation, (*hu-mā'shon,*) *n.* [Lat. *humatio.*] Interment; act of inhumating or burying. (R.)

Humber, [Lat. *Abus.*] one of the largest rivers in England, dividing Yorkshire and Lincolnshire. It is formed by the Ouse, Ayr, Dun, and Trent, and falls after a course of 36 m. into the German Ocean.

Humber, a river of Newfoundland, enters the Gulf of St Lawrence through the Bay of Islands. *Length,* abt. 156 m.

Hum'-bird, *n.* (*Zoöl.*) The Humming-bird, *q. v.*

Humble, (*um'bl,*) *a.* [Fr., from Lat. *humilis* — *humus*, earth, the ground.] Near the ground; not high or lofty; low; mean; poor; insignificant; unpretending; as, a *humble* dwelling, *humble* fare.

"From *humble* Port to imperial Tokay." — *Townley.*

—Lowly; modest; meek; submissive; not proud, arrogant or assuming; diffident; without self-sufficiency or undue aspirations or pretensions.

"A soft, meek, patient, *humble*, tranquil spirit." — *Dekker.*

To eat humble pie, to take up with humble fare; to be reduced to a mean diet; — hence, to endure dispraise, mortification, or abasement; to swallow an insult or endure an injury without resentment; to appear meanly; to act cowardly. (Said to have originated from a former custom of eating of a pie made from the *humbles* (entrails) of a deer.)

—*v. a.* To bring down from an elevated or high state; to abase; to lower; to depress; to degrade; to reduce from power or importance to lowliness or insignificance.

"The executioner falls not the axe upon the *humbled* neck,
But first begs pardon." — *Shaks.*

—To make humbly or lowly in mind; to abase or cut down the pride of; to make to condescend; to make meek and submissive; to mortify or make ashamed.

"Fortune not much of *humbling* we can boast." —*Pope.*

Hum'ble-bee, *n.* (*Zoöl.*) See Apidæ.

Hum'ble-cow, *n.* A cow without horns.

Hum'ble-mouthed, *a.* Mild; meek; staid; demure.

"You are meek and *humble-mouthed*, but your heart is cramm'd with arrogancy."—*Shaks.*

Hum'bleness, *n.* State or quality of being humble or lowly; humility; meekness; diffidence.

"A grain of glory, mixed with *humbleness*,
Cures both a fever and lethargicness." — *Herbert.*

Hum'ble-plant, *n.* (*Bot.*) See Mimosa.

Hum'bler, *n.* He who, or that which humbles or mortifies.

Humbles, (also written Umbles,) *n. pl.* (*Venery.*) The entrails of a deer.

Humbly, *adv.* In an humble manner; meekly; submissively; with modest humility; lowly; as, I *humbly* ask your pardon.

"They . . . come *humbly* as they used to creep to holy altars." *Shaks.*



Alexander von Humboldt

1769–1859

Hum'boldt, Friedrich Heinrich Alexander von, the greatest naturalist of his time, b. at Berlin, 1769, the same year that gave birth to Napoleon, the Duke of Wellington, and many other distinguished persons. He was educated at Frankfort-on-the-Oder, Göttingen, at Hamburg, and at the mining-school of Freiberg. From the earliest period he evinced a faculty for physical inquiry, which he assidnously cultivated by the study of chemistry, botany, geology, and galvanism. At Göttingen he became acquainted with George Forster, to whose *Delineation of the South-Sea Islands* he attributes the earliest excitement of his desire to visit the tropics, and in company with whom he made his first tour. In 1790 he accompanied Forster in a tour through the Rhine districts and Holland, and afterwards visited England with him. His scientific observations made in Germany were afterwards published in 1790, under the title of *Mineralogical Considerations on Certain Basaltic Formations on the Rhine.* His intention being to seek employment in the civil service of the Prussian kingdom, he subsequently went to Hamburg to study bookkeeping and the other forms of commercial knowledge, and afterwards studied in the mining academy of the eminent Werner, at Freiberg. In 1792 he obtained the post of mining superintendent in the works of Bayreuth, in which situation he remained till the year 1795, during which time he wrote many scientific articles for the German periodicals, and published a botanical work in



Fig. 1328. — ALEXANDER VON HUMBOLDT.

Latin, called *Specimens of the Flora of Freiberg.* Soon after the production of this work he resigned his post as mining superintendent, having determined to explore those parts of the world which had been unvisited by travellers. "I had, from my earliest youth," he says, "felt a burning desire to travel in distant lands unexplored by Europeans." The disturbed state of the continent at the time, owing to the wars consequent on the French revolution, prevented him from executing his design for about two years, during which time he resided at Jena, and became acquainted with Göthe and Schiller, and occupied himself with the composition and publication of *Investigations on the Muscles and Nerve-fibres, with Conjectures on the Chemical Process of Life,* and *On Subterranean Gases,* — two small works which established his reputation as a natural philosopher. A short visit to Italy was made in 1799, and in the same year he went to Paris, with the view of accompanying the expedition about to be dispatched from that city to Egypt. The expedition was abandoned; but Humboldt made the acquaintance of Bonpland, who was to have been the naturalist of the journey, and the two learned men resolved to undertake a great enterprise together. Their first idea was to explore Northern Africa: but, being prevented by the English cruisers in the Mediterranean, they landed in Spain, and obtained permission from the government to travel in the Spanish possessions of South America. In the month of May, 1799, the two travellers embarked at Corunna, and, eluding the English cruisers watching the port, reached Teneriffe, where they ascended the peak and collected some valuable scientific data. Going on board their vessel again, they sailed for Cumana, in South America, which was reached in July. Humboldt and his companion now proceeded to explore the great South American continent, and to collect a body of scientific information, during five years of adventurous research, hitherto unparalleled. For 65 days he navigated, in an Indian canoe, the Orinoco, the Rio Negro, and the Atabapo, discovering the connection between the Orinoco and the Amazon. The botany, mineralogy, geology, the physical aspects of the country, and the habits of the natives, were all observed and noted during this great journey. He now returned to the coast and embarked for Havana, where he sojourned for some time. Returning to South America in 1801, he travelled southward till he reached Lima, crossing the Cordilleras and Andes five times during the journey. In June, 1802, he ascended Chimborazo to an elevation of 19,300 feet, the highest point of the mountain ever attained by a human being. In December, 1802, he embarked for Guayaquil, and in the April following reached Mexico, in exploring which and the adjoining countries he spent a year. Wishing to complete his scientific observations of the island of Cuba, he once more set sail for Havana, in 1804. A visit to the United States, and a short stay in Washington and Philadelphia succeeded, after which he quitted America for France, and arrived at Bordeaux in August, 1804. He spent nine months in Paris arranging his notes, and assisting Gay-Lussac in making some experiments relative to the chemical composition of the atmosphere. After spending a short time in Italy and at Berlin, where he obtained permission from the king to take up his residence in the French capital while his works were being printed, he returned to Paris. In 1807 appeared the first of a large number of volumes, all published under the general title of *Travels of Humboldt and Bonpland in the Interior of America between the years* 1799–1804. In this magnificent undertaking, composed partly in Latin, partly in French, he was assisted by Oetmans for the astronomical, Arago and Gay-Lussac for the chemical and meteorological, Cuvier for the zoölogical, and Klaproth for the mineralogical divisions. It was mainly divided into six great sections, which again were subdivided into many more, the botanical portion alone consisting of twenty volumes, embellished with 1,200 plates. He spent a portion of the years 1827–28 at Berlin, whither he had been invited by the king of Prussia; in 1829 he, at the express desire, and at the sole expense, of the emperor Nicholas, set out with Rose and Ehrenberg to explore the eastern provinces of Russia, and in nine months travelled, between St. Petersburg and the Chinese frontier, over a distance of 2,320 geographical miles. The results of this expedition were published by him at Paris in 1843, under the title of, *Central Asia; Researches on its Mountain-chains and Climatology.* Between the years 1830 and 1848, although he desired to keep aloof from politics, he was intrusted by the king of Prussia with several diplomatic missions to the court of Louis Philippe. In 1848 he went to reside near the king of Prussia, whose court he ornamented till his death. In 1845 he commenced his great work *Kosmos, or a Physical Description of the Universe,* which was concluded in 1851, and which has become exceedingly popular in an English translation. He was a member of almost every scientific body in the world; an associate of the Academy of Sciences of Paris and Berlin; was decorated with many orders, and was a grand officer of the French Legion of Honor. By the labors of his long and valuable life he earned the title of creator of the science of comparative geography, and reviver of the study of the natural sciences. In addition to those already quoted, a few of his most important works may be given: *Essay on the Chemical Analysis of the Atmosphere; Pictures of Nature; Essay on Electrical Fishes; Essay on the Geography of Plants; Causes of the Difference in Temperature of various portions of the Earth's Surface; Fragments of Asiatic Geology and Climatology;* and *The Progress of Nautical Astronomy during the Fifteenth and Sixteenth Centuries.* D. 1859. The best biography of this great man is that of Prof. Karl Bruhns (3 vols., 8vo, Leipsic, 1872), excellently translated into English by the Misses Lassell (2 vols., 8vo, London, 1872).

Hum'boldt, Carl Wilhelm, Baron von, a distinguished philologist, classical critic, and diplomatist, was elder brother of the above; with whom he pursued an educational career at the universities of Göttingen and Jena. When very young, he wrote many essays on the Greek poets and philosophers; but his first work of consequence was a critical essay on Göthe's "Hermann and Dorothea." In 1802 he was nominated to the post of minister plenipotentiary to Rome; resigning this in 1808, he became head of the department of public instruction, which he quitted to retire into private life, two years afterwards. In 1812 he became Prussian ambassador at the court of Vienna; represented his country at the conference of Prague, in 1813; and signed, with Hardenberg, the treaty of Paris. In 1819 he was recalled from England, where he was ambassador, to Berlin, to assume the functions of minister and privy councillor; but not agreeing with his sovereign as to his retrograde policy, he tendered his resignation, and once more sought a retired life. He now occupied himself with the study of classical and semi-civilized languages and comparative grammar, varying these pursuits with critical essays on poetry, philosophy, and the fine arts. He published a small number of poems, but, on the advice of Schiller, he abandoned creative for critical authorship, for which his mind was more fitted. He wrote critical essays on Sanskrit poetry, and on Wolf's edition of Homer's "Odyssey;" published *An Examination of the Basque Language,* and a treatise on the Celts and Iberians; besides a very large number of smaller works on classical literature and on speculative physiology. The latter years of his life were occupied with the study of the Malay and American languages; but failing health caused him to abandon the American in order that he might conclude his researches in the Malay tongue. At the time of his death he had almost completed his task, and his work was afterwards published by Dr. Buschmann, in 1836. D. 1835.

Hum'boldt, in *California*, a N.W. co., bordering on the Pacific Ocean; *area*, abt. 2,880 sq. m. *Rivers.* Eel, Elk, Mad, and Mattole rivers. *Surface*, diversified: *soil*, fertile. *Min.* Iron ore and gypsum. *County-town*, Eureka. *Pop.* (1890) 23,469.

Hum'boldt, in *Illinois*, a thriving post-village of Coles co.

Hum'boldt, in *Iowa*, a N.W. co.; *area*, about 432 sq. m. *Rivers.* Des Moines, and numerous smaller streams. *Surface*, generally level; *soil*, fertile. *Cap.* Dakota. *Pop.* (1895) 11,431.

—A post-village of Humboldt co.

Hum'boldt, in *Kansas*, a fine city, cap of Allen co., on M., K. & T. and A., T. & S. Fé R. Rs., 60 miles S.E. of Emporia. *Pop.* (1895) 1,474.

Hum'boldt, in *Minnesota*, a post-office of Kittson co., on the Great Northern R. R., about 10 m. S.E. of the extreme northwestern corner of the State.

Humboldt, in *Michigan*, a post-village of Marquette co. *Pop.* (1894) 580.

Humboldt, in *Missouri*, a post-office of Reynolds co.

Humboldt, in *Nevada*, a N.W. co., adjoining Oregon; *area*, about 16,580 sq. m. *Rivers.* Humboldt and Owyhee rivers, besides numerous lakes. *Surface*, mountainous. *Soil*, in some parts fertile. *Min.* Gold, silver, and sulphur. *Cap.* Winnemucca. *Pop.* (1890) 3,434.

Humboldt, in *Tennessee*, a post-village of Gibson co., about 82 m. N.E. of Memphis. *Pop.* (1897) 1,854.

Humboldt, in *Wisconsin*, a township of Brown co.

—A village of Milwaukee co., about 5 m. N. of Milwaukee city.

Humboldt Bay, in *California*, an arm of the Pacific Ocean, in Humboldt co., about 270 m. N. of San Francisco. It is one of the best harbors on the coast, having 21 feet of water on the bar.

Humboldt House, in *Nebraska*, a post-office of Humboldt co., on the Humboldt river and the So. Pac. R. R., 40 miles S.W. of Winnemucca.

Hum'boldtilite, *n.* (*Min.*) A var. of Melilite, *q. v.*, occurring in crystals in geodes, in lava at Mount Somma, near Naples.

Hum'boldtine, *n.* (*Min.*) A yellow substance found in brown-coal at Koloseruk, Bohemia, and Kettle Point, Canada. *Sp. gr.* 2·13 to 2·48. *Comp.* Oxalic acid 42·1, protoxide of iron 42·1, water 15·8. When insulated, it becomes negatively electrified by friction.

Hum'boldtite, *n.* (*Min.*) Same as Datolite, *q. v.*

Hum'boldt Lake, in *Nevada*, a beautiful lake of Humboldt co., in Lat. 40° 10′ N., Lon. 118° 40′ W. It covers an area of abt. 180 sq. m., and receives Humboldt River, but has no outlet.

Hum'boldt River, or Mary's River, in *Nevada*, rises in the N.E. part of the State, and flows a general W. and S.W. course to Humboldt Lake.

Hum'boldt River Mountains, in *Nevada*, a mountain chain of Lander co., running N. and S. Humboldt River rises on their W. slope.

Hum'bug, *n.* [Etymol. uncertain.] A hoax; a trick of deception; an imposition plausibly contrived; something devised in order to dupe, mislead, or mock; a piece of trickery; sham; tomfoolery. — Trickishness; cajolery with a view to deceive or mislead; spirit of mischievous imposition; deviltry. — A trickster; a hoaxer; an impostor; a charlatan; a pretender; and, sometimes a fool.

—*v. a.* To impose on; to hoax; to trick; to deceive; to mislead; to cajole; — in short, to make a fool of, or to cause one to feel or appear ridiculous. (Colloquially used.)

Hum'bug, in *California*, an unimportant village of Plumas co.

Hum'bugger, *n.* One who humbugs another or others.

Hum'buggery, *n.* Art of humbug; practice of trickery or imposition.

Hum'drum, *a.* [Icel. *humma*, to hum, and *draumr*, a drum.] Dull; stupid; trite; dejected; tedious; as, "an old, *humdrum* fellow." — *Addison.*

Hume, David, a celebrated English historian, philosopher, and miscellaneous writer, b. at Edinburgh, 1711. He was designed for the law, but having no inclination to that profession, he became, in 1734, clerk in an eminent mercantile house at Bristol. He did not, however, continue long there; for, having a strong propensity to literature, he resolved to apply himself to study, and for the sake of seclusion went to France, where he wrote his *Treatise of Human Nature*, published in London in 1738. This work, however, excited no interest, friendly or hostile, on its first appearance. It holds an important place in the history of philosophy, as a lucid, logical development of the sceptical conclusions that flow from the philosophy of John Locke. *H.*'s *Essays,*



Fig. 1329. — DAVID HUME, (after Allan Ramsay.)

Moral, Political, and Literary, appeared in 1742 and 1752, and were favorably received. In 1745 he was invited to reside with the young marquis of Annandale, whose state of mind rendered a guardian necessary. Here he spent a year; meanwhile, the chair of moral

philosophy in the university of Edinburgh having become vacant, he became a candidate, but failed. In 1746 he became Secretary to General St. Clair, whom he accompanied to the courts of Vienna and Turin. In 1752 appeared at Edinburgh his *Inquiry concerning the Principles of Morals*, which of all his writings is considered the best. In 1754 he published the first volume of his *History of England*, which he did not complete till 1761. While this work was in progress he published *The Natural History of Religion*, which was attacked by Warburton in an anonymous tract, ascribed at the time to Mr. Hurd. His great work, *The History of England*, had now acquired considerable celebrity, and the author gained largely by its popularity, for besides the profits it brought him, he obtained a pension through Lord Bute. In 1763 he accompanied the Earl of Hertford on his embassy to Paris, from whose fashionable and literary circles he received an enthusiastic welcome; and where, in 1765, he remained as *chargé d'affaires*. The year following he returned home, accompanied by Jean Jacques Rousseau, to whom he behaved with great delicacy and generosity, but was ill requited by the morbid sensitiveness and suspiciousness which the "philosopher of Geneva" allowed himself to indulge against his friend and benefactor. He became undersecretary of State in 1767. In 1769 he returned to his native country on an independent income of £1,000 per annum, and D. 1776.

Hume, in *Michigan*, a thriving township of Huron county.

Hume, in *New York*, a post-town and township of Allegany co., 12 m. N. W. of Angelica. *Pop.* (1897) about 2,100.

Humec'tant, *a.* [Fr., from Lat. *humecto*, *humectans*, to wet.] (*Med.*) Applied to medicines which are supposed capable of softening by making the solids of the body moist.

Humec'tate, *v. a.* To wet; to moisten. (R.)

Humecta'tion, *n.* [Fr.] The act of wetting; moistening. (R.)

Hu'mefy, *v. a.* [From Lat. *humidus*, moist, and *facio*, to make.] To make moist; to soften with water. (R.)

Hu'meral, *a.* [Fr. *huméral*, from Lat. *humerus*, the shoulder.] That belongs to the humerus or shoulder.

H. Artery. (*Anal.*) The axillary artery, having passed the tendon of the great pectoral muscle, changes its name to the brachial or humeral artery, which name it retains in its course down the arm to the bend, where it divides into the radial and ulnar arteries.

Humerpoor, (*hoo'mer-por.*) a district of Hindostan, in the N.W. provinces, extending from Lat. 24° to 27° N., Lon. 71° to 74° 20′ E. *Manuf.* Cotton, paper, and sugar-refining. *Prod.* Corn, sugar, cotton, and indigo. The country is mostly level. *Pop.* 330,000. — Its cap., of the same name, is on the right bank of the Jumna, 150 m. N.N.W. of Agra; *pop.* 17,100.

Hu'merus, *n.* [Lat.] (*Anal.*) The bone of the arm. It constitutes the first of the radiated system of bones of the anterior extremity in vertebrated animals, articulated with the scapula.

Hum'hum, *n.* A kind of plain, coarse, Indian cloth made of cotton.

Hu'mic Acid, *n.* [From Lat. *humus*, the ground.] (*Chem.*) An acid obtained from humus, by treating it with a dilute boiling solution of caustic potassa and adding an acid. The *H. A.* is precipitated as a flocculent brown substance but slightly soluble in water.

Hu'mid, *a.* [Fr. *humide;* Lat. *humidus*, from *humeo*, to be moist or damp.] Moist; damp; containing sensible moisture; somewhat wet or watery.

Humid'ity, *n.* [Fr. *humidité.*] Moisture; dampness; a moderate degree of wetness; moisture in the form of visible vapor, or perceptible in the air.

Hu'midly, *adv.* In a humid manner.

Hu'midness, *n.* Humidity.

Hu'mifuse, *a.* [Lat. *humifusus*, from *humus*, the ground, and *fundo*, I pour or spread out.] (*Bot.*) Applied to plants which spread over the surface of the ground; procumbent.

Humil'iate, *v. a.* [Lat. *humilio*, *humiliatus*, from *humilis*, humble.] To abase; to humble; to lower in condition; to depress; to mortify.

Humil'iating, *p. a.* Humbling; depressing; abating pride; reducing self-confidence; mortifying.

Humilia'tion, *n.* [Fr., from Lat. *humiliatio.*] Act of humbling; state of being humbled; descent from an elevated state or rank to one that is low or humble; act of abasing pride. — The state of being reduced to lowliness of mind, meekness, penitence, and submission; abasement of pride; mortification; depression; dejection.

Humil'ity, *n.* [Fr. *humilité;* Lat. *humilitas*, from *humilis*, humble, low.] Humbleness of mind; a modest estimate of one's own worth; lowliness of mind; a deep sense of one's own unworthiness in the sight of God.

Hu'min, *n.* (*Chem.*) A black substance found in the humus of the soil, and obtained also by boiling sugar with sulphuric acid.

Humiria'ceæ, *n. pl.* (*Bot.*) An order of plants, alliance *Ericales*. DIAG. Polypetalous flowers, perfect monadelphous stamens, and 2-celled anthers with a long membranous connective. — They are trees, or shrubs, with a balsamic juice. Their leaves are alternate, simple, coriaceous, and exstipulate. The calyx is 5-parted and imbricated. The petals are also imbricated, and 5 in number. There are 20 or more stamens. The ovary, which is superior, is usually surrounded by a disc; it is 5-celled, and has 1 or 2 suspended ovules in each cell, a simple style, and 5-lobed stigma. The fruit is drupaceous and 5-celled, except in instances where the number of cells is reduced by abortion. The seed has a narrow embryo, lying in fleshy albumen. From the incised stem of the species *Humirium floribundum*, a yellow liquid, called balsam of umiri, is obtained; this is said to resemble copaiba and balsam of Peru in its properties. Other species are said to yield useful balsamic liquids. The order consists of 3 genera and 18 species, all natives of tropical America.

Hu'mite, *n.* (*Min.*) A colorless, or sometimes yellow, mineral occurring in small, transparent, brilliant crystals at Vesuvius. *Sp. gr.* 3·17–3·24. *Comp.* Silica 34·8, protoxide of iron 2·4, magnesia 60·08, fluorine 3·47. It is a variety of *Chondrodite*, q. v.

Hum'mel, *v. a.* To separate, as the awns of barley from the kernel.

Hummel, JOHANN NEPOMUK, (*hoom'mel,*) a German composer and pianist, B. at Presburg, 1778. He displayed great musical talent from his earliest youth, became chapel-master to Count Esterhazy in 1803, and afterwards to the king of Würtemberg, in 1816. He was only excelled in instrumental composition by Beethoven. He composed four operas, two masses, and a large quantity of smaller musical pieces. D. 1837.

Hum'meller, *n.* One who hummels. — (*Agric.*) An implement or machine used for *hummelling* barley — that is, removing the awn from the grain after it has been threshed. A common kind of *H.* is a set of blunt knives fixed in a frame, with a handle, by means of which they are used in the manner of stamping. Another form consists of blunt knives set on a roller. These implements are worked by the hand. But hummellers of various construction are often attached to threshing-machines, in all of which blunt knives are made to pass frequently through the grain.

Hum'mel's Store, in *Pennsylvania*, a post-village of Berks co. *Pop.* (1897) about 100.

Hum'melstown, in *Pennsylvania*, a post-borough of Dauphin co., on P. & R. R. R., 10 m. E. of Harrisburg. Fine building-stone abounds. *Pop.* (1897) about 1,520.

Hum'mer, *n.* He who, or that which, hums.

(*Slang.*) A big drink of bad whiskey.

Hum'ming, *p. a.* Making a low buzzing sound.

—*n.* The sound of bees; a low murmuring.

Hum'ming-bird, *n.* See TROCHILIDÆ.

Hum'mock, *n.* A level sheet of ice. — A circular mound seen at a distance; a hillock; a hommock. — In Florida, a fertile and timbered tract of land.

Hum'mocky, *a.* Full of hummocks.

Humor, Humour, (*yū'mer,*) *n.* [Fr. *humeur;* Lat. *humor*, anciently *humos*, from Gr. *chumos*, a liquid, from *cheo*, to pour.] A liquid or fluid; moisture; — more especially applied to every fluid substance of an organized body, as the blood, chyle, lymph, &c., some of which were formerly supposed to determine the temper of the mind. — An animal fluid in an unhealthy state, causing eruptive diseases; cutaneous eruptions. — Turn of mind, or peculiarity of disposition, often temporary; temper; disposition; mood; whim; caprice; that quality of the imagination which gives to ideas a wild and fantastic turn, and tends to excite laughter or mirth by ludicrous images or representations; merriment; jocularity; burlesque; wit. — Petulance; peevishness; a trick; a practice or habit.

—*v. a.* To gratify or indulge the humor of; to gratify by yielding to a particular inclination, humor, wish, or desire; to indulge by compliance; to suit; to indulge; to favor by imposing no restraint, and rather contributing to promote by occasional aids.

Humoral, (*hu'mer-al.*) *a.* Pertaining to, or proceeding from, the humors of the body.

H. Pathology. (*Med.*) A once favorite theory of physicians by which they accounted for the remote cause of all diseases, by attributing them to a disordered state of the humors or fluids of the body.

Hu'moralism, *n.* (*Med.*) Humorism.

Hu'moralist, *n.* A humorist. — (*Med.*) A follower of the humoral pathology.

Humorifie, *a.* That produces humor.

Hu'morism, *n.* The disposition of a humorist.

(*Med.*) The doctrine of the *humeral pathology*, q. v.

Hu'morist, *n.* [Fr. *humoriste.*] One who gratifies his own humor, fancy, inclination, or bent; one who indulges in speaking or writing; one who has a playful fancy or genius; one who has odd conceits: also a wag; a droll.

Humoris'tic, *a.* Relating to, or like a humorist.

Hu'morless, *a.* Without humor.

Hu'morous, *a.* [Late Lat. *humorosus*, from *humor.*] Containing humor; full of wild or fanciful images; adapted to excite laughter; jocular: witty; jocose; whimsical; having the power to speak or write in the style of humor; exciting laughter.

Hu'morously, *adv.* In a humorous manner; in a manner to excite laughter or mirth; pleasantly; jocosely; whimsically.

Hu'morousness, *n.* State or quality of being humorous; oddness of conceit; jocularity; capriciousness.

Hu'morsome, *a.* Influenced by the humor of the moment; peevish; petulant; odd; humorous; adapted to excite laughter.

Hu'morsomely, *adv.* Peevishly; petulantly; oddly; humorously.

Hump, *n.* [Du. *homp*, a lump; Lat. *umbo*, any convex elevation, a boss of a shield, from the root *nub*, which appears in Sans. *nabhi*, the navel.] Any convex elevation. — The protuberance formed by a crooked back.

Hump'back, *n.* A crooked back; high shoulders; a humpbacked person.

Hump'backed, *a.* Having a crooked back.

Humped, (*humpt,*) *a.* Having a hump or protuberance on the back.

Hum'phrey, in *New York*, a post-township of Cattaraugus co., about 50 m. S.E. of Buffalo.

Humphreys (*um'freez*), in *Tennessee*, a N. W. co.; *area*, about 420 sq. m. *Rivers.* Tennessee and Duck rivers, besides many smaller streams. *Surface*, undulating; *soil*, fertile. *Cap.* Waverly. *Pop.* (1890) 11,720.

Humphreys, in *Missouri*, a post-village of Sullivan co., on Q., O. & K. C. R. R. *Pop.* (1890) 327.

Hum'phreysville, in *New York*, a post-village of Columbia co. *Pop.* (1897) about 100.

Humphreysville, in *Pennsylvania*, a village of Lackawanna co.

Humptu'lips, in *Washington*, a river, rising in Mason co., and flowing S. and W. through Chehalis co., into the Pacific Ocean.

Hu'mulus, *n.* [From Lat. *humus*, the ground, as, unless trained or supported, it creeps on the earth.] (*Bot.*) The Hop, a genus of plants, order *Cannabenaceæ*. The common hop-plant, *H. lupulus*, has a perennial root and annual pliable stems, which twine from right to left around any convenient support. The leaves are opposite, rough, 3–5-lobed, serrated, and veiny. The male and female flowers are generally on separate plants. The former are in loose panicles; the latter in dense catkins or strobiles, with membranous concave bracts. The hops of commerce consist of the female flowers and reeds of this plant. Their principal consumption is in the manufacture of beer, and they possess three properties which particularly fit them for this use. First, they impart to malt liquors a pleasant bitter aromatic flavor, and tonic properties. Second, they give them a peculiar *headiness* often confounded with alcoholic strength, and thus save the brewer a certain proportion of his malt. Third, by their chemical influence they clarify the liquors and check their tendency to turn sour. Hop-plants grown from root-sets come to perfection in the third year from planting. They spring out of the ground about the end of April, and flower about the end of August. The strobiles are fit to gather from the beginning of September to the middle of October, the time varying according to the sort cultivated and the differences in the seasons. When picked, they are dried by artificial heat, in kilns, and then packed in bags or pockets. Upon the bracts and scales are numerous little yellow shining grains, generally roundish or kidney-shaped. They have been termed *lupulinic glands*, and are believed to be the most active parts of the hops. Of the cultivated hop there are many varieties; but in the principal English hop countries, hops are used medicinally for their stomachic and tonic properties. They are, to some extent, narcotic; and a pillow stuffed with them is occasionally employed to induce sleep. *H.* are largely cultivated in some of the States, chiefly in New York. The production of hops in the U. S. has greatly increased. For the fiscal year ending June 30, 1898, the importation of hops amounted to 3,270,995 pounds. The production of hops in the U. S. grew from about 3,500,000 lbs. in 1850 to 39,171,290 in 1890. More than half of these were produced in New York.



Fig. 1330.— HOP, (*Humulus lupulus.*)

Hu'mus, *n.* [Lat. *humus*, the ground.] (*Chem.*) The peculiar brown or black matter resulting from the decay of vegetable matter in the soil. During the progress of decay and at its different stages, a number of different substances are formed which have received the names of humin and ulmin; humic, ulmic, and geic acids; and crenic and apocrenic acids, *q. v.* *H.* is found only on the surface-soil, and imparts to it its rich brown appearance. It contains carbon, oxygen, and hydrogen, and during its decomposition carbonic acid is formed which contributes to the nourishment of the plant; but it is supposed to render its most essential service by its power of absorbing and combining with ammonia, and also, though to a less extent, with soda, potash, lime, and magnesia, and thus retaining these substances for the use of the plant. *H.* from its dark color causes a more rapid absorption of the sun's heat. It absorbs nearly twice its weight of water, and retains the greater portion of it after some hours' exposure. It consequently enables the soil to absorb and retain water, and thus renders it more mellow and capable of being more easily worked. It is not supposed to contribute directly to the nourishment of the plant, but from the properties above mentioned, it is a most valuable constituent of the soil. Good wheat-bearing soils contain 9 or 10 per cent. of it. Where it is wanting in soils it may be supplied by ploughing in green crops, as clover, or straw, and animal manures, or alternating plants that leave considerable root in the soil with the grains, &c. which have but little root.

Hu-nan, a central prov. of China, between Lat. 25° and 30° N., and Lon. 109° and 114° E. See CHINA.

Hunch, *n.* [Allied to Ger. *höcker*, any unevenness or inequality, a lump; and also to *hump*, bunch.] A hump; a protuberance; a lump; a thick piece. — A push or jerk with the fist or elbow.

—*v. a.* To strike or punch with the fists; to push with the elbow; to push or thrust with a sudden jerk.

Hunch'back, *n.* A humpback.

Hunch'backed, *a.* Having a crooked back.

Hun'dred, *a.* [A.S. *hund;* Ger. *hundert.*] Denoting the product of ten multiplied by ten, or the number of ten times ten.

Hun'dred, *n.* A collection, body, or sum, consisting of ten times ten, individuals or units; the number 100. —A division or part of a county in England, and also in the State of Delaware; supposed to have originally contained a hundred families, or a hundred warriors, or a hundred manors.

Hun'dred and Two, in *Missouri*, a river rising in the N. part of the State, and entering the Platte River in Buchanan co.

Hundred Days. (*French Hist.*) The period from March 20, 1815, the day on which Napoleon I. entered Paris on his return from Elba, to June 29, the day on which he quitted it for the last time.

Hun'dreder, *n.* An inhabitant of a HUNDRED, *q. v.*

Hun'dred-fold, *a.* A hundred times as much.

Hun'dredth, *a.* The ordinal of a hundred.
—*n.* One of a hundred equal parts into which a whole is, or may be, divided; the quotient of a unit divided by a hundred.

Hun'dredweight, *n.* A weight of a hundred and twelve pounds avoirdupois, twenty of which make a ton. It is generally expressed by the abbreviation *cwt.*

Hundsruck, (*hoons'rook,*) [Ger. *Hundsrücken*, dog's-back,] an extensive and mountainous district of Rhenish Prussia, thickly wooded, and rising, at intervals, to a height of 3,000 feet. It lies between the Moselle and the Nahe, and joins the mountain-chain of the Vosges.

Hung, *imp.* and *pp.* of HANG, *q. v.*

Hunga'rian, *a.* (*Geog.*) That relates or belongs to Hungary.
—*n.* (*Geog.*) A native of Hungary.

Hun'gary, [Ger. *Ungarn;* Magyar, *Ország.*] An extensive country in Central Europe, forming, under the title of kingdom, a considerable portion of the Austrian dominions; Lat. from 46° to 49° 34′ N., Lon. 16° to 25° 3′ E. It is bounded W. by part of Germany, N. by Galicia, E. by Moldavia and Wallachia, and S. by Turkey. *Area*, 124,438 sq. m. *Divisions.* Hungary proper, Croatia and Slavonia, Transylvania, and the Town of Fiume (see AUSTRIA); and these are again subdivided into five districts, respectively named after their capital cities, Pesth, Presburg, Odenburg, Kaschau, and Grosswardein. *H.*, in its chief parts, forms a large basin, surrounded almost entirely by mountain-ranges. The Carpathians, an immense mountain-chain beginning near Presburg, divide it from Galicia. They rise to the height in some peaks of nearly 10,000 feet, and form at the top immense masses of granite, totally destitute of vegetation. (See CARPATHIANS.) Besides these, there are in the N. and W. several detached ranges of very considerable extent. Immense plains also exist. *Rivers.* The Danube, Szamos, March, Maros, Drave, and Save; the Carpathians pour down into the plain the Theiss, Waag, Gran, Poprad, and Temes, all falling into the Danube. *Lakes.* The Platten See, the Neusiedler See; and there is a large tract of marshes, the principal of which is Lake Palitz. *Canals.* The principal are the Franzens Canal and the Beja Canal, both joining the Danube and Theiss. *Climate.* Among the mountains cold is predominant, the snow lying on the ground for many months. In the S., the climate is in general mild, in the sandy districts extremely hot; but on the banks of the rivers, and near the marshes, damp; dampness, indeed, being a prevailing characteristic of the climate of the level part of Hungary. *Min.* Important, consisting of silver, lead, copper, iron, zinc, cobalt, salt, alum, and coal. Gold is also occasionally found in the sand of rivers, and is principally washed by the gipsies. Precious stones of various kinds, opals being the most valuable, are discovered in the mountains. *Prod.* The extensive plains lying along the great rivers possess all the richness of an alluvial soil. In the N., clay, stone, and gravel predominate, and the ground there produces but a scanty return, after considerable labor. In the S., too, there are many tracts unfit for the purposes of agriculture. The large heaths of Debreczin and Kecskemet are covered either with sand or with the most scanty vegetation. Several other tracts are covered by moving sands, which are said in some cases to be increasing. In the N., barley and common rye are most frequently sown; in the S., wheat, maize, millet, and, in the marshes of the Banat, rice. Oats are cultivated throughout the kingdom. Potatoes are raised by the Slavonians and Germans, and pulse by the followers of the Greek Church. Hemp and flax are cultivated, also tobacco and saffron. Various kinds of fruit are grown in great quantities, and extensive pastures are found in many parts of the country. Next to the cultivation of corn and the breeding of cattle, the making of wine forms the most extensive branch of rural industry. The Hungarian wines vary greatly, both in taste and strength; the well-known Tokay being unrivalled in quality. Dense forests and woods abound in the mountainous districts. *Domestic Animals.* The Hungarian oxen are large and well shaped, and generally of a milk- or gray-white color, with lofty and spreading horns. Some of the sheep are very fine, particularly a peculiar breed, with forked horns. The horses of Hungary seldom reach a great height, and are incapable of drawing heavy loads; but they surpass almost all other horses on the Continent in elegance of shape, as well as in vivacity and swiftness. Bacon being a favorite food, vast herds of swine, amounting to more than 5,000,000, are reared. A few buffaloes are found in certain parts of the country. Game of all kinds and fowls are plentiful; bees are largely kept; and the rivers, especially the waters of the Theiss, yield large quantities of fish. *Towns.* The principal towns are Buda-pesth (the cap.), Debreczin, Presburg, Szegedin, Kecskemet, Theresienstadt, Erlau, Schamitz, and Raab. *Manuf.* Unimportant, being generally confined to not large quantities of woollens, silks, linens, paper, leather, oil, beer, and tobacco. COMMERCE. *Exp.* The chief are corn, tobacco, wine, particularly that of Tokay, and wool; also wax, tallow, potash, alum, antimony, gall-nuts, &c. A little leather, linen, and iron are also sent out of the country. *Imp.* Chiefly manufactured goods and colonial produce. Nearly 1,000 vessels, some of which are steamboats, ascend and descend the Danube, engaged in carrying on the trade between the principal towns of Hungary and Vienna. The roads are generally not good, but railway communication is progressing. *Religion.* Roman Catholic, Greek Church, and Protestant, the former in the ascendant. Education is not, on the whole, well diffused, but the higher classes are well-cultured and highly intelligent.—*Govt.* See AUSTRIA.—*Pop.* (1897) abt. 18,105,400, of which 13,220,700 are in Hungary proper.—*History.* In the time of the Romans, the country now called Hungary formed the western portion of Dacia and the south of Pannonia. In the 3d century the Goths occupied all this portion of Europe, and these were driven out in 376 by the Huns, whose name, it is said, joined to that of the Avari, gave its title to the country. After the death of Attila, in 453, the Ostrogoths, Gepidæ, and Lombards disputed the possession of the territory. Subsequently, in the 7th century, the Avari made themselves masters of the land, but had to defend it against the incursions of the Slaves and Bulgarians. Charlemagne having conquered the Avari in 799, the Magyars, a people of Asiatic origin, who, a century before, had established themselves on the Don and Dnieper, entered Hungary in 894. Arpad, the son of Almus, was their leader, and allying himself with the emperor of Germany, he defeated most of the tribes who then occupied the country. His successor embraced Christianity; and Stephen I., called the Saint, who had been the chief of the Magyars since 997, took the title of king in the year 1000. This prince completed the subjugation of the Slaves and Bulgarians, and to him Hungary owed the greater portion of her social institutions. After his death, in 1038, the land was a prey to internal dissensions until the accession of Ladislaus I., who brought peace to his people; he conquered Croatia and Slavonia, to which his successor Coloman added Dalmatia. Under Geysa II., 1143, Transylvania received a number of Flemish immigrants. Bela III., who had been bred at Constantinople, introduced into the state civilization and the manners of the Greek empire. He married Margaret, sister of Philip Augustus, of France, and widow of Henry, son of Henry II., of England; and under him Hungary was divided into comitats. Andrew II. led the fifth crusade to the Holy Land, in 1222, and by his weakness allowed the privileges of the nobles to increase. Under Bela IV., his son, the Mongols ravaged the land: and after him the royal power, weakened by intestine discord and foreign wars, was reduced to the lowest condition, till the end of the reign of Andrew III., with whom closed the Arpad dynasty. The Hungarians then elected Wenceslaus of Bohemia, and after his abdication, Otho of Bavaria; but Pope Boniface VIII. imposed on them Charles Robert, called Charobert, count of Anjou, and who was recognized as king in 1338. In his reign Hungary attained a high degree of prosperity; it comprised, besides Hungary proper, Dalmatia, Croatia, Bosnia, Servia, Wallachia, Transylvania, Moldavia, and Bulgaria. Charles having married a sister of Casimir, king of Poland, Louis I., his son, succeeded to that kingdom in 1370. After him Maria, his daughter, came to the throne, sharing the government with her husband, Sigismund, elector of Brandenburg. In their reign John Huss proclaimed his opinions, and the Turks invaded the kingdom. Under Ladislaus V. — 1438 to 1457 — the Turks were defeated by the brave John Huniades, the regent, whose son Matthias I. was elected king in 1458. This monarch was possessed of great administrative as well as military abilities; his reign was flourishing, and he was the founder of a university at Presburg, and a celebrated library at Buda. His successors, however, were unable to keep out the Turks, and in 1526 Louis II. was killed at the fatal battle of Mohacs, which gave a great portion of the kingdom for many years to the Ottomans. Ferdinand of Austria and John Zapolsky now disputed the possession of the country, and the latter was defeated and obliged to fly. The nation, however, did not recognize the Austrian domination until 1570, under Maximilian II.; and it was not until many years later, in 1687, that the crown of Hungary was declared hereditary in the house of Austria. After that, indeed, the emperor had to suppress the successive revolutions headed by Tekeli and Ragotszy, which were not finally put down till 1711. During these dissensions the Turks had seized on a large portion of Hungary, but were definitively driven out in 1699 by the peace of Carlowitz. From that time to 1848 the nation remained faithful to the house of Austria, especially in the cause of Maria Theresa, and in the wars with France from 1793 to 1815, when it contributed largely to the finances and military forces of the country. — *Constitution.* The constitution of Hungary, including Hungary proper, Croatia, Slavonia, and Transylvania, is of very ancient date, and based mainly upon unwritten laws that grew up in the course of centuries. There exists no charter or constitutional code; but in place of it are fundamental statutes, published at long intervals as time. The principal of them, the *Aurea Bulla* of King Andrew II., was granted in 1222, and changed the form of government, which until then had been completely autocratic, into an aristocratic monarchy. Almost all subsequent rulers endeavored, though with little or no success, to extend the royal prerogatives, the struggle lasting, with more or less interruption, till the year 1867, when Francis I., having failed in his attempt to weld *H.* to the rest of his dominions, acknowledged and took oath upon the ancient constitution. The form of government established by it is oligarchical in essence, leaving the whole legislation and internal administration of the country in the hands of the native nobility, comprising about a quarter of a million individuals, and giving to the king little more than the chief command of the army, and the right and duty to protect the realm against foreign enemies.—See AUSTRIA, FRANCIS I., KOSSUTH, &c.



Fig. 1331. — A COUNTRYWOMAN.

SOVEREIGNS OF HUNGARY.

A. D.	A. D.
1000. Stephen I. (the Saint).	1308. Charobert or Charles Robert (of Anjou).
1038. Peter.	1342. Louis I. (the Great).
1041. Abo.	1382. Mary.
1044. Peter, (again.)	1385. Charles.
1047. Andrew I.	1386. Sigismund.
1061. Bela I.	1437. Albert (of Austria).
1064. Salomon.	1439. Elizabeth.
1074. Geysa I.	1440. Ladislaus IV.
1077. Ladislaus I.	1444. Ladislaus V.
1095. Coloman (the Learned).	1458. Matthias I., (Corvinus.)
1114. Stephen II.	1490. Ladislaus VI.
1131. Bela II.	1516. Louis II.
1141. Geysa II.	1526. John Zapolsky and Ferdinand I.
1161. Stephen III.	1540. Ferdinand I., (alone.)
1162. Ladislaus and Stephen, (usurpers.)	1563. Maximilian.
1173. Bela III.	1572. Rodolph.
1196. Emeric.	1608. Matthias II.
1204. Ladislaus II.	1618. Ferdinand II.
1205. Andrew II.	1625. Ferdinand III.
1235. Bela IV.	1647. Ferdinand IV.
1270 Stephen IV.	1655. Leopold.
1272. Ladislaus III.	1687. Joseph.
1290. Andrew III.	1712. Charles.
1301. Wenceslaus.	1741. Maria Theresa.
1302. Otho.	

(The succession was identical with that of the emperors of Germany and Austria.)

Hun'gary-wa'ter, *n.* An old-fashioned but delicious perfume, for the preparation of which various recipes have been given. The following is one of the best: — Take of fresh rosemary in blossom 4 lbs., fresh sage in blossom 6 oz., ginger in slices 2 oz., cut them in small pieces, mix, and add rectified spirit 12 lbs., and common water 2 pints. Let 11 pints distil by a gentle heat. A hermit is said to have given the original recipe to a queen of Hungary; and hence it was called the *Queen of Hungary's Water*, which has been abbreviated to *H. W.* It is employed principally as a perfume for the toilet; but it is sometimes taken internally as a restorative and stimulant; and it may be used externally as a gently stimulating liniment.

Hung'-beef, *n.* Dried-beef; jerked-beef.

Hun'ger, *n.* [A. S. *hunger, hungor;* Ger., Dan., and Sw. *hunger;* Icel. *hungr;* Sansk. *kanx*, to desire, *kangha*, desire.] Desire of food; an uneasy sensation, occasioned by the want of food; a craving of food by the stomach; craving appetite; a strong or eager desire.

(*Physiol.*) A peculiar sensation experienced in the region of the stomach, in consequence of the want of solid food. The sensation of hunger is at first rather agreeable, but it quickly becomes unpleasant, when prolonged. The sense of keen appetite is always delightful when there is a prospect of satisfying it; but that sinking in the stomach which ensues soon changes from uneasiness to absolute pain, which rapidly becomes acute; and if aliment be still held back, the sensation produced is as if the stomach were being torn by pincers. A state of general exhaustion, feverishness, headache, light-headedness, often passing into madness, follows. The whole being seems absorbed in one desire, before which even maternal instinct has been known to give way, and mothers have disputed with their companions for the flesh of their dead infants. The physiological causes of *H.* are not well understood, and great differences exist in the opinion of scientific men. In one sense, we may all be said to know what hunger is; in another sense, however, no man can enlighten us. We have all experienced it: but as yet science has been unable to furnish any sufficient explanations. Between the agreeable stimulus called appetite and the terrible agony of starvation there are infinite gradations. In all living organisms, *waste* and *repair* go on with an incessant and reciprocal activity. Not the slightest movement of the body occurs, not a thought passes through the brain, without some part of the substance of the body being sacrificed. Thus the body is like a furnace, in which the fuel is constantly

burning; and hunger is the instinct which teaches us to replenish that furnace. But although the want of food causes *H.*, it does not itself constitute hunger. Food may be absent without the sensation of *H.* Idiots and insane people frequently subject themselves to prolonged fasting without any hungry cravings. Violent emotions of grief or joy destroy the sense of *H.*; and the sensation may be allayed by opium, tobacco, and inorganic substances, such as clay, although none of these can supply the deficiency of food. In the case of those animals which remain torpid for a certain portion of the year, no food is taken, and no *H.* experienced. (See HIBERNATION.) Want of food is, consequently, the primary, but not the proximate cause of *H.* A French philosopher made several experiments on the subject of inanition, according to which it appears that death from *H.* occurs when the waste reaches 0·4; that is to say, supposing an animal to weigh 100 lbs., it will die when its weight is reduced by fasting to 60 lbs. Death may possibly occur before that stage, but life cannot exist after it. In the case of human beings, death takes place on the fifth or sixth day of total abstinence from food and drink; but much depends upon the peculiar constitution of the individual, his age, health, habits, &c. Some die on the second and third day; while others can survive ten, twelve, and even a longer time. There are many records of protracted fasting, but nearly all of them are not well authenticated, and most of them are obviously fabulous. The aspect of a starving man is terrible. In the first place he grows excessively thin, and this thinness is not the leanness of lean men, but manifests itself by unmistakable emaciation. The face grows lividly pale, the cheeks sunken, and all the vitality of the body seems to be centred in the feverish brightness of the eyes. The pupil becomes dilated and fixed in a wild stare, which is never veiled by the eye-lids. All movements of the body are slow and difficult; the hand trembles, the voice grows feeble, and the mind weak; while the poor sufferer, when asked what he feels, can only answer faintly that he is hungry. There is very little definite information to be gleaned concerning the agonies endured by starving men. Those who have undergone the horrors are seldom able to recount them. Goldsmith says that the captain of a wrecked vessel told him that "he was the only person who had not lost his senses when they received accidental relief. He assured me his pains at first were so great as to be often tempted to eat a part of the men who died, and which the rest of his crew actually lived upon. He said that, during the continuance of this paroxysm, he found his pains insupportable, and was desirous, at one time, of anticipating that death which he thought was inevitable. But his pains gradually ceased after the *sixth* day (for they had water in the ship, which kept them alive so long), and then he was in a state rather of langnor than desire; nor did he much wish for food, except when he saw others eating. The latter part of the time, when his health was almost destroyed, a thousand strange images rose upon his mind, and every one of his senses began to bring him wrong information. When he was presented with food by the ship's company that took him up, he could not help looking at it with loathing, instead of desire; and it was not till after four days that his stomach was brought to its natural tone, when the violence of his appetite returned with a sort of canine eagerness." In other authentic cases, one fact is always dreadfully apparent: namely, that thirst is always far more terrible than *H.* (See THIRST.) — According to popular belief, the sensation of *H.* is caused by the emptiness of the stomach, which, in the opinion of some physiologists, allows the sides of the stomach to rub against each other, and the friction causes the sensation. This, however, is wrong; for *H.* is always felt some time after the stomach is empty; and, as is well known, it may be empty for days together, as in illness, without any sensation of *H.* Another theory is, that the gastric juice accumulates, and attacks the walls of the stomach. This, however, has been proved not to be the case. Dr. Beaumont, an American physician, who made many valuable observations on a patient who had a hole in his stomach, produced by a wound, accounts for *H.* thus:— "During the hours of fasting, the gastric juice is being slowly secreted in the follicles, and then retained in their tubes, thereby distending them: this distention, when moderate, produces the sensation of appetite, and when more powerful, of *H.*" According to other writers, however, it would appear that *H.* is related to the general state of the system, and also to the particular state of the stomach. The stomach of a fasting animal is pale, and in a state of obvious *atony*. No sooner, however, is food, or almost any irritant substance introduced, than the pale surface becomes visibly congested, turgescent, and its secretions pour forth abundantly. With this rush of blood the sensation of *H.* passes away. It is therefore argued that *H.* is in some way dependent on the state of the circulation of the stomach.

Hun'ger, *v. n.* [A. S. *hingrian;* Icel. *hungrar.*] To desire food; to feel the pain or uneasiness which is occasioned by long abstinence from food; to desire with great eagerness; to long for.

Hun'ger-bit, or **Hun'ger-bitten,** *a.* Suffering from hunger.

Hun'gered, *p. a.* Pinched by want of food; hungry.

Hun'grily, *adv.* With keen appetite; voraciously.

Hun'gry, *a.* [A. S. *hungrig, hungri.*] Having a keen appetite; feeling pain or uneasiness from want of food; having an eager desire; lean; emaciated, as if reduced by hunger; not rich or fertile; poor; barren.

Hun'gry Hill, a mountain of Ireland, in Cork, 16 m. W.N.W. of Bantry. On the top of the mountain is a lake, whence the waters descend in a series of cascades, one falling nearly 700 feet. It is considered one of the curiosities of Ireland, and is a great resort of tourists.

Hunk, *n.* A large piece or slice; a hunch. (Vulgar U. S.; Prov. Eng.)

Hunk'er, *n.* One of a political party. — This name was applied some years ago in New York to the one of two factions, the other of which was called *barn-burners.*

Hunks, *n.* [Icel. *hunskur*, sordid.] A sordid, covetous man; a miser; a niggard.

Hun'ley's Creek, in *Indiana*, enters Patoka River in Dubois co.

Hun'lock Creek, in *Pennsylvania*, a post-village of Luzerne co.

Hun'newell, in *Missouri*, a post-town of Shelby co.,

Hun'niades, JOHN CORVINUS, waiwode of Transylvania, and general of the armies of Ladislaus, king of Hungary, was born in the beginning of the 15th century. He fought against the Turks heroically, and for many years rendered himself so formidable to them, that they surnamed him the Devil. He was named regent of Hungary after the death of Ladislaus IV., in May, 1445, the young heir to the throne being held prisoner by the emperor. On his release and return to his dominions, in 1453, Hunniades lost his influence. One of his greatest achievements was his victory over the Sultan Mahomet II., whom he compelled to raise the siege of Belgrade in the summer of 1456. So great was the enthusiasm excited by this victory, that it was commonly said of the conqueror, "A man was sent from heaven, whose name was John." D. 1456, the acknowledged hero of the Christian cause.

Huns, (*hunz,*) *n. pl.* [Lat. *Hunni.*] (*Hist.*) The name given to several nomadic Scythian tribes, which devastated the Roman empire in the 5th century. They inhabited the plains of Tartary, near the boundaries of China, it would appear, many centuries before the Christian æra; and they were known to the Chinese by the name of Hiongun, and also Han. It was in order to put a stop to the continual aggressions of the Huns that the great wall of China was built; and after this the Huns split up into two separate nations, named respectively the Northern and the Southern Huns. The first-mentioned of these gradually went westward to the Volga, where they encountered the Alanni, whom they defeated. Here the Huns remained for some two centuries; but, under the emperor Valens, they crossed the Bosphorus; afterwards invading Rome, under their leader Attila. After the death of Attila the Huns broke up into separate tribes, and were driven back by the Goths beyond the Tanais. The Hungarians of the present day are the descendants of Huns, who once more immigrated into Europe. Gibbon, in his "Decline and Fall of the Roman Empire," gives a fine sketch of this nation, their manners and customs.

Hunt, *v. a.* [A. S. *huntian*, to hunt; O. Ger. *hundjan, farhundjan*, to catch, to capture; Goth. *frahinthan*, to take prisoner.] To chase wild animals, particularly quadrupeds, for the purpose of catching them for food, or for diversion; to pursue with hounds for taking, as game; to go in search of, for the purpose of shooting.— To pursue after; to follow closely; to use, direct, or manage, as hounds in the chase.

—*v. n.* To follow the chase; to seek wild animals for game, or for killing them by shooting when noxious; to seek by close pursuit; to search.

—*n.* A chase of wild animals for catching them; pursuit; chase; a seeking of wild animals of any kind for game; an association of huntsmen.

Hunt, JAMES HENRY LEIGH, an English poet and essayist, B. at Southgate, Middlesex, 1784, the last of that band of poets which shed a contemporaneous lustre on the early part of the present century. He was the personal friend of Byron, Shelley, Hazlitt, Lamb, and Coleridge, and he is known not only as a poet and an essayist, but also as a political writer. In this latter capacity he came more than once before the public. In 1811 he was tried and acquitted for some remarks on the subject of flogging in the army, published in the "Examiner," a journal which he had founded. He was afterwards sentenced, with his brother, to a fine of £2,500 and two years' imprisonment for an alleged libel against the Prince Regent. Offers to remit these penalties on a promise to refrain from similar expressions for the future were firmly rejected; and on the expiration of their sentence they continued to write as before in the "Examiner." Subsequently he lived for four years in Italy, whither he had gone to set up the "Liberal." The *Story of Rimini* is his longest and perhaps his best known poem; and among his miscellaneous works may be mentioned his autobiography, and his essays entitled *Men, Women, and Books; Imagination and Fancy; Wit and Humour*, &c. His *Correspondence* has been edited by his eldest son. D. 1859.

Hunt, THOMAS STERRY, F. R. S., an American chemist, mineralogist, and geologist, B. in Norwich, Conn., 1826. After passing through the usual educational course, he commenced the study of medicine and chemistry, devoted himself entirely to the latter, became chemical assistant to Professor Silliman, in Yale College; was appointed chemist and mineralogist to the expedition for the survey of Canada, under Sir W. E. Logan; and discharged similar duties in the survey of Vermont. He was a member of the International Jury at the Paris exhibition of 1855, receiving the cross of the Legion of Honor; was made a fellow of the Royal Society in 1859; was for four years a lecturer in McGill University, Montreal, and (1872–78) professor of Geology in the Massachusetts Institute of Technology. He was one of the founders and first president of the Royal Society of Canada, and one of the organizers of the International Geological Congress. In 1859 he invented the green ink with which greenbacks (*q. v.*) are printed. His researches into the composition of rocks were of great importance, and in organic chemistry he advanced an original theory which has gained wide acceptance. This is to the effect that all chemical compounds arise from simple types, which are represented by one or more atoms of water or hydrogen. He wrote numerous papers and several larger works on chemistry and mineralogy. Died in New York, Feb. 12, 1892.

Hunt, WARD, jurist; born at Utica, N. Y., June 14, 1810; educated at Hamilton and Union Colleges, graduating in 1828; elected mayor of Utica; member of the New York Assembly. From 1865 to 1873 judge of the Court of Appeals of State of New York, when he was appointed a justice of the Supreme Court of the U. S. Retired Jan. 27, 1882, and died March 24, 1886.

Hunt, WILLIAM HENRY, jurist and statesman, was born at Charleston, S. C., in 1824; educated at Yale College, and admitted to the bar in 1844. During the Civil War he was a stanch adherent of the Union cause; was appointed attorney-general of Louisiana (1876); judge of the Court of Claims (1878); Secretary of the Navy (1881). In 1882 he was sent as U. S. Minister to Russia, where he died, Feb. 27, 1884.

Hunt, in *Texas*, a N.E. co.; *area*, abt. 960 sq. m. *Rivers.* Sabine, and some less important streams. *Surface*, uneven; *soil*, fertile. *Cap.* Greenville.

Hunte, (*hoom'tay,*) a river of Germany, rising in the marshes of Osnabrück, and after a N.E. course of 90 m. joining the Weser, 15 m. above Bremen.

Hunt'ed, *p. a.* Chased; pursued; sought.

Hunt'er, *n.* One who hunts. — A dog that scents game, or is employed in the chase. — A horse used in the chase; a hunting-horse.

(*Zoöl.*) One of the tribe of spiders called *Venantes*, hunters, because they are incessantly running or leaping about in the vicinity of their abode, to chase and seize their prey.

Hunt'er, WILLIAM and JOHN, two celebrated English anatomists, brothers, and natives of Scotland; *W.* was B. in 1718, *J.* in 1728. The abilities of *W.* were soon distinguished, and he was appointed Physician Extraordinary to the Queen, and president of the College of Physicians. He formed an anatomical museum and a fine collection of metals, fossils, corals, shells, &c., which finally became the property of the Glasgow University. *J.* was at first an assistant to his brother, but his skill soon developed itself, and he ultimately was acknowledged to be the first practical surgeon in Great Britain, and greatly contributed to the advancement of the art of surgery. *W.* died in 1783, *J.* in 1793.

Hunt'er, in *Illinois*, a village of Boone co., abt. 90 m. N.W. of Chicago.

Hunt'er, in *Ohio*, a post-village of Belmont co.

Hunt'erdon, in *New Jersey*, a N.W. co., adjoining Pennsylvania; *area*, about 434 sq. m. *Rivers.* Delaware, and two tributaries of the Raritan. *Surface*, diversified; *soil*, generally very fertile. *County-town*, Flemington. *Pop.* (1895) 35,334.

Hunt'erite, *n.* (*Min.*) A variety of CIMOLITE (*q.v.*).

Hunt'er's Isles, a group of islands, lying in a channel of the same name, off the N.W. extremity of Tasmania.

Hunt'er's Land, in *New York*, a post-village of Schoharie co.

Hunt'er's Lodge, in *Virginia*, a post-office of Fluvanna co.

Hunt'erstown, in *Pennsylvania*, a post-village of Adams co., 35 m. S.S.W. of Harrisburg. *Pop.* 450.

Hunt'ersville, in *North Carolina*, a post-village of Mecklenburg co., on the Southern R.R.

—A township of Mecklenburg co.

Huntersville, in *Ohio*, a village of Hardin co., about 82 m. N.W. of Columbus.

—A village of Miami co., on the Miami river, opposite Piqua.

Huntersville, in *Penna.*, a post-vill. of Lycoming co.

Huntersville, in *West Virginia*, a post-village of Pocahontas co., about 160 m. S.S.E. of Wheeling.

Hunt'ertown, in *Indiana*, a post-village of Allen co.

Hunt'ing, *a.* Relating to hunting, or to the chase.

—*n.* The act or practice of pursuing wild animals, for catching or killing them; a pursuit; a seeking.

Hunt'ing-cog, *n.* (*Mach.*) One more cog in the larger of two geared wheels than would be required to establish an exact relative ratio between the number of cogs in this wheel and that in the smaller.

Hunt'ingdon, a town of England, cap. of Huntingdonshire, on the Ouse, opposite to Godmanchester, and 16 m. from Cambridge. *Manuf.* Beer, and the town has an extensive traffic in coal, timber, corn, and wool. It was the birthplace of Oliver Cromwell.

Hunt'ingdon, a S.W. co. of prov. of Quebec, adjoining New York; *area*, about 236 sq. m. *Rivers.* St. Lawrence and Chateangay rivers, besides numerous smaller streams. *Surface*, diversified; *soil*, fertile. *Cap.* Huntingdon. *Pop.* (1897) 8,864.

—A town of Quebec, cap. of the above co., on the Chateaugay river, about 50 m. S.W. of Montreal.

Hunt'ingdon, in *Pennsylvania*, a central co.; *area*, about 890 sq. m. *Rivers.* Juniata river, and numerous smaller streams. *Surface*, much diversified; *soil*, fertile. *Min.* Iron, coal, and limestone. *Cap.* Huntingdon. *Pop.* (1895) 35,751.

—A post-borough, cap. of Huntingdon co., on the Juniata river, and the Penna. R. R., 34 m. E. of Altoona; an important manufacturing and trade center of a rich farming and mining region. Here is a State Reformatory and a Normal College. *Pop.* (1897) about 6,360.

Hun'tingdale, in *Missouri*, a post-vill. of Henry co.

Hunt'ingdon, in *Pennsylvania*, a small village of Luzerne co.

Hunt'ingdon, in *Tennessee*, a post-town, cap. of Carroll co., about 105 m. W. of Nashville. *Pop.* (1897) 762.

Hunt'ingdon, in *Wisconsin*, a small village of St. Croix co

Hunt'ingdonshire, a co. of England, inclosed by the counties of Cambridge, Northampton, and Bedford. *Area*, 241,690 acres. It is almost entirely an agricultural county. The N. and N.E. parts consist of fens, which are a portion of the midland division of that extensive tract denominated the Bedford Level, *q. v. Rivers and Lakes.* Towards the W. and S. the land rises considerably, leaving an intermediate valley for the waters of the Ouse, which traverses the S. angle of the county, and for various streams which fall into it from the sides of the hills. There are several large meres or lakes, of which Whittlesea, though much smaller than formerly, is the largest. The soil is mostly clay, and there are no minerals of importance in the county. The uplands originally formed one large forest, and were peculiarly adapted to the pleasures of the chase. Up to the reign of Henry II., it was under forest law; and from the sport of hunting, the county derived its name. *Prod.* Wheat, oats, beans, turnips, rape, hemp, and mustard-seed. Butter is made in large quantities, and horses, cattle, and sheep of mixed breeds are extensively bred. The most celebrated article is the cheese termed *Stilton*, which was formerly made at a village of that name. *Towns.* Huntingdon, St. Ives, St. Neots, and Kimbolton. *Pop.* (1897) about 58,250.

Hunt'ingdon Val'ley, in *Penna.*, a post-village of Montgomery co.

Hunt'ing-ground, *n.* Ground suitable for hunting.

Hunt'ing-horn, *n.* A bugle; a horn used to cheer the hounds in pursuit of game. It is a frequent bearing in Heraldry. When adorned with rings, it is said to be *garnished*.



Fig. 1332. — HUNTING-HORN.

Hunt'ing-horse, *n.* A horse used for hunting.

Hunt'ing-seat, *n.* A temporary residence for the purpose of hunting.

Hunt'ington, DANIEL, an American artist, b. in New York, 1816. His father, a merchant, gave his three sons a liberal education. Their mother, a relative of Col. Trombull, often visited that painter's studio with her son, and thus his mind was biased towards art. While a student of Hamilton College, Huntington met with Elliott, who went to the college to paint the portrait of President Davis. From Elliott he borrowed his first colors, and was imbued with a passion for art. Professors North and Lathrop, who noticed his first attempts, encouraged him, and by their advice he entered the art-department of the N. Y. University in 1835, under Prof. Morse. In 1836 he opened a studio and began portraits and landscapes, the latter chiefly occupying his time for two years. A portrait of his father bending over a book, boldly foreshortened, attracted notice, and brought sitters to his easel. The Dunlap Exhibition awakened the love of historical painting, and *The Lover's Surprise*, a cabinet picture of figures, was the result. In 1839 he sailed for Europe, and in Florence painted a *Sibyl* and *A Florentine Girl*. In Rome he painted *A Shepherd Boy of the Campagna* for Mr. Cozzens, and *Christian Prisoners*, purchased by James Robb. In 1840 he was again in New York very busy with portraits, and with the two compositions of *Mercy's Dream* and *Christiana and her Children*, bought by Edward Cary of Philadelphia. A severe inflammation of the eyes suddenly put a stop to his studies. For a year he was forced to lay aside the pencil entirely, and for years afterwards close application was impossible. In 1842 he married Sophia Richards of Brooklyn, and soon after went to Europe. In Florence he painted *The Sacred Lesson* for Mr. Cozzens, and in Rome *The Communion of the Sick* for James Robb, and *Italy* and *Roman Penitents* for Geo. Lewis of New London. In 1844 he returned to New York, and painted many portraits and groups of figures. *Almsgiving*, *A Lesson of Charity*, *The Marys at the Sepulchre*, and others are of this period. In 1851 he visited England, and painted Dr. Sumner, Archbishop of Canterbury, for the Episcopal Seminary, Sir C. L. Eastlake for the New York Gallery, the Earl of Carlisle for the Historical Society, and a *Magdalen* for Chas. Lewis of New London. In Paris he painted *The Good Samaritan* for M. O. Roberts, and *The Sketcher* for the Graham Institute. In London, in the winter of 1857–8, he studied at the Kensington Life Academy, — painted *Ichabod Crane and Katrina Van Tassell* for Wm. H. Osborn of New York, *The Counterfeit Note* for R. M. Olyphant, and another *Mercy's Dream*, varied in all the details from the first. The work was engraved by T. O. Barlow of London, and is now in the collection of M. O. Roberts. In the fall of 1858 he was again in New York, painting portraits. The next year the large picture of *Mrs. Washington's Reception* was begun for A. H. Richie, who afterwards engraved it. This work employed him for more than a year, was sent to the Paris Exposition, and is now in the collection of A. T. Stewart. In 1864 and '65 he painted several Shakspearean characters; *Shylock*, for the Century Club, *Miranda*, *Portia*, *Juliet*, *Hero*, *Rosalind*, and another *Portia*, differing from the first. In 1867 a large landscape composition appeared, called *Chocorua Peak;* this is one of his most important works. *Philosophy and Christian Art* for Robert Hoe, and *Sowing the Word* for Anson Stokes, were painted in 1868, and are considered his best works of that character. A list of the eminent Americans painted by Mr. Huntington would be too long to insert here. Among the best are: President Van Buren, Admiral Dupont, Gulian C. Verplanck, W. C. Bryant, Chancellor Ferris, Gen. Swift, Dr. Muhlenberg, James Suydam, Gov. Morgan, Judges Daly and Sutherland, Governor Trimble, A. B. Durand, Geo. Peabody, Abraham Lincoln, etc. Mr. Huntington was President of the National Academy of Design from 1862 to 1869, and again from 1877 to 1889.

Hunt'ington, in *Connecticut*, a post-town and township of Fairfield co. *Pop.* (1897) about 4,100.

Hunt'ington, in *Indiana*, a N.E. co.; *area*, about 380 sq. m. *Rivers.* Wabash and Salamonie rivers. *Surface*, mostly level; *soil*, very fertile. *Cap.* Huntington. *Pop.* (1890) 27,644.

—A city, cap. of Huntington co., on C. & E. and Wabash R.Rs., 24 m. S.W. of Ft. Wayne. *Pop.* (1897) about 8,350.

Hunt'ington, in *Massachusetts*, a post-township of Hampshire co. *Pop.* (1895) 1,450.

Hunt'ington, in *New York*, a post-village and township of Suffolk co., about 40 m. E.N.E. of the city of New York. *Pop.* of village (1897) about 3,120.

Hunt'ington, in *Ohio*, a township of Brown co.

—A township of Gallia co.

—A post-township of Lorain co.

—A township of Ross co.

Hunt'ington, in *South Carolina*, a post-village of Laurens co., about 82 m. N.W. of Columbia.

Hunt'ington, in *Vermont*, a post-town and township of Chittenden co., on the Huntingdon river, about 20 m. W. of Montpelier. *Pop.* (1897) 746.

Hunt'ington Bay, in *New York*, an arm of Long Island Sound, about 20 m. E.N.E. of New York City.

Hunt'ingtown, in *Maryland*, a post-village of Calvert co., about 54 m. S.S.W. of Annapolis.

Hunt'ley, in *Illinois*, a post-village of McHenry co., about 55 m. W.N.W. of Chicago. *Pop.* (1897) 590.

Hunt'ly, a town of Scotland, in Aberdeenshire, at the confluence of the Bogie with the Deveron, 20 m. S.S.W. of Banff. *Manuf.* Cloth and linen-bleaching. *Pop.* 3,750.

Hunt'ress, *n.* A female that hunts or follows the chase.

Hunt's, in *North Carolina*, a post-office of Nash co.

Hunts'burg, in *Ohio*, a post-town and township of Geauga co., about 170 m. N.E. of Columbus.

Hunt's Corners, in *New York*, a post-village of Cortland co.

Hunts'dale, in *Missouri*, a post-office of Boone co.

Hunts'dale, in *Pennsylvania*, a post-village of Cumberland co., on P. & R. R.R. *Pop.* (1897) 302.

Hunts'man, *n.* One who practises hunting; the servant whose office it is to manage the chase.

Hunts'manship, *n.* The art or practice of hunting; the qualifications of a hunter.

Hunt'spur, in *Michigan*, a post-office of Mackinac co.

Hunts'ville, in *Alabama*, a thriving town, cap. of Madison co., 24 m. E. of Decatur, on M. & C. and N., C. & St. L. R.Rs.; an active manuf., trading and educational center. *Pop.* (1897) about 8,450.

Hunts'ville, in *Arkansas*, a post-village, cap. of Madison co., about 175 m. N.W. of Little Rock. *Pop.* (1897) 400.

Hunts'ville, in *Connecticut*, a post-village of Litchfield co., about 38 m. W.N.W. of Hartford. *Pop.* (1897) 168.

Hunts'ville, in *Georgia*, a post-village of Paulding co., about 11 m. E. of Van Wert.

Hunts'ville, in *Illinois*, a post-village and township of Schuyler co., about 80 m. W.N.W. of Springfield.

Hunts'ville, in *Indiana*, a village of Madison co., about 7 m. S.S.W. of Anderson.

—A township of Randolph co., 9 m. S.W. of Winchester.

—A village of Whiteley co., abt. 8 m. W.N.W. of Columbia.

Hunts'ville, in *Mississippi*, a post-village of Montgomery co.

Hunts'ville, in *Missouri*, a post-town, cap. of Randolph co., 78 m. N. by W. of Jefferson City. *Pop.* (1890) 1,836.

Hunts'ville, in *North Carolina*, a post-village of Yadkin co.

Hunts'ville, in *Ohio*, a village of Butler co., about 22 m. N. by E. of Cincinnati.

—A post-village of Logan co., abt. 61 m. N.W. of Columbus.

Hunts'ville, in *Pennsylvania*, a post-village of Luzerne co., about 115 m. N.E. of Harrisburg.

Hunts'ville, in *South Carolina*, a village of Laurens co., about 56 m. N.W. of Columbia.

Hunts'ville, in *Tennessee*, a post-village, cap. of Scott co., 125 m. E.N.E. of Nashville.

Hunts'ville, in *Texas*, a city, cap. of Walker co., on I. & Gt. Nor. R.R., 74 m. N. of Houston. *Pop.* (1897) about 1,650.

Hur. (*Script.*) A chief man among the Hebrews in the desert, associated with Aaron in upholding the hands of Moses at Rephidim, and in supplying his place while on the summit of Sinai, (*Ex.* xvii. 10.)

Hu'ra, *n.* (*Bot.*) A genus of plants, order *Euphorbiaceæ*, distinguished by having a solitary ovule; flowers apetalous in spikes; bracts, 1- to many-flowered. The seeds of *H. crepitans*, the Sand Box-tree, a native of tropical America, are a powerful cathartic, but become wholesome when their embryo is extracted. To this genus also belongs *H. Brasiliensis martius*, the ASSACON, *q. v.*

Hu'raulite, *n.* (*Min.*) A hydrous phosphate of the oxides of iron and manganese, occurring in small, yellow, reddish, or nearly colorless crystals, at Limoges, commune of Hureaux, France. *Sp. gr.* 3·18. *Comp.* Phosphoric acid 39·1, protoxide of manganese 40·2, protoxide of iron 8·3, water 12·4.

Hurd, in *New York*, a post-office of Sullivan co.

Hurdle, (*her'dl,*) *n.* [A.S. *hyrdel, hyrdl;* Ger. *hurde;* Goth. *hairda*, to guard, to protect.] That which protects, guards, or incloses; a texture of twigs, osiers, or sticks, used for inclosures, gates, &c.; a crate; a collection of twigs or sticks interwoven closely, and sustained by long stakes, serving for protection or fortification.

—*v. a.* To make up, hedge, cover, or close with hurdles.

Hurds, *n.* The refuse of flax; tow; hards.

Hurd'war, HAREDWARA, a town of India, in Bengal, on the right bank of the Ganges, where the river emerges from the foot-hills of the Himalayas into the plains of Hindostan, 36 m. from Seharunpoor, Lat. 29° 57′ N., Lon. 78° 2′ E. From its position on this stream, esteemed so sacred by the Hindoos, immense numbers of pilgrims are annually attracted hither, and the largest fair in India is held here every spring, which is attended regularly by from 200,000 to 300,000 persons. Every 12th year, this number is increased to fully 2,000,000, who come partly from purposes of devotion, and partly to trade in camels, horses, cattle, drugs, fruits, &c. *Pop.* 13,110.

Hur'dy-gur'dy, *n.* (*Mus.*) A stringed instrument, whose sounds are produced by the friction of a wheel and regulated by the fingers. It is only suited to simple music, and was used for such as had many repetitions. Its simplicity and cheapness rendered it, at one time, a favorite instrument among the peasantry of Europe. The instrument is now mostly to be seen in the hands of Savoyard boys, who play it on the streets.

Hurl, *v. a.* [Formed from *whirl;* Dan. *hvirvel;* O Ger. *hwirvil.* See WHIRL.] To cause to rush or roll along; to throw with violence; to drive with great force.

—*n.* Act of throwing with violence; tumult; riot; commotion.

Hurl'-bat, *n.* An old kind of weapon whirled rapidly round; a whirl-bat.

Hurl'-bone, *n.* A bone near the middle of the buttock of a horse.

Hurl'er, *n.* One who hurls or throws. — A player at hurling.

Hur'ley, in *New York*, a post-village and township of Ulster county, about 55 miles S.S.W. of the city of Albany.

Hurl'ing, *n.* The act of throwing. — A kind of game played with a ball.

Hur'ly-burly, *n.* [Fr. *hurluberlu*, probably formed from the sound.] Tumult; bustle; confusion.

—*a.* Tumultuous; bustling.

Hu'ron, *n.* (*Zoöl.*) The Black Bass, *Perca nigricans*, an acanthopterygian fish of the family *Percidæ*, found in Lake Huron. Its flesh is firm, white, and well-flavored.

Hu'ron, a W. co. of prov. of Ontario, bordering on Lake Huron; *area*, about 1,288 sq. m. *Rivers.* Maitland river and several less important streams. *Surface*, diversified; *soil*, fertile. *Cap.* Goderich. *Pop.* 65,165.

Huron, in *Iowa*, a post-town and township of Des Moines co., about 55 m. S.E. of Iowa City.

Huron, in *Michigan*, an extreme E. co., bordering on Lake Huron and Saginaw Bay; *area*, 750 sq. m. *Rivers.* Pigeon and Willow rivers. *Surface*, nearly level; *soil*, fertile. *Cap.* Bad Axe. *Pop.* (1894) 32,249.

—A post-township of Huron co.

—A township of Wayne co.

Huron, in *New York*, a post-town and township of Wayne co., on Lake Ontario, about 40 m. E. by N. of Rochester. *Pop.* (1897) 1,872.

Huron, in *Ohio*, a N. co.; *area*, about 480 sq. m. *Rivers.* Huron and Vermillion rivers. *Surface*, level; *soil*, fertile. *Cap.* Norwalk. *Pop.* (1890) 31,949.

—A post-village and township of Erie co., on Lake Erie, at the mouth of Huron river, and about 111 m. N. by E. of Columbus. *Pop.* of village (1890) 1,380.

Huron, in *Tennessee*, a post-office of Henderson co.

Huron, in *Wisconsin*, a post-office of Chippewa co.

Huronia Beach, in *Michigan*, a P. O. of St. Clair co.

Hu'ronite, *n.* (*Min.*) A variety of ANORTHITE, *q. v.*

Huron, (Lake,) one of the five great lakes of N. America, belonging to the basin of the St. Lawrence, second in size only to Lake Superior, and intermediate in position between that lake and Michigan, on the N.W. and W., and lakes Erie and Ontario, on the S. and S.E. It is of a somewhat triangular shape, extending between Lat. 43° and 46° 15′ N., and Lon. 79° 30′ and 85° W., surrounded W. and S.W. by the State of Michigan, and all the other sides by the territory of Upper Canada; and divided into 2 unequal parts by a long peninsula and the Manitouline chain of islands, the parts to the N. and E. of which are called North Channel and Georgian Bay. The total length of Lake *H.*, N. to S., is estimated at 280 m., and its greatest breadth about 190 m. *Area*, estimated at 25,000 sq. m. Elevation above the surface of the ocean, 596 feet, or less by 45 than that of Lake Superior, and by 4 than that of Lake Michigan. Greatest depth towards its W. shore at least 1,000 feet, and its mean depth is estimated at 900 feet, or about 300 feet below the level of the Atlantic. In various parts it abounds with islands, their total number being said to exceed 32,000, the largest, Manitoulin (*Evil Spirit*) Island, is nearly 90 m. long, and in one part almost 30 m. wide. Lake *H.* receives the superabundant water of Lake Superior by the river St. Mary, at its N.W. angle, and those of Michigan at Michilimachinac; and discharges its own towards Lake Erie by the St. Clair at its S. extremity. Lakes Nipissing and Simcoe communicate with it by the Francis and Severn rivers, except which, however, Lake Huron receives no rivers worthy of mention. The banks of this lake are mostly low, especially along its S. and W. sides. Few towns of consequence exist on its shores, and its navigation is rendered dangerous by sudden and violent tempests.

Huron River, in *Ohio*, rises in Richland co., and flowing N. through Huron co., enters Lake Erie from Erie co.

Hu'ron River, in *Michigan*, rises among the small lakes between Livingston and Washtenaw cos., and flowing S.E. enters Lake Erie between Monroe and Wayne cos. *Length*, about 90 m.—The upper part is called WOODRUFF'S CREEK.

Hurons. See WYANDOTS.

Hurra', or HURRAH'. An exclamation of joy or surprise; equivalent to *huzza*.

Hur'ricane, *n.* [Sp. *huracan;* Fr. *ouragan*, from *orage*, L. Lat. *auragium*, a storm, from Lat. = Gr. *aura*, a gentle breeze, from *aō, aemi*, to blow.] A violent storm, generally accompanied by thunder and lightning, and distinguished from every other kind of tempest by the vehemence of the wind, and the sudden changes to which it is subject. Hurricanes prevail chiefly in the East and West Indies, the Isle of France, and in some parts of China.

Hurricane, in *Illinois*, a township of Fayette co. —A post-village of Montgomery co. *Pop.* (1897) 150.

Hurricane, in *Tennessee*, a P. O. of Humphreys co.

Hurricane, in *W. Virginia*, a post-village of Putnam co.

Hurricane, in *Wisconsin*, a post-office of Grant co.

Hurricane Creek, in *Arkansas*, enters the Saline river in Saline co.

Hurricane Creek, or TELLFAIR CREEK, in *Georgia*, enters the Santilla river in Ware co.

Hurricane Creek, in *Tennessee*, rises in Dickson co., and enters Duck river in Humphries co.

Hurricane Island, in *Maine*, a post-office of Knox co.

Hur'ried, *p. a.* Hastened; urged or impelled to rapid motion or vigorous action.

Hur'riedly, *adv.* In a hurried manner; precipitately.

Hur'riedness, *n.* State of being hurried; precipitancy.

Hur'rier, *n.* One who hurries, urges, or impels.

Hur'ry, *v. a.* [A. S. *hreran*, to move, agitate, raise.] To impel to greater speed; to drive or press forward with more rapidity. — To urge to act or proceed with more celerity; to hasten; to quicken; to accelerate. — To drive or impel with violence; to urge or drive with precipitation and confusion.

—*v. n.* To move or act with hasto; to hasten; to proceed with celerity or precipitation.

—*n.* A putting into trepidation or confusion; haste; hasty motion; pressure; urgency to haste; precipitation; that occasions disorder or confusion; tumult; bustle; commotion.

Hur'rying, *n.* Tho urging to greater speed; rapidity of motion.

Hur'ryingly, *adv.* In a hurrying manner.

Hurst, *n.* [Ger. *horst;* A.S. *hyrstan*, to adorn.] A small wood; a knoll covered with trees, hence the termination of several places in England, particularly in Kent and Sussex. The surnames of Ash*hurst*, Hazel*hurst*, &c., are derived from persons who resided at or near a hurst or wood of these trees.

Hurt, *n.* [A. S. *hyrt*, hurt, wounded; Fr. *heurt*, a hit, knock, from *heurter*, to knock.] A wound; a bruise; injury; harm; loss; damage; detriment; whatever injures or harms.

—*v. a.* To knock, strike, or dash violently against; to bruise; to wound; to injuro or impair the sound state of the body, as by incision or fracture. — To harm; to damage. — To injure by occasioning loss; to impair; to impair the strength, purity. or beauty of; to harm, injure, or damage in general; to injure; to give pain to; to grievo, as oue's feelings.

Hur'tel, *n.* A horse. (Scotland.)

Hurt'er, *n.* One who hurts or harms. — A flatted iron fixed against the body of an axletree.

(*Gun.*) A piece of timber placed along the head of a gun platform, at the foot of the interior slope of the parapet, to prevent the latter from being injured by the wheels of the gun-carriage.

Hurt'ful, *a.* Causing hurt, harm, loss, injury, or destruction; tending to impair or destroy; pernicious; destructive; harmful; prejudicial; detrimental; mischievous; injurious.

Hurt'fully, *adv.* Injuriously; mischievously.

Hurt'fulness, *n.* Injuriousness; tendency to occasion loss or destruction; mischievousness.

Hur'tle, *v. n.* [From *hurt*, q. v.] To clash; to skirmish; to run against anything; to jostle.

"The noise of battle *hurtled* in the air." —*Shaks.*

—*v. a.* To push with violence; to whirl round; to brandish.

Hur'tleberry, *n.* (*Bot.*) Same as huckleberry. See VACCINIUM.

Hurt'less, *a.* Innocent; harmless; innoxious; doing no harm.

Hurt'lessly, *adv.* Without harm.

Hurt'lessness, *n.* Freedom from any pernicious quality.

Hur'toir, (*-twōr,*) *n.* [Fr.] A hurter.

Hus'band, *n.* [A. S. *husbonda, husbunda* — *hus*, a house, and *bonda*, a master of a family, from *bindan*, to bind.] A male consort or spouse; — the correlative of *wife*. — The male of animals of a lower order. (R.) — An economist; a good manager.

Husband and Wife, (*Law,*) are in many respects regarded as in peculiar circumstances, and particular laws are in force regarding them. For most purposes they are looked upon as only one person, the legal existence of the woman being hidden or incorporated in that of her husband; whence she is called a *feme covert*, and her condition during marriage, her *coverture*. For this reason a man cannot grant anything to his wife directly, nor enter into covenant with her; for the grant would be to suppose her separate existence, and to covenant with her would only be to covenant with himself; but a husband may grant to his wife, by means of a trustee or releasee to uses, and he may bequeath anything to his wife by will, seeing that that cannot take effect till the coverture is determined by his death. The *H.* is bound by law to provide his wife with necessaries as much as himself; and if she contract debts for them, he is bound to pay them; but for anything beyond necessaries he is not chargeable. If a wife elopes, and lives with another man, the *H.* is not chargeable, even for necessaries, at least if the person who furnishes them is sufficiently apprised of her elopement. If a wife be indebted before her marriage, the *H.* is bound to pay the debt, for he has adopted her and her circumstances together. If the wife be injured in her person or property, she can bring no action for redress without her *H.*'s concurrence, and in his name, as well as her own; neither can she be sued without making the husband a defendant, except where he may have abjured the realm, or been banished; for then he is dead in law. In criminal prosecutions, however, the wife may be indicted and punished separately; for the union is only a civil one. Though in general the law considers man and wife as one person, yet there are some instances in which she is separately considered as inferior to him, and acting by his compulsion. Therefore, all deeds executed, and acts done by her during her coverture, are void, except in execution of a power; in which case she must be solely and secretly examined, to learn if her act be voluntary. She cannot by will devise lands to her *H.*, unless under special circumstances; for at the time of making it she is supposed to be under his coercion. In some felonies too, and other inferior crimes, committed by her through constraint of her *H.*, the law excuses her; but this does not extend to treason or murder. The law regards marriage in no other light than a civil contract, and as such, treats it as it does all other civil contracts; allowing it to be good and valid in all cases where the parties at the time of making it were in the first place *willing* to contract; secondly, *able* to contract; and, lastly, actually *did* contract, in the proper forms and solemnities required by law. In general, all persons are able to contract marriage, unless they labor under some particular disabilities and incapacities. These are of two sorts: first, such as are canonical, and recognized by the ecclesiastical laws; as consanguinity, or relation by blood; affinity, or relation by marriage; precontract, and certain particular corporeal infirmities: and second, such as are created or enforced by the municipal laws; as a prior marriage, want of age, want of reason, &c. Lastly, in order to make a good legal marriage, it must be performed in due form of law.

Hus'band, *v. a.* To manage with frugality; to use economy.

Hus'bandage, *n.* The agent or managing owner's allowance or commission for attending to a ship's business.

Hus'bandless, *adv.* Without a husband.

Hus'bandly, *a.* Frugal; thrifty. (R.)

Hus'bandman, *n.* A cultivator or tiller of the ground; one who labors in tillage.

Hus'bandry, *n.* A term, including both agriculture and gardening, or all those country occupations which the father of a family was expected to perform in the country. The term is now commonly used as synonymous with *agriculture*.—The term *convertible husbandry* is applied to that system of cropping in which the land is alternately kept under grass and tillage.

Husbandry, Patrons of. See FARMERS' ALLIANCE.

Hush, *a.* [Ger. *husch;* Dan. *hys, hyst;* closely allied to, if not identical with, *hist*, and *whist*.] Silent; still; quiet.

—*v. a.* To still; to silence; to calm; to make quiet; to repress, as noise; to appease; to allay.

—*v. n.* To be still; to be silent.

Hush, *interj.* [Imperative of the verb *hush*.] Be silent or quiet; make no noise; silence!

Hush'aby, *a.* That tends to quiet or lull.

Hush'er, *n.* An usher. (o.) — A bully. (Local U. S.)

Hush'-money, *n.* A bribe to secure silence; money paid to hinder information, or disclosure of facts.

Husk, *n.* [It. *guscio*, shell of nuts, &c.; Ger. *hülse;* Du. *hulze*, husk, cod.] The shell or external covering of certain fruits or seeds of plants; the rind; the bark; — especially the ars of maize.

—*v. a.* To strip off, as the external covering of the fruits or seeds of plants.

Husked, (*huskt,*) *p. a.* Stripped of its husks.

—*a.* Covered with a husk.

Husk'ily, *adv.* In a husky manner; dryly; roughly.

Husk'iness, *n.* State of being dry and rough, like a husk. — Roughness of sound, or of the voice.

Husk'ing, *n.* The act of stripping off husks of fruits and seeds. — An assemblage of neighbors for the purpose of husking Indian corn. [Local U. S.]

Husk'y, *a.* Abounding with husks; consisting of husks; resembling husks; dry; rough. — Rough, as sound; harsh; whizzing.

Hu'so, *n.* (*Zoöl.*) See STURGEON.

Huss, JOHN, one of the reformers before the Reformation, B. at Hussinatz, a village of Bohemia, about 1375. He was of a poor family, but through the kindness of a wealthy seigneur, was sent to study at the University of Prague, where he graduated M. A. He entered the Church, was ordained priest in 1400, and under the protection of King Wenceslaus and his queen, Sophia, began propagating the doctrines of Wycliffe. In 1409 he was named rector of the university; was soon after suspended from his office of priest, and continuing to preach, in the field and in houses, against the pope, the authority of traditiou, indulgences, &c., was denounced at the Court of Rome, and on his failing to answer the charges made against him, was excommunicated by Alexander V. Tumults occurring in Prague, between the followers of *H.* and the Roman party, *H.* retired for a time to his native village. When Pope John XXIII. proclaimed a crusade against Ladislaus, king of Naples, *H.* boldly condemned the pope; was again cited to Rome, and at last, in 1414, to the Council of Constance. Thither, trusting to the safe-conduct given by the Emperor Sigismund, he went. Unshaken by entreaties or by terrors, he was arrested, degraded from the priesthood, delivered over to the secular arm, and burnt at Constance, July 7, 1415. His disciple, Jerome of Prague, met a like end in the following year. See HUSSITES.

Hussar, (*hŭz-zär',*) *n.* [Hung. *húsz*, 20, and *ár*, rate.] (*Mil.*) One of a body of light cavalry, first in use among the Magyars in 1610, and so called because the *twentieth* man of all the vassals of the nobles in each province was compelled to be armed as a trooper. Tilly introduced hussars into the Austrian army; and at the battle of Leipsic, in 1631, had five regiments of them in the field. Luxemburg formed a troop in France in 1692; and Frederick William I. of Prussia organized two regiments in Prussia, 1730. The first hussars forming part of the English army were enrolled by William III. during the war in Flanders in 1694. There are regiments of hussars in almost all the European armies. Their arms are a sabre, a carbine, and pistols.

Hus'sim Pacha, the last Dey of Algiers, B. 1773, proclaimed 1818, dethroned by the French under Marshal Bourmont, 1830.

Huss'ites, *n. pl.* (*Eccl. Hist.*) The followers of John HUSS, *q. v.* — Upon receiving the news of his death, several nobles and knights formed an association, Dec. 2, 1415. This party obtained the majority at the parliament of Prague, Sept. 5, 1416, and being opposed by the emperor, they took the field, and appointed Ziska their leader, March 10, 1418. Active war soon commenced, and a schism occurred in 1426. The battle of Prague was gained by Ziska, July 14, 1420; and in the still more brilliant victory of Deutschbrod, Jan. 8, 1422, he almost annihilated the Emperor's army. The Hussites overran the whole of Bohemia and Moravia, and were on the point of marching upon Vienna, when the sudden death of Ziska, Oct. 12, 1424, put a stop to their plans. They gained two more battles — at Aussig, June 15, 1426, and at Mies, July 21, 1426; but, weakened by internal disputes, they were induced to sue for peace. After long negotiation, the treaty of Iglau was concluded between the Emperor Sigismund and the leaders of the *H.*, July 5, 1436. Though this treaty did not put an end to the struggles of the Protestants in Bohemia, yet from this time the name of *H.* was no longer applied to them.

Hus'sy, *n.* [Corrupted from *housewife*, taken in an ill sense.] A sorry or bad woman; a worthless wench. It is often used ludicrously on slight disapprobation.

"Get you in, *hussy*, go! Now will I personate this hopeful young jade." — *Southern.*

—A case containing a set of sewing materials, thread, needles, buttons, &c.;—also called *housewife* or *huswife*.

Hust'ings, *n. pl.* [A. S. *hustinge* — *hus*, a house, and *thing*, a cause, a council.] The principal and supreme court of the city of London, held before the lord-mayor and aldermen, in the Guildhall. This court is of great antiquity, as honorable mention is made of it in the laws of King Edward the Confessor. In the *H.* court, at the present day, the aldermen and four members of parliament are elected. Other cities and towns have also had a court of the same name; as Winchester, York, Lincoln, &c. In common language, the term *H.* is applied, in England, to the booth or elevated platform on which candidates at a parliamentary election are nominated, and from which they address their constituents before the show of hands is taken.

Hus'tisford, in *Wisconsin*, a post-village and township of Dodge county, about 50 miles N.E. of Madison.

Hustle, (*hus'l,*) *v. a.* [Du. *hutselen*, to jumble or shuffle among one another; Sw. *hutla*, to shuffle.] To shake or shuffle together in confusion; to push or crowd.

Hus'ton, in *Pennsylvania*, a thriving township of Blair co.

—A township of Centre co.

Hus'tontown, in *Penna.*, a post-village of Fultou co.

Hus'tonville, in *Kentucky*, a post-village of Lincoln, co., about 53 m. S. of Frankfort. *Pop.* (1897) 492.

Husum (*hoo'sum*), a seaport town of Prussia, in Schleswig, on the Aue, 22 m. W. of Schleswig. *Pop.* 5,755.

Huswife, (*hŭz'zif,*) *n.* [Corrupted from *housewife*.] A bad manager; a sorry woman; a hussy. — An economist; a thrifty woman.

"The bounteous *huswife*, nature, on each bush
Lays her fulness before you." — *Shaks.*

—*v. a.* To manage with economy and frugality.

Hus'wifely, *a.* Thrifty; frugal.

—*adv.* Thriftily; like a huswife.

Hus'wifery, *n.* Management, good or bad. — Management of rural business committed to women.

Hut, *n.* [Ger. *hütte*; Du. *hut;* Dan. *hytte*, from Heb. *ghata*, Sans. *guth*, to cover.] A covered place; a small house, hovel, or cabin; a mean lodge or dwelling; a cottage; a temporary building to lodge soldiers.

—*v. a.* To place in huts, as troops encamped in winter-quarters.

—*v. n.* To take lodgings in huts.

Hutch, *n.* [A.S. *hwæcca*, a chest; Du. *hok*, a pen, kennel; Fr. *huche*, a kneading-trough; Sp. *húcha*, a large chest.] A corn chest or bin; a box for rabbits; a rat-trap.

(*Mining.*) A box in which coal is drawn up out of a pit.

Hutch'eson, Francis, philosopher, sometimes considered as the founder of the Scottish school. He was born in 1694 in Ireland; studied at Glasgow; and, on his return to Ireland, officiated in a Presbyterian congregation, for some time, in the northern part of that kingdom; but in 1729 he was elected professor of moral philosophy at Glasgow. He had previously published *An Inquiry into the Original of our Ideas of Beauty and Virtue*, and a *Treatise on the Nature and Conduct of the Passions*. In 1755, his son, Dr. Francis *H.*, a physician of Glasgow, printed from his father's papers, *A System of Moral Philosophy*, 2 vols. 4to.; to which is prefixed an account of the author. D. 1747.

Hutch'ins, Thomas, geographer-general to the United States, b. in New Jersey, about 1730. He served in the army against the Indians in Florida; was imprisoned in England in 1779, on the charge of having corresponded with Dr. Franklin, then American agent in France; afterwards joined the army of General Greene; and d. at Pittsburg, 1789. He published several topographical and historical works of considerable interest.

Hutch'inson, Anne, a religious enthusiast of New England, banished from the colony by an ecclesiastical synod, and killed, with fourteen others of her family, by the Indians, 1643.

Hutchinson, John, an English philosophical and biblical writer, b. at Springthorn, Yorkshire, 1674. The publication of Sir Isaac Newton's *Principia* in 1687, in which the philosopher supposed the planets to move through a vacuum, provoked *H.*, who was a great student of antiquity, and of the Hebrew Scriptures, to publish his work, entitled *Moses' Principia*, which appeared in two parts, in 1724 and 1727. The design of *H.* was to demonstrate that a celestial matter pervades the whole creation, spiritual and natural, whereby Jehovah is master of the material worlds, whereas the theory of Sir Isaac Newton supposed a universe without a God, or a God who acts by arbitrary power. This philosophical doctrine, which is supported by the recent discovery of an interplanetary ether, was, in the work of *H.*, a pure deduction from the Scriptures, his principle being that the Hebrew language is perfectly formed, so as to convey perfect ideas, without the redundancy or deficiency of letters common to other languages; hence, that it was perfectly adapted to be the medium of a revelation, and that religion and philosophy were united in the system of Moses. *H.* attacked Dr. Woodward, author of a "Natural History of the Earth," as well as Sir Isaac Newton. He wielded his pen with the hand of a master, and with little respect for the feelings of his opponents. Among his adherents were Bishop Horne, Jones of Nayland, Julius Bate, Drs. Hodges and Wetherall, Parkhurst, Romaine, and Dr. Samuel Clarke. D. 1737.

Hutchinson, Thomas, lord chief-justice, and afterwards lieutenant-governor, of the province of Massachusetts, b. at Boston, 1711. He was greatly respected for his able and irreproachable conduct on the bench; but having covertly taken part with Great Britain against the American colonies, and given the English ministers advice relative to the enforcement of the duty on tea, it was found necessary to remove him, and make General Gage his successor. He accordingly went to England, lived in a retired manner at Brompton, and died there in 1780. *H.* was author of a *History of the Colony of Massachusetts.*

Hutch'inson, in *South Dakota*, a S. E. co.; *area*, about 795 sq. m. *Rivers.* Dakota and some smaller streams. *Surface*, diversified; *soil*, fertile. *Cap.* Olivet. *Pop.* (1895) 11,543.

Hutch'inson, in *Minnesota*, a post-village and township of McLeod county.

Hutchinso'nians, *n. pl.* (*Philos.*) The followers of John Hutchinson (*q. v.*).

Hut'sonville, in *Illinois*, a post-village of Crawford co., about 130 m. E. S. E. of Springfield. *Pop.* (1897) 624.

Hut'ten, Ulrich von, a German poet and miscellaneous writer, best known as one of the boldest promoters of the Reformation; b. of a noble family at the castle of Steckelberg, in Franconia; d. in the little island of Uffnau, in the lake of Zurich, 1523.

Hut'ton, James, a British geologist and natural philosopher, b. at Edinburgh, 1726; chiefly distinguished as author of a *Theory of the Earth*, in which is developed the system called *Plutonic*, strongly confirmed by later researches in geology, by which the structure of the solid parts of the earth is attributed to the action of the fire. D. 1797.

Hut'ton, in *Illinois*, a flourishing post-township of Coles co.

Hut'ton, in *Maryland*, a post-office of Garrett co., on the Balt. & Ohio R. R.

Hutto'nian, *a.* (*Geol.*) Relating to the *Plutonic* theory, promoted by J. Hutton (*q. v.*).

Hut'tonsville, in *West Virginia*, a post-village of Randolph co., about 12 m. S. W. of Beverly.

Hux'ter, *v. n.* To higgle; to huckster.

Huy. (*hoo'e*, or *we*,) a town of Belgium, in Liège, on the Meuse, 15 m. W. of Liège. *Manuf.* Paper, leather, soap, pipes, &c. *Pop.* 10,075.

Huygens, Christian, (*hī'jens*,) an eminent Dutch mathematician and astronomer, b. at the Hague, 1629; settled in Paris, 1663, at the invitation of Colbert, who bestowed on him a handsome pension; returned to his native country in 1681; d. 1695. In pure Geometry, *H.* gave the reasons for the quadrature of the Hyperbola, the Ellipsis, and the Circle; in Mechanics, he laid down the theory of the Pendulum, and its application to the Clock; he discerned the synchronism of the Cycloid, invented the theory of Involutes and Evolutes of Curves, and explored the doctrine of Centres of Oscillation: most important of all, he announced the law of the motion of bodies revolving in circles, thereby *grazing* the law of gravitation. In Astronomy, we owe him the memorable discovery of Saturn's ring, at that time a most sagacious solution of very puzzling appearances. In Optics he laid the foundation of the theory of Undulations, explaining by means of it phenomena which by the theory of Emanation Newton could not touch.—Few cultivators of Abstract Science had a clearer or more correct intellect than Huygens; he showed this, more especially in his ready appreciation and powerful grasp of the Doctrine of Gravitation: he adopted the new view at the sacrifice of his previous attachment to the Vortices of Des Cartes, and this at a period of life when men have rarely freshness enough to alter their opinions.

Hnys'seuite, *n.* (*Min.*) A greenish-gray mineral from the salt mine of Strassfurt, often found in nodular forms that contain a nucleus of common salt. *Sp. gr.* 2·78. *Comp.* Borate of magnesia 40·36, borate of iron 50·05, chloride of magnesium 9·59. It becomes yellow on exposure.

Huzareh, (*hew-zā-ray'*,) a region of Afghanistan, in Lat. 31° 30′ to 37° N., Lon. 62° to 68° E.; *area*, 80,000 sq. m.; *pop.* abt. 220,000.

Huz'za, *n.* [Most probably a different form of *hurrah.*] A shout of joy.

—*v. n.* To utter a loud shout of joy, or an acclamation in joy or praise.

—*v. a.* To receive or attend with shouts of joy.

Huzza'ing, *n.* A shouting with joy; a receiving with shouts of joy.

Hven, Hwen, (*when*,) a small island of Sweden, on the S.W. coast in the Sound, 15 m. N.E. of Copenhagen. It has no particular interest save having been the residence of Tycho Brahe, and the place where he built an observatory, which has since fallen into decay; *pop.* 2,100.

Hversalt, *n.* (*Min.*) A var. of Halotrichite in which a little of the alumina is replaced by sesquioxide of iron, and some of the protoxide of iron by magnesia.

H. W. Abbreviation for *high-water.*

Hwang-ho, a river of China. See Hoang-ho.

Hyacinth, (*hī'a-sinth*,) *n.* [Lat. *hyacinthus*; Gr. *hyakinthos.*] (*Myth.*) A young Lacedæmonian prince of great beauty, son of Amyclas. He was the favorite of both Apollo and Zephyr, but himself preferred the former. Zephyr is said to have killed him from jealousy; but Apollo transformed him into the flower called after him, engraving on its petals the two first letters of his name. He was worshipped as a diviuity at Sparta.

(*Bot.*) A bulbous plant, genus Hyacinthus, *q. v.*

(*Min.*) The *H.* of the ancients is regarded as our sapphire. The highly-colored varieties of zircon are called hyacinths. The variety of garnet called cinnamon-stone, especially that from Ceylon, and sometimes a ferruginous quartz of a blood-red color, are also called by this name. In modern mineralogy a *hyacinth-color* is reddish-orange with a tinge of brown.

Hyacinthe, Father Charles-Loyson, a French pulpit orator, b. 1827. He studied at the Academy of Pau, and at an early age composed some remarkable poetry. In 1835 he entered Saint-Sulpice, was ordained priest after four years of theological study, taught philosophy at the great Seminary of Avignon, and theology at that of Nantes, and officiated in his ecclesiastical capacity at Saint-Sulpice. He afterwards spent two years in the convent of the Carmelites of Lyons, entered that order, and attracted much attention by his preaching at the Lycée of that city. He delivered the course of sermons in Advent at Bordeaux, a course for Lent at Périgueux in 1864, and repaired to Paris, where his preaching at the Madeleine and at Notre-Dame attracted much attention. Father *H.* exhibited liberal tendencies, which, though perhaps not absolutely at variance with the secret thoughts of the archbishop of Paris, Monseigneur Darbay, obliged this eminent dignitary to put an end to the discourses of the bold Carmelite. In 1869, a letter of censure from the Father-General of the barefooted Carmelites led Father *H.* to a breaking of his vows. He then repaired to New York, and some days after left America, and married in 1872 an American lady. In 1873 he established an Old Catholic Church in Geneva, resigning his charge in 1874. He opened an independent church in Paris, in 1878, called the Eglise Gallicane.

Hyacin'thus, *n.* [See Hyacinth.] (*Bot.*) A genus of plants, ord. *Liliaceæ*. They are bulbous-rooted, with bell-shaped flower, 6-cleft perianth, and dry capsular fruit. The numerous and splendid varieties of the garden hyacinth, *H. Orientalis*, have always been general favorites; and the fondness for these flowers in some countries almost amounts to a mania. It is a native of Persia, Asia Minor, and Syria, and is now naturalized in some parts of the south of Europe. It has broad linear leaves, with a raceme of many flowers. The colors of the cultivated hyacinth vary greatly, and are chiefly white, purple, and blue; many of them are double. The fragrance of the hyacinth is most powerful about 11 o'clock at night. In Holland more than 2,000 varieties have received distinct names, and the price of 1,000 florins has been given for a single plant. The environs of some of the Dutch towns present, through the profusion of these flowers, a gorgeous appearance. Hyacinth bulbs, planted in pots or grown in hyacinth-glasses, produce beautiful flowers.



Fig. 1333. HYACINTH.

Hyacin'thine, Hyacin'thian, *a.* [Gr. *hyakinthinos.*] Made of hyacinth; consisting of hyacinth; resembling hyacinth.

Hyades, (*hī'a-dees.*) (*Myth.*) The five daughters of Atlas, king of Mauritania, who were so disconsolate at the death of their brother Hyas, killed by a wild boar, that they pined away and died. They became stars after death, and were placed near Taurus, one of the twelve signs of the zodiac. Their names are Phaola, Ambrosia, Endora, Coronis, and Polyxus. To these some have added Thiene and Prodice. The ancients supposed that the rising and setting of the Hyades were always attended with much rain.

Hyæ'na, *n.* (*Zoöl.*) A carnivorous animal, the different species of which compose the fam. *Hyænadæ*. The hyænas are digitigrade animals, with more or less elongate limbs, and the body depressed posteriorly. They are characterized by the possession of four toes on each foot; thick, short, and blunt claws; and no small tubercular teeth in the lower jaw behind the molars. The dentition is regular; 34 teeth in number, 18 in the upper and 16 in the lower jaw. There are 5 molar teeth on each side in the upper jaw, and only four on each side in the lower. The dental formula is thus expressed:

$$\text{Incisors } \frac{6}{6}, \text{ canines } \frac{1-1}{1-1}, \text{ molars } \frac{5-5}{4-4}; \text{ total} = 34.$$

By the structure of their teeth, the hyænas are able to crush the bones of even the largest prey, and the muscles of their jaws and neck are so powerful, that it is almost impossible to take anything from them that they have seized. In habits, they are less sanguinary than animals of a similar nature to themselves, and live more on dead prey, even preferring flesh that has become quite putrid. In general form they resemble the *Canidæ*, but are easily distinguished from them by reason of the obliquity of their bodies and their peculiar walk, which gives them the appearance of having their hind-legs shorter than their fore ones; not that they are really so, as this results from their always being in a state of flexion. The muzzle is obtuse, like that of a dog, and the tongue rough and furry, like that of a cat. They are nocturnal animals, and are useful in Eastern cities, where they act the part of scavengers, and carry off all refuse and decomposing bodies during the night. Of the hyæna in ancient times many fabulous stories used to be related, which had not the slightest probable foundation. They were said to be hermaphrodites, changing their sex every year; also it was reported that if the shadow of their bodies fell on those of dogs, it would render the latter dumb; and, finally, they were said to be able to imitate the voices of men, and to call them by name! The family of the hyænas are natives of Asia and Africa; and the striped hyæna, *H. vulgaris*, (Fig. 1334,) is the best known of the different species. This animal is of a yellowish-gray color, and the skin is crossed by deep transverse black bands. From the neck along the back a long black mane, mottled with yellow hair, extends to the tail, while the ears are of a brown color, and nearly naked, broad at the base, long and erect. Of solitary, retiring habits, it is, however, easily tamed by man, and will thus become a faithful watch-dog. It is called the *strand-wolf* by the inhabitants of the Cape of Good Hope, where a variety of it is found. The spotted hyæna of the Cape, *Crocuta maculata*, or tiger-wolf, is smaller than the last-mentioned animal, and is of a brownish-yellow color, diversified with numerous dark-brown or black spots. The remains of hyænas have been found in most tertiary formations over the greater part of Europe. (Also written *hyena.*)



Fig. 1334.—STRIPED HYÆNA, (*H. vulgaris.*)

Hyale'a, Hyale'idæ, *n.* (*Zoöl.*) A genus and fam. of molluscous animals, order *Pteropoda*; distinguished by their wing-shaped organs of locomotion, (Fig. 1335.) There are many species, found in the Atlantic and the Mediterranean, and the shell is known by the name of Venus' chariot. The head of the animal is very indistinct, and it has no eyes.

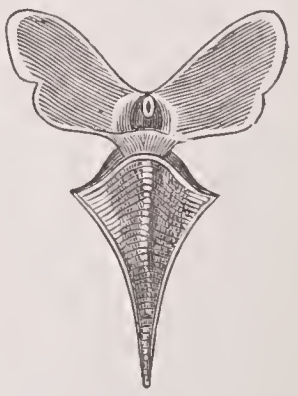


Fig. 1335.—HYALEA.

Hyales'cence, *n.* The act or process of becoming transparent like glass.

Hy'aline, *a.* [Gr. *hyalinos*, from *hyalos*, glass—a word said to be Egyptian, which agrees with the place of its earliest manufacture.] Glassy; resembling glass; consisting of glass.

Hy'alite, *n.* (Called also *Müller's glass.*) (*Min.*) A clear, colorless variety of Opal, (*q. v.,*) somewhat resembling a transparent gum.

Hyalog'raphy, *n.* [Gr. *hualos*, glass, and *graphō*, to write.] The art of engraving on glass.

Hy'aloid, *a.* [Gr. *hualos*, glass, and *sideros*, iron.] (*Anat.*) Vitriform; resembling glass.

H. membrane. (*Anat.*) The delicate cellular membrane in which the vitreous humor of the eye is contained.

Hyal'ophane, *n.* (*Min.*) A white or colorless, sometimes reddish mineral, transparent or translucent, and of a glassy appearance. *Sp. gr.* 2·8–2·9. *Comp.* Silica 51·3, alumina 21·5, magnesia 0·84, lime 0·87, baryta 15·11, soda 0·55, potash 9·25, water 0·58.

Hyalosid'erite, *n.* [Gr. *hualos*, glass, and *sideros*, iron.] A variety of CHRYSOLITE, *q. v.*

Hyal'otype, *n.* [Gr. *hualos*, and *typos*, type.] A photographic picture taken on glass.

Hyan'nis, in *Massachusetts*, a post-village and seaport of Barnstable co., on Hyannis Bay, about 70 m. S.E. of Boston.

Hyan'nis Light, in *Massachusetts*, a light-house exhibiting a fixed light 70 feet above sea-level, on Point Gammon, a promontory of Cape Cod, Lat. 41° 38′ 20″ N., Lon. 70° 15′ W.

Hyapu'ra, a river of S. America. See JAPURA.

Hy'att, in *Texas*, a post-village of Tyler co., on the Southern Pacific R. R. *Pop.* (1897) about 970.

Hy'attstown, in *Maryland*, a post-village of Montgomery co., about 36 m. N.W. of Washington, D. C.

Hy'attsville, in *Maryland*, a post-town of Prince George co., on B. & O. R. R. *Pop.* (1897) about 1,610.

Hy'attsville, in *Ohio.* See TIPPECANOE.

Hyberna'tion, *n.* See HIBERNATION.

Hyb'lite, *n.* (*Min.*) A variety of PALAGONITE, *q. v.*

Hyb'odus, *n.* (*Pal.*) A genus of fossil, shark-like fishes, with compressed conical teeth.

Hy'brid, *n.* [Lat. *hybrida;* allied to Gr. *hybris*, a piece of wanton violence, an outrage, *i. e.*, what is insulting to nature.] A mongrel produced, whether in plants or animals, by the impregnation of the female of one species, genus, or race, by the male belonging to a different family. The commonest sorts of *H.* are those which arise from the interconnection of different varieties of the same species; to notice which, the product of the wild boar and the domestic sow (see HOG) need only be mentioned. It is stated that specifical hybrids have been produced from the artificial fertilization, by Kalreuter, of the *Nicotiana rustica* with the pollen of *Nicotiana parriculata;* and Schiek has demonstrated, by numerous observations, that a multitude of plants produce specifical hybrids in a state of nature. Among mammalia, however, although hybrids have been produced, they are not very common, although some have been obtained from the intermixture of the lion and tiger, the dog and wolf, and the horse and ass, the latter being extremely useful, and termed "the mule." Hybrids are generally sterile, and the intermixture of different species, according to Owen, is guarded against by the aversion of two specifically different individuals to sexual union.

—A mongrel; produced from the mixture of two species.

Hy'bridism, or **Hyb'ridism,** *n.* State of being the offspring of two species.

Hybrid'ity, *n.* Quality of being hybrid; hybridism.

Hy'bridizable, *a.* That is able to produce hybrids.

Hy'bridize, *v. a.* To procreate by the mixture of two different species; to propagate mongrels or mules.

Hyb'ridous, *a.* Mongrel; hybrid.

Hyca'tu, a town of Brazil. See ICATU.

Hycoo'tee, in *N. Carolina*, a small river flowing into the Dan River from Caswell co.

Hydar'thrus, *n.* (*Med.*) See HYDRARTHRUS.

Hy'datid, *n.* [Gr. *hudatis*, a vesicle, from *hudor*, water.] (*Zoöl.*) A term applied rather vaguely to various cyst-like productions, which are sometimes found in the bodies of men and animals. Under the common denomination of hydatids are included several very dissimilar objects. First, several species of entozoa, or parasitic animals, which have a distinct and separate vitality: secondly, simple, unattached cysts; and thirdly, vesicular bodies, either wholly or partially connected with the tissues surrounding them. In 1686, Hartman first discovered that many of the bodies, or cyst-like tumors, were distinct parasitic animals. The discovery excited little attention till Linnæus and Pallas took up the investigation. Since that time the subject has been studied by many eminent naturalists. *H.* are principally found in the bodies of mammals, and rarely in those of the lower animals. They occur in any part of the body, but are seldom met with in the mucous cavities and passages. The fluid which fills the proper cyst of a *H.* is nearly always colorless and limpid. The cysticercus, the cœnurus, and the echinococcus, are the principal forms of cystic entozoa recognized. The first of these is often generated in the disease of sheep called "the rot." Another species affects the hog, and produces the disease called leprosy, or measles. The *Polycephalus ovinus*, another hydatid of this kind, is found in the brain of sheep, oxen, and other ruminating animals. They occur frequently in one of the lateral ventricles of the brain of sheep, where they occasion a kind of giddiness, causing the animal to turn round and round in one direction. This disease is sometimes called "the staggers" in England. The treatment, in all cases, for the prevention or removal of hydatids, is very imperfect. They generally occur in a disordered state of health; consequently, the best remedies are those which are likely to remove that state, and improve the general health.

Hyde, in *N. Carolina*, an extreme E. co., bordering on Pamlico Sound; *area*, abt. 830 sq. m. *Rivers.* Pango and some smaller streams, besides several lakes, while the coast is indented with numerous bays and inlets. *Surface*, low and level, covered profusely with swamps and marshes. *Cap.* Swan Quarter. *Pop.* abt. 9,000.

Hyde, a manufacturing town of England, in Cheshire, 7 m. E.S.E. of Manchester. *Manuf.* Cotton factories, iron-works, print-works. *Pop.* 16,560.

Hyde Park, a celebrated enclosure of abt. 400 acres, situate in London, extending from the W. extremity of the city to Kensington Gardens. It belonged to the Abbey of Westminster, and became the property of the crown on the dissolution of the monasteries, in the reign of Henry VIII. A canal or sheet of water, called the Serpentine, although in the form of a parallelogram, was made in *H. P.*, between 1730 and 1733, by order of Queen Caroline. At the eastern end of it is an artificial waterfall, constructed in 1817. Till the middle of the 17th century there was a part of it which contained deer. About that time it began to be a place for races and military reviews. It was also resorted to for duels. After the Restoration, it appears to have become the favorite promenade, which it has ever since continued to be.

Hyde Park, in *Illinois*, now a part of Chicago.

Hyde Park, in *Massachusetts*, a post-town of Norfolk co., on N. Y., N. H. & H. and N. E. R. R.'s. *Pop.* (1895) 11,828.

Hyde Park, in *New York*, a post-town and township of Dutchess co. *Pop.* (1890) 2,821.

Hyde Park, in *Pennsylvania*, a former post-village of Lackawanna co., now forming the western portion of the city of Scranton.

Hyde Park, in *Vermont*, a post-town and township, cap. of Lamoille co., about 28 m. N. of Montpelier. *Pop.* (1897) 1,652.

Hyderabad', a town of Hindostan, cap. of the Nizam's Territories, on the right bank of the Mussi, Lat. 17° 22′ N., and Lon. 78° 32′ E. *Pop.* (1895) 421,160.

Hyderabad', a town of Hindostan, cap. of Scinde, 4 m. E. of the left bank of the Indus, Lat. 25° 22′ N., Lon. 68° 28′ E. The place is celebrated for its manufacture of arms. *Pop.* (1895) 60,050.

Hyder-Ali, an Indian prince of Arabian origin, born in Mysore in 1718, took the field with his brother, who was in alliance with France, 1751, and in the interval between that period and 1780 acquired for himself an independent sovereignty, and nearly brought the English presidency of Madras to ruin. His death occurred at a critical period in 1782, and he was succeeded by his son, Tippoo-Saib, who was driven from the Carnatic in 1783.

Hydes'burg, in *Missouri*, a village of Ralls co., about 90 miles N.E. of Jefferson City.

Hyde's, in *Maryland*, a post-village of Baltimore co.

Hydes'ville, in *California*, a post-township of Humboldt co., about 25 miles S. of Eureka.

Hyde'town, in *Pa.*, a post-borough of Crawford co.

Hyde'ville, in *New York*, a post-office of Broome co.

Hyde'ville, in *Vermont*, a post-village of Rutland co., abt. 5 m. S. of Rutland.

Hydnocar'pus, *n.* [Gr. *hudnon*, tubercle, *karpos*, fruit.] (*Bot.*) A genus of plants, order *Pangiaceæ*, consisting of arborescent unisexual plants, found in the hotter parts of India. The species *H. venenatus* has a poisonous fruit, which is used for stupefying fish. The seeds of *H. odoratus*, commonly termed *Chaulmoogra*, are employed by the Indian doctors as a remedy in some cutaneous affections.

Hy'dra, I'dra, an island of the Grecian archipelago, lying on the E. coast of the Morea, between the gulfs of Nauplia and Ægina; *area*, 20 sq. m. *Pop.* 82,000. The town, of the same name, capital of the island, lies in Lat. 37° 20′ N., Lon. 23° 30′ E. *Manuf.* Silk and cotton stuffs, silk and leather.

Hy'dra, (*Myth.,*) a huge monster of the ancient world, said to have inhabited the marshes of Lernæa, in Argolis, not far from the sea-coast. Accounts vary both as to its origin and appearance. Some make it the issue of Styx and the Titan Pallas, and others, of Echidna and Typhon. It is represented as having several heads, which immediately grew up again as often as they were cut off. The number generally ranged from seven to nine, though Simonides gives it fifty, and certain historians a hundred, and even more. Its mouths, which were as numerous as its heads, discharged a subtle and deadly venom. The destruction of this reptile was one of the twelve labors of Hercules.



Fig. 1336.— HYDRA FUSCA.

(*Zoöl.*) A genus of minute polypi found in stagnant pools of water, where numbers are often seen clustering upon aquatic plants, &c. These animals present us with the simplest kind of structure which has yet been ascertained. The Hydra consists simply of a fleshy tube, open at both extremities, and the aperture of the tube serving as a mouth, which is situate in the more dilated end, and this mouth is provided at its margin with a single row of *tentacula*, or long flexible arms, which diverge from each other like the spokes of a wheel. Among the many remarkable features in the history of the Hydra, that which appears the most so is its capability of reproducing the whole structure from separate portions of it. New tentacula will replace any which have been accidentally lost or removed. If the body is divided transversely, each segment will become a new animal; the upper one closing the aperture at its base, and the lower one speedily developing tentacula around the newly formed mouth. If divided longitudinally, each half will, in a very short space of time, begin to ply its tentacula; nay, if cut transversely into several segments, each, in time, will become a perfect animal.

(*Astron.*) A constellation in the Northern hemisphere, formed by Aratus. It is figured on the celestial globe as a snake of great length, with a cup on its back, and a crow between the cup and the extremity of the tail. As it extends over such a great space in the field of the heavens, it has been divided into four parts, distinguished as *Hydra*, *Hydra* and *Crater* (the cup), *Hydra* and *Corvus* (the crow), and *Hydræ continuatio*, or the continuation of Hydra. The largest star in the entire constellation is of the second magnitude, and is found in the part termed Hydra.

—Any manifold evil.

Hydrac'id, *n.* [Gr. *hudor*, water, and *acid.*] (*Chem.*) An acid in which hydrogen is the acidifying principle, as hydrochloric acid, hydrobromic acid, &c. The names of such acids are distinguished by the prefix *hydro*, an abbreviation of hydrogen. By some chemists the terms are transposed, as chlorhydric, &c.

Hy'dragogue, *n.* [Gr. *hudor*, and *ago*, I expel.] (*Med.*) A medicine which possesses the property of increasing the secretions or excretions of the body so as to cause the removal of water from any of its cavities, such as cathartics, &c.

Hy'drales, *n. pl.* (*Bot.*) An alliance of plants, class *Endogens.* DIAG. Perfect or imperfect flowers, not arranged on a spadix, and without albumen. The alliance is divided into 3 orders, viz.: *Hydrocharidaceæ*, *Naiadaceæ*, and *Vosteraceæ.*

Hydrangea'ceæ, *n.* [Gr. *hudor*, water, and *aggeion*, vessel.] (*Bot.*) An order of plants, alliance *Saxifragales.* DIAG. Distinct styles, and opposite leaves without stipules. It is often regarded as a sub-order of *Saxifragaceæ*, with which it agrees in many important particulars; but it differs from that order by the above characters, and in the plants composing it being of a shrubby nature. About one-half of the species are



Fig. 1337.— HYDRANGEA GUERCIFOLIA.

natives of China and Japan. The typical genus *Hydrangea* contains some familiar cultivated plants; as, *H. arborescens* (found wild in the Middle and Western States), *H. quercifolia*, a native of Florida (Fig. 1337), and *H. hortensis.* The latter is the common garden hydrangea, which is much valued for its large fresh-looking leaves and dense bunches of rose-colored, white or blue flowers. This plant requires a constant supply of water in warm weather. The leaves of *H. Thunbergii* form the Ama-tsjâ, or tea of heaven, of the Japanese. The root of *H. arborescens* is used medicinally in calculus complaints in some parts of this country under the name of Leven bark.

Hy'drant, *n.* [From Gr. *hydraino*, to water.] A discharge-pipe from the main of an aqueduct; a water-plug or street-fountain.

Hydrar'gillite, *n.* (*Min.*) Same as GIBBSITE, *q. v.*

Hydrar'gyrum, *n.* [Lat.] (*Chem.*) The scientific name of quicksilver or MERCURY, *q. v.*

Hydrar'thrus, *n.* [Gr. *hudor*, water; *arthron*, a joint.] (*Med.*) A white swelling. The joints most subject to this disease are the knee, ankle, elbow, and wrist. At first the swelling is slight, of the same color as the skin, but very painful, diminishing the mobility of the part affected. It can be distinguished from rheumatic swelling of the joints by its fixed and wearing pain, which often exists for a long time before any enlargement of the part is perceptible.

Hydras'tis, *n.* [Gr. *hudor*, water; the plant grows in watery places.] (*Bot.*) A genus of plants, order *Ranunculaceæ.* One species only is known, namely, *H. Canadensis*, the Golden Seal, Orange-root, or Ground Raspberry. This is a low, perennial herb, indigenous to this country, and found in bog meadows from Canada to

Kentucky. Its rhizome, or root-stock, sends up, in early spring, a simple stem, from six inches to a foot high, which is two-leaved near the summit, and bears a single terminal greenish-white or rose-colored flower. The fruit is of a red color, and somewhat resembles an unripe raspberry. This little plant has of late attracted much attention, and almost every well-known pharmacologist has written upon its medicinal properties. Two active principles, *hydrastina* and *berberine*, have been extracted from the rhizome. Another preparation, called *hydrastin*, is much used by the medical men of America, who style themselves *Eclectics;* it is procured by the solvent action of alcohol. The preparations of *H. Canadensis* are stated to have a specific influence over the mucous surfaces, and to be useful in gonorrhœa, gleet, dyspepsia, piles, constipation, ophthalmia, catarrh, and various other diseases. There can be no doubt as to the valuable tonic properties of this plant. The rhizome may be used as a dyeing agent.

Hy'drate, *n.* [From Gr. *hudor*, water.] (*Chem.*) In combination with certain metallic oxides, water seems to play the part of an acid, forming a compound that may be considered as a pseudo-salt. Thus, with oxide of sodium water forms the compound $NaOH_2O$, or hydrate of soda, which is quite a different body to the simple NaO; in fact, such is the attraction existing between the two bodies, that they cannot be separated by the strongest heat. The hydrated oxides of the heavy metals also differ in properties to the anhydrous oxides; sesquioxide of chromium, for instance, is not attacked by any of the acids, even with the aid of heat, but in the hydrated condition it is readily soluble in most of them. The combination of water with the oxides is always attended with the evolution of a large amount of heat; a familiar instance of which takes place in the slaking of lime. In the case of oxide of potassium and sodium, the action is so violent that the mass becomes incandescent.

Hy'drated, *a.* Formed into a hydrate.

Hydra'tion, (Water of.) *n.* (*Chem.*) The water chemically combined with a substance to form a hydrate.

Hydrau'lic, or **Hydrau'lical,** *a.* [Lat. *hydraulicus;* Gr. *hydraulikos*, from *hydraulis*, a water-organ in which the pipes are played by the motion of water — *hudor*, water, and *aul-e*, a pipe.] Pertaining to water or fluids in motion through pipes, channels, &c.; pertaining to the science of hydraulics.

Hydrau'lically, *a.* In an hydraulic manner.

Hydrau'lic Engineer'ing, *n.* That branch of engineering which treats of the appliance of water as a motive power for mechanical purposes, and the methods that must be adopted to offer an effective resistance to the pressure which is exercised by any great volume of that fluid, whether it be in a state of rest or in motion.

Hydrau'lic Limestone, *n.* (*Min.*) Limestone containing some silica and some magnesia. When burned, this limestone furnishes the hydraulic lime, so called because it will *set* under water. Some varieties in the United States contain 20 to 40 per cent. of magnesia, and 12 to 30 per cent. of alumina and silica. In making mortar from this lime, much less sand is used than with the ordinary kinds. — See CEMENT; LIME.

Hydrau'lic Press. See HYDROSTATIC PRESS.

Hydrau'lic Ram, *n.* (*Physics.*) A hydro-dynamic machine, of simple and beautiful construction, invented by Montgolfier at the close of the last century. Its object is to raise water without the aid of any other force than that produced by the *momentum* or moving force of a part of the water that is to be raised. The effect of its action is so great, that the machine appears to act in opposition to the laws of hydrostatic equilibrium; for a moving column of water is made to overcome and move another column much higher than itself. In Fig. 1338, which represents a section of Montgolfier's *H. R.*,

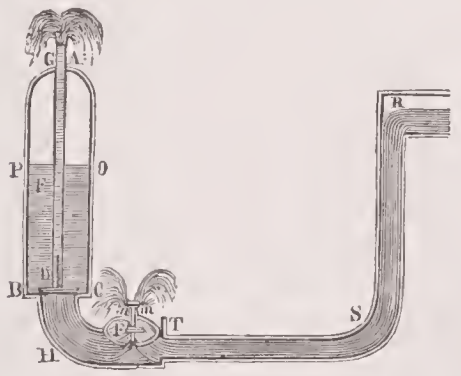


Fig. 1338. — HYDRAULIC RAM.

R is the reservoir from which the water falls, R S the height of the fall, and S T the horizontal tube which conducts the water to the engine A B H T C. E and D are two valves, the former of which closes its cavity by ascending, the latter by descending; and F G is a pipe reaching within a very little of the bottom C B. The valves are such that the water at its normal pressure cannot support their weight; the valve E is prevented from falling below a certain point by a knob above, *m n*. When the water is allowed to descend from the reservoir, after filling the tube B H S, it rushes out at the aperture *m n*, till its velocity in descending R S T becomes so great as to force up the valve E, and close the means of escape. The water being thus suddenly checked, and unable to find a passage at *m n*, will produce a great action on every part of the containing vessels, and by its impact raise the valve D. A portion of water being admitted into the vessel A B C, the impulse of the column of fluid is expended, the valves D and E fall; the opening at D being thus closed, and that at *m n* opened. The water now rushes out at *m n* as before, till its motion is again stopped by its carrying up the valve E, when the operation is repeated, the fluid impulse opening the valve at D, through which a portion of the water passes into A B C. The valves at E and D thus alternately closing and opening, and water at every opening of D making its way into A B C, the air therein is condensed, for it has no communication with the atmosphere after the water is higher than the bottom of the pipe F G. This condensed air, then, exercises great force on the surface, O P, of the water, and raises it in the tube, F G, to a height proportioned to the elasticity of the imprisoned air. The principles of the hydraulic ram are susceptible of a very extensive application. In well-constructed rams, the mechanical effect obtained should be from 65 to 75 per cent of the force supplied. For raising comparatively small quantities of water, such as for single houses, farm-yards, &c., the ram is the best mechanism yet introduced, since when once set in motion with a continual supply of water, it will work by the momentum generated and destroyed for any length of time. But the concussion, and consequent deterioration of the valves, places a limit to the use of the mechanism when applied to raise large quantities.

Hydrau'licon, *n.* (*Mus.*) An instrument acted upon by water; a water-organ.

Hydrau'lic Mills (now HYDRAULIC), in *Virginia*, a post-office of Albemarle co.

Hydrau'lics, *n.* The science of fluids in motion, or the science which investigates the laws by which fluids in motion are regulated, and the means by which water is raised and conducted in pipes, &c. — See HYDRODYNAMICS; and for the application of hydraulic power, see HYDROSTATIC PRESS, HYDRAULIC RAM, ARCHIMEDES' SCREW, PUMP, SIPHON, WATER-WHEEL, &c.

Hydrenter'ocele, *n.* [From Gr. *hudor*, water, *enteron*, an intestine, and *kele*, a tumor.] (*Med.*) A hydrocele, or dropsy of the scrotum, attended with a rupture.

Hy'driad, *n.* (*Myth.*) A water-nymph.

Hy'dride, *n.* (*Chem.*) A compound of hydrogen with another element, and also with an organic or compound radical. Arseniuretted hydrogen (AsH_3) is an example of the first, and hydride of methyl, or marsh-gas, of the second class.

Hy'driodate, *n.* A salt formed by the union of hydriodic acid with a base.

Hydriod'ic Acid, *n.* (*Chem.*) A gas composed of hydrogen and iodine. It is obtained by placing a little iodine in a glass tube, upon this some roughly powdered glass moistened with water, and then a few pieces of phosphorus, and finally more glass, and so on till the tube is two-thirds full. Gentle heat is then applied, and the gas collected by the displacement of air. The glass serves to prevent the too violent action of the iodine upon the phosphorus. *H. A.* resembles hydrochloric acid, *q.v.*, is colorless, highly acid, fumes in the air, and is very soluble in water. Its solution in water is a sour, dense liquid, which is gradually decomposed by the oxygen of the air; the iodine set free being dissolved communicates to the liquid a brown color. It is also decomposed by chlorine.

Hydriod'ic Ether, Iodide of Ethyl, *n.* (*Chem.*) A colorless mirth-flammable liquid, composed of iodine and ethyl, of a sharp, pungent taste, and a penetrating ethereal odor; *sp. gr.* 1·94; boiling-point 148° F.; *sp. gr.* of vapor 5·4. *Form.* C_4H_5I. At a red heat it is decomposed, giving off the purple vapors which are peculiar to iodine. When exposed to the action of the atmosphere for any length of time, it assumes reddish tints from the liberation of iodine, a change which may be easily prevented by introducing a globule of metallic quicksilver into the bottle containing it. It is nearly insoluble in water, but very soluble in alcohol, from a solution in which it is precipitated by the addition of water. It is also easily soluble in simple ether. When placed in contact with metallic zinc, the latter unites with the iodine, forming iodide of zinc, and leaving the radical *Ethyl*, in the form of a colorless gas, having a faint, ethereal odor, of a specific gravity of a little more than 2, and burning with a brilliant white flame. At the temperature of 37°, and under a pressure of 2¼ atmospheres, it is reduced to a colorless, transparent liquid, which is soluble in alcohol. The isolation of this radical requires a temperature of a little more than 300°. Common ether is the protoxide of this compound, represented by the formula C_4H_5O, and alcohol is the same when hydrated, $C_4H_6O_2$. Besides its use in the chemical laboratory as a reagent, it has within the past few years attracted the attention of physicians, especially in America and England, as a remedial agent, to be administered by inhalation, in many cases in which the use of iodine is indicated. It is given in doses of 12 or 15 drops, inhaled from a napkin or sponge. In these doses, it is a gentle stimulant, and anti-spasmodic, but in larger quantities, and when inhaled for a considerable time, it becomes a powerful anæsthetic agent. It is said to be especially adapted to diseases of the lungs and bronchial tubes, and hence it has been most successfully administered in cases of bronchitis, phthisis, asthma, catarrh, and their kindred diseases. It increases the appetite, produces an increased pulse, and is said to produce great vivacity of spirits, and activity of thought. When prepared with phosphorus, as by the first formula, it is sometimes nauseating to the patient, on account of remaining traces of that substance, but when prepared by the other method, and of pure materials, it is free from any such objection, as any excess of chlorine would be completely expelled by the degree of heat which is necessary for distillation. The alcohol employed in its preparation should be of the purest quality, and especially should it be thoroughly deprived of all traces of fusel-oil, as is also indispensable in the manufacture of chloroform.

Hydroap'atite, *n.* (*Min.*) Hydrous apatite, a milk-white mineral, occurring in rounded or mammillary masses near St. Girons in the Pyrenees. *Sp. gr.* 3·1. *Comp.* Phosphoric acid 40·0, lime 47·31, fluorine 3·36, calcium 3·6, water 5·3.

Hydrobarom'eter, *n.* An instrument for determining the depth of sea-water by its pressure.

Hydroben'zamide, *n.* (*Chem.*) A white, crystalline, neutral substance, formed by the action of ammonia on oil of bitter almonds.

Hydrobo'racite, *n.* (*Min.*) A borate of lime and magnesia containing water. It is white, with red spots, and resembles fibrous gypsum. *Sp. gr.* 1·9–2. *Comp.* Boracic acid 47·8, lime 14·3, magnesia 10·2, water 27·7. Found in the Caucasus Mountains.

Hydrobranchia'ta, *n. pl.* (*Zoöl.*) A section of the order *Gasteropoda*, containing Mollusca which breathe water only; called also *Branchifera*, or Water-breathers.

Hydrobro'mate, *n* (*Chem.*) A salt composed of hydrobromic acid and a wet base.

Hydrobrom'ic Acid, *n.* (*Chem.*) A gaseous acid closely resembling hydriodic acid, and may be prepared in the same manner, substituting bromine for iodine. Its solution is capable of dissolving considerable bromine, which gives it a red tint. *Sp. gr.* 2·71. *Equivalent* 81.

Hydrobuchol'zite, *n.* (*Min.*) A rare mineral containing silica, alumina, water, and gypsum.

Hydrocar'bonate, *n.* (*Chem.*) Carburetted hydrogen gas.

—*a.* Belonging, or relating to a compound of carbonates and water.

Hydrocar'bons, *n. pl.* (*Chem.*) Compounds of hydrogen and carbon. They are very numerous, and form important gaseous, liquid, and solid substances. They cannot be formed by the direct union of their elements, but are derived from the decomposition of complex organic bodies. The inflammable gases, oils, fats, tallow, wax, and bodies of like nature, are examples of *H.*, though some of them contain oxygen in combination. There is also an extensive series of double hydrocarbon radicals, formed by the combination of two alcohol radicals. Thus we have ethyl-tetryl, methyl-ethyl, and so on. Discoveries in relation to the hydrocarbons are being made so frequently, that in order to gain a correct knowledge of the subject, it is necessary to read the current chemical journals of the day.

Hydrocar'buret, *n.* (*Chem.*) An hydrocarbon.

Hydrocar'dia, *n.* [Gr. *hudor*, water, and *kardia*, the heart.] (*Med.*) A dropsy of the pericardium. — A collection of fluid in the pericardium, which may be either coagulable lymph, serum, or a puriform fluid. It produces symptoms similar to those of hydrothorax, with violent palpitation of the heart, and mostly an intermittent pulse. It is incurable.

Hy'drocele, *n.* [Gr. *hudor*, and *kele*, a tumor.] (*Med.*) A term generally applied to a collection of serous fluid in the areolar texture of the scrotum, or in some of the coverings, either of the testicle or spermatic cord.

Hydroceph'alus, *n.* [Gr. *hudor*, water, *kephale*, the head.] (*Med.*) The term applied to dropsy, or water in the head. Physicians distinguish it into two kinds, — the acute and chronic, both of which are almost exclusively confined to infancy and childhood. Acute hydrocephalus is an inflammatory disease, rapid in its course, and requiring decided treatment; chronic hydrocephalus, on the other hand, may go on for many years. In acute hydrocephalus the child is usually restless and fretful, the skin is hot and dry, the pulse quickened, the appetite is lost, and the bowels costive. The eyes are dull and heavy, the face flushed, and the child complains of pain and heaviness of the head. After a time the symptoms become more manifest. The pain in the head becomes more intense; the restlessness is much increased; the expression of the countenance is altered, especially that of the eyes, which are often directed irregularly, with the pupils unequally dilated. The appetite is lost, and sometimes there is vomiting. The sleep is very much disturbed, and frequently the child awakes with a loud scream; the pulse is low and irregular, and frequently convulsions take place. The disease often proves fatal in two or three days, or even less; but sometimes it is protracted over two or three weeks, depending chiefly upon the age and strength of the child, and the violence of the disease. The treatment of this disease must necessarily depend upon the strength and condition of the patient, the great object being to subdue the inflammatory action of the brain. Blood is to be freely abstracted by leeches, and some recommend the free use of the lancet. Active purgatives are also to be administered. When the active symptoms of the disease have been overcome, the system is to be gradually restored by tonics, cautiously administered. Chronic hydrocephalus differs from the other, not only in its progress being much slower, but from being rarely or only slightly attended with inflammation, and from there being always more or less of a collection of watery fluid in the brain, which is not invariably the case with the former. The chronic form is frequently hereditary, occurring in the children of weak or scrofulous parents; and it usually makes its appearance before or speedily after birth. The fluid sometimes amounts to many pints, giving the head a very large and unsightly appearance. The fluid is sometimes lodged in the membranes enveloping the brain, but more frequently it is contained in the ventricles, and other cavities of that

organ itself. This disease is always attended with more or less intellectual derangement. The vision is usually considerably impaired, with squinting; speech is imperfect, and the power over the voluntary muscles is partially lost. These symptoms gradually increase; convulsions and paralysis at length make their appearance; and death at last supervenes. The duration of the disease is extremely various; sometimes it may terminate fatally in a few months, at other times it may go on for many years. From the early period at which this disease usually makes its appearance, little can be done to arrest its progress. Sometimes puncturing the head has been attempted with success.

Hydrocharida'ceæ, HYDROCHARADS, *n. pl.* (*Bot.*) An order of plants, alliance *Hydrales*. DIAG. Epigynous stamens, and an adherent ovary. — The species are inhabitants of fresh water. Their flowers are spathaceous, regular, dicecious, or polygamous; the perianth is superior, in 1 or 2 whorls of 3 pieces, the inner whorl being petaloid; the ovary is inferior, 1–9-celled; the fruit indehiscent, with numerous seeds, which are without albumen. The fresh-water aquarium has made many of these simple plants familiar objects. One of them, *Valisneria spiralis*, is the best and more lasting of all aquarian plants. *Anacharsis alsinastrum*, the American Water-weed, or Water-thyme; *Stratiotes aloides*, the Water-soldier; and *Hydrocharis Morsus-ranæ*, or *Spongiosa*, the Frog-bit, are also plants of this order which have been transplanted from our ponds and ditches to the aquaria of our parlors and conservatories.

Hydrocha'ris, *n.* (*Bot.*) The typical genus of the order *Hydrocharidaceæ*, q. v.

Hy'drochlor, *n.* (*Min.*) A name given to a variety of *Pyrochlore* (q. v.) containing water.

Hydrochlo'rate, *n.* (*Chem.*) A salt resulting from the union of hydrochloric acid with a base.

Hydrochlo'ric Acid, *n.* (*Chem.*) A colorless gas, having an acid, suffocating odor, and producing white fumes when allowed to escape into the air, from its condensing the moisture of the atmosphere. It contains by weight 35·5 parts of chlorine, and 1 part of hydrogen. *Form.* HCl. It may be liquefied by a pressure of 40 atmospheres. The gas has a specific gravity of 1·269 as compared with air, is incombustible, extinguishes burning bodies, and is exceedingly soluble in water, which, at ordinary temperatures, takes up about 418 times its bulk of the gas. From its great attraction for water, it can be collected only over mercury or by the displacement of air. A piece of ice dropped into a jar of *H. A.* gas, is instantly liquefied by it. Its solution in water is extensively used in chemical pursuits, and is easily obtained by the action of sulphuric acid on common salt. The salt is placed in a glass flask provided with a cork and bent tube (Fig. 1339), and on the addition of sulphuric acid, and the application of gentle heat, the gas passes over into a second vessel containing water, by which it is at once absorbed. For collecting it in quantity, a series of *Wolfe's Bottles*, q. v., is used. In this experiment the hydrogen of the water, combined with the sulphuric acid, unites with the chlorine of the salt, while the sulphuric acid unites with the sodium of the salt, to form sulphate of soda, or Glauber-salt. The solution, when pure, is a colorless solution, but the "muriatic acid" of commerce is generally of a straw color, from the presence of impurities. *H. A.* is a constituent of the *gastric juice*, q. v., and the gas is a common volcanic product. Its presence in any liquid may be detected by adding a solution of nitrate of silver. A white, curdy precipitate of chloride of silver is formed, which dissolves in ammonia, and blackens on exposure to the light. In the manufacture of soda-ash, *H. A.* is formed in large quantities, and when allowed to escape into the air, produces an acid mist which ruins the surrounding vegetation. To prevent this, immense chimneys have been erected to discharge the gas at a greater distance from the ground. One near Liverpool is 495 feet high. These do not remedy the evil, and it is found necessary to condense the gas in water. *H. A.* was first obtained as a pure gas by Priestley in 1772, but its solution in water had long been known as *spirit of salt*, *muriatic acid*, (from Lat. *muria*, sea-water, brine,) and *marine acid*. Its more proper chemical name is *chlorohydric acid*. Its composition was ascertained by Davy, in 1810.

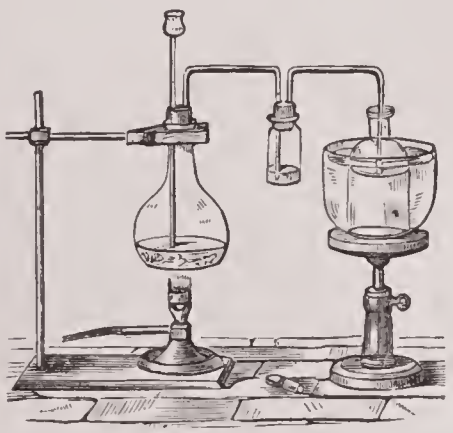


Fig. 1339.

PREPARATION OF SOLUTION OF HYDROCHLORIC ACID.

Hydrochlo'ride, *n.* (*Chem.*) A compound of hydrogen, chlorine, and carbon.

Hydrochœ'rus, *n.* (*Zoöl.*) A genus of rodent animals, family *Hystricidæ*, characterized by large size, 4 toes before and 3 behind, and all armed with large nails and united by membranes. The Capybara (*H. capybara*, Cuv.), of S. America, is the largest known rodent, being 3 feet long and exceedingly bulky. Its muzzle is thick, limbs short, hair coarse, and tail almost wholly wanting, and the general color yellowish-brown. It is aquatic in its habits, is hunted as game, and its flesh is quite good for food.



Fig. 1340. — THE CAPYBARA, (*Hydrochœrus capybara.*)

Hydroco'tyle, *n.* [Gr. *hudor*, water, and *kotyle*, a vessel; — the concave leaf often holds water.] (*Bot.*) A genus of plants, order *Apiaceæ*. They are herbaceous, creeping, usually aquatic plants; umbels simple; involucre few-leaved. *H. Americana*, the Pennywort, is a small, delicate perennial herb, growing close to the moist earth, beneath the shade of other vegetables, from Canada to S. Carolina. Flowers greenish-white, small, nearly sessile, in simple, capitate, sessile, axillary umbels.

Hydrocy'anate, *n.* (*Chem.*) A salt resulting from the union of hydrocyanic acid with a base.

Hydrocyan'ic Acid, CYANHY'DRIC ACID, PRUS'SIC ACID, *n.* [From *hydrogen* and *cyanogen*.] (*Chem.*) This important acid is composed of equal volumes of hydrogen and the compound gas cyanogen, which in this instance comports itself like one of the halogens, chlorine or bromine. It is prepared in an analogous manner to hydrochloric acid, by submitting a cyanide to distillation with a strong acid. Cyanide of potassium is placed in a retort, and half its weight of dilute sulphuric acid is poured upon it. At first the distillation proceeds spontaneously from the heat developed. *Equiv.* 27. *Sp. gr.* 0·9476. *Combining volume* 4. *Form.* HCy.

Hydrodo'lomite, *n.* (*Min.*) A yellowish-white mineral, found in stalactitic forms at Vesuvius. *Sp. gr.* 2·49. *Comp.* Lime 25·22, carbonic acid 33·10, magnesia 24·28, water 17·40.

Hydrodynam'ic, Hydrodynam'ical, *a.* [Gr. *hudor*, water, and *dynamikos*, powerful, from *dynamis*, power, force, from *dynamai*, to be able, strong enough — probably from Sansk. *tan*, to do, accomplish, create.] Pertaining to the force or pressure of water.

Hydrodynam'ics, *n. pl.* [Gr. *hudor*, water, *dunamis*, power.] That branch of science which treats of the pressure, equilibrium, cohesion, and motion of fluids, and also of the machines by which water is raised, or in which water is used as the first mover. The subject is divided into two parts, — hydrostatics and hydraulics. The former includes the pressure, cohesion, and equilibrium of fluids, while the latter comprehends their motion, together with the machines with which they are connected. Many of the laws of hydrodynamics depend greatly upon the characteristic property of fluids; namely, that of *transmitting equally in all directions pressures applied at their surfaces*. As a science, hydrodynamics is, comparatively speaking, modern. It was cultivated with less success by the ancients than any other branch of mechanical philosophy. The general principles, however, upon which the science of hydrostatics is founded were first given by Archimedes, about 250 years before the birth of Christ. He maintained that each particle of a fluid in equilibrio is equally pressed in every direction. He also inquired into the conditions according to which a solid body floating in a fluid should assume and preserve a position of equilibrium. The first attempts at the construction of hydraulic machinery were made in a Greek school at Alexandria, which flourished under the patronage of the Ptolemies. The fountain of compression, the siphon, and the forcing-pump were invented by Ctesibius and Hero, about 120 years after the birth of Christ. The siphon, a simple instrument used for emptying vessels, and the forcing-pump, a more complicated machine, will be found described in the articles PUMP, SIPHON. The fountain of Hero (Fig. 1052), as it is usually called, is a machine, the principle of which depends upon the transmission of the pressure sustained by a body of water in one vessel to that in another, by means of the elasticity of air. An apparatus constructed on the principle of the fountain of Hero is employed for draining the water from the mines of Schemnitz, in Hungary. Notwithstanding these inventions of the Alexandrian school, its attention does not seem to have been directed to the motion of fluids. The first attempt to investigate this subject was made at Rome, in the reigns of Nerva and Trajan. From that time very little advance was made in hydrodynamics till the end of the 16th century, when the discoveries of Castelli and Torricelli gave a new direction to the science of hydraulics. The discoveries of Sir Isaac Newton and other philosophers have caused this branch of science to progress rapidly in later years. The analytical theory of hydrodynamics resolves itself into the integration of equations of partial differences. Euler, to whom this branch of the calculus is owing, gave the general formulæ for the motion of fluids, founded on the laws of their equilibrium, and thus reduced the whole mechanics of fluid bodies to a single question of analysis. Hydraulic machines are of great variety. They are of two kinds, — machines having a motion of rotation, and machines having an alternate motion. When water acts on a machine as a moving power, it exerts, on the part impinged on, a pressure. The immediate effect of this pressure will be to make the part struck move in the direction of the power, or in some constrained direction; in either case the space will be passed through by the part. Among the machines having a motion of rotation may be mentioned water-wheels of varied kinds. They may be divided into two classes, — vertical wheels, with the axis horizontal, and horizontal wheels, with the axis vertical. The hydraulic machines which possess an alternate motion are the water-column machine and the hydraulic ram (which see). The water-column machine consists of a cylinder in which a piston is driven backwards and forwards by the weight of a high column of water contained in an upright pipe. A working-beam is attached to the piston-rod, which transmits a motion to the common pumps. This machine, used in Hungary, is mentioned above as an adaptation of the principle of Hero's fountain. The machines for raising water are *pumps*, — the Archimedes' screw, and pail or bucket, *machines*. Descriptions of the different hydraulic machines are given under the respective names of each.

Hydro-elec'tric Machine', *n.* (*Electric.*) A machine invented by W. Armstrong, consisting of a steam-boiler, insulated by means of strong glass pillars, on which it rests. Attached to the upper part of the boiler, a large number of bent iron tubes, terminating in wooden jets, allow the steam to pass out with considerable force. A conductor projects from the boiler, terminating in a knob, while in front of the bent tubes is a metallic case, containing several rows of points for carrying off the opposite electricity of the steam. It has been shown by Prof. Faraday that the electricity generated by this machine does not depend on the issue of steam through small orifices, nor on any chemical or physical change due to evaporation or condensation, but is merely the result of the friction of the water-particles which are driven through the jets by the steam. These particles act similarly to the glass plate in the ordinary machine, and give out positive electricity, while the wooden jets and pipes act as rubbers, and give out negative electricity. The true source of electricity in the machine is in fact the friction of the steam, the boiler being negative and the escaping vapor positive. The best material for the orifice of the jet appears to be wood, while ivory is one of the worst. A small quantity of oil or turpentine in the exit-pipes produces a remarkable change in this machine, — the electrical states become reversed, the boiler being positive and the steam negative. The *H. E.* machine is a powerful source of electricity.

Hydro-extract'or, *n.* An apparatus for removing moisture from yarns or cloths in process of manufacture.

Hydroferricyan'ic Acid, *n.* (*Chem.*) A compound obtained in red crystals, by the evaporation of a solution of ferrocyanide of lead which has been decomposed by sulphuretted hydrogen.

Hydroferrocyan'ic Acid, *n.* (*Chem.*) An acid is obtained, according to Liebig, by adding to a saturated solution of ferrocyanide of potassium an equal volume of hydrochloric acid. The white precipitate of the acid thus obtained is washed with hydrochloric acid, dried in valves on a tile, and crystallized by the addition of ether to its solution in alcohol.

Hydrofluor'ic Acid, *n.* (*Chem.*) A very remarkable acid, formed of fluorine and hydrogen. It has a very powerful affinity for silicon, abstracting it from its compounds with great facility. It is therefore necessary to prepare it in metallic vessels, its solvent action on glass being very great. In commerce, vessels of lead are generally used; but when it is desirable to obtain an acid of perfect purity, platinum vessels are employed. To prepare this substance, 1 part of finely powdered fluor-spar is mixed with 2 parts of oil of vitriol, and the gelatinous mass so formed is distilled in a leaden retort, to which a U-tube is fitted. The U-tube is surrounded by a powerful freezing-mixture, and the acid distils over. Hydrofluoric acid is a densely fuming, colorless, volatile liquid, boiling at 60°, and freezing at about —4° Fahr. The preparation of the acid must be conducted with great care, as the fumes of it are very deleterious, and a drop falling on the skin will occasion a deep and painful sore. Poured into water, it causes the evolution of great heat. It is easily recognized by its corrosive action on glass; and a weak solution of it is much used in the arts for etching that substance. The glass to be etched is covered with beeswax, the design being traced on the wax with an etching tool. The whole is then exposed to the action of the acid, which eats away those portions unprotected by the wax. Diluted hydrofluoric acid dissolves the metals, extricating hydrogen and forming fluorides. *Form.* HF.

Hydrofluosilic'ic Acid, *n.* (*Chem.*) An acid only known in the form of solution, which is obtained in passing fluoride of silicon in water. *Sp. gr.* abt. 1·078. *Form.* $HF.SiF_2$.

Hy'drogen, *n.* [Fr. *hydrogène*; Gr. *hudor*, water, and *gennaō*, to generate.] (*Chem.*) An elementary substance, first isolated as a constituent of water by Cavendish in 1766. It is a colorless, transparent, tasteless, inodorous

gas, which is doubtfully claimed to have been liquefied. It is almost insoluble in water, 100 volumes of that fluid only absorbing two volumes of the gas. It is the lightest substance in nature, 100 cubic inches of it weighing only 2·14 grains. It was at one time doubted whether it existed in the uncombined state in nature; but the experiments of Bunsen prove that it is evolved, though in very variable proportions, by the solfataras of Iceland. As a constituent of water, it is most extensively distributed throughout nature. It also exists in combination with oxygen in most inflammable minerals. It is an important element in all organic substances and enters into the composition of most substances in daily use, whether drawn from the mineral, vegetable or animal kingdom. Having a very great attraction for oxygen and chlorine, when in the nascent condition, it is much employed in the laboratory for deoxidizing or dechlorinating purposes. It is prepared in a variety of ways, the most usual being by pouring dilute sulphuric acid on granulated zinc or iron clippings, when the following reaction takes place:

$$Zn + SO_3H_2O = ZnO + SO_3 + H_2.$$

It may also be prepared by passing steam over red-hot iron filings, by plunging sodium or potassium into water, or by electrolysis of water; all of which methods are more scientifically interesting than practical. When zinc and dilute sulphuric acid are used, the gas passes off rapidly, and may be collected over water. Prepared in this way, it contains a number of impurities, such as arsenic, sulphur, antimony, &c.; but these may be removed by passing the gas through solutions of hydrate of potash, nitrate of silver, and oil of vitriol. Mixed with air, it may be breathed without any other effect than raising the pitch of the voice many notes higher. Mixed with oxygen, olefiant gas, or atmospheric air, it forms an explosive compound of great power. The real nature of *H.* has long been an interesting point of discussion among chemists, many supposing it to be a metal in a gaseous form, and prophesying with certainty, with Dumas, that, if ever it is liquefied, it will present the appearance of quicksilver; while others contend, with Odling, that it is a neutral substance, possessing both the basic properties of a metal and the chlorous properties of a gas. *H.* is almost as passive or inert as nitrogen in its behavior toward other elements under normal pressures and temperatures, its greatest chemical activity being toward chlorine. Yet with this it will not combine spontaneously in the dark, though light causes an immediate combination. When mixed with oxygen in air no combination takes place, but certain metals seem to condense the mixture and cause a combination, water appearing and heat being produced. At temperatures higher than normal, *H.* readily combines with several elements, as sulphur, iodine, and oxygen, and carbon at the temperature of the voltaic arc. The power that *H.* has of being replaced by metals in its combinations has led Gerhardt and others to classify metals in accordance with their hydrogen-replacing power. Most metals replace one atom of hydrogen in its combinations, such as potassium, sodium, zinc, &c.; others replace two atoms of hydrogen, such as palladium, platinum, and tin; those which replace three atoms of hydrogen, such as bismuth, arsenic, and antimony. Others replace three atoms of hydrogen by two of metal, such as aluminum, iron, manganese, and others, two atoms of which replace one of hydrogen. In these cases, the basicity of the metal is often expressed by dashes over the symbol belonging to it. Thus, chloride of bismuth is written $Bi'''Cl_3$, and bichloride of platinum $Pl''Cl_2$. This system of expressing basic power was first used by Odling. *H.* is not only replaced in its compounds by metals, but also by complex organic compound atoms, such as ethyl, methyl, &c. The theory, too, that *H.* can only exist separately in the state of a double atom, is daily gaining ground, much light being thrown on the subject by the consideration of the properties of the hydrocarbons forming alcohol radicals. Thus, hydrochloric acid is represented as a double atom of *H.*, in which one atom is replaced by chlorine. Its union with other bodies forms four great types, in which all compounds are modelled. These four are HH_1, HCl_1, HHO_8, HHHN. (See also Types.) *H.* is used principally in the oxhydrogen blow-pipe. The chief compounds of *H.* are water, ammonia, hydrochloric acid, and many others, which will be found described under their respective heads. *Equiv.*, 1. *Sp. gr.*, 0·0692. *Combining volume*, 2. *Symbol*, H.

H., Binoxide of, a peculiar compound, discovered by Thenard in 1817. It is generally prepared by digesting binoxide of barium with a dilute acid, at a low temperature. It is a colorless, transparent, syrupy liquid, with a harsh, bitter and astringent taste. It does not freeze at —22° Fahr., and evaporates without decomposition. Its *sp. gr.* is 1·452. From the extra equivalent of oxygen being so loosely combined, it is set free on nearly every occasion. As might be expected, peroxide of hydrogen is a powerfully oxidating agent. It has as yet received no extensive use, although it has been employed occasionally in medicine. *Equiv.* 17. *Form.* H_2O_2.

H., Persulphide of, a light-yellow, transparent, oily fluid, possessing a peculiar acrid odor and bitter-sweet taste, produced by adding an excess of hydrochloric acid to the solution of an alkaline pentasulphide. Owing to its property of dissolving sulphur, its composition has not yet exactly been made out.

H., Teroxide of, a product of the electrolysis of water, according to the experiments of Beaumert. *Form.* H_2O_3.

Hy'drogenate, Hy'drogenize, *v. a.* [Fr. *hydrogener.*] To combine with hydrogen.

Hydroge'nium, *n.* See Hydrogen.

Hydrog'enous, *a.* Composed of, or relating to, hydrogen.

Hydrog'nosy, *n.* [Gr. *hudor*, water, and *gnosis*, knowledge.] The history and description of the waters of the earth.

Hydrog'rapher, *n.* [Fr. *hydrographe.*] One who describes the sea or other waters; one who draws maps of the sea, lakes, or other waters.

Hydrograph'ic, or Hydrograph'ical, *a.* [Fr. *hydrographique.*] Relating to hydrography, or to the description of the sea, sea-coast, isles, shoals, depth of water, &c., or of a lake.

Hydrograph'ically, *adv.* In an hydrographical manner.

Hydrog'raphy, *n.* [Gr. *hudor*, water, and *graphō*, to describe.] The description of the waters existing on the surface of the earth; particularly with reference to the bearings of the coast, the depth, currents, and other circumstances important or useful in navigation. *H.* implies the same thing with regard to the sea that geography implies with respect to the land. — *Hydrographical Charts* or *Maps* are projections of some parts of the ocean, in which the meridians, parallels, &c., with the coasts, capes, rocks, shallows, &c., are laid down for the use of navigators.

Hydrohæm'atite, *n.* (*Min.*) A hydrated oxide of iron. Same as Turgite, *q. v.*

Hy'droid, *a.* (*Zoöl.*) Hydra-like.

Hy'droidæ, *n. pl.* (*Zoöl.*) An order of Acalephs, which, in the classification of Agassiz, includes the lowest acalephs, and embraces two more or less distinct forms, one of which, though having the structure of acalephs, reminds us of *Polyps;* and the other closely resembles the *Medusæ proper.* All the so-called hydroid polyps, and the naked-eyed medusæ, belong to this order, which is divided into 8 sub-orders.

Hydrolan'thanite, *n.* (*Min.*) Same as Lanthanite, *q. v.*

Hy'drolite, *n.* (*Min.*) A name given by some to the mineral Gmelinite (*q. v.*), from its containing about 20 per cent. of water.

Hydrolog'ical, *a.* That relates to hydrology.

Hydrol'ogist, *n.* One skilled in hydrology.

Hydrol'ogy, *n.* [Fr. *hydrologie;* Gr. *hudor*, water, and *logos*, discourse, doctrine.] (*Phys. Geog.*) The doctrine or science of water, its properties, phenomena, and laws. The principal part of the water on the globe occupies a large depression of the surface, and is denominated the Ocean. Different parts of it are known as the Pacific, the Atlantic, the Indian, the Arctic, and the Antarctic oceans. The rest of the surface rises above the level of the ocean, or if depressed is occupied by waters that do not connect with the great body of the ocean. The form of the land, or, in other words, the form of the line of intersection of the surface of the ocean with the land, is extremely irregular, the water entering the land at numerous recesses, and the land projecting into the water by various promontories. The former are called Inland Seas, Gulfs, or Bays, according to the extent to which the water is land-locked. The waters reposing in hollows within the land are called Lakes; and the waters running along the surface to enter the ocean or the lakes, or be lost in plains, are called Rivers. The rivers connect with each other, and form large and definite River Systems, draining definite tracts of land. The grand phenomena of the ocean include the regular Tides and Currents which affect it, the Winds and Storms which disturb it, its temperature, depth, and mineral contents. The phenomena of fresh water actually on the surface are quite distinct; and the phenomena of water in the atmosphere, including the falling and distribution of rain, belong to Meteorology, another department of Physical Geography. Few things connected with the laws of matter and their visible results on the earth are more striking than those which belong to the circulation of water around and through the earth. The warm air that floats above the surface of the ocean is constantly raising vapor, with which the atmosphere is charged to the extent of at least four parts out of five, being ready to give it off at the slightest change of temperature. When the air in this state impinges upon land, it becomes either more heated, and therefore more absorbent (the additional supply being readily obtained), or chilled and less absorbent, and in a condition to deposit moisture as rain. Thus, on all high grounds, which are necessarily colder than the lowlands in the same latitude, and on all cooler latitudes to which clouds are drifted, there is occasional rain, often very heavy and continuous, over large tracts. The rain that thus falls is partly, no doubt, reabsorbed into the air, or is used in the production of vegetable and animal tissue. A great part, however, runs along the earth's surface in streams and rivers, circulating at the surface visibly, and the rest enters the strata, pervades them, and passes through them invisibly from place to place, coming out again in springs, and completing another circulation out of sight. The influence of water is felt everywhere; and all the phenomena of structure observable in rocks of every kind are influenced by this complete and never-ceasing circulation. *H.* is thus a department of great importance and interest. The details will be found considered in various separate articles, of which the names are printed above in capital letters.

Hydromagne'site, *n.* (*Min.*) A white, brittle hydrocarbonate of magnesia, found at Hoboken, N. J., and Texas, Pa. *Sp. gr.* 2·145.

Hy'dromel, *n.* [Gr. *hudor*, water, and *meli*, honey.] A liquid consisting of honey and water.

Hydrometal'lurgy, *n.* The act or process of assaying or reducing ores in the wet way, or by means of liquid reagents.

Hydrometeorolog'ical, *a.* Belonging or relating to clouds, rain, &c.

Hydrometeorol'ogy, *n.* That department of meteorology relating to water in the atmosphere, as clouds, rain, &c.

Hydrome'teors, *n. pl.* [From Gr. *hudor*, water, and *meteora*, meteors.] A term generally applied to the aqueous phenomena of the atmosphere, as rain, snow, hail, &c., taken collectively; — but also sometimes used in the singular.

Hydrom'eter, *n.* [Fr. *hydromètre;* Gr. *hudor*, water, and *metron*, measure.] An instrument for measuring the relative densities, or specific gravities, of fluids; and thence the strengths of spirituous liquors, which are inversely as their specific gravities. The principle upon which the ordinary hydrometer is constructed is as follows: — When a body is immersed in a fluid, it loses as much of its weight as is equal to the weight of the fluid which it displaces. Thus, if a body be suspended from one arm of a balance, and counterpoised by applying weights to the other arm; and then, while suspended, it be immersed in water, it will be found that the counterpoising weight is not sufficient, and in order to restore equilibrium, a weight equal to the weight of the water displaced must be added. If, then, the same body be immersed in two different fluids, the weights which it will respectively lose in each will be directly proportional to the specific gravities of the fluids; because the loss of weight is always equal to the weight of the fluid displaced, — that is, the magnitude of the body multiplied by the specific gravity of the fluid. The same principle holds good in the case of substances which are lighter than the fluid; for when a body floats upon the surface of a fluid, the weight of the portion of fluid displaced is equal to the weight of the floating body. All the instruments called *hydrometer*, or aërometer, are constructed upon this principle in hydrostatics. Baumé's (Fig. 1341) is generally recognized in the U. States, and is much used on the Continent of Europe, especially for liquids heavier than water. It is made of two sorts, one for liquids lighter, and the other for those heavier than water, and of these there are varieties for special liquids. For acids or salts the instrument is graduated by sinking it first in pure water, and ballasting it so that the water line shall be near the top of the stem. This fixes the zero point. It is then floated in a solution of 15 parts by weight of dry common salt in 85 parts of distilled water; and the point cut by the water line is marked 15°. From these the whole stem is divided into degrees, which should reach to 66° for sulphuric acid. The greater the degree indicated in its use, the more dense is the fluid. For spirituous liquors the zero point upon the stem is determined from a solution of 10 parts of dry salt in 90 of water, in which nearly the whole of the stem should be out of the fluid. The 10-degree point is given by pure water, and the degrees are from these marked upward, even to 70° for sulphuric ether; the larger the degree indicated the lighter the fluid. Instruments for special uses are made from these, but with short range adapted for their particular service.

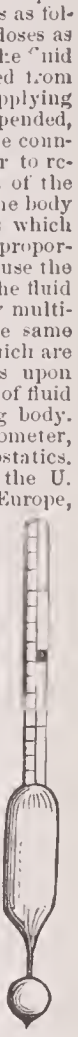


Fig. 1341.

The specific gravity of a liquid is ascertained from the indication of the *H.* of the first class by the formula, $g = \frac{152}{125-d}$; and of the 2d class, by $g = \frac{146}{136+d}$; d being the degree given by the scale. But tables are prepared for convenient reference. — Cartier's *H.* is also much used in commerce, especially by the French. It is made by adopting the 22° point of Baumé, and dividing the 16 degrees on each side of this into 15 equal degrees. The degrees of Cartier (C.) are converted into those of Baumé (B.), and reciprocally by the formula, 16 C. = 15 B. + 22; whence the specific gravity, g, corresponding to C. degrees $= \frac{136{\cdot}8}{126{\cdot}1+C}$. The *H.* of Baumé and Cartier are based on the temperature of 12·5° Cent. (54·5° F.); and when used for a liquid at a different temperature, allowance is to be made, as given in the tables. In Great Britain *Sykes's H.* is directed by Act of parliament to be used in collecting the spirit revenue. It consists of a thin, flat stem, about six inches in length, divided on both sides into eleven equal parts, each of which is again subdivided into two. This stem carries a hollow brass ball, about one inch and a half in diameter, in which is fixed a conical stalk terminating in a pear-shaped weight, so that when the instrument is placed in a fluid, it may float with the other extremity perpendicular to the surface. Ten different weights of different magnitudes are also applicable to the lower portion of the graduated stem. Nine of these weights are circular, with a slit in each to fit the stem, and are numbered respectively 10, 20, 30, 40, 50, 60, 70, 80, and 90. By the successive application of these, the instrument may be sunk so as to obtain the whole range of specific gravities, from pure alcohol to distilled water. The tenth weight is in the form of a parallelopiped, and can be fixed, when necessary, to the upper part of the stem. In order to calculate the strength of a portion of spirit by this hydrometer, a portion of the liquid is placed in a tall glass vessel, and the temperature noted by means of the thermometer. The instrument is then floated, and one or more of the weights is added, until the lower part of the scale sinks beneath the surface. The number on the stem in contact with the surface is then observed, and added to the number of the circular weight employed; and this third number is referred to

a series of tables calculated for the purpose. In these tables, under the proper temperature, will be found the percentage of strength required.

Hydrome'tra, *n.* [Gr. *hudor*, and *metra*, the womb.] (*Med.*) Dropsy of the uterus.

Hydromet'ric, or HYDROMETRICAL, *a.* Pertaining to an hydrometer, or to the determination of the specific gravity of fluids.

Hydromet'rograph, *n.* [Gr. *hudor*, *metron*, a measure, and *grapho*, to describe.] An instrument for measuring the quantity of water discharged in a given time.

Hydrom'etry, *n.* The art of measuring the specific gravities of fluids.

Hydro-nitroprus'sic Acid, *n.* (*Chem.*) When binoxide of nitrogen is transmitted through a solution of hydroferricyanic acid, it is absorbed, hydrocyanic acid being disengaged, and a new acid—hydro-nitroprussic acid — is formed, which, when combined with the metals, gives rise to the *nitroprussides*, (q. v.) *Form.* $H_2Fe_2NO_2$.

Hydropath'ic, or HYDROPATHICAL, *a.* Pertaining to hydropathy.

Hydropath'ically, *adv.* In an hydropathic manner.

Hydrop'athist, *n.* One who practises hydropathy.

Hydrop'athy, *n.* [Gr. *hudor*, water, and *pathos*, disease.] (*Med.*) A mode of curing disease by means of the application of water. The system owes its origin to one Vincenz Priessnitz, who, in 1826, established an institution at his native place, Grafenburg, in Austrian Silesia, for the cure of diseases by this mode. The system soon spread, and now there are in this country a number of hydropathic establishments. Without claiming for the system all that its votaries demand, there can be no doubt that it is of the greatest benefit in a large number of cases. Particularly is it of benefit in cases of indigestion, nervousness, an impaired constitution, a too full habit, or in such as have been living too freely, without taking much exercise. The system of dietary and exercise that is kept up at these places is perhaps not less conducive to a cure than the baths. Having, under the head *Bath*, already noticed at length the different forms of baths, and the great importance of bathing, little more remains for us here than to notice shortly some of the forms in which it is employed as a remedial agent. These are very various. Besides the ordinary bath and the shower-bath, one of the most common is the douche-bath, in which a single jet of water, varying in size from the thickness of a quill-pen to that of a man's arm, is projected with great force, either from above, below, or one side, upon a particular part of the body. The sitz-bath is taken sitting; besides which there are the foot-bath, hand-bath, &c. Sometimes, when the patient is sitting in a warm or tepid bath, cold water is poured over the head and upper part of the person. Pieces of coarse linen, saturated with cold water, are also applied to the skin, and covered over with dry cloths, and usually remoistened several times a day. The wet-sheet packing is one of the characteristics of the system. It consists in the patient being closely enveloped in a sheet, wrung out of cold water, and then covered over with dry blankets. The great importance of hydropathy consists in the healthy stimulus which it gives to the nerves, bracing them, and acting as a tonic, and soother to the whole system.

Hydropericar'dium, *n.* [Gr. *hudor*, and *pericardium*, about the heart.] (*Med.*) Same as HYDROCARDIA, *q. v.*

Hydropel'tis, *n.* (*Bot.*) A genus of plants, order *Cubombaceæ*. *H. purpurea* is said to be nutritious, but slightly astringent.

Hy'drophane, *n.* [Gr. *hudor*, water, and *phaino*, to make clean.] (*Min.*) A white translucent var. of opal. *q. v.*, which becomes more translucent or transparent in water. Hence the name.

Hydroph'anous, *a.* (*Min.*) Applied to a mineral transparent in water.

Hydroph'idæ, *n. pl.* (*Zoöl.*) A section of *Ophidians*, including the Sea-snakes or Water-snakes. These



Fig. 1342. — BANDED SEA-SNAKE (*Chersydrus fasciatus.*)
a, head ; *b*, part of back.

are principally distinguished by having the tail compressed or flattened sideways, for the purpose of swimming. They are armed with poison-fangs; but these are of small size, and are associated with a row of non-venomous maxillary teeth.

Hydrophil'idæ, *n. pl.* [Gr. *hudor*, and *phileo*, I love.] A family of coleopterous insects, comprising aquatic beetles, which are ovate, hemispherical, and with the thorax broader than long, the edges and the tibiæ slightly spined, but terminated by strong spurs, and the tarsi are commonly ciliated so as to aid in swimming. They are less agile in swimming than the Dyticidæ, and move their posterior legs alternately. They stay in the water by day, but take wing at night.

Hy'drophite, *n.* (*Min.*) A green mineral found at Taberg in Smaland. *Sp. gr.* 2·5–3·5. *Comp.* Silica 38·97, alumina 0·53, oxide of iron 19·30, oxide of manganese 4·36, magnesia 22·87, water 13·36.

Hydropho'bia, *n.* [Gr. *hudor*, water, and *phobeo*, I fear.] (*Med.*) A disease occasioned by the bite of a rabid animal, and so called from the great dread that those who suffer from it manifest at the sight of water. The dog, cat, fox, and wolf are the animals among whom this disease is most common, — among whom it is natural; but there is perhaps no animal to whom it is not capable of being communicated, as it is to man. Great differences of opinion have prevailed concerning this disease, some able physicians going so far as to say that no such disease exists, and that in the few cases of so-called hydrophobia of which they had become cognizant during many years practice, the seeming disease was the result of fear, the symptoms being due to a nervous affection, not to actual venom. Dr. John Hunter records an instance where 21 persons had been bitten by a supposed mad dog, of whom only one had hydrophobia. Such a result is in accordance with the above-stated opinion, since in the case of so dreaded a disease panic fear might easily produce a simulation of the disease in much the greater proportion of cases. On the other hand many physicians believe in the actual existence of hydrophobia, and M. Pasteur announced in 1884, to the French Academy, that he had isolated the specific venom, and could protect bitten persons against its effects by inoculation with specially treated virus. He established a hospital for the cure of the disease in Paris, and others have been founded in New York and elsewhere. Many persons have been treated by this process, though its efficacy still seems somewhat problematical. As regards the symptoms of hydrophobia, the prevailing opinion has long been that the affected animal becomes morose and sullen; runs about wildly, biting at whatever comes in its way, at first with respect for its master, but afterward forgetting him; the tongue hangs out, the mouth is kept open and discharges a large quantity of froth, and a dread of water is shown. In this state the animal seldom lives more than 24 hours. These views have recently been denied by Mr. John P. Haines, of the Society for the Prevention of Cruelty to Animals. He says that during the thirty years existence of the society no undoubted case of hydrophobia had been observed by its agents, and that not a single case had occured among the more than 160,000 dogs and other small animals cared for during the three years preceding his statement. Despite this negative experience, he believes there is such a thing as hydrophobia, but says that the popular ideas of the symptoms are incorrect. He states that a mad dog does not dread water, though it laps it with difficulty and cannot swallow it. It does not run about wildly, but jogs along slowly, without sign of excitement, but with a disposition to snap at any man or animal that comes near. A hoarse howl is at times made, but a mad dog never barks, yelps, whines, or growls, and never froths at the mouth. The surest sign of madness is a thick and ropy brown mucus clinging to the lips, which the dog vainly tries to rub off with its paws or wash off with water. Mr. Haines does not suggest the application of the knife, or of hot iron, or caustic to the wound, but says the best thing to do is to "take a few very hot vapor baths, and then try to forget all about it. The chances are incalculably great that you will be perfectly safe." With regard to the Pasteur method of treatment, the following statistics have been published: Of persons bitten by dogs undoubtedly mad, only 1·34 per cent. died after treatment; of those bitten by dogs not certainly affected, only 0·38 per cent. The former ratio, without treatment, is placed at 16 per cent.

Hydrophob'ic, *a.* Pertaining to a dread of water, or canine madness.

Hy'drophore, *n.* [Gr. *hudor*, and *phoreo*, to bear.] An instrument for obtaining specimens of the water of a river, a lake, or the ocean at any particular depth.

Hydrophthal'mia, or **Hydrophthal'my,** *n.* [Gr. *hudor*, and *ophthalmos*, the eye.] (*Med.*) A swelling of the bulb of the eye, from too great a collection of vitreous or aqueous humors.

Hydrophylla'ceæ, *n.* (*Bot.*) An order of plants, alliance *Cortusales*. *Diag.* Stamens alternate with the sepals, two styles, and a circinate inflorescence. — They are herbs, shrubs, or small trees; leaves alternate, or the lower opposite, often lobed; flowers in circinate racemes or unilateral spikes, rarely axillary and solitary; calyx five-cleft, the sinuses usually with reflexed appendages, persistent; corolla five-lobed, regular, with ten melliferous scales near the base; stamens five, inserted into the base of the corolla; anthers two-celled, versatile; ovary free, simple, one-celled; style single, terminal, bifid; stigmas two; placenta two, parietal or on stalks from the base of the cavity; fruit-capsule invested with the permanent calyx; seeds few, crustaceous; embryo conical, in abundant cartilaginous albumen. The order includes 16 genera and 75 species of the typical genus *Hydrophyllum*. There are two familiar American species, *H. Virginicum*, the Virginian Water-leaf, and *H. Canadense*, the Canadian Water-leaf or Bur-flower.

Hy'drophyte, *n.* [Gr. *hudor*, and *phyton*, a plant.] (*Bot.*) A plant which thrives in water; a name given to algaceous plants, and sometimes confined to those which are found in fresh water.

(*Min.*) A rose-red variety of Rhodonite, *q. v.*, from Kapnik

Hydrophytol'ogy, *n.* [Eng. *hydrophyte*, and Gr. *logos*, discourse.] A discourse or treatise on water-plants.

Hydrop'ic, *n.* [Fr. *hydropique*, from Gr. *hydropikos.*] (*Med.*) One who labors under dropsy.

Hydrop'ic Hydrop'ical, *a.* Relating to dropsy.

Hydrop'ically, *adv.* In an hydropical manner.

Hydropneumatic, (*hī-dro-nu-mat'ic,*) *a.* [Gr. *hudor*, and *pneumatikos*, relating to wind.] Noting an apparatus consisting of a vessel of water, &c., for collecting gases.

Hy'dropsy, *n.* (*Med.*) Same as DROPSY, *q. v.*

Hydrora'chis, Hydrorachi'tis, *n.* [Gr. *hudor*, and *rachis*, the spine.] (*Med.*) A tumor upon the spine of infants; at first of a blue color, but afterwards becoming translucent; it is attended with paralysis of the lower limbs, and is usually fatal in its consequences.

Hy'drosalt, *n.* (*Chem.*) A salt formed by the combination of a hydracid and a base.

Hy'droscope, *n.* [Gr. *hudor*, and *skopeo*, I view.] An instrument anciently used for measuring time by means of the flowing of water through a small orifice. It consisted of a cylindrical tube, conical at the bottom. The cylinder was graduated; and as the water trickled out at the apex of the cone, its surface became successively contiguous to the divisions marked on the cone, and thereby pointed out the hour.

Hydrosil'icite, *n.* (*Min.*) An amorphous substance or crust from Patagonia and Aci Castello, Sicily, containing silica 44·90, magnesia 4·60, lime 33·32, soda 2·11, potassa 1·86, water 13·21.

Hy'drostat, *n.* A contrivance for preventing the explosion of steam-boilers.

Hydrostat'ic, or **Hydrostat'ical,** *a.* [Gr. *hudor*, water, and *statikos*, from *stao*, *histemi*, to make stand.] Relating to water or non-elastic fluids in a state of rest; relating to hydrostatics.

Hydrostat'ically, *adv.* According to hydrostatics, or to hydrostatic principles.

Hydrostatic Balance, *n.* A balance for weighing substances in water, for the purpose of ascertaining their specific gravities.

Hydrostatic Bellows, *n.* An apparatus for illustrating the *hydrostatic paradox*, or that peculiar property of liquids in virtue of which they transmit pressure equally in every direction. It consists of two boards connected by a band of leather, forming a closed vessel, and a tube is inserted in the top or at the side. Weights are placed on this board, and the water is poured into the tube. As the water fills the tube, the board rises with the weights upon it. If the surface of the board is 100 times as large as the end of the tube, one pound of water in the tube will balance 100 pounds on the board. As the surface of the board is 100 times as large as the end of the tube, there are 100 times as many particles of water in contact with the board as there are at the end of the tube; and as each particle is made to exert the same pressure, one pound of water in the tube ought to balance pounds on the board.



Fig. 1343.

Hydrostatic Paradox, *n.* That principle in hydrostatics according to which any quantity of water, however small, may be made to balance any weight, however great. — See HYDROSTATIC BELLOWS.

Hydrostatic Press, (also called the HYDRAULIC PRESS, and sometimes, from the name of the engineer who gave it the form under which it is now constructed, and brought it into general use, BRAMAH'S PRESS.) A machine by means of which an enormous force or pressure is obtained through the medium of water. The principle is almost the same as that of the *H. Bellows*, *i. e.*, that by means of a liquid a small pressure upon a small surface may be made to exert a great pressure upon a large surface. In Fig. 1344 we have two cylinders, with a plunger, or piston, in each. Suppose that the surface of the larger piston, P, is 30 times that of the smaller, *p*; if the latter is pressed downwards by a weight of one pound, an upward pressure of one pound will be brought

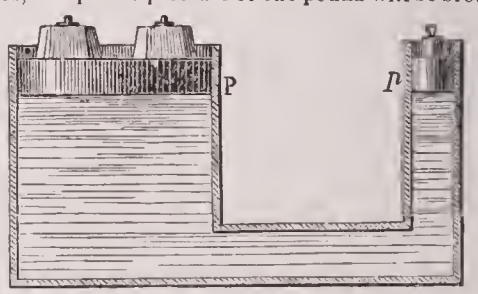


Fig. 1344.

to bear upon each portion of the surface of P equal to that of *p*. The whole upward pressure on P will then be 30 times the downward pressure on *p*. If the surface of P had been 60 times that of *p*, one pound of the latter would have balanced 60 on the former; and so on. Advantage is taken of this fact in the construction of the *Hydrostatic Press* (Fig. 1345). The two cylinders A and B are connected by the pipe *d*. The piston *a*, in the small cylinder A, is worked by the handle O, and forces water into the large cylinder B, where it presses up the piston C. If the end of the piston C is 1,000 times as large as that of the piston *a*, a pressure of 2 pounds on *a* would exert a pressure of 2,000 pounds, or one ton, upon C. If a man in working the handle O forces down the piston *a* with a pressure of 50 pounds, he would bring to bear upon C a pressure of 25 tons. This pressure is used for pressing cotton, hay, cloth, &c., into bales, for extracting oil from seeds, testing cannon, boilers, &c., and for raising ships out of the water.

Hydrostat'ics, *n.* The science which treats of the mechanical properties of fluids; strictly speaking, the weight and equilibrium of fluids. The weight and equilibrium of fluids at rest are the objects of this science.

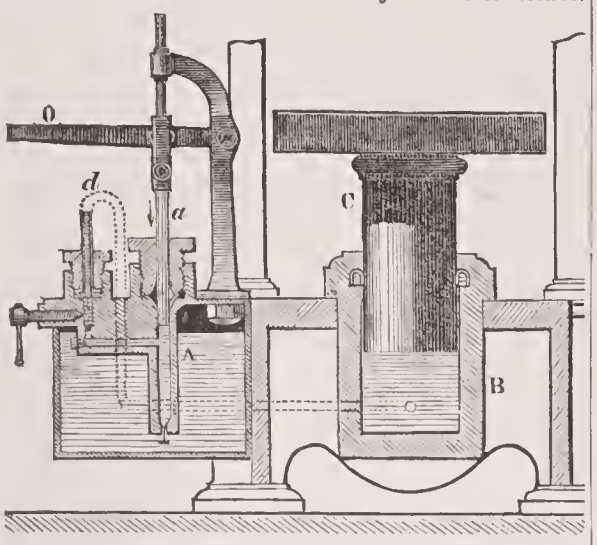


Fig. 1345. — HYDROSTATIC PRESS.

When the equilibrium is destroyed, motion ensues; and the science which considers the laws of fluids in motion is *hydraulics*. The whole doctrine of the equilibrium and pressure of liquids is deduced from the following fundamental law: "When a liquid mass is in equilibrium under the action of forces of any kind, every molecule of the mass sustains an equal pressure in all directions." One of the most obvious consequences of the above law is, that the surface of a liquid when at rest in an open vessel, and acted upon by no other force than gravity, is horizontal, or perpendicular to the direction of gravity. If the directions of gravity are parallel, the surface will consequently be a plane; if they converge to a point, the surface of the liquid will be a portion of a sphere. Stagnant water at the surface of the earth, therefore, assumes the spherical figure; but by reason of the magnitude of the sphere the curvature of any small portion of it is insensible, and the surface may be regarded as a plane. A ring surrounding the earth would bend away from a perfectly straight line only eight inches in a mile. If a free communication is made between two or more vessels containing a liquid by pipes or tubes, or otherwise, the surface of the liquid when in equilibrium will always stand at the same level. The liquid contained in a vessel being at rest, and subjected to the action of gravity only, any particle of it is pressed in all directions (vertically, horizontally, or obliquely) by a force which is equal to the weight of the vertical column of the liquid incumbent on it. Instead of a particle of the liquid itself, we may consider the column to rest on an indefinitely small portion of the bottom or the sides of the vessel in which it is contained, and it will follow that the pressure on an indefinitely small portion of the area at any point of the bottom or sides is perpendicular to th plane of that area, and equal to the weight of a vertical column of the liquid standing on it as a base and reaching to the surface. Hence the whole pressure sustained by any finite portion of the bottom or sides of the vessel is equal to the weight of a column of the liquid having for its base the surface pressed on (extended into a plane if necessary), and for its altitude the distance of the centre of gravity of that surface from the surface of the liquid. The point of a plane surface at which the resultant of all the liquid pressures upon it is applied, is called the *centre of pressure*. From the above it follows that the pressure on the bottom of the vessel depends only on the magnitude of the bottom and the depth of the liquid, and is entirely independent of the torm of the sides and of the quantity of liquid in the vessel. It is on this principle that the *hydrostatic press* (Fig. 1345) and *hydrostatic bellows* (Fig. 1343) are constructed. A body immersed in a liquid is pressed upwards by a force equal to the weight of the liquid it displaces; and the difference between the absolute weight of a body and its weight when entirely immersed, is the same with the weight of a quantity of the liquid equal in bulk to the body. The *specific gravity* of a body, therefore, being the ratio of its own weight to that of an equal volume of water, may at once be found by weighing it first in air and then in water. The equilibrium of solid bodies floating on liquids, a subject discussed by Archimedes in his treatise *De Humido Insidentibus*, is an important part of hydrostatics in consequence of its relation to the construction and stowage of ships. A body placed on a fluid specifically heavier than itself, will sink so far that the weight of the fluid displaced is equal to the whole weight of the body; and when it assumes the position of equilibrium, the line which joins the centre of gravity of the body and the *centre of buoyancy* (which is the same as the centre of gravity of the immersed part supposed to be homogeneous) is perpendicular to the surface of the water, or the horizon. The centre of gravity of a body is a fixed point relatively to the body itself; but the centre of buoyancy, which depends on the figure of the immersed part, will change its place when the figure or relative situation of the immersed part undergoes any alteration. The character of the equilibrium of a floating body depends upon the relative positions of the centres of gravity and buoyancy with respect to a certain point called the *metacentre*, which latter may be defined as the point in which the line joining the centre of gravity with the centre of buoyancy, in the position of equilibrium, is intersected by the vertical through the centre of buoyancy corresponding to a slightly altered position of the body. The metacentre may in all cases be determined from the form and density of the body, and the equilibrium will be stable, neutral, or unstable, as it falls above, upon, or below the centre of gravity.

Hydrosul'phate, HYDROSUL'PHURET, *n.* (*Chem.*) A compound of hydrosulphuric acid or sulphuretted hydrogen with a base.

Hydrosul'phite, *n.* (*Chem.*) A saline compound of hydrosulphurous acid with a base.

Hydrosul'phuretted *a.* Combined with sulphuretted hydrogen.

Hydrosulphu'ric Acid, SULPHURETTED HYDROGEN, SULPHYDIC ACID, HYDROTHIONIC ACID, *n.* (*Chem.*) A natural gaseous constituent of many mineral waters, as, for example, those of Aix-la-Chapelle in Germany, Barèges in France, Abano in Italy, and Harrogate in England, and is evolved from fumaroles and volcanoes. It is formed spontaneously wherever sulphurous organic matters are undergoing putrefaction, as, for instance, in stagnant sewers and cesspools, and in waters charged with organic matter and sulphates, especially sulphate of lime. There are several ways of preparing this gas, which is very extensively used in laboratory operations. The following is that which is most commonly employed. Sulphide (the old sulphuret) of iron, in small fragments, is placed in a bottle, and dilute sulphuric acid is added. Water is decomposed, its hydrogen combining with the sulphur of the sulphide to form hydrosulphuric acid, which escapes as a gas, while its oxygen enters into combination with the iron, forming oxide of iron (FeO), which unites with the sulphuric acid to form the ordinary protosulphate of iron or green vitriol, which remains in solution. Hydrosulphuric acid is a colorless gas of a strong and very nauseous odor, resembling that of rotten eggs. It consists of two volumes of hydrogen, and one volume of sulphur vapor condensed into two volumes, which form its combining measure. It is about seventeen times heavier than hydrogen. By pressure, it is liquefied, and by the additional application of cold, it may be obtained in the solid form (see GASES). Water dissolves, at 59°, 3·23 volumes of this gas, but the solution soon becomes milky when exposed to the air, in consequence of the oxygen of the air combining with the hydrogen of the gas, and sulphur being precipitated. It is highly combustible, and burns with a pale-blue flame, producing water and sulphurous acid, and, generally, a deposit of sulphur. It has a weak acid reaction, and forms one of the hydracids. Although a feeble acid, it combines readily with bases. Its use as a reagent is dependent on the fact, that many of the sulphides which it forms with metallic oxides are insoluble in water, and are thrown down from solutions as precipitates with characteristic colors. Thus the gas, or a watery solution of it, gives an orange precipitate with the compounds of antimony — while with those of arsenic it gives a yellow — with those of lead and of silver, a black — and with those of zinc, a white precipitate. The air of a room slightly impregnated with this gas may be breathed with impunity, but a small quantity of the undiluted gas inspired produces faintness, and its respiration, in a very moderate proportion, was found by Thenard to prove fatal — birds perishing in air which contained $\frac{1}{1500}$th, and a dog in air containing $\frac{1}{800}$th part of this gas. Its poisonous effects are best counteracted by the inhalation of very dilute chlorine gas, which may be readily obtained from a little chloride of lime placed in the folds of a napkin moistened with vinegar. A very minute trace of this gas may be detected by placing a piece of paper, moistened with a strong solution of sugar of lead, over the vessel or aperture — as, for instance, over an opening in a drain — from which we think it is escaping. If it be present, a more or less black — often only a brown — tint is developed after a few minutes, in consequence of the formation of sulphide of lead.

Hy'drotale, *n.* (*Min.*) Same as PENNINITE, *q. v.*

Hydrotal'cite, *n.* (*Min.*) A white, pearly, translucent mineral of a greasy feel, found in the mines of Schischimsk, and at Snarum, Norway. *Sp. gr.* 2·04. *Comp.* Alumina 16·8, magnesia 39·2, water 44.

Hydrotellu'rate, *n.* (*Chem.*) An unstable salt formed by the union of telluric acid with a base.

Hydrotellu'ric Acid, TELLURETTED HYDROGEN, *n.* (*Chem.*) A gas very similar to sulphuretted hydrogen in smell, and in most of its other properties. When its aqueous solution is exposed to the air, it yields a brown deposit of tellurium. When passed into metallic solutions it precipitates the tellurides.

Hydrotho'rax, *n.* [Gr. *hudor*, water, and *thorax*, the chest.] (*Med.*) Dropsy of the chest. The symptoms are: difficult breathing when in a recumbent posture, paleness, cough, thirst, swelling of the legs and feet, quick and often irregular or intermitting pulse.

Hydrot'ic, Hydrot'ical, *a.* That causes the discharge of water or phlegm.

Hydrot'ic, *n.* A medicine to expel water or phlegm; a hydragogue.

Hy'drous, *a.* That contains water: watery.

Hydroxan'thate, *n.* (*Chem.*) A compound of hydroxanthic acid and a base.

Hydroxan'thic Acid, CARBO-SULPHURIC ACID, *n.* (*Chem.*) An acid resulting from the action of alkalies on the deutosulphuret of carbon.

Hydrozin'cite, *n.* (*Min.*) A dull, whitish, earthy mineral found in most zinc mines. It occurs in incrustations or as stalactites at the Dolores Mines, prov. of Santander, Spain, and at Friedensville, Pa., Macion co., Arkansas, and Linden, Wis. *H.* is an hydrocarbonate of zinc, containing carbonic acid 13·6, oxide of zinc 75·3, water 11·1. *Sp. gr.* 3·58. It may be formed artificially by decomposing hot solutions of salts of zinc by carbonates of the alkalies. The white coating that forms on zinc, when moistened and exposed to the air, has nearly the same composition.

Hydrozo'a, *n. pl.* [Gr. *hudor*, water, *zoon*, animal.] (*Zoöl.*) In some classifications, a group of zoöphites almost corresponding to the *Hydroidæ* of Agassiz.

Hy'druret, *n.* (*Chem.*) Same as HYDROGURET, *q. v.*

Hy'drus, *n.* (*Zoöl.* and *Astron.*) See HYDRA.

Hye'mal, *a.* [Fr. *hyémal*, from Lat. *hiemalis*.] Belonging to winter; done in winter.

Hy'ems, *n.* [Lat.] Winter.

Hye'na, *n.* (*Zoöl.*) See HYÆNA.

Hyères, a small town of France, dep. Var, 3 m. from the Mediterranean, and 8 m. E. of Toulon. It is celebrated for the beauty of the situation and the mildness of the climate, and is therefore much resorted to by foreigners suffering from consumption or nervous complaints. Near the coast lie the Iles d'Hières, called by the ancients the *Stœchades*, which, with the exception of the military garrisons of a few forts, are uninhabited. Here the heat of the climate is tempered by the sea-breezes, and the season seems an eternal spring.

Hye'tograph, *n.* [Gr. *hyetos*, rain, and *grapho*, I sketch.] A graphic representation of the average distribution of rain over the surface of the earth.

Hyetograph'ic, *a.* Applied to maps in which the distribution and quantity of rain, prevalence of rainy days, &c., in different places, is marked.

Hyetom'eter, *n.* [Gr. *hyetos*, rain, and *metron*, measure.] A pluriometer.

Hygeia, Hygieia, (*hī-jē'ya,*) *n.* [Gr. *hygieia*, health.] (*Myth.*) The Greek goddess of health, daughter or wife of Asklepios (Æsculapius). Her statues (of which the most celebrated was at Sicyon) sometimes represented her with a large serpent coiled round her body, and elevating its head above her arm to drink of a cup which she held in her hand. Isis, in Egyptian monuments, appears sometimes in a similar attitude.



Fig. 1346.—HYGEIA.

Hygeian, (*hī-jē'an,*) *a.* [Gr. *hygieia*, health, from *hygies*, sound, healthy; probably akin to Sansk. *urt*, to be strong.] Relating to health, or to the art or science of preserving health.

Hygiene, (*hy'geen,*) *n.* [Fr. *hygiène*, from Gr. *hygieia*, health.] (*Med.*) That part of the science whose object is the preservation of health. It embraces a knowledge of healthy man, both in society and individually, as well as of the objects used and employed by him, with their influence on his constitution and organs.

Hygien'ic, *a.* Relating to hygiene; preserving health.

Hygien'ics, *n. pl.* The art of preserving health; hygiene. (R.)

Hy'gienism, *n.* The science which treats of the preservation of health; hygiene.

Hy'gienist, *n.* One versed in that branch of medicine called hygiene.

Hygiol'ogy, *n.* [Gr. *hygieia*, health, and *logos*, a discourse.] A treatise on the preservation of health. — Hygienism.

Hygrobleph'aric, *a.* Applied to the excretory ducts of the lachrymal gland.

Hy'grodeik, *n.* See HYGROMETER.

Hy'drograph, *n.* (*Physics.*) An instrument for recording automatically the variations of the humidity of the atmosphere.

Hygrol'ogy, *n.* [Gr. *hygros*, moist, and *logos*.] (*Med.*) The doctrine of the humors or fluids of the body.

Hygro'ma, *n.* (*Med.*) A tumor containing serum and other not purulent fluids.

Hygrometer, (*hī-grom'e-ter,*) *n.* [Gr. *hygros*, moist, *metron*, a measure.] An instrument for ascertaining the amount of aqueous vapor present in the atmosphere or other aëriform fluid under examination. Several varieties of apparatus have been invented for this purpose. Any alterations in the state of the atmosphere, with respect to moisture or dryness, are manifested by different phenomena. The various forms of *H.* are thus very great; but they can generally be divided into two distinct classes, — those which depend upon absorption, and those which depend upon condensation. A great number of substances in nature absorb moisture in a greater or less degree, and consequently undergo some change, either in regard to their physical qualities, their size, or their weight. Animal fibre is elongated, on account of being softened or relaxed; while vegetable fibre is shortened, on account of its swelling. Moisture is imbibed with avidity by many mineral substances, which gain weight by that means. Many of the *H.* which depend upon this alteration of dimension

or weight are known by the names of their inventors; as, De Luc's, De Saussure's, Daniell's, &c. De Luc employed a thin slip of whalebone, the contractions of which indicated the variations of the moisture. De Saussure employed a human hair, by means of which he constructed a far more delicate instrument; but, unfortunately, it was exceedingly liable to derangement; and, moreover, was uncertain, unless prepared with extreme care. The *H.* invented by J. F. Daniell is one of the most perfect. It consists (Fig. 1347) of two thin balls of 1¼ inch diameter, *a* and *b*, connected together by a tube having a bore about one-fourth of an inch. The tube is bent at right angles over the two balls, and the arm, *b c*, contains a small thermometer, *d e*, whose bulb, which should be of a lengthened form, descends into the ball *b*. This ball, having been about two-thirds filled with ether, is heated over a lamp till the fluid boils, and the vapor issues from the capillary tube, *f*, which terminates the ball *a*. The vapor having expelled the air from both balls, the capillary tube is hermetically closed by the flame of a lamp. The other ball, *a*, is now to be covered with a piece of muslin. The stand, *g h*, is of brass, and the transverse socket, *i*, is made to hold the glass tube in the manner of a spring, allowing it to turn and be taken out with little difficulty. A small thermometer, *k l*, is inserted into the pillar of the stand. The manner of using the instrument is this: — After having driven all the ether into the ball *b*, by the heat of the hand, it is to be placed at an open window or out of doors, with the ball *b* so situated that the surface of the liquid may be on a level with the eye of the observer. A little ether is then to be dropped on the covered ball. Evaporation immediately takes place, which, producing cold upon the ball *a*, causes a rapid and continuous condensation of the ethereal vapor in the interior of the instrument. The consequent evaporation from the included ether produces a depression of temperature in the ball *b*, the degree of which is measured by the thermometer, *d e*. This action is almost instantaneous, and the thermometer begins to fall in two seconds after the ether has been dropped. A depression of 30° or 40° is easily produced, and the ether is sometimes observed to boil, and the thermometer to be driven below zero of Fahrenheit's scale. The artificial cold thus produced causes a condensation of the atmospheric vapor upon the ball *b*, which first makes its appearance in a thin ring of dew coincident with the surface of the ether. The degree at which this takes place must be carefully noted. In very damp or windy weather the ether should be very slowly dropped upon the ball, otherwise the descent of the thermometer will be so rapid as to render it extremely difficult to be certain of the degree. In dry weather, on the contrary, the ball requires to be well wetted more than once, to produce the requisite degree of cold. — The *H.* invented by Mason consists of two thermometers placed side by side, one having a dry bulb and the other a bulb covered with muslin, kept moist by means of a string dipping in water. The wet bulb is chilled by the evaporation of the water from it, since this evaporation renders some of its heat latent. The drier the air, the more rapid the evaporation, and the greater the difference between the readings of the two thermometers. — The Edson's *Hygrodeik* is an improved form of Mason's *H.* It differs from all other *H.* in having a dial and pointer, showing at a glance the temperature, the degree of humidity, the absolute amount of vapor in each cubic foot of air, and the dew-point.

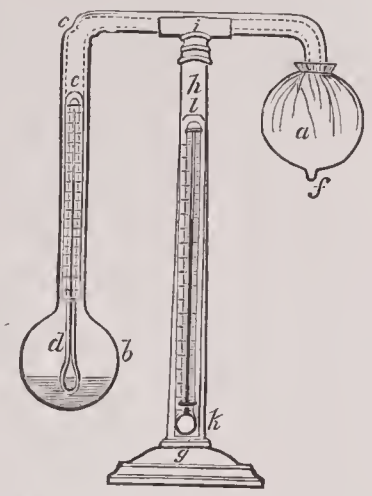


Fig. 1347. — DANIELL'S HYGROMETER.

Hygromet'ric, or **Hygromet'rical,** *a.* Pertaining to hygrometry; made by or according to the hygrometer. — This term is commonly applied to substances which readily become moist and dry with corresponding changes in the state of the atmosphere, or which readily absorb and retain moisture. Seaweed, several saline substances, porous clays, potash and its carbonate, chloride of calcium, sulphuric acid, are in this sense of the term said to be hygrometric.

Hygrom'etry, *n.* [Fr. *hygrométrie.*] The art of measuring the moisture of the air; the science which relates to the determination of the humidity of bodies, especially of the moisture of the atmosphere, including also the theory of the instruments employed. See HYGROMETER.

Hy'groscope, *n.* [Gr. *hygros*, moist, and *skopeō*, to view.] An instrument for indicating the presence of moisture in the atmosphere, without measuring the amount.

Hygroscop'ic, *a.* Pertaining to the hygroscope; having the property of readily imbibing moisture from the atmosphere.

Hygroscopic'ity, *n.* [Gr. *hygron*, moisture, and *skopeo*, to observe.] (*Bot.*) The property by which vegetable tissues absorb or discharge moisture, according to circumstances.

Hygrostat'ics, *n. pl.* [Gr. *hygros*, and *stalike*, statics.] The art of measuring degrees of moisture.

Hyke, Haik, *n.* [Ar.] A loose garment worn by the Arabs.

Hyk'sos. An Egyptian dynasty. See SHEPHERD KINGS.

Hy'la, *n.* (*Zoöl.*) See HYLIDÆ.

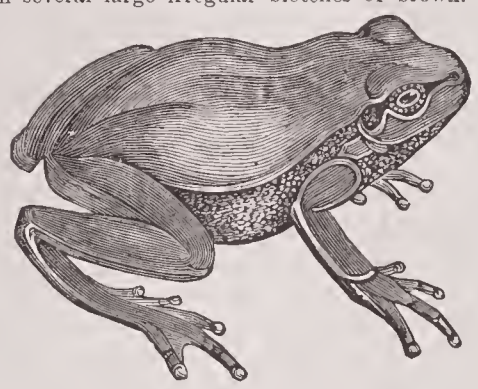
Hylæosaur'us, *n.* [Gr. *hyle*, weald or forest, *sauros*, lizard.] (*Pal.*) One of the gigantic terrestrial lizards whose remains were discovered in the Wealden strata of Tilgate Forest, England, by Dr. Mantell, who inferred from the size and form of the bones of the head and jaws, that the creature must have attained a length of from 20 to 30 feet. The body was broader than high, and terminated by a long flexible tail; the limbs were relatively short; the skin was covered with scales and tubercles; and a row of very large, thin, angular spines extended down the back, and formed a serrated dermal crest.

Hyl'as, (*Myth.*) Son of Hercules and Dejanira, who became, after the death of his father, the chief of the Heraclidæ, and married Iole. Driven from the Peloponnesus by Eurystheus, he took refuge with the Athenians and was subsequently the leader of the Heraclidæ against Eurystheus, whom he killed about 1207 B. C. He afterwards perished in a combat with Echemus, king of Arcadia.

Hy'lobate, *n.* [From Gr. *hule*, a wood, and *baino*, to walk.] The long-armed gibbon.—See GIBBON.

Hy'lodes, *n.* (*Zoöl.*) See HYLOIDÆ.

Hy'loidæ, *n. pl.* (*Zoöl.*) The Tree-toads, a family of Batrachians, comprising frogs which have the extremities of the toes and fingers enlarged into a disc or viscous pellet, by means of which they sustain themselves on the sides of trees, branches, leaves, and all kinds of smooth surfaces. They inhabit trees, shrubs, or plants, except in the breeding season, when they resort to the water. The genus *Hyla* comprises Tree-frogs or Tree-toads. The Tree-toad, *H. versicolor*, of the Northern and Middle States, is two inches long, flattened, warty above, color varying from palest ash to dark-brown, with several large irregular blotches of brown. The


Fig. 1348. — THE TREE-TOAD, (*H. versicolor.*)

under surface is mainly white, granulated. It is very noisy towards evening and in cloudy weather, or before a rain. In the latter part of spring or early summer, it resorts to the pools to lay its eggs. The genus *Hylodes* comprises the Cricket-frogs. The Savannah cricket, *H. gryllus*, of the Atlantic and Gulf coast, is one and a half inches long, cinereous above, vertebral line green or red, and the sides with three oblong black spots, edged with white; under parts silver-white. It is found on the leaves of aquatic plants, is very agile, and makes long leaps to secure insects, which constitute its food. It is constantly chirping like a cricket, is easily domesticated, and sings merrily even in confinement. Pickering's Hylodes, *H. Pickeringii*, of New England and the Middle States, is less than one inch long, body yellowish-brown, with small, dusky, rhomboidal spots, and lines of the same color, sometimes arranged in the form of a cross.

Hy'loist, *n.* [Gr. *hule*, matter.] One who believes that matter is God; materialism; pantheism.

Hylop'athism, *n.* [Gr. *hule*, and *pathos*, feeling.] See HYLOZOISM.

Hyloth'eism, *n.* [Gr. *hule*, and *theos*, God.] Same as HYLOIST, *q. v.*

Hylozo'ic, *a.* Belonging to hylozoism.

—*n.* One who holds all matter to be animated.

Hylozo'ism, *n.* [Gr. *hule*, matter, and *zoe*, life.] (*Phy.*) In the strict sense of the word, the doctrine that matter lives. Some writers have confined this name to the tenet of the *anima mundi*, or soul of the world; others, to the theory of a peculiar life residing in the whole of nature, approaching, therefore, in this sense, to pantheism. This life is either merely organic or actually sentient; the latter notion has been also called *hylopathism.*

Hy'men, *n.* [Gr., Lat., & Fr.] (*Myth.*) The Greek god of marriage, was son of Bacchus and Venus, or, according to another version, of Apollo and one of the Muses. The people of Athens instituted festivals in his honor, and solemnly invoked him at their nuptials, as the Latins did their Thalassius. *H.* was generally represented as crowned with flowers, holding a burning torch in one hand, and in the other a vest of a purple color. It was supposed that he always attended at nuptials; for, otherwise, matrimonial connections were fatal, and ended in dreadful calamities; hence people ran about on these occasions, calling aloud, *Hymen! Hymen!*

(*Anat.*) The semilunar, parabolic, or circular membrane situated at the outer orifice of the vagina in virgins.

(*Bot.*) A skin enclosing the bud of a flower.

Hymenæa, (*hī-men-e'a,*) *n.* [From Gr. *hymen*, a membrane.] (*Bot.*) A genus of plants, sub-order *Cæsalpiniæ.* The species *H. curbaril*, the West-Indian locust-tree, is supposed to yield gumancine or East-Indian copal. The inner bark is stated to possess anthelmintic properties. The fruit contains a mealy substance, in which the seeds are imbedded, sweet and grateful to the palate; this, when boiled and allowed to ferment, forms an intoxicating drink resembling beer. The timber is close-grained and tough, and well adapted for planking vessels. The species *H. verucosa* probably furnishes some of the East-Indian copal; and some other species are probably the source of Mexican copal. Brazilian copal is said to be the produce of several species of this genus, and also of a plant belonging to the same sub-order — namely, *Trachylobium martianum.* Again, several species of the genus furnish the three kinds of copal known respectively as African copal, African yellow gum, and African red gum.

Hymene'al, *n.* A song or ode composed in celebration of a marriage.

—*a.* Belonging or relating to marriage.

Hymene'an, *n.* Same as HYMENEAL. (R.)

Hymenom'ycetes, AGARICACEÆ, *n. pl.* (*Bot.*) An order or division of the alliance *Fungales*, distinguished by having spores generally quaternate on distinct sporophores; hymenœum naked.

Hymenoptera, (*hī-men-op'te-ra,*) *n.* [Gr. *hymen*, a membrane; *pteron*, a wing.] (*Entom.*) One of the orders into which insects are divided. They are characterized by possessing four membranous wings, of which the anterior pair are the larger, and they cross horizontally over the body when in a state of repose. Of all the orders into which insects are separated, the *H.* contains the largest number remarkable for development of instinctive powers and social qualities. The females are provided with an ovipositor, consisting chiefly of three elongated slender processes, of which two serve as a sheath to the third. This ovipositor, in many species, is so organized that with it they are not only able to perforate the substance in which they deposit their eggs, but in many cases it serves as a weapon of defence, and is the part which, in bees and wasps, is called the sting. With this weapon, which is barbed at the apex, they are able to kill their enemies, or render them torpid or powerless. The antennæ are generally filiform setaceous. The mesathorax and the metathorax are well developed; the prothorax is narrow. Hymenopterous insects are remarkable for the great development of the aërial tracheæ, which in many species are placed in their abdomen, in ponches, and are very large in comparison with the size of the insects. They undergo what is termed incomplete metamorphosis; and in the greater number the larvæ are soft, whitish-colored, and destitute of feet. In the imago, or perfect state, most hymenopterous insects live upon flowers, or at least often frequent them; some for the purpose of gathering honey, and others to find a safe retreat from whence they can attack their prey. The best-known families of the *H.* are the *bees*, the *wasps*, and the *ants.*

Hymenop'teral, Hymenop'terous, *a.* Pertaining to the HYMENOPTERA, *q. v.*

Hymenop'teran, *n.* (*Zoöl.*) One of the HYMENOPTERA, *q. v.*

Hymet'tus. (*Anc. Geog.*) A mountain-range in Attica, situated to the S.E. of Athens, and famous among the ancients for its honey and marble. It is composed of two summits, the N., or greater *H.*, 3,506 feet above sea, now called *Telo-Vuni*; and the S., or lesser *H.*, denominated Anhydrus ("the Waterless") by the ancients, and now called *Mavro-Vuni.*

Hymn, (*him,*) *n.* [Lat. *hymnus*; Gr. *hymnos*; probably from the same root as *hydeo*, to celebrate; allied to *aeido*, to sing.] An ode in praise of the Deity, or some divine personage.

—*v. a.* To praise in song; to worship by singing hymns; to sing; to celebrate in song.

—*v. n.* To sing in praise or adoration.

Hym'nal, *n.* A hymn.

Hym'nic, *a.* Relating to hymns.

Hym'ning, *n.* The singing of hymns.

Hymnog'rapher, Hymnol'ogist, *n.* A writer of hymns.

Hymnol'ogy, Hym'nody, *n.* A collection of hymns.

Hynds'ville, in *New York*, a post-village of Schoharie co., abt. 45 m. W. of Albany.

Hyochol'ic Acid, *n.* Same as GLYCO-HYOCHOLALIC, *q.v.*

Hy'oid Bone, *n.* [Gr. *hyoides.*] (*Anat.*) A bone situated between the root of the tongue and the larynx is called the *os hyoides*, or hyoid bone, from its supposed resemblance in shape to the letter *v* or ypsilon.

Hyoscya'mia, *n.* (*Chem.*) See HYOSCYAMUS.

Hyoscya'mus, *n.* [Gr. *huoskuamos*] Henbane, a gen. of plants, order *Solanaceæ.* The common henbane, *H. niger* (Fig. 1349), is an European plant, growing on waste grounds, banks, and commons. It is glandular and viscid, and exhales a peculiar odor, which is fœtid and powerful. It blossoms in June or July, the flowers being of a pale straw-color, beautifully pencilled with purple veins. The fruit is the peculiar modification of the capsule termed a *pyxis*, from its opening transversely by a lid, like a pill-box. The whole herb possesses narcotic properties, and has been employed medicinally from the earliest times as a narcotic, anodyne, and soporific. It is sometimes used by oculists in place of belladonna to dilate the pupil. When swallowed in sufficient quantity, it is stated to cause loss of speech, disturbance of vision, distortion of the face, coma, delirium, phantasms, and paralysis. No antidote is known. Its activity is essentially due to the presence of the

alkaloid *hyoscyamia*. Two varieties of henbane are commonly cultivated,—the *annual* and the *biennial*, the latter being generally regarded as the most active in its properties. The leaves are only used in regular practice; they are given internally in the form of pow-



Fig. 1349.—THE HENBANE, (*H. niger.*)

der, or in extract or tincture, and applied externally in fomentations or cataplasms. The fumes of the seeds, heated in the bowl of a tobacco-pipe, were formerly inhaled to allay toothache.

Hyp, *v. a.* [Contracted from *hypochondriac*.] To make melancholy; to dispirit; to hip.

—*n.* Depression of spirits; melancholy.—See HIP.

Hypæ'thral, *a.* (*Anc. Arch.*) Open above. In temples of this description the cella was in part exposed to the air; they had a double range of columns within the cella, dividing it into three alæ, or aisles. The alæ on either side were roofed, but that in the middle had no covering.

Hypal'lage, *n.* [Gr., from *hypallasso*, I change.] (*Gram.* and *Rhet.*) A species of inversion, in which not only the natural or customary succession of words is changed, but the sense presents a species of transposition, in which predicates are transferred from their proper subjects to another.

Hypan'thium, Hypantho'dium, *n.* [Gr. *hypo*, and *anthos*, a flower.] (*Bot.*) A fleshy receptacle not inclosed in an involucre.

Hypar'gyrite, *n.* (*Min.*) Same as MIARGYRITE, *q. v.*

Hypatia, (*hī-pā'she-a.*) an illustrious female, B. at Alexandria between 370–380, was the daughter of Theon, an eminent mathematician of Alexandria, whom she succeeded in the government of that school, had a number of disciples, and became very celebrated for her lectures on Plato and Aristotle, both at Alexandria and Athens. Synesius in particular, who afterwards became a Christian bishop, celebrated her praises in the most glowing terms. Orestes, the governor of Alexandria, had a high respect for *H.*, and frequently consulted her on matters of importance. Between the governor and the patriarch Cyril there was bitter enmity, which broke out into open war, and the monks siding with their chief, assembled in a riotous manner against Orestes, who was obliged to fly from the city. They then seized *H.*, and having torn her in pieces, burnt her mangled limbs to ashes. She wrote a commentary on Diophantus, and other works, which have been lost. D. 415 A. D.

Hy'per-, [Gr. *hyper*, over, beyond.] A Greek preposition, which is conjoined with other words in order to denote excess, or anything beyond, or over and above, the original quality of the word to which it is added. The term *hypercriticism* is an instance of the manner in which the preposition is applied, and the sense in which it is interpreted.

(*Chem.*) This prefix is still sometimes used to denote acids containing more oxygen than those to which the term *per* is prefixed.

Hyperæ'mia, *n.* [Gr. *hyper*, and *aima*, blood.] (*Med.*) Congestion of blood in any part.

Hyperbat'ic, *a.* Transposed; inverted.

Hyper'baton, *n.* (*Gram.*) A figure in writing by which the words are transposed from the plain grammatical order.

Hyper'bola, *n.* [Gr. *hyper*, above, and *bole*, from *ballein*, to throw.] (*Math.*) The name of one of the curves that are known as conic sections. (See CONIC SECTIONS.) It is formed by cutting the cone in a plane that passes through it in a direction parallel to its axis. Thus, in figure 932, appended to the article on the Ellipse, O Q P and R T S are hyperbola formed by planes passing through the cone A B C, in directions parallel to its axis A Z. In figure 1350, C A D and E B F are two branches of a perfect hyperbola formed by the passage of a plane through a double cone, or rather through two cones, which, placed together, apex to apex, have a common axis, and their sides are inclined to the axis at the same angle. Z is the centre of the hyperbola, X Y its foci, and A B its principal axis, or axis major. The difference between the distances of any point in either branch of the hyperbola is always equal to the principal axis; thus X E — Y E = X G — Y G = Y C — X C = A B. The *latus rectum* of the hyperbola is the straight line drawn through either of the foci at right angles to the axis, as E F. The eccentricity is denoted by a fraction, of which Z Y is the numerator and Z B the denominator. The tangent drawn to any point in the branches of the hyperbola always bisects the

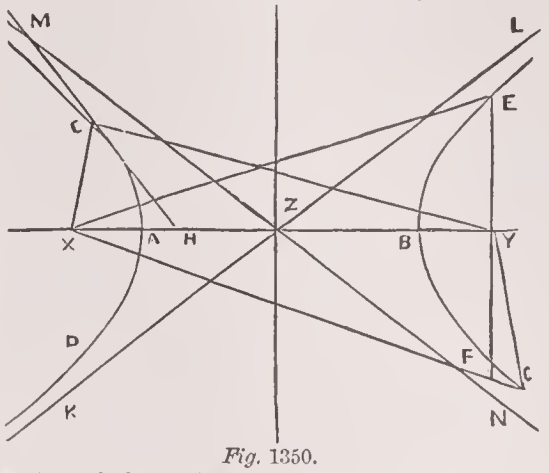


Fig. 1350.

angle made by the lines drawn from that point to the foci. The lines K L, M N, passing through the centre Z, are asymptotes to the curve.

Hyper'bole, *n.* [From Gr. *hyperbatto*, I throw beyond, exceed.] (*Rhet.*) A figure by which expressions are used, which signify more than it is intended to represent to the hearer or reader. When expressions are made use of and assertions made which might be deemed incredible or beyond belief, in order to induce credibility in some fact wanted to be proved, the argument may be said to be supported by hyperboles. As is well observed, exaggeration is but hyperbole applied to narrative, in order to produce a better impression than would be gained by plain facts alone.

Hyperbol'ic, or HYPERBOLICAL, *a.* [Gr. *hyperbolikos*; Fr. *hyperbolique*.] (*Geom.*) Belonging to the hyperbola.—(*Rhet.*) Relating to or containing hyperbole; exaggerating or diminishing beyond the fact; exceeding the truth.

Hyperbol'ically, *adv.* (*Geom.*) In the form of an hyperbola.

(*Rhet.*) With exaggeration; in a manner to express more or less than the truth.

Hyperbol'iform, *a.* Having the form of an hyperbola.

Hyper'bolism, *n.* [Fr. *hyperbolisme*.] The use of hyperbole.—The quality of being hyperbolical.

Hyper'bolist, *n.* One who hyperbolizes.

Hyper'bolize, *v. n.* To speak with exaggeration.

Hyper'boloid, *n.* (*Geom.*) A surface of the second order, which is cut by certain planes in hyperbolas.

Hyperbo'rean, *a.* [Gr. *hyperboreas—hyper*, beyond, and *boreas*, the north.] Northern; belonging to or inhabiting a region very far north; very cold; frigid.

—*n.* An inhabitant of the most northern region of the earth. The ancients called *H.* all the unknown peoples of the West and North. The Greeks imagined the country north of the Rhipæan (generally supposed to be the Ural) Mountains to be inhabited by the *H.*, and their residence was gradually referred to more distant regions; but it was universally supposed that, as the favorites of Apollo, they enjoyed a terrestrial paradise, a bright sky, and a perpetual spring, a fruitful land, and everlasting youth and health.

Hypercatalec'tic, *a.* (*Pros.*) Exceeding the measure; applied to verses having one or two syllables too many at the end.

Hypercathar'sis, *n.* [Gr. *hyper*, in excess, and *catharsis*, purging.] (*Med.*) An excessive purging from medicines.

Hypereri'sis, *n.* [Gr. *hyper*, above, and *krisso*, to separate.] (*Med.*) A critical excretion above measure; as when a fever terminates in a looseness, the humors may flow off faster than the strength can bear, and therefore it is to be checked.

Hypercrit'ic, *n.* [Fr. *hypercritique*; Gr. *hyper*, and *kritikos*, critical. See CRITIC.] One who is critical beyond measure or reason; an over-rigid critic; a captious censor.

Hypercrit'ic, or HYPERCRIT'ICAL, *a.* Over-critical; critical beyond use or reason; excessively nice or exact.

Hypercrit'ically, *adv.* In an hypercritical manner.

Hypercrit'icise, *v. a.* To criticise unreasonably.

Hypercrit'icism, *n.* [Gr. *hyper*, and *kritikos*, critical.] The art of viewing the works of an author in an ungenerous spirit, exaggerating minor defects, and overlooking or undervaluing such merits or beauties as might fairly be considered to outweigh the former.

Hype'rian. (*Myth.*) A son of Uranus (Heaven) and Gæa (Earth), and the father, by his sister Theia, of Helios (the Sun), Selênê (the Moon), and Eos (the Morning). But in the Homeric poems the word is a mere synonym for Helios, and the two names more commonly occur together. From the length of the penultimate syllable, the word is generally regarded as a contraction of Hyperionion, and equivalent to the patronymic form Hyperionides.

(*Astron.*) One of the satellites of Saturn.

Hyper'icum, *n.* (*Bot.*) The typical genus of the order HYPERICACEÆ, *q. v.*

Hyper'ides, an Athenian orator, was a disciple of Plato and Isocrates, and the contemporary of Demosthenes, against whom he brought that accusation of bribery which procured his banishment. They were afterwards reconciled, and met their tragic fate about the same time, *H.* being seized in the temple of Ceres, and delivered up to Antipater, who caused him to be put to death, B. C. 322.

Hypericā'ceæ, *n. pl.* (*Bot.*) The St. John's Wort family, an order of plants, alliance *Guttiferales*.—DIAG. Oblique glandular petals, numerous naked seeds, and large, distinct styles. They are herbs, shrubs, and trees, with leaves usually opposite, simple, exstipulate; flowers regular; sepals and petals hypogynous, with a quaternary or quinary distribution; the former with an imbricated æstivation, the latter unequal-sided, commonly marked with black glands, and having a contorted æstivation; stamens hypogynous, usually numerous and polydelphous; anthers 2-celled, opening longitudinally; styles several, long; fruit 1-celled, or 3–5-celled. There are 16 genera of *Hypericaceæ*, embracing about 276 species, which are generally distributed over the globe. They have commonly a resinous yellow juice, which is frequently purgative, as in the species of *Vismia*. Some have tonic and astringent properties, as *Hypericum perforatum* and *Androsæmum officinale*; and some again have diuretic properties, as *Cratoxyton Harnschuchia*. Many of the St. John's worts are cultivated in shrubberies.



Fig. 1351. *Androsæmum officinale.*

Hyper'meter, *n.* [Gr. *hyper*, beyond, and *metron*, a measure.] Anything that exceeds in measure the proper standard, as an hypercatalectic verse.

Hypermet'rical, *a.* That exceeds the common measure, or has a redundant syllable.

Hypermetro'pia, *n.* [Gr. *hyper*, over, *metron*, measure, *ops*, the eye.] An affection of the eye in which the chief symptom is the removal of the far point from the positive infinity, into a negative distance, and a consequent inability of the eye to unite convergent rays into distinct images on the retina.

Hypermnestra, (*hī-perm-nes'trā,*) one of the fifty daughters of Danaus, who spared the life of her husband Lynceus, whom her father ordered her to murder the first night of their marriage. Her father summoned her to appear before a tribunal for her disobedience, but the people acquitted her, and Danaus was afterwards reconciled to her and her husband.

Hypermyriara'ma, *n.* [Gr. *hyper*, beyond, *myrios*, numberless, and *orama*, a view.] An exhibition having innumerable views.

Hyper-or'thodoxy, *n.* Extreme orthodoxy.

Hyperox'ide, Hyperox'id, *n.* An oxide in which the oxygen is in the greater proportion.

Hyperox'ygenated, Hyperoxy'genized, *a.* Having an excess of oxygen.

Hyperoxymuriat'ic, *a.* [From Gr. *hyper*.] The same as CHLORIDE, *q. v.*

Hypersarco'sis, *n.* [Gr. *hyper*, beyond, and *sarkos*, flesh.] (*Med.*) Proud flesh.

Hy'persthene, *n.* [Gr. *hyper*, over, and *sthenos*, strength,—so called from its toughness.] (*Min.*) Called also Labrador Hornblende. It is a ferro-silicate of magnesia with a little alumina and lime. Color, dark-brown or greenish-black. Some specimens of a reddish color are cut and polished for jewelry. Found at Isle Saint Paul, Labrador, in Canada, Greenland, and many places in Europe. When associated with Labradorite it forms a dark granite-like rock called Hyperite.

Hypersthen'ic, *a.* Containing, or consisting of, hypersthene.

Hypertroph'ic, Hypertroph'ical, *a.* (*Med.*) Relating to hypertrophy.

Hyper'trophied, *a.* Enlarged by excess of nutrition.

Hyper'trophy, *n.* [Gr. *hyper*, in excess, and *trophe*, nutrition.] (*Med.*) An enlargement in the tissues of an organ or part; a diseased condition of the structure, which sometimes totally destroys the functions of the organs. The heart and liver are the parts most frequently subject to this organic disease.—See HEART, LIVER.

Hy'phen, *n.* [Gr. *hyphen*, together with.] A mark, or short line, written thus (-), and placed between 2 words in order to show that they are connected together, and form a compound word; as *pre-occupied*, *four-leaved*. In writing and printing, the hyphen is used to connect syllables of a divided word, and is placed after the syllable that closes a line, denoting the connections between that syllable, or part of a word, with the first syllable in the next line.

Hyphomyce'tes, Botryta'ceæ, *n.* (*Bot.*) An order or section of the alliance *Fungales*, distinguished by having spores naked, often septate; thallus floccose.

Hyp'nane, *n.* (*Bot.*) A genus of trees, order *Palmaceæ*. *H. thebaica* is the Daum-palm of Egypt, sometimes known as the gingerbread-tree, from the resemblance of the pericarp of its fruit to gingerbread. Unlike most of the palms, this has a stem forked above. The main stem, instead of developing a single terminal bud, develops two other buds at its apex in like manner, and this mode of growth is continued with the successive branches.

Hypnol'ogist, *n.* One versed in hypnology.

Hypnol'ogy, *n.* [Gr. *hypnos*, sleep, and *logos*, discourse.] A treatise on sleep.

Hypnot'ic, *a.* That causes or promotes sleep; soporific. —*n.* A medicine which induces sleep.

Hyp'notism, *n.* [Gr. *hypnos*, sleep.] (*Psychol.*) A term now used to describe the scientific aspect of a series of phenomena which have been known in history from 1842 as *Braidism* (from Dr. James Braid, of Manchester), *Mesmerism* (from Mesmer, 1766), *animal magnetism*, *second sight*, &c. Within the last thirty years the facts in this department of obscure and somewhat ghostly appearance have been adequately investigated, with the result that there is now a new department of psychology and a new method of investigating the activities of the mind.

The facts of hypnotism—understanding the word to cover all the so-called sciences known by the names mentioned above—may be briefly thrown together. *Any normal person* may be thrown into a peculiar trance-like condition of body and mind by the steady concentration of the attention for a greater or lesser period of time upon a single object. This is usually best accomplished by the agency of another person who takes the rôle of hypnotizer. This second person has no unusual power, however; he is only the instrument of holding the subject's attention and convincing him that the experiment is going to succeed. Any artificial show of mystery—such as passes, incantations, &c.—is quite without value, except as it impresses the subject's mind and leads him to concentrate himself and believe in the reality of the expected result. That this is true is shown by the not unusual case of a person's hypnotizing himself (so-called *Auto-suggestion*).

The condition into which the hypnotized patient falls varies all the way from complete lethargy to catalepsy on the one hand, and somnambulism on the other. The condition called somnambulism is that to which the principle interest, from a psychological point of view, attaches. The patient is, to all appearances, awake and normal. He is really, however, in a condition which is called one of high suggestibility. It involves several very interesting features. First, his memory is now gone for the events of his normal waking life, which it still holds, however, for successive periods of the hypnotic condition. He is further found to have no memory, after he returns to his normal consciousness, of the events which he experienced while in the hypnotic condition. Again, his senses are enormously acute while in the hypnotic sleep. He can hear, see, feel, &c., stimulations which escape our ordinary exercise of these senses altogether; and, finally, he takes all suggestions which come to him from the hypnotizer for realities, and acts implicitly upon them. This last fact is the most remarkable of all; and it gives a means of experimenting directly with the patient when in this condition, since the hypnotizer can arrange beforehand the suggestions which he wishes to give, and have them bear upon certain definite psychological questions.

Finally, among the bearings which this fact of "suggestibility" discloses, the following may be mentioned: First, it is possible to make suggestions which take effect upon the physiological functions of the body. In this way certain functional troubles, especially those of a nervous sort—such as headache, cricks, toothache, rheumatisms, nervous shocks, drunkenness, sexual troubles, &c.—are cured by hypnotic suggestions. Again, it has been shown possible to exert a certain permanent mental or moral influence upon a patient by this form of suggestion. It is particularly remarkable to find that suggestions can be given which the patient is charged to carry out only after he has returned to his normal state again—sometimes after months. At the arrival of the time he performs these suggestions as he was told, even to the most minute details and to the day and hour; this is called "deferred suggestion."

The theory of hypnotism now generally accepted is that it is merely an exaggerated case of our normal tendency to take suggestions—to do as we are told—which we all show in our lives. This tendency is made abnormally great by a certain paralysis of the attention induced by its long concentration, so that the processes of deliberation and judgment are temporarily checked. All suggestions so come to have the value of realities to the patient, and he acts upon whatever idea the hypnotizer succeeds in putting into his mind. It is probable that crimes may be suggested; but experiments show that this depends greatly upon the character of the patient, each having his limit fixed in the sentiments and moral habits of his life.

Literary references: Moll, *Hypnotism;* James, *Principles of Psychology;* Baldwin, *Mental Development*, chap. vi., and *Hypnotism* in Johnson's Cyclopedia, new edition.

Hyp'notize, *v. a.* To produce the hypnotized state; to place under hypnotic influence.

—(*Colloq.*) To exert an undue influence over; to control by force of will; often used humorously.

Hy'po-. [Gr., under.] (*Chem.*) A prefix indicating the presence of a smaller quantity of oxygen than that contained in the acid or compound to which it is prefixed. Thus, the *hyposulphurous acid* contains less oxygen than the sulphurous, and the *hyposulphuric acid* less oxygen than the sulphuric, and the *hyponitrous acid* less oxygen than the nitrous.

—*n.* [Contr. from *hypochondriasis.*] Depression of spirits. (*Colloq.*)—See Hyp.

Hyp'ocaust, *n.* (*Antiq.*) A form of furnace used by the Romans for the purpose of heating baths and apartments.

Hypochon'dria, *n.* [Fr. *hypocondrie*, from Gr. *hypochondria—hypo*, under, and *chondros*, a cartilage.] (*Path.*) See Hypochondriasis.

(*Anat.*) Same as Hypochondre, *q. v.*

Hypochon'driac, *a.* [Gr. *hypochondriakos.*] Pertaining to hypochondria or hypochondriasis; affected by a disease attended with debility, depression of spirits, or melancholy; producing melancholy or low spirits.

—*n.* A person affected with debility, lowness of spirits, or melancholy.

Hypochondri'acal, *a.* That relates to hypochondria or hypochondriasis; melancholy; dispirited; disordered in imagination.

Hypochondri'acally, *adv.* In an hypochondriacal manner.

Hypochondri'acism, *n.* A fit of hypochondria; hypochondriasis.

Hypochondri'asis, *n.* (*Med.*) A disease characterized by extreme sensibility of the nervous system, leading the patient to believe himself to be suffering from some terrible and imaginary disease, or to be much worse than he really is. The ideas of such persons often partake of the most extravagant character. He may fancy that he is immensely tall, or inordinately small; that he is heavy as lead, or light as a feather; that he is composed of glass, or is a lump of butter. They are all extremely timid, and their fears are exercised upon trifles, or are altogether groundless. They dwell constantly upon their own sufferings, and are usually morose, peevish, suspicious, and misanthropic, and frequently suspect their nearest and dearest friends of designs upon their life. The causes of this disease are various, arising as it does usually from an impaired condition of the nervous system. Young men of studious habits are very apt to suffer from this disease. Those too, who, from want of occupation and a due amount of exercise, acquire a luxurious habit, often fall a prey to it. The cure must of necessity vary somewhat according to the nature of the disease. In general, the great thing is, to withdraw the patient's mind as much as possible from himself. For this purpose, cheerful society and change of scene should be adopted. The system ought to be strengthened by tonics, and exercise in the open air. If it arise from idleness and luxury, the great cure is plenty of active exercise and a spare diet. In all cases the state of the digestive organs should be attended to, and the bowels kept in a strictly normal condition.

Hypochon'driasm, *n.* Same as Hypochondriacism.

Hyp'ocras, *n.* See Hippocras.

Hypocrater'iform, *a.* [Gr. *hypo*, and *krater*, a cup.] (*Bot.*) That form of a corolla, properly called *salver-shaped*, which consists in a cylindrical tube, which is larger than the flat spreading limb, as in the flowers of the genus *Phlox.*

Hypoc'risy, *n.* [Fr. *hypocrisie;* Gr. *hypokrisis.* See Hypocrite.] The playing a part in a figurative sense; a feigning or dissembling; simulation; a feigning to be what one is not, or dissimulation; a concealment of one's real character or motives; a counterfeiting of religion; deceitful appearance; false pretence.

Hyp'ocrite, *n.* [Fr. *hypocrite;* Gr. *hypokrit-es*, from *hypo*, and *krit-es*, a decider, a judge, an umpire.] One who plays a part; one who feigns to be what he is not; one who assumes an appearance of piety and virtue when he is destitute of true religion; a dissembler; one who assumes a false appearance.

Hypocrit'ic, Hypocrit'ical, *a.* [Gr. *hypokritikos.*] Simulating; counterfeiting a religious character; assuming a false and deceitful appearance; dissembling; concealing one's real character or motives; proceeding from hypocrisy, or marking hypocrisy.

Hypocrit'ically, *adv.* With simulation; with false appearance of what is good; falsely; without sincerity.

Hypodermat'omy, *n.* [Gr. *hypo*, *derma*, the skin, and *tome*, incision.] (*Surg.*) The section of subcutaneous parts, as of tendons and muscles.

Hypoder'mic, *a.* That which is under the skin.

H. Medication. (*Med.*) The application of remedies —as morphia—under the skin.

Hypogæ'ous, Hypoge'an, *a.* [Gr. *hypo*, and *ge*, the earth.] (*Bot.*) Applied to all parts in plants which grow beneath the surface of the earth.

Hypogastral'gia, *n.* [Gr. *hypogastrium*, and *algos*, pain.] (*Med.*) Pain in the hypogastrium.

Hypogas'tric, *a.* Relating or belonging to the hypogastrium, as the *H. artery*, which is the more internal of the two branches into which the primary iliac divides.

Hypogas'trium, *n.* [Gr. *hypo*, and *gaster* the stomach or belly.] (*Anat.*) The region of the abdomen that reaches from above the pubes to within three fingers' breadth of the navel.

Hypogas'trocele, *n.* [Gr. *hypo*, *gaster*, and *kele*, a tumor.] (*Med.*) A hernia in the hypogastric region.

Hyp'ogene, *a.* [Gr. *hypo*, under, and *gennao*, to produce.] (*Geol.*) A term sometimes applied to the Primary Rocks, *q. v.*

Hypoge'um, *n.*; *pl.* Hypogea. [Lat.] A name applied in ancient architecture to all the under-ground parts of a building.

Hypoglos'sis, *n.* [Lat., from Gr. *hypo*, and *glossus*, the tongue.] (*Anat.*) The under part of the tongue, which adheres to the jaw.

Hypoglos'sus, *n.* [Lat.] (*Anat.*) A nerve which goes to the under part of the tongue.

Hypoglu'tis, *n.* [Lat., from Gr. *hypo*, and *gloutos*, the breech.] (*Anat.*) The lower and projecting part of the nates.

Hyp'ogyn, *n.* [Gr. *hypo*, under, and *gyne*, a female.] (*Bot.*) A plant which has its petals and stamens inserted under the pistil.

Hypogynous, (*hī-poj'en-us,*) *n.* [Gr. *hypo*, under; *gune*, female.] (*Bot.*) A term applied to the stamens when they are free from the calyx and pistil, and arise from the thalamus or torus below the latter organ; this is the normal position of the stamens, and may be observed in the poppy and ranunculus. The term is also applied to the corolla, when it arises from below the pistil, and free from the calyx.

Hyponi'tric Acid, Peroxide of Nitrogen, Pernitric Oxide, *n.* (*Chem.*) When binoxide of nitrogen is mixed with oxygen or atmospheric air, red fumes of hyponitric acid are formed. By heating thoroughly dry nitrate of lead in a retort, it evolves hyponitric acid mixed with oxygen. The hyponitric acid may be condensed by passing the mixed gases through a tube surrounded by a mixture of salt and ice. The first portions do not solidify; but if cautions care be taken to avoid moisture, the latter portions form transparent, colorless prismatic crystals, if the temperature be kept below 4° Fahr. At 15·8° Fahr. it melts into a liquid, which, if the temperature is raised, gradually becomes yellow, and lastly orange, until it reaches 82° Fahr., when it boils, the vapor being a dark-yellowish red, turning to black as the heat increases. Hyponitric acid was formerly supposed to give rise to the nitrites, and was thence called nitrous acid; but experiment has proved that, on being added to alkaline bases, it is decomposed, giving rise to nitrates and nitrites.

Hyponitrous Acid. See Nitrous Acid.

Hy'pophet, *n.* [Gr. *hypophetes.*] An interpreter. (R.)

Hypophos'phate, *n.* (*Chem.*) A salt resulting from the combination of hypophosphoric acid with a base.

Hypophos'phite, *n.* (*Chem.*) A compound of hypophosphorous acid and a base.

Hypophos'phorous Acid. This acid may be formed by cautiously decomposing the hypophosphite of baryta with sulphuric acid, a solution of that salt being formed when phosphorus is boiled in baryta-water. By evaporation, it forms a sour, bitterish, uncrystallizable syrup, with feeble acid properties. It has been determined with a great degree of certainty by Wurtz and others, that the proper formula for hypophosphorous acid is PH_2O_3, instead of PO, as it is found impossible to abstract the two equivalents of water contained in all hypophosphites, without causing their decomposition. The hypophosphites have lately received several important applications in medicine. The salts of soda, potash, ammonia, are formed by adding the carbonates to a solution of hypophosphate of lime, made by boiling four pounds of caustic lime slaked with a gallon of water, with one pound of phosphorus and four gallons of water. The filtered liquid is evaporated and crystallized.

Hypophyl'linm, *n.* [Lat., from Gr. *hypo*, and *phyllon*, a leaf.] (*Bot.*) A petiole that has the form of a small sheath, is destitute of laminæ, and surrounds the base of certain small branches, having the appearance of leaves; as in asparagus. It is nothing but a rudimentary leaf.

Hypophyl'lous, *a.* (*Bot.*) Applied to bodies which grow on the underside of a leaf.

Hypoph'ysis, *n.* (*Med.*) A disease of the eyelids, when hairs grow so much as to irritate and offend the pupil.

Hypopith'ys, *n.* [Gr. *hypo*, under, *pitys*, a pine-tree; its place of growth.] (*Bot.*) A genus of plants, order *Monotropaceæ.* They are parasitic herbs, of a tawny white color; root scaly; stem simple; flowers racemed, lateral ones tetramerous, terminal ones pentamerous. *H. lanuginosa*, the Pine-sap, is found in woods from the Carolinas N. to Canada.

(*Anat.*) The gland-like body and sac which originate from the under surface of the third ventricle of the brain.

Hypo'pyon, *n.* [From Gr. *hypo*, and *pyon*, pus.] (*Med.*) A disease of the eye, in which there is an apparent collection of pus under the transparent cornea; that is, in the chamber of the aqueous humor.

Hyposce'nium, *n.* [Gr. *hyposkenion*, from *hypo*, and *skene*, a scene.] (*Anc. Arch.*) The front wall of a theatre, facing the orchestra, from the stage.

Hypos'tasis, *n.* [Gr. and Lat. *hypostasis*—Gr. *hypo*, and *stasis*, a standing, from *histemi*, to stand.] A standing under; subsistence or substance.

(*Theol.*) This term was used by the Greek fathers to express the distinct *personality* of the Father, Son, and Holy Ghost. This term is retained by the Latin fathers, who, like ourselves, had no word which could exactly represent hypostasis, which differs from *οὐσία, substance*, inasmuch as the latter is used for the divine substance, essence, or being—that which is common to each of the hypostases, persons, or individual substances which compose the one Godhead.

(*Alchemy.*) By this word was expressed the doctrine that salt, sulphur, and mercury are the three principles of all material things.

(*Med.*) A morbid disposition in the body; sediment.

Hypos'tasize, *v. a.* To represent as a person. (R.)

Hypostat'ic, Hypostat'ical, *a.* Relating to hypostasis; distinctly personal, or constituting a distinct substance.

H. union. (*Theol.*) The union of Christ's human nature with the divine, constituting two natures in one person.

Hypostat'ically, *adv.* In an hypostatical manner.

Hypos'tatize, *v. a.* To attribute distinct personal existence to.

Hypostil'bite, *n.* [Gr. *hypo*, under, and *stilbite;* so called because it contains less Silica than stilbite.] A white or greenish transparent mineral from the island Faroe; also found on the island of Skye and near Bombay in India. *Sp. gr.* 2·1–2·25. *Comp.* Silica 50·3, alumina 19·2, lime 10·4, water 20·1, and some soda.

Hypos'trophe, *n.* [Gr. *hypo*, and *strepho*, I turn.]

(*Med.*) Act of a patient in turning himself. — A relapse or return of a disease.

Hyp'ostyle, *n.* [Gr. *hypostylon*, from *hypo*, under, and *stylos*, a pillar.] (*Arch.*) That which is supported by columns or pillars.

Hyposul'phate, *n.* (*Chem.*) A salt resulting from the union of hyposulphuric acid with a base.

Hyposul'phite, *n.* (*Chem.*) A compound of hyposulphurous acid and a base.

Hyposulphu'ric Acid, *n.* (*Chem.*) An acid formed by passing sulphurous acid through water in which finely divided peroxide of manganese is suspended. If the liquid is kept cool, hyposulphate of manganese is formed. By adding baryta-water, hyposulphate of baryta is produced, which may be decomposed by sulphuric acid. Its salts are important. *Form.* S_2O_5.

Hyposul'phurous Acid, Dithionous Acid, Trisulphuric Acid, *n.* (*Chem.*) This acid is formed in combination with soda by fusing equal parts of carbonate of soda and sulphur, dissolving the impure sulphide of sodium formed, and passing through the solution a current of sulphurous acid until it ceases to be absorbed. The liquid is filtered and evaporated, and large crystals of hyposulphite of soda are formed. This salt has received important applications as a fixing agent in photography, and as an *antichlorine* in bleaching, to remove the last traces of chlorine from bleached paper or fabrics. The acid has never been isolated; for if a stronger acid be added to any of the hyposulphites, it splits up into $S+SO_2$. The hyposulphites are easily recognized by the property they possess of dissolving chloride of silver, forming with it an intensely sweet solution. Besides the double hyposulphite of soda and gold, which is used in photography under the name of *sel d'or*, the salt of soda is the only one which has received any important application. *Equiv.* 48. *Form.* S_2O_2.

Hypot'enuse, *n.* See Hypothenuse.

Hypoth'eca, *n.* [Lat.; Gr. *hypotheke;* Fr. *hypothèque.*] (*Civil Law.*) The right acquired by the creditor over the immovable property which has been assigned to him by his debtor as security for his debt, although he be not placed in possession of it; — answering to our *mortgage.*

Hypoth'ecate, *v. a.* (*Law.*) To mortgage. — To state by hypothesis.

Hypotheca'tion, *n.* (*Civil Law.*) An engagement by which the debtor assigns his goods in pledge to a creditor as a security for his debt, without parting with the immediate possession; differing, in this last particular, from the simple pledge.

(*Law of Shipping.*) The pawning of a ship for necessaries, or to raise money in some critical emergency.

Hypoth'ecator, *n.* One who pledges a ship or other property as security for the repayment of money borrowed.

Hypothenu'sal, *a.* That belongs to the hypothenuse.

Hypoth'enuse, *n.* [Gr. *hypo*, under, and *teino*, I stretch.] (*Geom.*) A term denoting the longest side of a right-angled triangle, or, in other words, that side which subtends the right angle. Euclid, in the 47th proposition of his first book, determines the theory by which the square of the hypothenuse is equal to the sum of the squares of the other two sides of a right-angled triangle, which admirable mathematical problem is said to have been discovered by Pythagoras. It is stated in Brande's Dictionary that Cameron, in the notes to his edition of the First Six Books of Euclid, in Greek and Latin, has collected no fewer than seventeen different demonstrations of this celebrated theorem from the plain principles of elementary geometry.

Hypoth'esis, *n.* [Gr. *hypothesis*, supposition.] An argument deduced from an allowed fact. For instance, the sun would disappear if it were deprived of its power of giving light, and also if an opaque body were to be inserted between it and the earth; either of these circumstances would be amply sufficient to explain a total eclipse, and would be the hypothesis from whence we would derive that conclusion. In all mathematical propositions in which the manner of reasoning by hypothesis is so vitally necessary, there are two things to be taken into consideration,—firstly, the *hypothesis*, and, secondly, the *conclusion*, the former being that which is granted, or built on supposition, either of which may be the case, and the latter being the necessary consequence of reasoning from the data.

Hypoth'esize, *v. n.* To form hypotheses; to make suppositions.

Hypothet'ic, or Hypothetical, *a.* [Fr. *hypothétique;* Gr. *hypothetikos.*] Relating to an hypothesis; including a supposition; conditional; assumed without proof, for the purpose of reasoning and deducting proof.

Hypothet'ically, *adv.* By way of supposition.

Hypoth'etist, *n.* One who defends an hypothesis. (R.)

Hypotrache'lium, *n.* (*Arch.*) That part of the capital of a column which occurs between the shaft and the annulets of the echinus.

Hypotypo'sis, *n.* [Gr., from *typos*, a type.] (*Rhet.*) An animated representation of a scene or event in descriptive language highly enriched with rhetorical figures.

Hypoxan'thite, *n.* (*Min.*) An iron clay or ochre of a yellowish color.

Hypoxida'ceæ, *n. pl.* (*Bot.*) A small order of plants, alliance *Narcissales.* Diag. Hexapetaloideous flowers which are much imbricated, 6 stamens with anthers turned inwards, and a radicle remote from the hilum, which is often strophiolate. *Hypoxis erecta*, the Star-grass, common in woods and meadows in all the States, may be taken as type of this unimportant order, which includes 4 genera and 60 species.

Hypsæ'idæ, *n. pl.* (*Zoöl.*) The Blind-fish family, a family of Malacopterygious fishes, including the Blind-fishes, Amblyopsis, Spelæus (Dekay), of the Mammoth Cave, Kentucky.

Hypsom'eter, *n.* [Gr. *hypsos*, height, and *metron*, a measure.] One who practises hypsometry.

Hypsomet'ric, *a.* That relates to hypsometry.

Hypsom'etry, *n.* The art of measuring height, either relative or absolute, by trigonometry or the barometer.

Hy'rax, *n.* [Gr., a shrew-mouse.] (*Zoöl.*) The Daman, a genus of small Mammalia which rank next the Rhinoceros in the order of their affinities, and are the most discriminative representatives of the *Pachidermata.* The Syrian Daman, *H. Syriacus* (Fig. 673), identical with the Ashkoko of Abyssinia, *H. Abyssinicus*, is now generally believed to be the *Shaphan* of the Old Testament, the Cony of the English version.

Hyrca'nia. (*Anc. Geog.*) A province of Asia that was bounded N. by the Caspian Sea, E. by the river Oxus, S. by the Sarighian Mountains, and W. by Mt. Coronus and the river Charindar. According to Xenophon, its inhabitants were subdued by the Assyrians.

Hyrca'nus, Johannes, high-priest and prince of the Jews, was son of Simon Maccabæus, on whose assassination he succeeded him as supreme ruler, B. C. 136. Jerusalem was soon after besieged by Antiochus Sidetes, king of Syria, with whom Hyrcanus was compelled to make a burdensome peace. In 131 he accompanied Antiochus in his expedition against the Parthians, and from a victory over the Hyrcanian tribe he acquired the surname Hyrcanus. Antiochus being killed during this war, Hyrcanus threw off the yoke of Syria, conquered Idumea, besieged and destroyed Samaria, and made an alliance with Rome. The last years of his reign were troubled by the dissensions of the Pharisees and Sadducees. Died B. C. 106, and was succeeded by his son Aristobulus, who took the title of king.

Hyrcanus II., eldest son of Alexander Jannæus, became sovereign pontiff B. C. 70, was dethroned by his brother Aristobulus, and restored by the Romans as a tributary prince, 63. Beheaded by Herod, B. C. 29.

Hyre'mansville, in *Pennsylvania*, a former post-office of Lehigh co.

Hy'son, *n.* (*Com.*) One of the best varieties of green tea. An inferior quality is known as *Hyson-skin.* — See Tea.

Hys'sopus, *n.* [Heb. *ezob;* Arab. *ozzof*, hyssop.] (*Bot.*) The Hyssop, a genus of plants, order *Lamiaceæ.* They are perennial herbs, natives of S. Europe, cultivated in our gardens for their beauty, and on account of their reputed medicinal properties. *H. officinalis*, the Common Hyssop, is a handsome plant, 18 inches long, the upper part of the stem quadrangular, the leaves evergreen and lanceolate, the flowers in one-sided, whorled racemes. The flowers are generally of a very beautiful blue. It has an agreeable aromatic odor. It has long been in cultivation for the sake of its leaves and young shoots, which are sometimes used for culinary purposes as a seasoning, but more generally in a dried state as a stomachic and carminative. A syrup made with them is a popular remedy for colds. The virtues of *H.* depend on a volatile oil. — It is very doubtful what plant the *H.* of the Bible is, but, of late, strong arguments have been advanced in favor of *Capparis spinosa.* — See Capparis.



Fig. 1352.—Common Hyssop, (*Hyssopus officinalis.*)

Hys'talite, *n.* (*Min.*) A variety of titaniferous iron ore. — See Menaccanite.

Hysteran'thous, *a.* [Gr. *hysteras*, after, and *anthos*, flower.] (*Bot.*) Applied to plants whose leaves appear after the flowers, as in the almond.

Hyste'ria, *n.* [Gr. *hustera*, the womb.] (*Path.*) A nervous affection to which females are particularly subject, and which is generally connected with uterine irregularities. It occurs most frequently with persons between the ages of fifteen and forty-five or fifty, and is most common with single women of weakly constitution, and who lead sedentary lives. This complaint appears in such variety of forms, and simulates such a variety of diseases, that it is scarcely possible to give a just character or definition of it. The attack is usually preceded by dejection of spirits, anxiety of mind, difficulty of breathing; a ball is felt advancing upwards from the stomach into the throat, and threatening to stop the passage of the air; then the trunk and limbs of the body become violently convulsed, the patient sobs and cries, and occasionally bursts out into fits of laughter. After a time these symptoms gradually cease, a quantity of wind is evacuated upwards, with frequent sighing and sobbing, and the woman recovers the exercise of sense and motion without any recollection of what has taken place during the fit; feeling, however, a severe pain in her head, and a soreness all over her body. A fit of hysteria may last from a few minutes to several hours, or even days. It is to be distinguished from an epileptic fit by the absence of foaming at the mouth, by the sobbing and crying, by the milder expression of countenance, and by its being gradual, and preceded by the sensation of a ball. Hysteria assumes various other forms; as palpitations of the heart and difficult respiration; pains in different parts, as the head, left breast, &c.; different forms of paralytic affections, &c. The hysteric fit, however alarming and dreadful it may appear, is rarely accompanied with danger, and never terminates fatally unless it passes into epilepsy, or the patient be in a very reduced state. During the paroxysm, the first care is to see that the patient do no injury to herself by striking her head or hands against any hard substances, nor to others by biting. If the fit be slight, it may frequently be arrested by dashing cold water on the face, or by filling the mouth with something of an unpleasant taste, or by applying some stimulating scent to the nostrils. If more serious, the face and neck ought to be freely exposed to the air, the forehead bathed with wet cloths, and a slight purgative administered. In some cases hysteria is owing to plethora, or fullness of blood; in others to deficiency of it. In the former case, a spare diet, exercise, and occasional purgatives are recommended, with sometimes the actual abstraction of blood; in the other case, the system is to be kept up and sustained by nourishing diet and tonics, particularly iron. The patient's mind is to be kept as cheerful and tranquil as possible by agreeable company; and all tendency to excess or irregularities kept in check. The great cause of the prevalence of this disorder among our young females is owing to the defective physical and mental training to which they are subjected. Were their physical frames developed and strengthened by proper exercise, and their mental powers kept in proper subjection, there would be much less of hysteria.

Hyster'ic, Hyster'ical, *a.* [Fr. *hysterique;* Gr. *hysterikos*, from *hystera*, the womb.] (*Med.*) Relating to the womb; spasmodic; convulsive; disordered in the region of the womb; troubled with fits or nervous affections.

Hyster'ically, *adv.* In an hysteric manner; spasmodically.

Hyster'ics, *n.* (*Med.*) A disease characterized by convulsive struggling, sense of suffocation, drowsiness, and fickleness of temper; Hysteria, *q. v.*

Hyster'ocele, *n.* [Gr. *hystera*, the womb, and *kele*, a tumor.] (*Med.*) An hernia of the womb.

Hysterol'ogy, *n.* [Gr. *hysteros*, the latter of two, and *logos*, discourse.] (*Rhet.*) A figure, called also Hysteron Proteron, by which the ordinary course of thought is inverted in expression, and the last put first; as where objects subsequent in order of time are presented before their antecedents, cause before effect, &c. Some comprehend the figure usually called *anticlimax* under the name *H.*

Hysterot'omy, *n.* [Gr. *hystera*, the womb, and *tome*, a cutting.] (*Surg.*) The extracting of the fœtus from the uterus; the Cæsarean Operation, *q. v.*

Hystric'idæ, *n. pl.* [Gr. *hystrix*, a porcupine.] (*Zoöl.*) A family of Rodent quadrupeds, of which the porcupine, *Hystrix cristata*, is the type. It comprises a large number of Rodents, which at first view seem very different from another, but which are united by important characters. The molars are $\frac{4-4}{4-4}$, and the terminal portion of the muzzle is clothed with small hairs. They are mainly Americans, and chiefly confined to S. America. The principal species or genera will be seen under their respective names.

Hythe, *n.* Same as Hithe, *q. v.*

Hyurnha, (*hoo-roo'a,*) or Jurua, or Juruha, a river of Brazil, enters the Amazon near Jutay.

Hyntahy, (*yu-tah'e,*) or Jutay, or Jutahi, or Kutay a river of Brazil, enters the Amazon a few miles E. of Olivenca.

H.—SECTION II.

HAGG — HALE

Haar'lem, Hærlem, Harlem, a city of the Netherlands, province of North Holland, 10 m. W. of Amsterdam. It was formerly a place of great strength, but the ramparts are now converted into public promenades. A number of canals traverse the town in different directions, some of them bordered with trees. Among the public edifices are the Stadthaus, containing a valuable collection of pictures; a royal mansion, or palace; and several charitable institutions. The number of churches is considerable, the cathedral of St. Bavon being the largest in Holland, and containing a collection of antiquities of the time of the Crusades, besides the famous Haarlem organ. The other objects of interest are the town library, the Anatomical Theatre, the Botanical Garden, the Academy of Sciences, founded in 1752, and to which a valuable museum is attached; and the Horticultural Society. *Manuf.* Jewelry, cotton, linen, and silk stuffs, thread and ribbons. Haarlem has long been celebrated for its bleaching grounds, and carries on an extensive traffic in flowers, particularly tulips. *Pop.* (1897) 54,950.—It was the birthplace of L. Coster, the inventor of movable printing-types, and of the painters Berghem, Ostade, Ruysdael, Vanderhelst, Wouvermans, and the Vanderveldes.

Haar'lem, Lake of, an extensive lake of Holland, lying in the triangular space of which Haarlem, Amsterdam, and Leyden furnish the apices. This lake was formed in the sixteenth century, by an inundation of the sea; but, by means of work steadily carried on from 1841 to 1852, it has been almost entirely drained, and fully 45,000 acres gained to the kingdom.

Hab'bertou, John, author, born in Brooklyn, N. Y., Feb. 24, 1842; entered the establishment of Harper & Brothers, New York, where he learned typesetting; enlisted in the Civil War as a private (1862); afterward returned to the Harpers. He became literary editor of *The Christian Union* in 1874 and editorial writer on the New York *Herald* in 1877. Has written several clever novels, of which the best known is *Helen's Babies*, a humorous story of child life.

Ha'beck, or **Ha'bick,** *n.* A cloth-dresser's implement having a hook at each end.

Habena'ria, *n.* [Lat. *habena*, a thong or strap.] (*Bot.*) The butterfly orchid; a genus of orchids, tribe *Ophreæ*, family *Gymnadenidæ*. It resembles orchids in general, but has the glands of the pollen masses free, distant and exposed. A hundred species are known—about twenty in North America, where they are popularly known as "rein-orchids."

Hab'itat, *n.* [Lat., it dwells.] (*Nat. Hist.*) The place in which any particular animal lives when wild, or in which a wild plant grows. The word was used in Latin descriptions; as, *habitat in Europa*—"it dwells [lives, grows] in Europe;" but when the term grew familiar it came to be used as an English noun. See Geographical Distribution.

Hab'itus, *n.* [Lat.] (*Nat. Hist.*) Habitude; general or characteristic appearance, as of an animal or plant.

(*Med.*) Condition or tendency of body.

Hack'lander, Frederick Wilhelm, von, poet and dramatist, was born near Aix-la-Chapelle, on Nov. 1, 1816. He travelled in the East in company with Baron von Taubenheim, and in 1843 became private secretary to the Crown Prince of Würtemberg. His works include a collection of Oriental tales and legends, under the titles of *Pilgerzug nach Mekka*, and *Daguerreotypen Aufgenommen auf Einer Reise in den Orient.* A collection of his literary labors, published in Stuttgart, numbered 60 volumes. He has been styled "the German Dickens." Died July 5, 1877.

Hack'matack, *n.* [N. A. Indian.] (*Bot.*) The American larch, or tamarack tree (*Larix Americana*).

Ha'ding, Jane, actress, born at Maseilles, France, Nov. 25, 1859; pupil at the Marseilles Conservatory; played at Algiers and Cairo in comic and other operas; subsequently played in Marseilles, personating a variety of characters, and appeared in the Palais Royal in Paris in *La Chaste Suzanne* (1879). Her Parisian reputation as an actress was established by her successful appearance in *Autor du Mariage* and *Le Maître des Forges.* She has made successful tours through Great Britain and the U. S.

Ha'geman, in *Indiana*, a village of Porter co. Its post-office is Porter. *Pop.* (1897) 714.

Hag'gard, Henry Rider, novelist, was born in Norfolk, England, June 22, 1856; went to Natal (1875) as private secretary to Sir Henry Bulmer, and afterward served in a similar capacity under Sir Theophilus Shepstone, in the Transvaal. On his return to England, *H.* entered upon a literary career; his first book, *Cetewayo and his White Neighbors*, published in 1882, being descriptive of life and conditions in South Africa. Of his novels, *Dawn* appeared in 1884, *The Witch's Head* in 1885, *King Solomon's Mines* in 1886, and *She* in 1887. The two last named placed *H.* in the very front rank as a popular novelist, and his subsequent works were for some years frequent and numerous, his style being wonderfully vivid and imaginative. Of his society novels, *Beatrice* is one of the most popular.

Hag'gart, John Graham, Canadian statesman, was born at Perth, Ontario, on Nov. 14, 1836; was employed in the milling business, in that city, of which he was for some time mayor; elected to the Dominion Parliament in 1872–74–78–82–87 and 1891; was made Postmaster-General of Canada in 1888, and appointed Minister of Railways and Canals under Premier Abbott.

Hague (*hāg*), Arnold, geologist, was born in Boston, Mass., Dec. 3, 1840; educated at Sheffield Scientific School of Yale University, Heidelberg University, and Freiberg Mining Academy; was assistant geologist on the Fortieth Parallel Survey (1867–77); government geologist to Guatemala (1877) and China (1878); geologist on the U. S. Geological Survey (1879); elected member of the National Academy of Sciences (1885). In his writings he has made a specialty of volcanic rocks, though his works are varied in character. Among these are: *Descriptive Geology; Geological Exploration of the Fortieth Parallel; Geology of the Eureka District, Nevada*, Monograph XX., U. S. Geological Survey. Some of his minor papers are: *Volcanoes of Northern California, Oregon, and Washington; Volcanic Rocks of the Great Basin*, &c.

Hahn-Hahn, Ida Marie, Countess, novelist and religious writer, born in Germany, June 22, 1805; became the wife of her cousin, Count Friedrich Wilhelm Adolf von Hahn-Hahn, but obtained a divorce in 1829. She published poems, novels, and travels, of which her romances were the most popular and were widely read. They include: *Aus der Gesellschaft; Gräfin Faustine; Sigismund Forster*, &c. She was converted to the Roman Catholic faith and wrote a book upon the subject, entitled *Von Babylon nach Jerusalem*; afterward devoted herself to the reformation of fallen women, residing the latter part of her life at Mentz. Among her later works are: *Peregrina; Die Glöcknerstochter*, &c. Died Jan. 12, 1880.

Hahns'town, in *Pennsylvania*, a village of Westmoreland co. *Pop.* (1897) about 700.

Haiduk (*hī'dŭk*), *n.* [Hung. *hajduk*, drovers.] A name given to the halberdiers of the Hungarian nobles and attendants in German courts; formerly a mercenary foot-soldier in Hungary.

Hair, Manufac'tures of. (*Manuf.*) The subject here named is one of wide application, since it includes all textile woollen manufactures, the employment of wool, fur, and hair, in the manufacture of hats and other felted goods, the treatment of fur-covered skins to adapt them for articles of dress, the handling of alpaca, bristles, etc., all of which come under the designation of hair. These, however, are treated under their respective heads, and we shall confine ourselves to the manufactures of hair, as ordinarily so-called.

Human Hair.—There is a considerable trade in human hair, large supplies of it being obtained from Europe, India, and China, that obtained from Asia being coarse, that from the north of Europe light in color, and that from southern France and Italy dark. The market value of this material depends largely on its length. In the English market hair 8 inches long brings about 1 s. per ounce, while if 3 feet in length, 30 times this price is sometimes paid. The price is also modified by color; pure golden, for instance, bringing more than ordinary colors, while hair from living persons is considered much more valuable than that from the dead. Human hair is worked into watchguards, bracelets, brooches, etc., and is also employed to hide the ravages of age, in the form of wigs or partial coverings for baldness.

Horse-hair.—This material is used to a great extent in manufacture, large quantities being obtained from Russia, South America, and elsewhere, and smaller supplies from the combings of horses' manes and tails. About $2,500,000 worth is imported annually into the U. S., and $300,000 or $400,000 exported. The most valuable hair is that combed from the tails of horses, the hair of the mane being inferior in quality. The former is known as "hard," the latter as "soft" hair, and the terms "live" and "dead" are employed to designate hair taken from living or dead animals. Live hair commands the best price, while the best hair is that obtained from wild horses. As regards color, white is in most demand, from its adaptation to dyeing in bright tints. Horse hair is sorted according to length, color, and quality. It is then usually washed in warm soap baths and in slightly heated water containing lime and potash. Then (except the white) it is passed through a bath of dye, principally of logwood. The white is subjected to a bleaching process. Short horse-hair is used for stuffing chairs, sofas, &c., and for this purpose is often mixed with cow- and pig-hair, the three being incorporated in machines and cleared of dust by beating and screening. The hair is then "curled" by a process of twisting, the curl being preserved by damping and heating. For inferior stuffing, vegetable fibers are mixed with hair. Long hair is chiefly used in the manufacture of hair-cloth, for which purpose it is usually dyed black. The warp is formed of strong linen or cotton twist, and the weft of hair—whose length determines the width, since the weft is composed of single hairs. The weaving was long performed by a hand loom, until this was superseded by a power loom invented by Isaac Lindsley, of Pawtucket, R. I. In this machine an arm or rod, made to operate like a finger and thumb, grasps the hairs as they are presented by a picker which takes them up one by one from a bench. In modifications of this loom the thick and thin ends of the hairs are taken up successively by the picker. In weaving hair-cloth only the hair appears on the surface, the warp being hidden. In some special fabrics both warp and weft are made of hair. Horse-hair is also worked up into crinoline for ladies' bonnets, cords for carriages, materials for cigar cases, fishing lines, &c., and has also been employed as a carpet-making material, short hair being used in this instance, woven as a yarn. These carpets are very durable, and well suited for office use.

Cow-hair.—This material is largely used for the purpose of binding plaster for the internal walls of houses, in the manufacture of roofing and other felts, and is mixed with horse-hair for upholstery purposes and with wool for common blankets, rugs, &c. It is obtained in considerable quantities from tanneries.

Camel-hair is obtained from the legs, necks and humps of both species of camel, that from the Arabian camel being fine and light colored, that from the Bactrian camel coarser and darker. Young camels yield the finest hair. In Asiatic countries it is woven into soft, warm and desirable cloth for clothing, and is also made into carpets, tent-cloths, &c. It is also sent in considerable quantity to Europe and America for carpet-making and mixing with wool, while the finer kinds are made into warm clothing. What are known as camel's-hair brushes are really made from the tail of the sable or squirrel.—*Goat-hair.* Cheap carpets and other fabrics are made from the hair of the common goat, while that of the Angora or Mohair goat is a very important material in textile industries, as also is the fine wool which forms part of the fleece of the Cashmere goat.—*Pig's hair* is principally used for making brushes, while even elephant's hair is turned to use, a native bracelet being made from it by some tribes in Nyassaland.

Hala'tion, *n.* [From *halo.*] (*Photog.*) An appearance as of a halo of light surrounding the edge of a dark object in a photographic picture developed upon iodide of silver; perhaps caused by radiation of light from some object, or by reflection from the back of the plate.

Hale, Edward Everett, D. D., philanthropist, author and divine, born in Boston, Mass., April 3, 1822; educated at the Boston Latin School and at Harvard; entered the Unitarian ministry and had his first charge (1846) at Worcester, Mass. In 1856 was appointed pastor of the South Congregational (Unitarian) Church of Boston. His stories, which are numerous, include: *Ten Times One is Ten*, and *In His Name.* Jointly with Susan *H.* he has written several works: *Through Mexico; The Story of Spain*, &c.; and with his son, Edward E. *H.*, *The Story of Massachusetts*, and *East and West.* He was editor of the Unitarian paper, *The Christian Examiner;* founded and edited (1869) *Old and New*, which was subsequently merged into *Scribner's Monthly.* He was made famous by two of his shorter stories, *A Man Without a*

Country, and *My Double and how he Undid Me;* is a popular lecturer, and counselor of Chautauqua University.

Hale, Horatio, ethnologist, born in Newport, N. H., May 3, 1817; graduated at Harvard (1837); appointed, the following year, philologist to Capt. Wilkes' scientific expedition to the Antarctic and Southern Pacific seas. After his return he traveled extensively and pursued his studies in literature and anthropology. He was admitted to the bar, and practiced law at Clinton, Canada, though continuing his researches in science. He was a member of a number of learned societies both in Europe and America, and the author of: *Ethnography and Philology; The Iroquois Book of Rites; Indian Migrations as Evidenced by Language*, &c. Was president of the anthropological section of the American Association for the Advancement of Science in 1886, and delivered a notable address on *The Origin of Languages and The Antiquity of Speaking Man*. D. Dec. 30, 1896.

Hale, John P., statesman, born at Rochester, N. H., in 1806. He graduated at Bowdoin College in 1827, and after being admitted to the bar, in 1830, was district attorney for New Hampshire, under Jackson, a representative in New Hampshire legislature in 1832, was elected in 1843 to Congress by the Democrats of his State, was Speaker of New Hampshire house of representatives in 1846; was elected U. S. Senator in 1847, in which capacity he distinguished himself by his independent line of politics, and individual opposition to slavery. In 1852 he was the unsuccessful candidate of the Liberty party for the Presidency; in 1855 he was again elected to the Senate, and reëlected in 1859, remaining in that body till 1865. At the close of his term in the Senate he was appointed Minister to Spain, a position he held till 1869. Died Nov. 17, 1873.

Hale, in *Alabama*, a W. co.; *area*, 732 sq. m. Bounded on the W. by Black Warrior river. *Surface*, undulating and extensively covered with forest; *soil*, fertile. *Prod.* cotton, corn, sweet potatoes and pork; live stock. *Cap.* Greensborough. *Pop.* (1890) 27,501.

Hale, in *Texas*, a N.W. co.; *area*, 1,100 sq. m. Intersected by Brazos river and Catfish creek; *soil*, a red, sandy loam; no timber. *Prod.* Wheat, corn, oats, fruits and vegetables. *Cap.* Plainview. *Pop.* (1890) 721.

Halé'vy, Ludovico, novelist and librettist, son of Léon *H.*, was born in Paris on July 1, 1834; wrote nearly all the librettos for Offenbach's popular *operas-bouffe*, largely in collaboration with Henry Meilhac; also, with the same, the plays *Frou-frou, Le Menuet de Danæ*, &c. His principal novel is *L'Abbé Constantin*.

Half-tone, Half-tone Process. See Engraving, Photo-.

Hal'iburton, Thomas Chandler, jurist, politician, and humorist, was born at Windsor, Nova Scotia, in 1796; studied law, became a member of the colonial legislature, justice of the Court of Common Pleas (1829), and judge of the Supreme Court (1840). He resigned from the bench in 1842, removed to England, and entered Parliament (for Launceton) as a Conservative, in 1859. His works include several books and pamphlets on Nova Scotia, but he is best known as the creator of *Sam Slick*, whose humorous sayings and doings were first published in a series of newspaper sketches, and later republished in book form. Died August 27, 1865.

Hal'ifax, Charles Montagu, Earl of, statesman, born at Horton, Eng., in April, 1661, entered the House of Commons in 1690, rose to the first rank as a parliamentary debater, and became, along with Lord Somers, the chief leader of the Whig party. In 1695 he was appointed Chancellor of the Exchequer, and in 1701 was impeached by the Tory majority in the House of Commons, but was acquitted by the House of Lords. After the death of Queen Anne he served as one of the regents of the kingdom until the arrival of the new sovereign, George I., who made him his First Lord of the Treasury. Lord *H.* was a munificent patron of literature and art; aided in the foundation of the British Museum and of the Bank of England, and called into existence what has since been called the National Debt. Died in 1715.

Hall, Asaph, astronomer, born at Goshen, Conn., Oct. 15, 1829; studied astronomy at the University of Michigan, under Brunnow, and became assistant to Prof. W. C. Bond in the observatory at Harvard; appointed to the position of aide in the Naval Observatory, Washington (1862), and in the following year was commissioned professor of mathematics in the Navy. Of several expeditions made by him for astronomical observations, the most important was that to Vladivostok, Siberia, to observe the transit of Venus (1874). He was the successor of Prof. Newcomb in the charge of the great equatorial at Washington (1875), and made his famous discovery of the satellites of Mars in 1877. Many of the results of his work are published in the Washington *Observations*. The Royal Astronomical Society of London has awarded him a gold medal.

Hall, Charles F., Arctic explorer and author, was born in Cincinnati in 1825, and was for some years a prominent journalist in that city. Becoming deeply interested in Dr. Kane's two expeditions to the Arctic regions, as well as in the various searches for Sir John Franklin, and having devoted much of his time and study to the subject of Polar exploration, he sailed (1860) on an expedition in search of the lost navigator, defraying a considerable portion of the expense from his own means. He spent two years and three months in the Arctic regions at this time, learned more particulars in regard to Sir John's death than any previous explorer, and in 1864 returned to the North and spent five years there, mastering thoroughly the Esquimaux language, and adopting to a considerable extent their mode of life. During this second expedition he discovered and brought home many relics of the Franklin expedition, and fully ascertained the time and places when and where they had perished. After his return he devoted himself to scientific study, and in July, 1871, set sail a third time for the Polar regions on board the *Polaris*, a government steamer fitted up expressly for him, with a picked crew, scientific observers, and all necessary appliances, the Congress of the United States having appropriated $100,000 for the exploration. He expected to be gone three or four years, and was sanguine of being able to reach the North Pole, but died in the Arctic regions, Nov. 8, 1871. Capt. *H.*, after his return from his first voyage, published a narrative entitled *Explorations and Adventures in the Arctic Regions.*

Hall, Isaac Hollister, Orientalist; born in Norwalk, Conn., Dec., 12, 1837; graduate of Hamilton College (1859); subsequently tutor there; admitted to the bar; practiced law in New York City (1864–75); held a professorship in the Syrian Protestant College of Beirut (1875–77); later was associate editor of *The Sunday School Times*, Philadelphia. He was the first to read an entire inscription in the Cypriote language, and discovered in Beirut a Syriac manuscript of the Gospels, Acts, and most of the Epistles. The manuscript was dated between 700 and 900 A.D., and its Gospels constituted the long-lost Philoxonian version; also discovered the Antilegomena Epistles in the "Williams Manuscript." Besides numerous articles on Oriental inscriptions and other subjects, he wrote a *Critical Bibliography of the Greek New Testament as Published in America.* Died July 2, 1896.

Hall, John, clergyman; born of Scottish parents in co. Armagh, Ireland, July 21, 1829; educated in Belfast College; licensed to preach (1849), and went to the west of Ireland as a missionary; was called to the First Presbyterian church in Armagh (1852) and to the church of St. Mary's Abbey, Dublin (1858); delegate from the Presbyterian churches in Ireland to those in the U. S. (1867), and the same year was made pastor of the Fifth Avenue Presbyterian church, New York, a pastorate which he still holds (1897). He was chancellor of the University of the City of New York (1882–90), and is author of: *Foundation Stones for Young Builders; A Christian Home: How to Make and Maintain it*, &c.

Hall, Newman, Congregational preacher; born at Maidstone, England, May 22, 1816; educated at Highbury College; received the degree A.B. from the University of London; also won a law scholarship, and obtained the degree of LL. B. (1835); studied theology, and was ordained in 1842. His first charge was in Hull. In 1854 he became pastor of Surrey Chapel, Black Friar's Road, London. He is a Non-Conformist, but uses the liturgy of the Church of England, with slight modifications. During the Civil War in America he was friendly to the Union, and visited the United States (1865) in the endeavor to promote friendship between the American and English peoples; made a second visit in 1873, lecturing in the principal cities, and again made a short visit in 1884. He is author of: *The Christian Philosopher; Land of the Forum and the Vatican; Lectures in America; Pilgrim Songs*, &c.

Hall, in *Texas*, a N.W. co.; *area*, 900 sq. m.; intersected by Red river. *Surface*, level; *soil*, dark, fertile loam. *Products*, wheat, corn and vegetables. Stock raising is a leading industry. *Pop.* (1897) about 1,500.

Hal'lel, *n.* [Heb.] In the Jewish ritual, Psalms 113 to 118, inclusive; chanted at the Passover, Pentecost, and the Feast of Tabernacles.

Hall-marks, or Plate-marks. (*Manuf.*) Impressions authorized by law to be made on articles of gold and silver, for the purpose of apprising the public of the true value and fineness of the metal contained in them. The marks are a series of symbols, stamped in an embossed style, of a size varying with that of the article impressed, and usually stamped on every separate piece which is used in making up an article. In the gold standards, figures are employed to denote the number of carats of fineness. Pure gold being reckoned at 24 carats, the figure 18 indicates 18 parts of gold and 6 of some inferior metal. Gold as low as 9-carat fineness is now legal, this being a little over one-third pure gold. In hall-marks the initials of the maker's name have been used since 1739, and in addition to the figures for fineness various symbols are used in different countries, such as the crown (in England), the thistle (in Scotland), &c. The stamping is done in the assay office, so as to secure the public against false marking.

Hal'lock, in *Minnesota*, a post-village, cap. of Kittson co., on Great Northern R. R. *Pop.* (1895) 549.

Hal'ma, *n.* [Gr.] In ancient Grecian games, the long jump with weights in the hands.—Now, a game played on a board having 256 squares, by 2 persons with 19 men each, or by 4 with 13 men each, the object of the players being to get the men into the places occupied by their opponents.

Hal'pine, Charles Graham, soldier and poet; born at Oldcastle, County Meath, Ireland, Nov. 20, 1829; graduated at the University of Dublin. In 1847 he went to New York and became connected with the New York *Herald*, *Times* and other papers; also contributed to the Boston *Post;* engaged in the Civil War, and became brigadier-general of volunteers; was also major and brevet major-general in the regular army; resigned his commissions in the army in 1864. Author of humorous and other poems under the pen-name of Private Miles O'Reilly. Died Aug. 3, 1868.

Hal'stead, Murat, journalist; born in Butler co., O., Sept. 2, 1829; graduated at Farmers' College, College Hill, O.; became a local reporter on the Cincinnati *Enquirer;* news-editor of the Cincinnati *Atlas;* literary-editor of *The Columbian and Great West*, and (1856) the chief editor and proprietor of the Cincinnati *Commercial*, of which he continued chief editor when the *Commercial* and *Gazette* were consolidated (1882). In 1890 he became editor of the *The Standard Union*, Brooklyn, N. Y. Wrote *The Story of Cuba* (1896), and has contributed many special articles to various newspapers.

Hal'stead, in *Kansas*, a city of Harvey co., on Little Arkansas river, 10 m. W. of Newton, on A., T. & S. Fé R.R.; has flour mills, grain elevators and a creamery. Ships largely of farm produce and live stock. *Pop.* (1895) 694.

Ham'blen, in *Tennessee*, an E. county; *area*, 150 sq. m. Bounded on the N.W. by Holston river, on the S. by French Broad river. *Surface*, hilly; *soil*, fertile. *Prod.*, corn, oats, wheat, white and sweet potatoes, pork. *Cap.* Morristown. *Pop.* (1890) 11,418.

Ham'burg, or **Black Ham'burg,** *n.* A fine hot-house grape.

—A variety of domestic fowl. See Fowls, Domestic.

Ham'burger Steak. A breakfast dish of minced beef, made up in the form of steak or in balls, and fried or broiled.

Ham'erton, Philip Gilbert, artist, was born at Manchester, England, on Sept. 10, 1834; after 1859 he resided chiefly at Autun, France. He achieved some fame as a landscape painter, which art he studied under Pettill, and in Paris (1855) under Wyld; but his canvases are not generally popular. He invented the "positive process" of etching, on which subject he wrote largely; founded *The Portfolio*, a review mainly devoted to etching, and contributed many art criticisms to leading journals and magazines. His published works include: *Etching and Etchers; Thoughts about Art; The Intellectual Life; The Unknown River; Observations on Heraldry*, &c. Died Nov. 6, 1894.

Ham'ilton, Frank Hastings, surgeon, was born at Wilmington, Vt., Sept. 10, 1813; graduated in medicine from the University of Pennsylvania (1833), and began practice at Auburn, N. Y.; was professor of surgery at Western College, Fairfield, N. Y. (1839), and at the College of Geneva (1840). In 1844 he went to Buffalo with Drs. Austin Flint and James P. White, and established the medical department of the University of Buffalo, *H.* being professor of surgery. In 1860 he removed to Brooklyn and became the first professor of surgery in the Long Island Hospital College. The next year he entered the Federal army as surgeon of the 31st N. Y. Volunteers; was made brigade surgeon after the first battle of Bull Run, and in 1862 became surgeon to Gen. Keyes' corps; in 1862 was appointed medical inspector, U. S. A. He retired from the service in 1863, and returned to Bellevue Hospital, to the surgical staff of which he had been attached in 1861, a connection that continued until his death. Was professor of surgery in the Medical College of that institution from 1868 to 1875. He was one of the surgeons who vainly tried to save the life of President Garfield. Dr. *H.* was one of the most successful operators of his day, and a copious contributor to surgical literature. Died August 11, 1886.

Hamilton, James, marine painter, born in Ireland about 1820, was taken to the U. S. in infancy. He studied and practiced his profession in Philadelphia, and acquired much distinction by his illustrations of Dr. Kane's *Arctic Explorations* (1855–56). He subsequently confined himself almost exclusively to marine subjects, and his *Niagara*, his *Ocean Views*, and his pictures of naval engagements are well known. Died in 1878.

Hamilton, Sir William Rowan, born in Dublin, Aug. 3, 1805; graduated at the Dublin University with high honors in mathematics; became Astronomer Royal for Ireland in 1827; was knighted in 1835, and president of the Royal Irish Academy in 1837. He was one of the greatest mathematicians of the age, producing many works of importance in this science. His fame rests, however, on his great invention, that of the calculus of quaternions, which remains as a monument of analytical genius. In his *Theory of Systems of Rays* he determined two new laws of light, the internal and external conical refraction of biaxial crystals. Died Sept. 2, 1865.

Hamilton, in *Kansas*, a S.W. co.; *area*, 922 sq. m. Intersected by Arkansas River. *Surface*, undulating prairie; scarcely any timber. *Cap.* Syracuse. *Pop.* (1895) 1,411.

Hamilton, in *Nebraska*, a S.E. central co.; *area*, 576 sq. m. Bounded on the N.W. by Platte river, and also drained by North, Middle, and West Forks of Big Blue river. *Surface*, undulating; timber scarce; *soil*, fertile. *Products*, wheat, oats, corn, live stock. *Cap.* Aurora. *Pop.* (1890) 14,096.

Hamilton Col'lege. (*Educ.*) An educational institution located at Clinton, Oneida co., N. Y., founded in 1793 as an academy, and chartered as a college in 1812, it being the third in the State. It was named from Alexander Hamilton, its generous contributor and one of its first trustees. There are 18 professorships, most of which are endowed. Connected with the college is the Maynard-Knox Law school; also, the Edwin Litchfield Observatory, whose director, Dr. C. H. F. Peters, has the credit of discovering no less than 48 asteroids and making over 100,000 zone star observations. It has a library of 35,000 volumes. Since its organization its graduates have numbered 2,522. Its invested funds amount to $370,000.

Hamilton Group. (*Geol.*) An American geological formation, occupying the middle portion of the Devonian period, its name being derived from Hamilton,

N. Y., near which it is particularly displayed. It includes a considerable thickness of shales, with some limestone, and lies between the Marcellus and the Genesee shales, though considered by some to include these shales also. This formation extends southward along the Appalachian system into Pennsylvania and Virginia, and westward, it being represented by a thin shale in Ohio and calcareous rocks further west. Flagstones of excellent quality, known as bluestone, are obtained from its harder layers and extensively used, especially in New York City. Some of its deeper shaly members, bituminous in character, are supposed to be the chief source of the petroleum and natural gas of the overlying sandstones in Pennsylvania and West Virginia. The fossils include land and water plants, great numbers of invertebrate animals, and fishes.

Hamilto'nian, *a.* Of or pertaining to any one of several noted men by the name of Hamilton, viz.: Alexander Hamilton, American statesman and financier (1757–1804); Sir Wm. Hamilton, Scottish metaphysician and logician (1788–1856); Sir Wm. Rowan Hamilton, Irish mathematician, who invented quaternions (1805–1865); and, especially, James Hamilton, who popularized a system of language-teaching called from him the HAMILTONIAN SYSTEM, though it was known long before and had been recommended by Locke in his *Thoughts Concerning Education*. *H.* was born in 1769, and in early life went to Hamburg, where he studied German under a French refugee, named D'Angelis. After twelve lessons he was able to read an easy book, his tutor having discarded the use of a grammar and translated stories for his pupils word for word. *H.* began business in Paris, but on the rupture of the treaty of Amiens he was made a prisoner of war. In 1814 he came to America and commenced teaching in New York on the method of D'Angelis. In 1823 he returned to England, taught with success in Manchester and visited other cities, attracting crowds of people. His system excited both favorable attention and opposition. It was denounced by some as quackery, but was warmly defended by Sydney Smith in the *Edinburgh Review* of June, 1826. *H.* died in Dublin, in 1831. The so-called "natural method" of teaching languages, popular at the present day, appears to be largely an adaptation of his system.

Ham'ler, in *Ohio*, a post-village of Henry co., on B. & O. and L. V. R. Rs.; has manufactures of staves and lumber. *Pop.* (1897) about 600.

Ham'lin, HANNIBAL, statesman, born in Maine, 1809, practiced law from 1833 till 1851, having become meanwhile a member of the Legislature and Speaker of the House for three years. In 1843 he was elected to Congress by the Democrats, and there distinguished himself as an opponent of slavery. In 1848 he became a member of the U. S. Senate, and in 1856 left his party to enter the ranks of the newly-formed Republican opposition. In 1857 he was elected governor of his native State, reëlected Senator in 1857, and in 1860 he was elected Vice-President of the United States on the same ticket with Mr. Lincoln. He presided over the Senate with great dignity. In Jan., 1869, he was again sent to the Senate, and was reëlected in 1875; was U. S. minister to Spain (1881). Died in 1891.

Ham'lin, in *South Dakota*, an E. co.; *area*, 545 sq. m. Intersected by Big Sioux river, and contains several lakes. *Surface*, undulating; timber scarce; *soil*, fertile. *Products*, wheat, oats, barley, corn, potatoes and other vegetables. *Cap.* Castlewood. *Pop.* (1895) 5,225.

Ham'line University. (*Educ.*) A collegiate institution located at Hamline, St. Paul, Minn., founded in 1854 by Bishop Hamline, of the Methodist Church, at Red Wing, Minn., where it remained 15 years. It is open to both sexes, and offers two courses of study, a scientific and a classical, each four years in length.

Ham'mond, JAMES HAMILTON, statesman; born at Newberry, S. C., Nov. 15, 1807. His father, Elisha *H.*, was president of Dartmouth College, and there James graduated in 1825; admitted to the bar, and edited the *Southern Times* at Columbia. He was an ardent advocate of State rights, and organized the military force which South Carolina raised to resist the national government in 1833; member of Congress from South Carolina (1835–37); governor of that State (1842–44); elected to the U. S. Senate (1857). The reopening of the slave trade, which was then being agitated, he opposed in a public speech at Columbia (1858). On the secession of his State (1860) he retired from the Senate, though taking no part in the Civil War; became president of South Carolina College in 1861. Died Nov. 13, 1864.

Ham'mond, WILLIAM ALEXANDER, physician, was born at Annapolis, Md., in 1828; graduated in medicine from the University of the City of New York (1848); entered the U. S. army as assistant surgeon in 1849, and remained in the service until 1860, when he resigned to take the chair of Anatomy and Physiology in the University of Maryland. Upon the outbreak of the Civil War he again proffered his services to the Federal government, accepting a low rank on the surgical staff; but by reason of his energy and executive ability he soon became surgeon-general of the army, with the rank of brigadier. He was court-martialed and dismissed in 1864, having, it was alleged, given offense to some of his superior officers; but in 1879 he was restored to his place and rank, at the direction of Congress, and placed on the retired list. On leaving the army he went to New York and became noted as a specialist in nervous diseases, being professor of that branch at Bellevue (1868–73) and the University of the City of New York (1873–82); was one of the founders of the New York Post-Graduate Medical School. Dr. *H.* has written voluminously on medical subjects, and has also produced some notable novels and miscellaneous works, among which may be mentioned, *Lal* (1884); *A Strong-Minded Woman* (1885), and *On the Susquehanna* (1887).

Hammond, in *Indiana*, a city of Lake co., 20 m. S.S.E. of Chicago, on eight lines of R. Rs.; a manufacturing center, with steel spring, nail, flour, carriage, chemical, and syrup factories, large slaughter house, distillery, &c. *Pop.* (1897) about 11,200.

Hamp'den, in *Massachusetts*, a post-town of Hampden co.; has important manufactures. *Pop.* (1895) 831.

Hamp'ton, WADE, soldier and statesman, born at Columbia, S. C., in 1818, being the grandson of Gen. Wade *H.*, of Revolutionary fame. He graduated at South Carolina College; served both in the Senate and House of Representatives of his State; entered the Confederate army at the beginning of the Civil War, took part in many engagements, was several times wounded and reached the rank of lieutenant-general. He was elected governor of South Carolina (1878); U. S. Senator (1879–91); and in 1893 was appointed U. S. Commissioner of Railways.

Hampton, in *South Carolina*, a S. county; *area*, 1,141 sq. m. Bounded by Savannah river on the W. and Big Salkehatchie river on the E., and intersected by Coosawatchie river. *Surface*, level; *soil*, fertile. *Prod.*, corn, cotton, sweet potatoes. *Cap.* Hampton. *Pop.* (1890) 20,544.

Hampton In'stitute. (*Educ.*) A normal college for colored and Indian youths of both sexes, founded in 1868 at Hampton, Va., which has performed excellent work in the free education of the classes named. It has at present 80 instructors and 800 pupils, and has productive funds amounting to $460,000, with a total income in 1896 of $143,455.

Hand, in *South Dakota*, an E. cen. co; *area*, 1,435 sq. m. *Surface*, rolling, well watered by numerous small lakes and streams; *soil*, very fertile. *Cap.* Miller. *Pop.* (1895) 4,657.

Hand'ball, *n.* (*Games.*) A game of ball, especially popular in Ireland, in which the ball is struck with the hand. It is played in a walled court.

Han'dicapping, *n.* (*Sports.*) A term used in various games and sports to denote the placing of competitors on such a footing that all shall have, as nearly as possible, an equal chance of winning. Thus, in horse-racing, when the speed of one horse has been ascertained to be greatly superior to that of another, the swifter of the two, in a handicap race, is made to carry extra weight to an amount that shall be deemed sufficient to reduce its speed to a level with that of its antagonist. Where the public performances of a horse have been exceptionally good, and when both speed and endurance are found to be of an unusually high character, the penalty inflicted in all future handicaps is very great, amounting sometimes to a weight many pounds above that of very inferior competitors. Though principally pertaining to horse-racing, handicapping is resorted in many other sports. In games such as chess and draughts, certain "men" are allowed to the inferior player; in billiards, the better of two allows his antagonist a certain number of "points," so as to equalize or handicap their respective games; at cricket, an eleven especially expert will sometimes play against twenty-two others, the competition being at times very close. In swimming and in pedestrianism, the inferior competitors are allowed a certain start; in yachting, the vessel of greater tonnage is handicapped with lesser ones, by allowing them extra time for the performance of the race. For instance, a fifty- and thirty-ton yacht start for a race, the former allowing the latter, say, five minutes. They *start together*, and the heavier yacht reaches home, say, three minutes ahead of the lighter; in that case, the lighter yacht's handicap of five minutes gives her the race by two minutes, though she was last to reach home. The principle of handicapping is the same, whether applied to field sports or home amusements; it is the art of endeavoring to equalize, by certain penalties, the good, the bad, and indifferent.

Hands'borough, in *Mississippi*, a post-township of Harrison co., 1 m. W. of Mississippi City, and 3 m. from the Gulf of Mexico; has several lumber mills. *Pop.* (1890) 1,021.

Hank'y-pank'y, *n.* Jugglery; trickery. (Equivalent to *hocus-pocus.*)

Han'nay, JAMES, critic and novelist; born at Dumfrics, Scotland, Feb. 17, 1827; entered the navy and was dismissed at eighteen by a court-martial sentence, afterward quashed as irregular. He early gave his attention to the study of genealogy, heraldry, the classics, and the literature of the eighteenth century; edited the *Edinburgh Courant* for some years; was subsequently British consul at Barcelona. He published novels, lectures, and essays; they include: *Singleton Fontenoy; Eustace Conyers; Lectures on Satire and Satirists; Essays from the Quarterly Review*, &c. Died Jan. 3, 1873.

Hans'ford, in *Texas*, a N.W. co., *area*, 910 sq. m. Drained by small creeks. *Cap.* Hansford. *Pop.* (1890) 133.

Han'son, in *South Dakota*, a S.E. co.; *area*, 435 sq. m.; intersected by Dakota river. *Surface*, undulating prairie; *soil*, fertile. *Cap.* Alexandria. *Pop.* (1895) 4,606.

Har'a-Kar'i, *n.* Self-disembowelment; a form of judicial suicide permitted in Japan in the case of nobles and army officers as an escape from the disgrace of ordinary execution. This method of suicide had long been practiced in Japan by members of the military class in case of dishonor, but for several centuries has been a recognized mode of capital punishment, and as such has become surrounded with elaborate ceremonies. It is said, however, that within the past 200 years actual suicide rarely takes place, a friend or kinsman of the condemned person being present prepared to strike off his head with a sword-blow at the moment he is about to plunge the dirk into his bowels. The execution takes place in the palace or garden of a daimio, and in the presence of official witnesses whose duty it is to see that it is duly performed and to identify the head after decapitation.

Har'bor Springs, in *Michigan*, a post-village, cap. of Emmet co., on G. R. and I. R. R., 8 miles N.W. of Petoskey; a summer resort, on Little Traverse Bay; has lumber mills, tooth-pick and other factories, shipments of lumber, farm produce, and fish. *Pop.* (1894) 923.

Har'bors, Artifi'cial. (*Engineering.*) Natural harbors are those found in the depressions of an irregular coast line, where nature has provided water of a depth, area, anchorage, facility of entrance, and protection from winds and waves suitable for the shelter and safety of vessels. Artificial harbors are those in which man has assisted nature by the aid of breakwaters and dock walls and the use of the dredge. Most of these lie near the mouths of rivers or inlets, where the tidal flow serves as an aid to the entrance of ships. Where the range of the tides is great (from 20 to 40 feet in various instances) vessels of deep draught can pass in and out at high tide, while wet docks are provided for their reception at low tide. Such is the case at Liverpool, London, Cardiff, Boulogne, Calais, Havre, and other European ports. (See DOCKS.) But usually the assistance to nature consists in works designed to produce a deep water channel over the "outer bar," such an obstruction being an inevitable and characteristic fea-

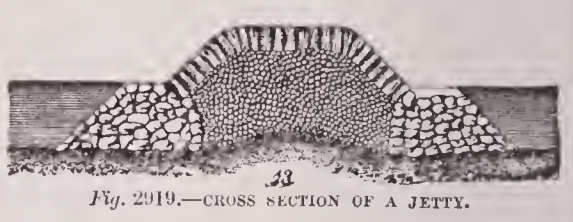


Fig. 2919.—CROSS SECTION OF A JETTY.

ture of all alluvial coasts. This effect cannot be produced in any one manner, conditions differing so widely that nearly every instance calls for some special treatment; and millions of dollars are often spent ineffectively through a misunderstanding of the conditions of nature. The state of affairs to be dealt with differs in almost every instance, there being often wide divergences in tidal and inland conditions. Thus, the tidal range may be large and the inner reservoir large, or in other cases small, with little fresh water drainage. Again, there may be little tidal fluctuation and a large interior bay, with little river water (as at Galveston). There may, again, be a strong river flow, no water basin, and feeble water tides (as in the case of the Mississippi), or the same conditions with no tides (as at the mouth of the Danube and the Volga).



Fig. 2920. JETTIES FOR DEEPENING A CHANNEL

In selecting a plan of treatment, the engineer must take all the existing conditions into account, and choose that which seems to give the best hope of success—with the constant depressing consideration that the unstable waters may refuse to work as he designs and set at naught his best-laid plans. As a general rule two jetties are employed for the purpose of concentrating the force of the flow during ebb tide upon a limited section of the bar, and thus causing the water to scour a channel through it. Many instances of this kind might be cited in which a degree of success has been attained; but an examination of these instances shows that the function of the jetties is mainly to protect the channel by arresting the littoral drift, while dredging must often come into play to maintain the desired depth. An advance of the jetties also becomes requisite as deposits of sand build the shore outward, the bar being thus pushed bodily seaward without increasing its depth. The successful application of the jetty system by Captain Eads to the improvement of the South Pass of the Mississippi is too well-known to need description. It will suffice to say that he secured a depth of channel of over thirty feet. Here there was little tidal action to deal with. There was none at the mouth of the Danube, where a similar success has been attained. From the Sulina branch of this river piers or jetties were carried out from points on the shore 2,500 feet apart, the piers being respectively 5,850 and 4,310 feet long, and converging outwardly to a parallel section 600 feet apart. When this work was begun, in 1856, the depth of channel varied from 7 to 11 feet, with the hulls and masts of wrecks to guide the mariner to the deepest water. When it ended, in 1872, an effective depth of 20 feet was gained, and this has since been maintained. Another instance of jetty construction in tideless waters is that of the harbor of Liban, Russia, on the Baltic sea, where

parallel jetties were built 350 feet apart and the channel dredged to 20 feet. It shoaled to 13 feet. The jetties were then extended and the channel again dredged, but still with unsatisfactory results. It was finally decided in 1887 to construct an outer harbor, as at Boulogne, Madras, and many other places, by building two curved moles or breakwaters each over a mile in length. Another interesting work of this character was that performed for the purpose of giving Rotterdam navigable communication with the sea. There the waters of the Rhine, Scheldt and Meuse combine and discharge into the North Sea, producing a bar at their mouth. The method of proceeding finally adopted was to cut a new channel for the Nieuwe Maas, one of the channels, through the bounding peninsula known as Hook of Holland, and to prolong it into deep water by diverging piers or jetties. These jetties, composed of fascine work with stone, extend into the North Sea with a total length of 2,800 meters. Though in a measure successful, constant dredging is required to maintain the desired depth of channel. In certain instances, as those at Bilboa, Spain, the mouth of the Columbia river, Oregon, &c., important results have been gained by the construction of a single jetty, so built as to obstruct the littoral drift.

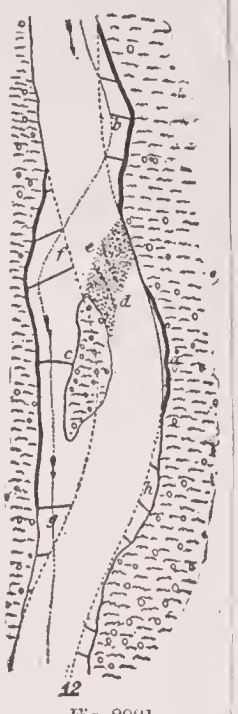


Fig. 2921.

JETTIES FOR DEEPENING CHANNEL AND REMOVING OBSTRUCTIONS.

American Jetties.—Interesting examples of jetty construction in American waters may be here given. The most extensive operation of this kind is that undertaken at Galveston, Texas, where two convergent jetties of rip-rap construction, on mattress foundation, are being extended across the outer bar, their total length to be over 10 miles and their external opening 7,000 feet. As yet the bar has advanced as rapidly as the jetty, and the ultimate result of this effort is problematical. A similar effort to improve the channel leading to Charleston harbor has been made, as yet with little success. At Sabine Pass, Texas, two parallel jetties, half a mile apart, have caused a scour through soft mud to a depth of 10 feet. Other American examples might be adduced, but the above are among the most notable. Various methods of constructing the jetties are employed, in some cases bags of concrete being sunk for the foundation and built upon by concrete blocks. In others rip-rap, or loose stones, are used for foundation and superstructure. At the mouth of the Brazos river, Texas, the jetties were made of mattresses loaded with sand and stone, which were lowered by ropes from a trestle as fast as constructed. This proved to be a cheap and rapid method, and these jetties, 600 feet apart, have yielded 18½ feet of water.

New Harbors.—In certain localities where nature has provided none of the elements of a harbor, but where the needs of commerce demand shelter for vessels, it has become necessary to create a harbor. Of these, one of the best-known examples is that of Port Saïd at the northern end of the Suez Canal. Here was a sandy coast and sea-bottom and a straight line of shore. The harbor was constructed by building two breakwaters, of which the longest extends outward from the shore 6,940 feet. It is constructed, near the shore, of rubble and concrete blocks, but in its outer portions entirely of large blocks of artificial stone, made of sand and hydraulic lime, and hardening with age. Each block weighs 25 tons. The area enclosed is about 450 acres, the average depth being only 13 or 14 feet except in the ship channel, where it is kept from 25 to 28 feet. A similar new-created harbor exists at the extremity of the canal, which has been constructed from Amsterdam and opens into the North Sea through a coast formed of sand dunes. The piers built out from the shore are 1,200 meters apart at their shore ends, but converge to an entrance of 260 meters, their length being 1,545 meters. The area of the harbor formed is 135 acres, with a depth of 25 to 28 feet. Here the foundation is of rip-rap stone, on which is built up a wall of concrete blocks.—*Outer Harbors.* At Cerea, Brazil, a open iron viaduct has been built from the unprotected shore across the breakers for a length of 2,400 feet, beyond which extends a curving breakwater for about 2,000 feet. The viaduct gives free passage to the littoral currents; and the outer cove, which is thus prevented from silting up, affords a considerable degree of protection to vessels. A similar work has been constructed at Rosslare, Ireland, with successful results. In many instances, as in Dover, Alexandria, Algiers, &c., a bight in the coast has been utilized as a harbor by building an arm across the exposed seaway. A recent and important example of this is to be seen at Ponto Delgado, in the Azores, where an extensive stone breakwater has been built, of nearly a mile in length. In various other cases islands have been utilized, by the aid of breakwater construction, to form harbors; though in many instances shoals have been produced by the currents due to the artificial structure. A similar shoal has been caused by the breakwater at the mouth of the Delaware Bay, from which many wrecks have arisen. Operations have begun here for the construction of a new and much more extensive breakwater on the shoals known as the Shears, where it is designed to form a national harbor of refuge for vessels of deep draught. Numerous other works of an interesting character might be described, but the above must serve for typical examples, space not permitting a more extended treatment. See Docks.

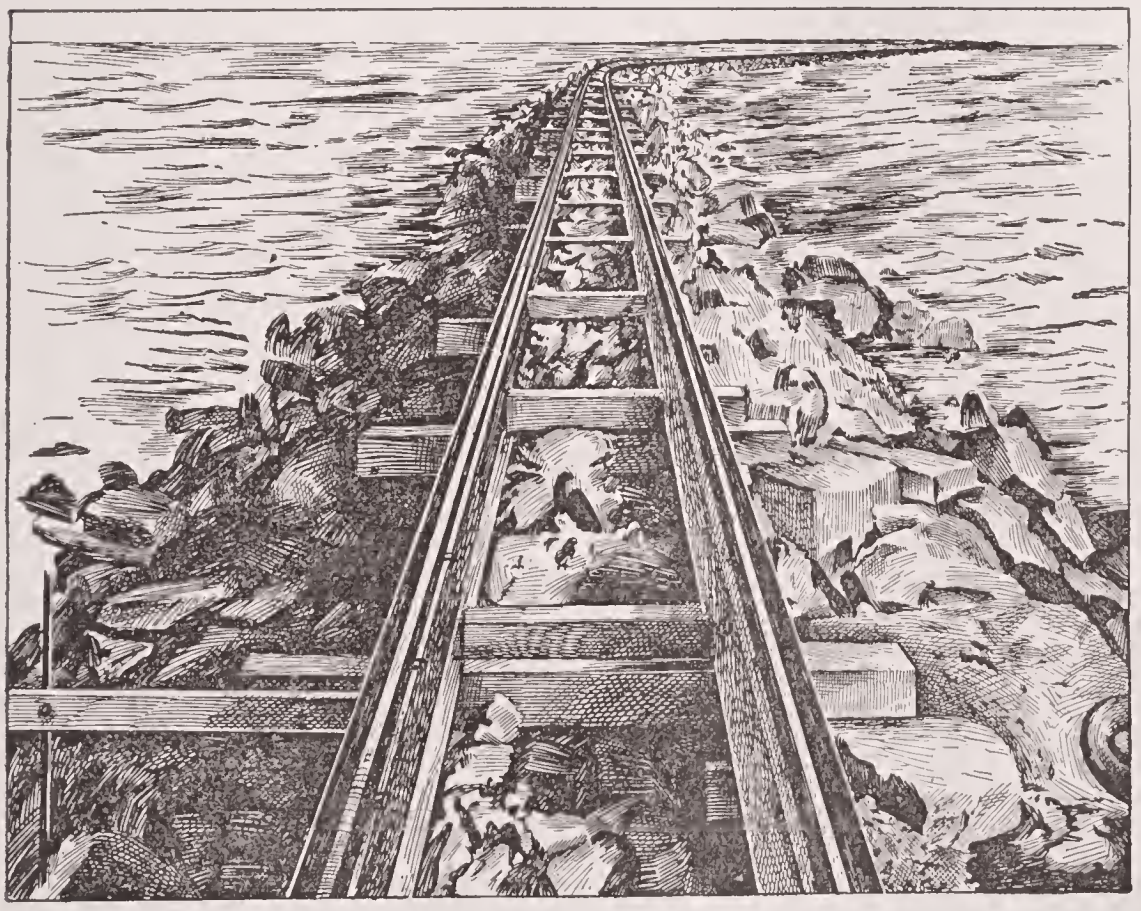


Fig. 2922.—ONE OF THE GALVESTON JETTIES—LOOKING SHOREWARD.

Harbors of the United States. These harbors may, for convenience, be embraced in four divisions: the Atlantic seaboard, the Gulf coast, the Pacific coast, and the Great Lakes.

Atlantic.—The coast of Maine is amply provided with harbors, including that of Calais, with 8 feet of water over bar; Eastport, whose harbor is free from ice during the winter, but whose roads are not tenable in a northeast gale; Rockland, 33 feet deep near the city; Frenchman's Bay, which is deep and easily accessible; Penobscot Bay, which extends inwards 28 miles; Bangor, with 6 to 14 fathoms up to the town of Bucksport; Linekin's Bay, with a least depth of 30 feet, but used only as a harbor of refuge; Wiscasset, one of the best harbors in the country; Bath, carrying 5 fathoms for 12 miles up the Kennebec river; Casco Bay, 18 miles long and 12 wide, with numerous islands; Portland, which carries 16 feet up to the wharves; Richmond Island Harbor, an excellent harbor of refuge; and Winter Harbor, 5¼ miles below Saco. Portsmouth Harbor, N. H., formed by the lower reaches of the Piscataqua river, carries 6 fathoms up to the city, and is the site of an important naval station—the Portsmouth Navy Yard. Newburyport Harbor is obstructed by a bar with only 6 feet of water—which is being widened. Rockport Harbor, with 8 fathoms in the inner and 11 in the outer roads, is the best harbor of refuge on the northern shore of Cape Ann. Massachusetts Bay, with its width of 38 miles between Cape Ann and Cape Cod, has the five important harbors of Boston, Salem, Gloucester, Plymouth and Provincetown. Of these, that of Boston has 21 feet through the main channel at any tide, with 9·4 feet mean rise and fall of tide. The harbor of Provincetown is one of the finest on the coast, it having good holding ground, plenty of water and (usually) freedom from ice, while easy of access. Sandwich Harbor, in the southwest part of Cape Cod Bay, is difficult to enter, but is of interest as the entrance to the projected canal from Cape Cod Bay to Buzzard's Bay. On Vineyard Sound are three good harbors: Wood's Hole, Edgartown and Vineyard Haven. Buzzard's Bay, 20 miles long, has deep water throughout, its entrance showing a depth of from 9 to 12 fathoms in mid-channel. Its most important harbor is that of New Bedford, whose inner portion, 16 feet deep, is entered through a narrow and crooked channel. The outer harbor is an open roadstead with 27 feet. The outer harbor of Newport has a depth sufficient for the largest ships. The inner harbor has 19 feet of depth. Block Island Basin is an artificial harbor formed by the government for the shelter of small vessels. Good anchorage can be had up to Bristol and Providence. Long Island Sound presents the harbors of New London and New Haven, with various smaller shelters. That of New London, formed by the lower course of the Thames, is 3 miles long and 30 feet deep, forming one of the finest harbors in the country. The noble harbor of New York, formed by the junction of the East and Hudson rivers, is of world-wide fame. Its main entrance is through the narrows, between Staten and Long Islands, at whose mouth, 7 or 8 miles below the Upper Bay, lies lower New York Bay, which is sufficient in capacity to hold all the fleets of the world. There are no harbors of other than minor importance on the New Jersey coast. The Delaware Breakwater gives a depth of 4 to 5 fathoms within the mouth of Delaware Bay, forming a harbor whose capacity will be greatly increased by the new breakwater now under contract, while the dredging of the Delaware river promises a channel of between 4 and 5 fathoms to the wharves of Philadelphia. On the Virginia coast, Hampton Roads offers a rendezvous for a fleet, with plenty of water for vessels of any size, from the entrance of Chesapeake Bay to within a short distance of Fortress Monroe. Newport News has 25 feet of water, and 21 feet can be carried, through a narrow channel, to Norfolk. Southward, the next harbor of importance is that of Fort Macon, where there is good anchorage in 18 to 30 feet of water. The shipping towns of Wilmington and Newberne, N. C., have but 7 or 8 feet depth of water. Georgetown, S. C., a shipping town, has but 7½ feet over the bar, but Charleston has 14 feet on the bar and 21 feet in the channel inside. Port Royal has a fine harbor, with 21 feet over the bar, while Savannah, Ga., has 17 feet over the bar, and 9 feet inside to the city. Brunswick, Ga., has one of the best harbors on the coast, from 1 to 5 miles wide and 20 miles in depth, with a deep, wide channel of approach. The depth over the bar is 17 feet. On the Florida coast the harbors are those of St. Mary's, Fernandina, Jacksonville, and St. Augustine, none of them with more than 11 feet of water over the bar.

Gulf Coast.—The harbor of Key West has several channels of entrance, of which the Main Ship Channel has 23 feet of water and the S. W. Channel 30 feet. Within there is good anchorage for the largest vessels. The Dry Tortugas, a group of islets at the S. W. extremity of the Florida reefs, form a deep and wide harbor, offering excellent anchorage. Tampa Bay is an estuary 6 to 10 miles wide, 22 miles deep, with anchorage in 4 to 5 fathoms. Appalachicola has a depth of 15 feet over the bar, though there is only 4 feet at the town. Just north of Cape San Blas lies St. Joseph's Bay, a large, deep and commodious harbor, easy of access, offering excellent anchorage, and capable of being entered in a gale. The entrance is a mile wide, with 19 feet of water. St. Andrew's Bay, with 13 feet, and Pensacola Bay, with 19 feet, follow, and are succeeded by Mobile Bay, an estuary 30 miles long, with Bon Secours Bay, 10 miles long and 10 wide, just within its entrance; 18 feet can be carried through a dredged channel to the city of Mobile. New Orleans has a channel 26 feet deep leading between Captain Eads's famous jetties in the South Pass, but with less depth in the other passes. West of the mouth of the Mississippi lies Barataria Bay, an extensive body of water, once the harboring place of pirates. Further west are Tainbalier and Atchafalaya bays, with no great depths of water,

and the harbor of Galveston, Texas, which has 11 feet on the outer bar and 9½ feet at the city wharves. Brazos Santiagos has 21 feet at its wharves, but only 6 feet can be carried over its bar.

Pacific Coast.—This coast is not remarkable for the number or extent of its harbors, though those of Puget Sound and San Francisco are of unsurpassed excellence. Of the Puget Sound harbors, the first to present itself is Port Townsend, with 5 to 9 fathoms close up to the shores. The harbor of Steilacoom has 6 to 15 fathoms near the town, and Seattle presents deep anchorage off its wharves. Oregon's only harbor is that at the mouth of the Columbia river, whose bar sometimes presents 27 feet of water, but is a of variable depth. Inside, to Astoria, there is a depth of 28 feet, and a good depth to the city of Portland. Crescent City harbor, California, is a dangerous one on account of its many shoals and rocks, though 25 feet anchorage can be found inside. Shallower harbors are those of Trinidad Bay, Mendocino, Benicia, Drake's Bay, and Vallejo. The harbor of San Francisco is one of the finest in the world; 23 feet can be carried over the bar and to nearly all parts of the bay. Further south are the harbors of Santa Cruz, San Luis Obispo, Santa Barbara, and San Diego Bay, the last-named the best harbor on the coast after that of San Francisco. Its entrance is over a bar 21 feet deep, the harbor within being 6 miles long and in its broadest part 2 miles wide.

Lakes.—On the Great Lakes may be named the harbors of Grand Marais, Grand Island, Copper Harbor, Portage, Superior, Saginaw, Presque Island, &c.—Of the American harbors named, those in which nature has made the best provision for the demands of commerce are Portland, New York, Norfolk, Port Royal, San Francisco, and Puget Sound. Of five natural harbors in the track of commerce, in foreign lands, may be named those of Queenstown, Ireland; Rio de Janeiro, Brazil; and King George's Sound and Princess Royal Harbor, Australia. For examples of harbors in which art has added to the resources of nature, see Harbors, Artificial.

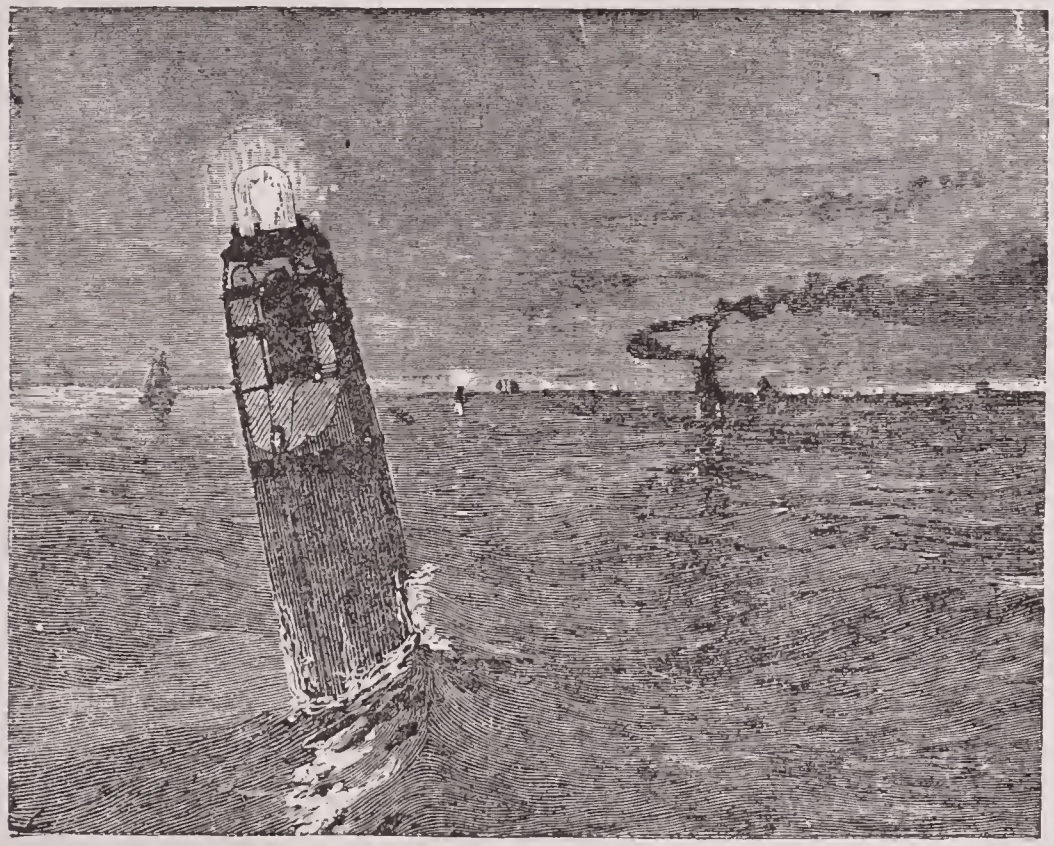


Fig. 2923.—ELECTRIC LIGHTS IN NEW YORK HARBOR.

Har'court, Sir William George Granville Venables Vernon, British statesman, was born Oct. 14, 1827; graduated with high distinction at Trinity College, Cambridge; called to the bar (1854), and became Q. C. (1866); appointed professor of International Law at Cambridge (1869); was solicitor-general (1873–74); returned to Parliament for Oxford (1868) and for Derby (1885–92). In Gladstone's cabinet of 1880 he was Secretary of State for the Home Department; was Chancellor of the Exchequer during the brief period of Liberal government in 1886, and was appointed to the same office in 1892, retiring in 1895. He has contributed to the *Saturday Review* and *London Times* under the pen-name of Historicus, and is now (1897) the leader of the Liberal party in the English Parliament.

Hardee', William Joseph, soldier, was born in Camden co., Ga., in 1815; graduated at West Point in 1838; served in the Florida and Mexican wars; was twice brevetted for gallant and meritorious service in the latter; in 1855 published his work on *Tactics*; was commandant of cadets at West Point from 1856 to 1860. At the breaking out of the Civil War he was made successively brigadier-, major-, and lieutenant-general in the Confederate army; commanded a corps at Shiloh, Perryville, Stone River, and later battles, with distinction; was offered the command of Gen. Bragg's army after the battle of Missionary Ridge, but declined in favor of Gen. Joseph E. Johnston; near the close of the war was in command of the military department comprising the States of South Carolina, Georgia and Florida. With an inferior force, he conducted the defence of Savannah against the army of Sherman, and successfully evacuated that city when it became untenable. Died in 1873.

Har'deman, in *Texas*, a N. co.; *area*, 1,180 sq. m. Intersected by Pease river. *Surface*, undulating; *soil*, fertile, sandy loam; timber scarce. *Products*, wheat, oats, corn, cotton. *Cap.* Quanah. *Pop.* (1890) 3,904.

Har'denburg, in *New York*, a post-town of Ulster co. *Pop.* (1897) 816.

Har'desty, in *Oklahoma*, a post-village of Beaver co.

Har'die, James Allen, soldier, was born in New York City on May 5, 1823; graduated at West Point (1843) and served there as instructor, &c., until 1861. During the early part of the Civil War he did staff duty; was made brigadier-general of volunteers in 1862; assistant adjutant-general, U.S.A., in 1863; inspector-general in 1864, and received the brevet ranks of brigadier- and major-general, U.S.A., in 1865. He subsequently served for a time as Assistant Secretary of War and in various special duties. Died Dec. 14, 1876.

Hard'ing, in *South Dakota*, a N.W. co.; *area*, 1,475 sq. m. Intersected by Little Missouri river and South fork of Grand river. Unorganized. *Pop.* (1895) 465.

Hard'pan, *n.* (*Geol.*) A stratum of hardened clay, sand or gravel at a depth of from one to three feet under the soft soil, for which it seems to be a foundation.—Hence, a solid basis for anything; the lowest possible line or point to be reached in a descent; as, "prices are down to *hardpan*."

Har'dy, Arthur Sherburne, author and mathematician, was born at Andover, Mass., August 13, 1847; educated at Phillips Academy, West Point (1869), and Paris; entered the army as second-lieutenant in 3rd Artillery, but was honorably discharged in 1870; has held several professorships, and received the degree of Ph.D. from Amherst. He has written, among other works: *Elements of Quaternions;* a translation from the French of *Geometrical Interpretations of Imaginary Quantities;* and several novels, including: *But Yet a Woman; Passé Rose*, &c.

Hardy, Thomas, novelist; born in Dorsetshire, England, June 2, 1840; educated at King's College, London; studied architecture under Arthur Bloomfield. Many of his novels depict the rustic life of the West of England and have been widely read. They include: *A Pair of Blue Eyes; Far From the Madding Crowd; Return of the Native; Tess of the D'Urbervilles*, &c.; also published *The Three Wayfarers*, a drama (1893). His novels are remarkable for ingenuity of plot, occasional fine tragic power, and excellent knowledge of feminine character.

Hare, Augustus John Cuthbert, English author, born at Rome, Italy, March 13, 1834; educated at Harrow and at University College, Oxford. His most notable works deal with Italian subjects.

Hare, Robert, an eminent chemist, was born in Philadelphia in 1781; was the inventor of the compound blow-pipe and the calorimeter, the latter a galvanic apparatus susceptible of producing intense heat. From 1818 till 1848 he filled the chair of chemistry in the medical department of the University of Pennsylvania. He invented several other scientific apparatus, was a member of various learned societies, and wrote a large number of scientific papers, and several books, including *Chemical Apparatus and Manipulations.* In his later life he investigated Spiritualism, in which he became a believer, publishing the results of his investigations in *Spiritual Manipulations Scientifically Demonstrated.* Died May 15, 1858.

Hare'foot, *n.* (*Ornith.*) A name for the Ptarmigan (*Lagopus scoticus*), the foot of which has a superficial resemblance to that of a hare.

(*Bot.*) The same as Hare's-foot (*q. v.*).

Hare's'-foot, *n.* (*Bot.*) A tropical American tree (*Ochroma lagopus*), so called from a cottony substance which comes from the seed-pods, covering them like the fur on a hare's foot.—A species of clover (*Trifolium arvense*), called also *rabbit-foot clover* and *stone-clover.*—Hare's-foot fern (*Davallia Canariensis*), resembling a hare's foot in its scaly, creeping rhizome.

Har'graves, Edmund Hammond, discover of the Australian gold fields, was born at Gosport, England in 1815. At the age of 18 he became a "squatter" in Australia, and in 1849 sailed from Port Jackson for San Francisco, went to the California diggings, and while working there was so struck with the resemblance of the geological structure of the country to that of Australia, that upon his return he made explorations which resulted in discovery of what have since been proved to be among the most productive of gold fields. The Legislative Council of New South Wales awarded him a sum of $50,000 for his discovery, an account of which he published in 1855 under the title of *Australia and its Gold Fields.* Died Oct. 1, 1891.

Hark'ness, William, astronomer, born in Ecclefechan, Dumfriesshire, Scotland, Dec. 17, 1837; graduated at Rochester (N.Y.) University (1858); appointed professor of mathematics, U. S. Navy (1863). He made a voyage in the monitor *Monadnock* around Cape Horn for the purpose of studying the phenomena of magnetism in the southern hemisphere, the results obtained in this expedition being published in the *Smithsonian Contributions to Knowledge.* He was a member of the commission on the transit of Venus (1871), and was in command of the expedition to Tasmania to observe the transit in 1874.

Har'lan, John Marshall, jurist, was born in Boyle co., Ky., June 1, 1853; graduated from Center College (1850) and from the law department of Transylvania University (1853); became a judge in Franklin co., Ky.; was colonel of the 10th Kentucky infantry (Federal) during the Civil War; attorney general of Kentucky (1863–69) and an unsuccessful candidate for Governor of that State in 1871 and 1875; was appointed, by President Hayes, associate justice of the U. S. Supreme Court, on Nov. 29, 1877. In 1892 he served as an arbitrator for the U. S. before the Bering Sea tribunal.

Harlan, in *Nebraska*, a S. co.; *area*, 576 sq. m. Intersected by Republican river. *Surface*, undulating; timber in medium quantity; *soil*, fertile, good grazing land. *Cap.* Alma. *Pop.* (1890) 8,158.

Har'lem Ship Canal. (*Engineering.*) A widening and deepening of Harlem River and Spuyten Duyvil creek, New York City, into a canal, which was completed and opened to navigation in June, 1895. The creek was about 2 feet deep. The canal at present is 9 feet deep and 150 feet wide. It is proposed to make it 350 feet wide and 18 feet deep, thus providing ship navigation between the North and East rivers, and adding largely to the dock-room of New York. See Canal.

Har'man, in *Colorado*, a post-town of Arapahoe co., about 5 miles S. of Denver. *Pop.* (1897) 810.

Harmo'nia, *n.* (*Anat.*) The term employed to denote the simple opposition of comparatively small surfaces or edges, as in the case of the two superior maxillary bones.

(*Astron.*) An asteroid, the fortieth found; discovered by Goldschmidt on March 1, 1856.

Harmon'ica, *n.* (*Mus.*) The mouth-organ: a small wind-instrument having at the edge a series of holes by which the breath, either inspired or expired, is conducted to a set of free reeds like those of an accordeon, whose vibration produces the notes. The *flute H.* has a mouth-piece at the end, instead of holes at the side. The name is also given to other musical instruments.

(*Mech.*) Somzee's *H.* is a safety device for use in mines to show the presence of fire-damp, by means of a musical note given out from a lamp chimney, which is silent when the air that feeds the flame is pure.

Harmon'icon, *n.* [Gr. *harmonikon.*] (*Mus.*) A mouth-organ, or Harmonica (*q. v.*).—An orchestrion (*q. v.*)

(*Acous.*) An apparatus in which a flame of hydrogen burning in a glass tube, sends off musical sounds.

(*Chem.*) *Chemical H.*:—A musical instrument in which tones are produced by the burning of gas in tubes of different sizes; a pyrophone.

Har'ney, William Selby, soldier, born in Louisiana in 1798; second lieutenant of infantry U. S. Army (1818); paymaster, with rank of major (1833); served in the Seminole War, also in the Mexican War, attaining the rank of brigadier-general. During the early period of the Civil War he commanded in Missouri; retired from active service in 1863; was brevetted major-general in 1865. Died May 9, 1889.

Harney, in *Oregon*, a S. E. co.; *area*, 10,600 sq. m. *Rivers.* Silvies, Middle and South Forks of Malheur river, Silver creek and numerous smaller streams. *Surface*, hills and valleys, timber on the hills; *soil*, good black loam. *Products*, wheat, oats, rye and barley. Stock raising is a leading industry. *Cap.* Harney. *Pop.* (1897) about 3,000.

Har'per, WILLIAM RAINEY, educator and author, born at New Concord, O., July 26, 1856; received the degree of A.B. from Muskingum College, and Ph.D. from Yale University. He was professor of the Semitic Languages (1886–91) and of Biblical Literature (1889–91) in Yale University. In 1891 he became the first president of the University of Chicago, which position he still holds (1897). His contributions to educational literature have been numerous and invaluable.

Harper, in *Kansas*, a city of Harper co., 50 m. S. W. of Wichita, on A., T. & S. Fé and H. & S. R.Rs.; has large shipping trade in grain, wool, hides and live stock. *Pop.* (1895) 1,068.

Har'rigan, EDWARD, actor; born in New York City, Oct. 26, 1845; worked for three years in a ship-yard in San Francisco, and appeared there as a comic singer in the Olympic Theater (1867). In 1871 he formed a partnership with Tony Hart in New York, and in 1876 they opened a theater in that city and brought out *The Mulligan Guard* series of plays (1879–1885). He is the author of a number of sketches and dramas.

Har'rington, MARK WALROD, astronomer and meteorologist; born at Sycamore, Ill., Aug. 18, 1848; educated at Evanston, Ill., and the University of Michigan; graduate from the latter in 1868, and became a teacher in that institution; was assistant in the U. S. Coast and Geodetic Survey of Alaska (1870–71); professor of astronomy and director of the observatory at the University of Michigan (1879–91). He founded *The American Meteorological Journal*, in 1884; was its managing editor until 1892; became chief of the U. S. Weather Bureau at Washington, in 1891, holding that position until 1895, and was the same year appointed vice-president of the International Meteorological Conference at Munich.

Har'ris, ISHAM GREEN, statesman, was born in Tullahoma, Tenn., Feb. 10, 1818; began mercantile life as a shop boy in 1832, but later studied law, and was admitted to the bar in 1841; was elected to the Tennessee legislature as a Democrat in 1847; member of Congress (1849–53); in the latter year removed to Memphis, where he thereafter resided. Was governor of Tennessee (1857–63) and during the last three years of the Civil War did staff duty in the Confederate army. In 1867 he returned to the practice of law in Memphis; was elected U. S. Senator in 1877, and re-elected in 1883, 1889, and 1895; was unanimously selected for president pro tem. of the Senate in 1893. Died July 8, 1897.

Harris, JOEL CHANDLER, journalist and author; born at Eatonton, Ga., Dec. 9, 1848; learned the printing trade, and was connected with several journals in his native State. Since 1876 he has held an editorial position on the *Atlanta Constitution*, to which paper he contributed his studies in the folk-lore of the American negro, which were afterward published collectively as *Uncle Remus, His Songs and His Sayings*, is also the author of *Mingo, and Other Sketches; Nights with Uncle Remus*, &c. His writings are interesting examples of the dialect and imaginative conceptions of the negro of the South.

Harris, THOMAS LAKE, reformer, born at Fenny Stratford, England, May 15, 1823; was taken to the U. S. in childhood, where he became a Universalist minister and afterward a firm believer in Spiritualism, upon which he lectured from 1850 to 1855. He subsequently founded a religious association which he called the Brotherhood of the New Life, whose chief establishment was at Brocton, Chautauqua co., N. Y., their belief combining the Swedenborgian theology, Platonic philosophy, and some of the doctrines of Fourier. For many years past he has resided in California. He has published numerous poetical and prose works, including *God's Breath in Man*. *H.*'s rules of conduct for the Brotherhood, and his treatment of the Oliphants and others of his converts, have been very severely criticised, and charges of inhumanity and immorality have been brought against him.

Harris, WILLIAM TORREY, A.M., LL.D., educator, born at Killingly, Conn., Sept. 10, 1835; studied at Yale College; subsequently taught in St. Louis, Mo., becoming superintendent of public schools there (1867); one of the founders of the Philosophical Society of St. Louis, and founder of the *Journal of Speculative Philosophy* (1867), which he has since edited, it being the first journal of its kind in the English language. He was appointed U. S. Commissioner of Education (1889), a position which he still holds (1897). Has contributed to leading periodicals, and is the author of: *The Logic of Hegel; The Spiritual Sense of Dante's Divina Commedia*, &c.

Harris, in *Minnesota*, a post-village of Chisago co., on St. Paul & Duluth R. R. *Pop.* (1895) 681.

Har'rison, FREDERICK, author; born in London, Oct. 18, 1831; admitted to the bar (1858), member of the commission upon trades-unions (1867–69), and secretary to the royal commission for the digest of the law (1869–70); also professor of Jurisprudence and International Law at Lincoln's Inn Hall. He was one of the founders of the positive school in England, in 1870, and is a Liberal and Home Ruler in politics. His works include: *The Meaning of History; Order and Progress; Oliver Cromwell*, &c., and he translated the second volume of Comte's *Politique Positive*. He is a trenchant and brilliant writer.

Harrison, THOMAS ALEXANDER, painter; born in Philadelphia, Pa., Jan. 16, 1853; pupil of Gérome, Paris. For his *Le Crépuscule*, a marine, he received a prize of $2,500 from the American Art Association in 1887. This canvas is now in the Museum of Fine Arts, St. Louis, Mo. Other works are. *The Amateurs; In Arcady; Castles in Spain*, &c His studio is in Paris.

Har'rison, WILLIAM POPE, author and clergyman; born at Savannah, Ga., Sept. 3, 1830; educated at Emory College, Oxford, Ga. He has served as pastor and been a prominent member in the councils of the Methodist Episcopal Church South; delegate to the Œmenical Conferences in London (1881) and in Washington (1891); editor of the *New Monthly Magazine*, and of *The Quarterly Review;* chaplain of the House of Representatives for a term of four years. He has published: *Theophilus Walton, or the Magnets of Truth; The Living Christ; The Gospel Among the Slaves*, &c.

Harrison, in *Georgia*, a post-town of Washington co., on W. & T. R.R. *Pop.* (1897) 615.

Harrison, or EAST NEWARK, in *New Jersey*, a suburb of Newark, on opposite side of Passaic river, on Erie and D., L. & W. R.Rs.; has cutlery and machine shops, stone yards, large steel works, thread works, shade-roller and trunk factories, electric lamp and wire works, tanneries, &c. *Pop.* (1895) 9,674.

Hart, JAMES MCDOUGAL, painter, born at Kilmarnock, Scotland, 1828. He was brought to America in childhood, his parents settling in Albany, N.Y. (1831), where he was apprenticed to a coach maker; subsequently studied art, visiting Dusseldorf (1851), where he remained about a year; removed to New York (1856) and was elected an Academician (1859). He has made a specialty of the painting of castles and quiet landscapes. His works include: *Autumn in the Woods; Moonrise in the Adirondacks; Indian Summer; Sunday Afternoon in Berkshire*, &c.

Hart, JOEL T., sculptor, born in Clark co., Kentucky, in 1810; passed his early life at farming, stonecutting, &c.; modelled his first bust in Cincinnati, in 1837. President Jackson, Cassius M. Clay, Horace Greeley, John J. Crittenden, and others sat for him. In 1847 he modelled a statue at Ashland of Henry Clay, for the State of Virginia, executed in Italy in 1858; produced a bronze colossal statue of Clay for New Orleans in 1859, and a life-sized marble statue for Louisville, in 1865. Among his various ideal works may be named *The Triumph of Chastity*. He also invented an instrument for taking the exact forms from life, and by which other works in sculpture can be copied with great perfection. *H.* was entirely self-educated. He produced several collections of verse, fables and maxims, some of which were published. Died in 1877.

Hart, SOLOMON ALEXANDER, painter, born at Plymouth, England, in 1806; became, in 1857, professor of painting in the Royal Academy, London. Among his best compositions are: *Isaac of York in the Donjon of Front de Bœuf* (1830); *Cœur de Lion and the Sultan Saladin* (1835); *Queen Eleanor Sucking the Poison from the Arm of Edward I.* (1838); *Dinner-time in the Refectory of the Convent of the Ognessanti, Florence, Milton Visiting Galileo in Prison; The Three Inventors of Printing;* and *The Introduction of Raphael to Pope Julius II.* *H.* became Royal Academician in 1840. Died in 1881.

Hart, in *Michigan*, a post-village, cap. of Oceana co., 34 m. N. of Muskegon, on C. & W. M. R. R. Has saw mills, sash factory and broom-handle works. *Pop.* (1894) 992.

Harte, FRANCIS BRET, novelist and poet; born at Albany, N. Y., Aug. 25, 1839. He went to California (1856), engaged in digging gold, teaching school, and in the express business; entered the office of *The Golden Era* as a type-setter, and became editor of a literary weekly, *The Californian;* secretary of the U. S. branch mint, in San Francisco (1864); removed to New York city (1871); was appointed U. S. consul at Crefeld, Germany (1878), and filled a similar office in Glasgow from 1880 to 1885; has since resided in London. He was the founder of the *Overland Monthly*, and it was to this magazine that he contributed his famous stories: *The Luck of Roaring Camp*, and the *Outcasts of Poker Flat;* also his popular poem, *The Heathen Chinee*. Among his novels are. *Echoes of the Foot Hills; Tales of the Argonauts; On the Frontier; A Phyllis of the Sierras*, &c.

Har'tington, SPENCER COMPTON CAVENDISH, MARQUIS OF (now DUKE OF DEVONSHIRE), statesman; born July 23, 1833; graduated at Trinity College, Cambridge (1854). He was returned to Parliament for North Lancashire in 1857. In the subsequent years he held a number of important positions; lost his seat for North Lancashire (1868); was member for New Radnor (1869) having previously been appointed Postmaster-General in Mr. Gladstone's cabinet; was chief secretary for Ireland (1871); retired with his party (1874); became a leader of the Liberal party in the House of Commons, succeeding Mr. Gladstone; lord rector of the University of Edinburgh (1879); member of Parliament for Northeast Lancashire (1880), and the same year Secretary of State for India; Secretary of State for War (1882); resigned in 1885. He supported Lord Salisbury's government, and became a leader of the Liberal Unionists, but declined becoming a member of the cabinet; succeeded to his title and estates of his father, the Duke of Devonshire, on the latter's death, Dec. 21, 1891

Hart'laub, CARL JOHANN GUSTAV, M.D., ornithologist; born at Bremen, Germany, Nov. 8, 1815; educated at the Universities of Bonn, Berlin, and Göttingen. His attention was largely given to the geographical distribution of birds, and his works treating of the birds of Africa, Madagascar, and Polynesia, are the most important.

Hart'ley, SIR CHARLES AUGUSTUS, civil engineer, was born in England, in 1825; he served on many important public works, and is the author of: *The Deltas of the Danube; Public Works of the United States and Canada;* and *Inland Navigation in Europe*.

Hart'ley, in *Iowa*, a post-village of O'Brien co., 9 m. E. of Sanborn, on C., M. & St. P. R.R. *Pop.* (1895) 805.

Hartley, in *Texas*, a N. W. co.; *area*, 1,480 sq. m. Drained by Mustang creek and other small streams. *Cap.* Hartley. *Pop.* (1890) 252.

Hart'mann, KARL ROBERT EDUARD, VON, philosopher; born at Berlin, Feb. 23, 1842; educated at the Gymnasium, and entered the artillery service. On account of an injury received, he was obliged to retire from military life (1865) and thereafter devoted himself to philosophy. He has been a prolific writer on political, educational and social questions.

Hart'ranft, JOHN FREDERICK, soldier, was born in New Hanover township, Montgomery co., Pa., Dec. 16, 1830; graduated at Union College, Schenectady, N. Y. (1853), studied law, and was admitted to the Montgomery co. (Pa.) bar in 1859. In 1861 he organized the 4th Penna. regiment and commanded it during its three months' service; then organized the 51st regiment, and took the field in November, 1861, for a 3 years' enlistment. He and his command served gallantly in all the principal battles of the Army of the Potomac; *H.* was made brigadier-general May 12, 1864, and commanded a division of the 9th army corps in 1865, receiving the brevet of major-general for gallantry at Fort Steadman. He was elected auditor-general of Penna. in 1865, and again in 1868; was governor of that State from 1872 to 1878, and subsequently postmaster and collector of the port of Philadelphia. Died Oct. 17, 1889.

Hart'sells, in *Alabama*, a post-village of Morgan co., on L. & N. R.R. *Pop.* (1897) about 1,000.

Harts'horne, EDWARD, physician, son of Dr. Joseph *H.*, was born in Philadelphia, May 14, 1818; graduated A.B. at Princeton (1887), and M.D. from the University of Pennsylvania (1840); elected assistant physician to the insane department of the Pennsylvania Hospital, Jan. 1, 1841; made resident surgeon of that institution the same year; was subsequently physician to the State Penitentiary of Pennsylvania; one of the attending surgeons at Wills' Eye Hospital, and at the Pennsylvania Hospital; served as consulting surgeon throughout the Civil War; was secretary of the U. S. Sanitary Commission in Philadelphia, and for several years was secretary of the College of Physicians, Philadelphia. Edited two editions of Taylor's *Manual of Medical Jurisprudence*, and was a valued contributor to medical journals. Died June 22, 1885.

Hartshorne, HENRY, physician, born in Philadelphia, March 16, 1823; graduated B.A. at Haverford College (1839), and from the medical department of the University of Pennsylvania (1845); became professor of the Practice of Medicine in the medical department of Pennsylvania College, and was the first to occupy the chair of Hygiene in the University of Pennsylvania (1865). He has held other professorships, including one in Haverford College, and in the Woman's Medical College, of Pennsylvania. He has written a number of medical books and pamphlets; also a small volume of poems.

Hart'suff, GEORGE LUCAS, soldier; born at Tyre, Seneca co., N. Y., May 28, 1830; graduated at the U. S. Military Academy; entered the army as brevet second-lieutenant of artillery, (July 1, 1852), and attained the rank of brigadier-general of volunteers (1862); subsequently made major-general of volunteers, and held a command in front of Petersburg, taking charge of that city on its capture. He was mustered out of volunteer service in August, 1865, and resumed the position he had formerly held as assistant adjutant-general, with the rank of lieutenant-colonel. Was retired from active service with the full rank of major-general. Died May 16, 1874.

Harts'ville, in *Tennessee*, a post-village, cap. of Trousdale co., 42 m. E.N.E. of Nashville, on M. & E. T. C. R.R.; has a grist mill and planing mills. *Pop.* 654.

Hartt, CHARLES FREDERICK, naturalist, was born in Nova Scotia in 1838; became in 1862 a pupil of Prof. Agassiz. He had already made very satisfactory progress in the study of geology and palæontology, and for the three years which followed so devoted himself to the study of physical science under his teacher, that when Prof. Agassiz undertook his voyage of exploration to Brazil, he selected *H.* as his first assistant. Arrived in that country, the latter was detached, with two or three assistants, to explore Southern Brazil, while Agassiz and the other members of the corps were traversing the valley of the Amazons. On his return his report of the region he had explored was so able as to give him at once a high reputation among the most advanced of physical scientists. *H.* was soon afterward elected professor of geology and physical geography at Cornell University, Ithaca, N. Y. During his vacations he made other journeys to Brazil, publishing *Geology and Physical Geography of Brazil*. He organized the Geological Commission of Brazil, and died at Rio Janeiro, March 18, 1878.

Hart'well, in *Ohio*, a post-village of Hamilton co., 11 m. N. of Cincinnati, on C., H. & D. and C., C., C. & St. L. R. Rs. *Pop.* (1890) 1,507.

Har'vard, in *Nebraska*, a city of Clay co., 81 m. S. W. of Lincoln, on B. & M. and F., E. & M. V. R. Rs.; has large shipments of grain and live stock. *Pop.* (1890) 1,076.

Har'vest Moon. (*Astron.*) The full moon which occurs about the period of the autumnal equinox. It receives its name from the fact that at this time the moon rises for several nights before and after the full at nearly the same hour, thus favoring the work of the farmer during the harvest. Through certain astronomical causes, connected with the approximate coin-

cidence of the ecliptic, or plane of the earth's orbit, with the equator at that period, the moon's orbit becomes nearly coincident with the horizon at the close of the day, the consequence being that for several days its hour of rising is nearly the same, though its north or south position in the horizon varies considerably. This phenomenon is most striking on the Arctic circle, is noticeable in all high latitudes, and disappears at the equator.

Har'vey, Sir George, a British historical painter, born 1805, succeeded Sir John Watson Gordon as president of the Royal Scottish Academy in 1864. The following are examples of his best manner: *The Battle of Drumclog* (1836); *Shakspeare Brought Before Sir Thomas Lucy on a Charge of Deer-stealing* (1837); *The Covenanter's Communion* (1839); *A Highland Funeral* (1840); *John Bunyan and his Daughter Selling Laces at the Door of Bedford Gaol* (1857); and *Dawn Revealing the New World to Columbus*, now in the Scottish National Gallery. Died in 1876.

Harvey, in *Kansas*, a S. cen. co.; *area*, 540 sq. m. It is intersected by Little Arkansas river. *Surface*, nearly all level prairie; *soil*, fertile. *Products*, corn, broom corn, wheat and oats. *Cap.* Newton. *Pop.* (1895) 16,250.

Has'kell, in *Kansas*, a S. W. co.; *area*, 576 sq. m. It is intersected by Cimarron river. *Surface*, gently rolling; *soil*, sandy loam, very rich; no timber. *Products*, rye, oats, rice, corn; stock raising. *Cap.* Santa Fé. *Pop.* (1895) 595.

Haskell, in *Texas*, a N. co.; *area*, 900 sq. m. It is intersected by Brazos river and also drained by Clear Fork of that river. *Surface*, slightly undulating; *soil*, sandy loam and black sand, well watered and fertile. There is building-stone of fine quality, both limestone and sandstone. *Cap.* Haskell. *Pop.* (1890) 1,665.

—A post-town, cap. of Haskell co., 45 m. S.W. of Seymour. *Pop.* (1897) about 960.

Hast'ings, Daniel Hartman, lawyer and statesman, was born of Scotch-Irish parentage in Clinton co., Pa., where his father was a small farmer, on Feb. 29, 1849. He taught a country school from 1863 to 1866, and in the latter year was elected principal of the high school at Bellefonte, where he has since resided. He held this appointment eight years; in 1875 was admitted to the bar and at once became a leader in law and politics, serving as burgess of Bellefonte. In 1877 he joined the National Guard as paymaster of the 5th regiment; in July of that year served on Gen. Beaver's staff (Second Division) during the railroad riots. He became lieutenant-colonel of the 5th regiment in March, 1878; assistant adjutant-general of the Second Brigade in June, 1883; colonel, in March, 1884, resigning the latter commission in Jan., 1887, to become Adjutant-General of Penna. under Gov. Beaver. Gen. *H.*'s memorable services on the occasion of the Johnstown flood of May 31, 1889, made him a popular hero, and he came within a few votes of being nominated for governor of Pennsylvania at the Republican convention of 1890. Four years later he was nominated by acclamation, and elected governor by a plurality of 241,937 in November following. Among the most popular acts of his administration were the vetoing, in the summer of 1897, of certain questionable bills that had been passed by the legislature then adjourned, and his demand for an itemized statement of certain expense accounts that had been presented in bulk and passed by the legislative committees.

Hastings, in *Nebraska*, a city, cap. of Adams co., 96 m. W. of Lincoln, on B. & M. and 3 other railroads; has beet-sugar factory, pickle factory, bridge works and brick yards. Seat of Hastings College (Presbyterian). *Pop.* (1890) 13,584.

Hastings, in *Pennsylvania*, a post-borough of Cambria co., 114 m. E. of Pittsburg, on Penna. R.R.; has coal mines. *Pop.* (1890) 1,070.

Hatch, John Porter, soldier; born in Oswego, N. Y., January 9, 1822; graduated from West Point, and appointed brevet second-lieutenant of infantry, July 1, 1845; served with distinction in the Mexican War, and for gallantry received the brevet of first-lieutenant and captain; also served in garrison and on frontier duty; was appointed brigadier-general of volunteers (1861); commanded a cavalry brigade in the Shenandoah Valley and Northern Virginia, engaged at second battle of Bull Run, &c.; commanded various districts in the South; for gallant services was successively brevetted from major to major-general of volunteers; became colonel of Second U. S. Cavalry in 1881. Retired Jan. 9, 1886.

Hat'tiesburg, in *Mississippi*, a post-town of Perry co., 85 m. S. W. of Meridian, on G. & S. I. and N. O. & N. E. R.Rs. *Pop.* (1890) 1,172.

Hat'ton, John Liptrot, musician and composer, born in Liverpool, Eng., 1809; was self-taught in his profession; removed to London in 1832, where he began a successful career as composer of music, pianist and conductor. He twice visited the U. S. (1848 and 1867) on a concert tour. His works include numerous songs and part-songs, incidental music for many of Shakespeare's plays, &c. His operas include: *Pascal Bruno; Rose, or Love's Ransom*, &c. Died Sept. 20, 1886.

Hauck, Minnie, opera singer, born in New York city, Nov. 16, 1852; first appeared in New Orleans as a concert singer about 1865; subsequently studied under Errani in New York, and made her début in America, in the opera of *La Sonnambula*, in 1868. She has since appeared, with unbroken success, in all the European capitals. She has at her command the English, German, French, Italian and Hungarian languages, and sings in all. Her most successful rôles are: *Carmen*, in Bizet's opera of that name; and *Catherine*, in Goetz's *Taming of the Shrew*. Her husband is the Chevalier de Hesse-Wartegg.

Haugh'ville, in *Indiana*, a post-town of Perry co., 2 m. N. W. of Indianapolis. Has malleable iron works. *Pop.* (1890) 2,144.

Haupt, Herman, engineer; born in Philadelphia, Pa., March 26, 1817; graduated at West Point, July 1, 1835, but in September of that year resigned from the army and began private practice as an engineer; was professor of Civil Engineering and Mathematics in Pennsylvania College (1844–47); appointed principal assistant engineer of the Pennsylvania Railroad, and finally became chief engineer and director of that company; was engaged for many years as chief engineer and contractor on the Hoosac Tunnel, Mass. Served in the Civil War, as aide to General McDowell, with the rank of colonel; was chief of bureau of U. S. military railways, in charge of construction and operation; declined the appointment of brigadier-general, U. S. volunteers. He served as general manager and chief engineer of several railroads.

Haupt, Lewis Muhlenburg, civil engineer; born at Gettysburg, Pa., March 21, 1844; educated at Lawrence Scientific School, Harvard, and at West Point, where he graduated in 1867; served on the U. S. Lake Survey (1867–69); resigned from the U. S. corps of engineers, and became engineer of Fairmount Park, Philadelphia. Was professor of Civil Engineering in the University of Pennsylvania (1872–92), and in charge of the geodesy of Pennsylvania for the U. S. Coast and Geodetic Survey; resigned his professorship (1892) in order to engage in civil and maritime engineering practice. He has published *Engineering Specifications and Contracts; The Topographer*, and *The American Engineering Register*, also many papers on rivers and harbors, and has devised a method for improving harbors by the use of vertical deflectors for current, and reaction breakwaters for littoral drift.

Hau'ser, Kasper, a youth whose strange history excited the attention of all Europe, and of Germany in particular, in the early part of the nineteenth century. He was first observed on May 26, 1828, in Nuremberg, as a youth of about 16, leaning against a wall in the market place, and evidently in distress. On being spoken to he was able to utter only a few words, but bore in his hand a letter addressed to an officer in the town, apparently from an illiterate workman, who said the boy had been left at his door as an infant, and that he had brought him up in strict seclusion. In it was another letter, in the same hand, but pretending to be from the boy's mother, saying that he was born in 1812, and that his father was a soldier. The boy's mind was found to be totally blank, not from idiocy, but from utter lack of education or life experience. He acted like a little child, would eat nothing but bread and water, and seemed painfully affected by the sights and sounds around him. Afterward, when he had become somewhat taught, he gave the following account of his life: All his life had been spent in a hole or cage, so small that he could rest only in a sitting position. He had never seen the sun nor heard the sounds of the outer world. Food was brought him during sleep, and his time was spent in playing with two toy horses. He was attended by a man who at last taught him to write a little and to stand and walk. Finally the man brought him to Nuremberg, by night, placed the letter in his hand, and disappeared. The town authorities decided to adopt this strange being so mysteriously brought them. About fifteen months afterward he was found bleeding from a wound in the forehead, which he said had been given him by "the man," who, however, could not be found. Attempts were made to educate the boy, who at first showed a thirst for knowledge, a retentive memory, and striking quickness in acquisition, but whose mind soon seemed to reach its utmost measure of development. Many came to see him, among them the eccentric Lord Stanhope, who took a fancy for him and adopted him. He was sent to Ansbach to be educated, and was being gradually forgotten by the world, when, on Dec. 14, 1833, he was found bleeding from a wound in the side, which he said "the man" had given him. Three days later he died. Nothing more is known about him. Many regarded him as an impostor and said that he died from suicide. Others looked on him as the victim of a crime, and believed him to be of noble birth. His story remains one of the strange mysteries of human history.

Ha'ven, Erastus Otis, ecclesiastic; born at Boston, Mass., Nov. 1, 1820; graduated at Wesleyan University, (1842); taught school and was professor at Amenia Seminary, N. Y., previous to his entering the ministry of the Methodist Episcopal church in 1848; was appointed to the chair of Latin in the University of Michigan (1853) and the following year to that of English literature and history; was editor of *Zion's Herald*, Boston (1856–63); was recalled to the University of Michigan as its president (1863), remaining in that position for six years, when he was appointed president of the Northwestern University, Evanston, Ill.; was chancellor of the Syracuse University (1874), and in 1880 was made bishop. Died in 1881.

Haven, Gilbert, ecclesiastic; born at Malden, Mass., Sept. 21, 1821; graduated at Wesleyan University, (1846); appointed professor in Amenia Seminary, N. Y., and from 1848 to 1851 was principal of that institution; member of the New England Conference of the Methodist Episcopal Church, and became noted as a preacher, lecturer, and writer; served in the Civil War as chaplain of the 8th Massachusetts regiment of volunteers. At the close of the war he was sent on a special mission among the Southern freedmen; from 1867 to 1872, was editor of *Zion's Herald*; was then elected bishop, with residence at Atlanta, Ga. He was the author of *The Pilgrim's Wallet; Our Next-door Neighbor*, and several volumes of sermons. Died Jan. 8, 1880.

Hawaii (*hä-wī'yē*), **Hawaiian** (*hä-wī'yăn*) **Islands,** or Sand'wich Islands. (*Geog. and Polit.*) A small group of islands in the North Pacific, which formed, until recently, the kingdom of Hawaii (so called from the name of the largest island of the group). They have long been known also as the *Sandwich Islands*, the name given them in 1778 by Captain Cook, in honor of Lord Sandwich, then First Lord of the Admiralty. These islands form almost the only land in a vast area of ocean north of the equator, lying midway between America and Asia, though nearest to the American coast, from which they are distant about 2,100 miles. From Japan they are about 3,400 miles distant, and 2,380 from Tahiti. They are bounded by the 19° and 22° N. Lat., and the 155° and 160° of W. Long., and form a convenient coaling and repair station for ships on their way from the ports of the Pacific coast to China and Japan, as well as to Australia and New Zealand. The islands are twelve in number, running from S.E. to N.W., and differing considerably in dimensions, the total area being about 7,000 sq. miles, or about that of New Jersey. Of these, Hawaii (the Owhyhee of Captain Cook) occupies more than half the area, it having 4,210 sq. miles. The others are Maui, 760;



Fig. 2924.—THE HAWAIIAN ISLANDS.

Oahu, 600; Kauai, 590; Molokai, 270; Lanai, 150; Kahuhau, 63, and Nühau, 97. The remaining four are merely barren rocks. Hawaii occupies the most southerly position in the group, and is of a somewhat triangular shape.

General Description.—These islands are of volcanic origin, and are partly bordered by coral reefs. The larger ones are mountainous and contain some of the largest and most remarkable volcanoes in the world. Mauna Kea and Mauna Loa, situated on the island of Hawaii, are respectively 13,805 and 13,600 feet in elevation, and on the eastern slope of the latter, 4,000 feet above sea level, is the famous Kilauea, the most extraordinary in its manifestations of all existing volcanoes. Its huge, oval crater is no less than 9 miles in circumference and 1,000 feet deep, a vast basin which in times of eruption is filled with a lake of fiery lava, rising and falling like the waves of the ocean. Mauna Loa itself is also an active volcano, its summit crater being 8,000 feet in diameter and 600 feet deep, while in some of its discharges the lava has continued to pour out for two months at a time, forming a river of molten rock 50 miles long, which poured like a cataract into the sea. On Maui, the adjoining island, is another mighty volcano, Haleakala (the house of the sun), whose crater is nearly 30 miles in circumference, from 2,000 to 3,000 feet deep, and 10,032 feet above the sea. It is, however, extinct and contains about 16 basins of old volcanoes, while in its walls are gaps from one to three miles wide, through which at one time mighty floods of lava have poured. Hawaii is traversed by other mountains and has a rugged and picturesque aspect, with bold sea cliffs at places from 1,000 to 3,000 feet high. But as a rule the mountains occupy the center of the islands, and are divided by fertile valleys which lead down to a sandy coast region. The valleys of Oahu are notable for their beautiful scenery, tropical vegetation combining with peaks, cliffs, natural ravines and lofty cascades to please the eye. Several of the islands, Hawaii and Kauai in particular, are well supplied with rivers, which are useful for irrigation, though too small to be navigable. Molokai is a small, narrow island, about 9 miles N.W. of Maui. The government has established here a leper settlement to which all afflicted with leprosy are removed. They number in all about 1,000. The islands have few harbors, the best being that of Honolulu, on Oahu.

Climate and Soil.—The Hawaiian Islands, though within the tropics, possess a fairly temperate climate, through favor of their oceanic situation. The temperature rarely rises above 90° F. in the summer, and seldom falls below 52° F. in winter, the annual average being 74·3°. Rains are abundant on the N. W. face of the mountains, brought by the trade winds; but there is little rain elsewhere. The average rainfall is about 54 inches. The soil is mainly made up of decomposed lava, scoria and sand, and is generally thin and poor except at the bases of the mountains and in the valleys, where there are extensive tracts of high fertility. The only large pasture grounds are on the Waimea plains of Hawaii, where thousands of Merino sheep are raised,

the grassy levels elsewhere being converted into sugar and rice plantations, while dense forests cover the mountain slopes.

Natural Products.—The wide separation of these islands from other lands gives certain special characteristics to their products, the only animals native to the islands being rats, mice, bats, dogs, and hogs. Cattle, sheep, and horses have been introduced. There are few reptiles, while the native birds, of which there are few species, are disappearing, though others are taking their place. The forest trees are mainly to be found on the rainy side of the mountains, some of them, on the high levels, being akin to American species. Tropical fruits are numerous. Raw and dried fish and *poi*, a kind of thick paste made from the root of the *taro* plant, form the staple food of the natives. There was formerly a particular breed of dogs which were considered a great delicacy. Mineral products are scanty, coral rock forming the principal building material, replaced to some extent by lava, basalt, and sandstone.

Inhabitants.—The natives of the Archipelago belong to the brown Polynesian stock, being in language and racial characteristics akin to the Maoris of New Zealand. At the time of Captain Cook's visit they numbered, by estimate, about 200,000, but since then have rapidly decreased, largely through the introduction of foreign diseases. Physically they are an unusually fine and handsome race, while in character they are indolent, good-natured and contented. They have many games and sports, are very fond of riding and swimming, and live in high enjoyment of existence. Their dress formerly consisted in a strip of cloth around the loins for the men and a somewhat more ample covering for the women, but they have now adopted a more civilized attire. Formerly they were licentious, and seemed to have practiced cannibalism, but they have greatly improved in these respects through the efforts of the missionaries. Day schools have been introduced, and nearly all the islanders can read and write in their own language. Despite their improved conditions—better food, clothing, dwellings, &c.—the race seems dying out, and threatens before many years to become extinct. They are being replaced by a foreign population, of whom the most numerous are the Chinese and Japanese, employed as laborers on the sugar plantations. Next in number come Portuguese, Americans, Germans, English, French, &c. The Japanese are of recent introduction, but have come in considerable numbers. In 1890 the total population was 89,990, of whom 34,436 were natives, 15,301 Chinese, 12,360 Japanese, 8,602 Portuguese, and smaller numbers of the other peoples named. Of this population 58,714 are males and 31,284 females. In 1878 the natives numbered 44,088; in 1884, 40,014; and in 1890, as above, 34,436, indicating a rapid process of extinction. Of the diseases reponsible for this disappearance, the most prevalent at present is leprosy. In 1865, in an effort to check the progress of this terrible disease, the government set aside the island of Molokai for the segregration of lepers, and in 1888 a law was passed fining any one who assisted in any way in concealing a leper, so as to prevent his or her removal. The afflicted lived here in abject misery until Father Damien (*q. v.*) settled among them and strove to ameliorate their condition. Since his death in 1889 others have taken up the good work.

Agriculture and Commerce.—The leading cultivated product of the islands is the sugar cane, in whose culture much capital has been invested, principally by Americans, and numerous large plantations exist. The soil and climate are excellently adapted to this culture in those parts of the island with sufficient rainfall or facilities for irrigation. The average yield of sugar per acre varies from 2½ tons to 7 tons in specially favorable localities. The product of sugar in the season of 1893–94 was 135,000 tons, being about half the cane sugar crop of the U. S. for that season. Next in importance is rice, which is also largely grown. Coffee is produced, but only to a small extent. The *taro* plant (*Colocasia esculenta*) is grown extensively in wet places, and is so prolific in food that it is said that a patch 40 feet square will yield food enough to support a native for an entire year. At this rate the product for a square mile would support 17,000 persons. Maize and wheat are raised, and numerous fruits, including oranges, mangoes, pine-apples, guavas, custard apples, and many others. A silky fiber called *pulu*, which grows on the crown of tree ferns, is largely exported to America, where it is used to stuff cushions. Commerce is on the increase. Up to 1876 the principal trade was in supplying the vessels engaged in the Pacific whale fisheries—now almost extinct. A reciprocity treaty was concluded with the U. S. in 1876 which gave a great impetus to the export trade. Since then the great bulk of the sugar product has been sent to the U. S., the other chief articles of export being rice, wool, molasses, bananas, and tallow. The imports consist principally of dry goods. Of this commerce, nine-tenths is with the U. S. There are good roads on the larger islands and short lengths of railway on Hawaii and Maui. Telegraphs have been introduced, and the telephone is common in Honolulu, the capital, which has a population of 20,000. The current coin consists of the silver money of the U. S. The chief sources of revenue are customs and internal taxes, the revenue in 1896 being about $2,100,000; the expenditures, $2,050,000. Of the revenue $547,149 came from customs, $592,692 from internal taxes. The public debt amounted to $3,811,064 in 1896, paying interest at from 5 to 12 per cent. Exports in 1896 amounted to $15,515,230, and the imports to $6,063,652.

History.—The Hawaiian Islands are said to have been first discovered in 1542, by Galtano, a Spaniard. They were rediscovered in 1778, by Captain Cook, who was murdered by the natives in 1779. At that time each island had its separate chief; but in 1792 Vancouver, on visiting the islands, at the request of Kamehameha, the chief of Hawaii, laid for him the keel of a vessel on the European model. Twenty years afterward he was found by Turnbull to possess 20 such small vessels, and he afterward purchased others. He had also introduced firearms, and encouraged a warlike spirit in his people; and one by one he attacked and subdued the other chiefs, until he became master of the whole group. He died in 1819, and was succeeded by his son under the title of Kamehameha II. Vancouver had endeavored to show the natives the absurdity of their idol worship, and not without effect, for on the arrival of the first missionaries, in 1820, Hawaii was found to be a kingdom without a religion. The new king, on coming to the throne, had abolished idolatry and the practice of the *tabu* throughout the kingdom; opposition to this arose, but the insurgents were defeated, and since then the peace of the islands has remained almost unbroken. As a result, the missionaries found a free field for their efforts; their instructions were readily accepted, and in 40 years they had taught the whole population to read, write, and cipher, and the women to sew. The king and queen visited England in 1824, and there died of measles. Kamehameha III. succeeded, and in 1840 ended the despotism which had formerly prevailed by giving his people a constitutional government consisting of king, assembly of nobles, and council of representatives. The progress of the nation did not proceed without interference from without. On one occasion a British officer went so far as to take possession of Oahu and establish a commission for its government. French officers also abrogated the laws, dictated treaties, and established the Roman Catholic religion by force. These outrages led to strong representations from the government to Great Britain, France, and the U. S., and these powers joined, in 1844, in guaranteeing the independence of the kingdom, and freedom from unwarranted interference from other powers. There were two other kings of the line of Kamehameha, the last of whom died without issue, in 1873, and was succeeded by a chief, Lunalio, who was elected to the vacant throne. He died in the following year, and was succeeded by Kalakaua, also elected. In 1887, in consequence of the unsatisfactory condition of the finances, a new constitution was granted, which decreased the power of the king and increased that of the people. Under the former constitution the house of nobles had been chosen by the king; they were now elected by the people. Kalakaua died in 1891, and was succeeded by his sister, Liliuokalani. During the late reign there had been a large increase in the foreign population, due to the growth of the sugar interest. The new monarch soon sought to evade the provisions of the new constitution, under which many foreigners, principally Americans, took part in the government. She appointed ministers in opposition to the votes of the legislature, allied herself with speculative projects detrimental to the interests of the planters, and finally prepared to announce a restoration of the royal power and an abrogation of the constitution. The result was an insurrectionary movement, and the dethronement of the queen, in January, 1893. A provisional government was at once organized, U. S. marines and sailors were landed to protect the life and property of Americans, and steps were taken to anuex the islands to the U. S. A treaty for this purpose was negotiated and sent to the Senate. On President Cleveland taking his seat, immediately afterward, he withdrew the treaty and put an end to the steps toward annexation. Efforts to restore the royal government failed, and on July 4, 1894, a republic was proclaimed under the presidency of Sanford B. Dole, the president of the provisional government. Subsequent intrigues of the queen led to her banishment from the islands. The next great event in the history of Hawaii occurred in 1897 during the administration of President McKinley, who, unlike his predecessor, favored the annexation project; and a treaty for that purpose was formed. The only objection to this action by a foreign power came from Japan, the government of which maintained that such action would abrogate a treaty which it had made with Hawaii, and affect injuriously the interests of the Japanese population of the islands. The protest, however, was not a strong one, and the steps toward annexation went on with little regard to it.

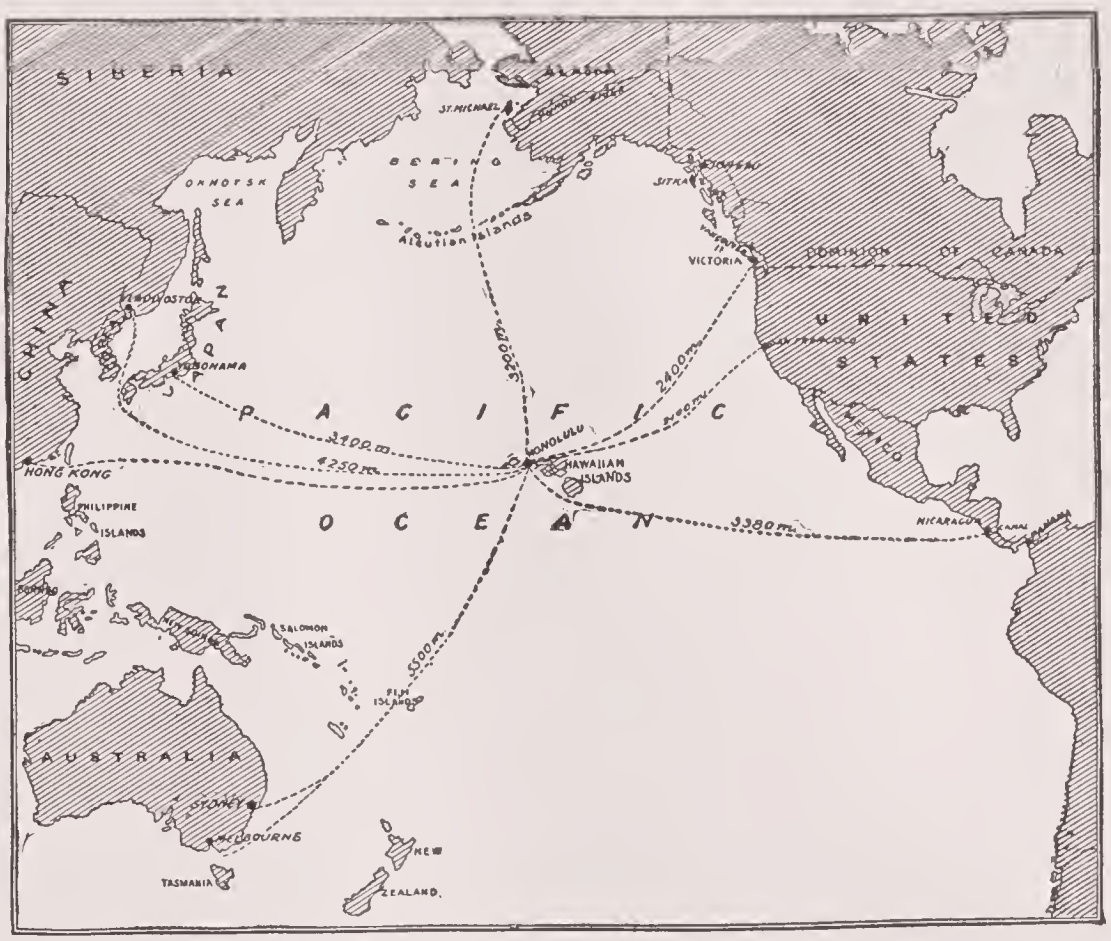


Fig. 2925.—DIAGRAMMATIC MAP OF THE PACIFIC OCEAN SHOWING THE LOCATION AND STRATEGIC POSITION OF THE HAWAIIAN ISLANDS.

Haw'arden, in *Iowa*, a post-town of Sioux co., 25 m. W. of Orange city, on C., M. & St. P., and C. & N. W. R. Rs.; a grain shipping point. *Pop.* (1895) 1,725.

Hawk'ins, Benjamin Waterhouse, an eminent scientist, born in London in 1807. After achieving a high reputation by his researches in natural history and geology, he was appointed in 1852, by the Crystal Palace Company, to restore the external forms of the extinct animals to their natural gigautic size, and he devoted three years and a half to the construction of the 33 life-size models in the Crystal Palace Park, many of them being of colossal proportions. In one of these, the Iguanodon, he gave a banquet, Dec. 30, 1855, to Profs Owen and Forbes, and twenty other men of science. Prof. Hawkins was author of *Popular Comparative Anatomy* (1840); *Elements of Form* (1842); *Comparative View of the Human and Animal Frame* (1860); and in conjunction with Prof. Huxley of an *Atlas of Elementary Anatomy* (1865), and of *Artistic Anatomy of the Horse, Cattle, and Sheep, for Art Students.* Died in 1889.

Hawks, Francis Lister, clergyman, born at Newberne, N. C., June 10, 1798; graduated from the University of North Carolina, and won distinction as a lawyer; subsequently studied for the ministry of the Protestant Episcopal Church, was ordained in 1827, and became rector of St. Thomas's Church, New York city; was one of the founders of *The New York Review* (1837), and established a school, St. Thomas's Hall, at Flushing, N. Y., in 1839; was editor of *The Church Record* (1840–42); resided in Mississippi (1843–44), and declined an election as bishop of the diocese; rector of Christ church, New Orleans (1844–49), and was the first president of the University of Louisiana; declined the bishopric of Rhode Island (1854). From 1861–65 was rector of Christ church, Baltimore, and in 1865 became rector of the Chapel of the Holy Saviour, New York.

He was the author of several volumes of legal reports and a digest, and *Contributions to the Ecclesiastical History of the United States; Narrative of Commodore Perry's Expedition; History of North Carolina;* and, in collaboration with Rev. William Stevens Perry, *Documentary History of the Protestant Episcopal Church.* Died Sept. 27, 1866.

Hawk'shaw, John, civil engineer; born in England, April 9, 1811; constructed railways and built bridges in England, Ireland and India; was consulting engineer on the navigation of the Weaver, in England, the Suez Canal, Amsterdam Ship Canal, navigation of the Nile, and the Panama Canal; was president of the British Association of Engineers (1875), and honorary member of the American Society of Civil Engineers. Died June 2, 1891.

Haw'ley, Joseph Roswell, soldier and stateman, born at Stewartsville, N. C., Oct. 31, 1826; graduated at Hamilton College, New York, in 1847; studied law and began practice in Hartford, Conn. He was an active politician and opponent of slavery, and one of the founders of the Republican party in Connecticut. In 1857 he ceased the practice of law, and became editor of the Hartford *Evening Press.* He was the first man in Connecticut to enroll his name for the volunteer service in the Civil War; was made captain, and successively colonel and brigadier-general; was brevetted major-general in 1865, mustered out of service in 1866, and the same year was elected governor of Connecticut, from which office he retired at the expiration of one year, and returned to journalism as editor of the Hartford *Courant*; was three times elected to Congress; became U. S. Senator in 1881, to which position he was reëlected in 1887 and 1893. In 1876 he served as president of the U. S. Centennial Commission; has filled many other public posts with honor.

Haw'thorne, Julian, novelist and journalist, son of Nathaniel *H.*, was born in Boston, June 22, 1846; studied engineering at Harvard and at Dresden, and was for a time (1870) engaged on the docks at New York under General McClellan, but after 1871 devoted his attention chiefly to literature. His novels have been well received, but are by no means brilliant. Of recent years he has done much in journalism as a special correspondent, and in 1897 went to the famine- and plague-stricken districts of India to write up the scenes and conditions for a prominent monthly magazine.

Hay, John, author and diplomat, was born at Salem, Indiana, Oct. 8, 1838; graduated from Brown University (1858), studied law, and was admitted to the bar (1861) at Springfield, Ill.; the same year went to Washington as assistant secretary to President Lincoln, acting also as the latter's adjutant and aide-de-camp, also serving for some time under Generals Hunter and Gilmore, and reaching the rank of colonel. After the war he was secretary of legation at Paris, *chargé d'affaires* at Vienna, and secretary of legation at Madrid. From 1870 to 1875 he was on the editorial staff of the New York *Tribune*, and from 1879 to 1881 was first assistant Secretary of State. His *Pike County Ballads* and *Castilian Days* were published in 1871. The first-named volume includes *H.*'s early dialect poems—*Jim Bludsoe, Little Breeches*, &c., which first gave him great celebrity in the literary world. His *History of the Administration of Abraham Lincoln*, written in conjunction with John G. Nicolay, is a classic in its way, and *H.*'s most pretentious and valuable literary production. Col. *H.* became U. S. Ambassador to Great Britain in March, 1897, succeeding Thomas F. Bayard.

Hay Fever. (*Path.*) Also called Hay Asthma and Summer Catarrh, a disease mostly met with in summer, its symptoms being those of common catarrh—a copious watery discharge from the nasal passages, with paroxysms of sneezing, irritations of the eyes, and severe headache. Feverishness and loss of appetite are also present, with difficulty of breathing when the bronchial membranes are affected. It is usually a disease of adults, though children are sometimes affected. It ordinarily returns annually, and is believed to be due to the pollen of certain plants, some persons being more generally susceptible than others. Thus, in some cases the attack may begin in the spring and last through the whole season; in other cases there is no appearance of the malady until August. It is a very difficult disease to subdue, and no remedy has been found that serves to effect a cure, the only mode of obtaining relief being, in many cases, to seek certain seaside or mountain localities from which the exciting cause of the disease seems absent.

Hay'den, Ferdinand Vandeveer, explorer and geologist, born in Westfield, Mass., Sept. 10, 1829; graduated at Oberlin, O., in 1850; studied medicine but did not practice the profession till the period of the Civil War, when he was appointed surgeon of volunteers and was brevetted lieutenant-colonel. Except during his service in the war, he was engaged from 1853 to 1879 in exploring and surveying the great plains and Rocky Mountains. At first his work was at private expense, but afterward under the auspices of the general government. The commission given him by the government to make a geological survey of the Territory of Nebraska was the beginning of the U. S. Geological and Geographical Survey of the Territories, and was succeeded (1879) by the present U. S. Geological Survey. He was a member of the National Academy of Science and of many other scientific societies of America, and an honorary member of a number in foreign countries. The official reports of his survey, which are his chief writings, are important contributions to geographic, geologic, botanic and ethnographic knowledge. Died Sept. 22, 1887.

Hayes, Augustus Allen, chemist; born at Windsor, Vt., 1806; studied chemistry under Professor Dana, and in 1828 settled in Boston. He was the discoverer of the organic alkaloid, *sanguinaria*, and made experiments which led to the construction (1838) of improved furnaces and boilers; was the suggester of reducing pig to malleable iron, without loss, by the use of the oxides of iron; also discovered other new processes in copper smelting, &c. He was State Assayer of Massachusetts for a number of years. Died June 21, 1882.

Hayes, Isaac J., a distinguished American explorer, born in Chester co., Penna., 1832, graduated in medicine from the University of Pennsylvania (1853), and was almost immediately afterward appointed surgeon of Dr. Kane's second Arctic expedition, with which he returned to the U. S. in 1855. Having become convinced that an open polar sea lay around the North Pole, he was anxious to lead an expedition for its exploration, and after some five years of effort, he was enabled, by the liberality of Mr. Henry Grinnell, of New York, the American Geographical and Statistical Society, and Sir Roderick Murchison and other members of the Royal Geographical Society of London, to set sail in July, 1860, in the 133-ton schooner *United States*, from Boston. Dr. *H.* penetrated as far north as 82° 45′, and made explorations and observations in regard to the country and its inhabitants. After his return, in Oct., 1861, he served as a surgeon in the Union army. After the restoration of peace, *H.* published *The Open Polar Sea: a Narrative of a Voyage of Discovery toward the North Pole.* He had previously given some reminiscences of his first voyage in *An Arctic Boat Journey* (1860); and in 1870 added some incidents of his second journey, in *Cast Away in the Cold.* In 1869 Dr. *H.* again visited Greenland, and explored the southern coasts of the peninsula in company with the painter Bradford. Dr. *H.* received, for his discoveries, the gold medal of the Royal Geographical Society of London, as well as a like honor from the Société de Géographie, of Paris. He was subsequently elected to the New York Legislature, and died Dec. 17, 1881.

Hayes, Rutherford Birchard, nineteenth president of the U. S.; born at Delaware, Ohio, Oct. 4, 1822; graduated at Kenyon College (1842), and at Harvard Law School (1845); first practiced law at Fremont, O., but removed to Cincinnati, in 1849; was appointed major of the 23d Ohio Volunteers, June 27, 1861, and through successive promotions became brigadier-general of volunteers, being subsequently made brevet major-general for gallantry; resigned from the army, June 1, 1865, returning to Cincinnati. He was elected to Congress in 1864 and 1866; elected governor of Ohio in 1867 and 1869; and in 1871 was a third time elected governor, an honor conferred for the first time on a citizen of Ohio. At the Republican National Convention held in Cincinnati on June 16, 1876, *H.* was nominated for the Presidency. The result of the ensuing election was disputed by the Democrats, who claimed the election of Samuel J. Tilden. This led to the appointment of an electoral commission (*q. v.*), upon whose decision *H.* was declared elected, he being inaugurated on March 4, 1877. His administration was not particularly eventful, and at its close (1881) *H.* returned to his home in Fremont, Ohio, where he died on Jan. 17, 1893.

Hayes, in *Nebraska*, S.W. co.; *area*, 720 sq. m. Drained by Frenchman's Fork of the Republican river, Red Willow creek and Spring creek. *Surface*, partly high rolling, and partly level valley; *soil*, very fertile and well watered. *Products*, corn, wheat, oats, barley, potatoes; excellent grazing for horses and cattle. *Cap.* Hayes Center. *Pop.* (1890) 3,953.

Hays, or **Hays City,** in *Kansas*, a post-village, cap. of Ellis co., 222 m. W. of Topeka, on Union Pacific R.R.; has flour mills and grain elevators; good building stone and coal in the vicinity. *Pop* (1895) 979.

Hay'seed, *n.* The seed of dried grass.

(*Slang.*) A farmer, especially one who is not in the least world-wise; a greenhorn.

(*Local.*) A floating substance that furnishes the food of certain kinds of fish.

Hay'ward, in *Wisconsin*, a post-village, cap. of Sawyer co., on C., St. P., M. & O. R.R.; has extensive saw mills, planing and feed mills. *Pop.* (1897) about 1,500.

Ha'zen, William Babcock, soldier; born in Hartford, Windsor co., Vt., Sep. 21, 1830; graduated at West Point, in 1855. During the Civil War he served with honor and received brevet commissions up to major-general; appointed colonel of the 38th Infantry, U. S. A., in 1866, and Chief Signal Officer, with rank of brigadier-general in 1880. He was the author of *The School and the Army in Germany and France; Barren Lands of the Interior of the United States;* and *Narrative of a Military Career.* Died Jan. 16, 1887.

Head, Sir Francis Bond, traveller and author, was born near Rochester, England, Jan. 1, 1793; entered the British army and served with the Royal Engineers at Waterloo, and at Fleurus. On his retirement from the army (1825) he took charge of a gold and silver mining company on the Rio de la Plata, South America; was appointed lieutenant-governor of Upper Canada (1835), and for his vigorous suppression of an incipient insurrection there was created a baronet (1838). In 1867 he became a privy councilor; was awarded the Waterloo medal and placed on the retired list of the army, with the rank of major. Published numerous works, including: *Bubbles from the Brunnen of Nassau; Life of Bruce; The Defenseless State of Great Britain; The Royal Engineer*, &c. Died in 1875.

Head'ley, Joel Tyler, historian and miscellaneous writer, was born in Delaware county, N. Y., in 1813; graduated at Union College in 1839. Among his numerous works may be named: *The Adirondacks; Life of Cromwell; Life of Grant, Farragut, and our Naval Commanders; A History of the Great Rebellion; History of the Imperial Guard of Napoleon;* and a *History of the Second War between England and the United States.*

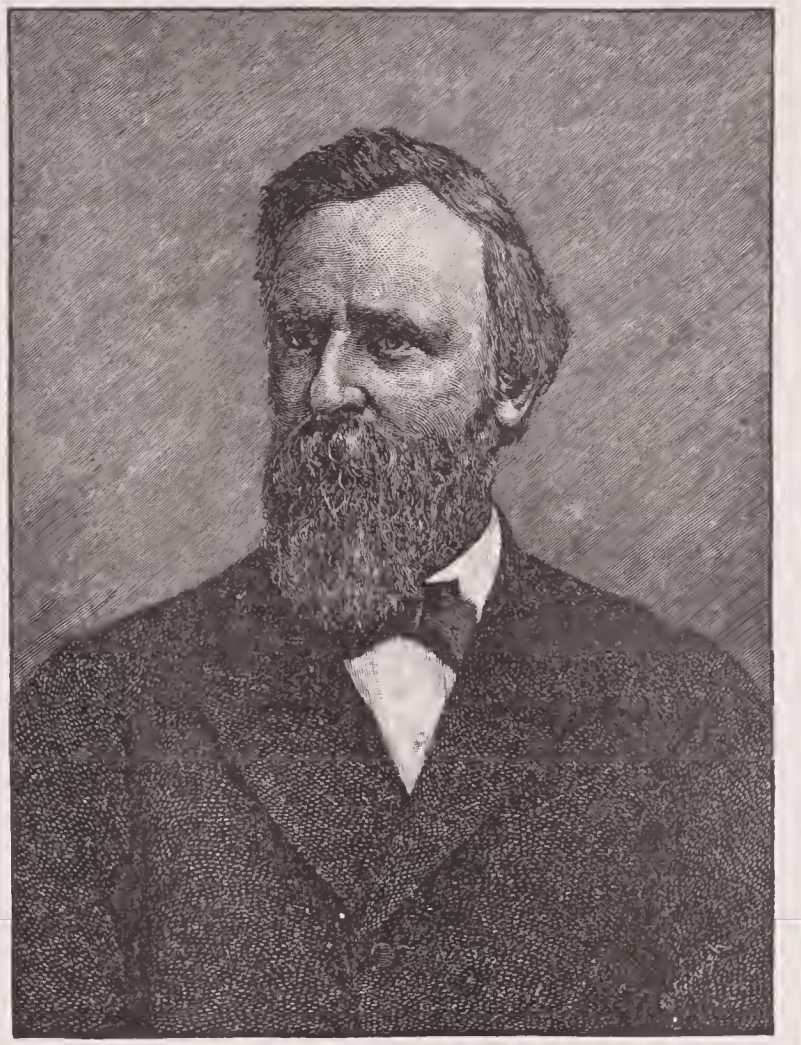
Health Resorts. (*Hygiene.*) Places frequented for their supposed beneficial effect on certain diseases, through the invigorating qualities of their air, water, &c. These fall into several groups. Seaside resorts, visited for the remedial effect of the ocean air and of sea bathing, have long been in vogue, though only within recent times the scenes of a periodical exodus from cities. The benefit, to invalids, of mountain air is of more recent recognition, though now fully established. Climatic health resorts at high altitudes have lately came into favor, particularly for persons threatened with consumption. Mineral springs—including waters with a considerable variety of constituents—have been places of resort from early times, and are still in high favor. In the case of pulmonary diseases, residence in mild or warm climates for a prolonged period is often resorted to. Health resorts, having various claims to favor, exist in all parts of the earth, the U. S. being abundantly provided. For those desiring the benefit of sea bathing there are numerous suitable localities along the Atlantic coast, particularly on the sandy beaches of New Jersey, the whole length of whose coast is rapidly being converted into a series of summer resorts, particularly for the people of Philadelphia and New York. Further north, as at Newport, Bar Harbor, and other places on the New England coast, are resorts where all the benefit of ocean air may be had, but much less adapted to bathing. For those seeking a mild climate and equable airs, two localities recommend themselves particularly, Florida and Southern California, both of which are visited annually by large numbers of invalids and debilitated. The fine woods of Georgia and other southern States are also favored localities, from the supposed curative properties of their air. For those seeking a dry but bracing air for the benefit of bronchial and pulmonary affections, the climate of Colorado is much sought, while there are various similar resorts in the mountains of the east, as in the hill districts of North Carolina and the Mount Pocono region of Pennsylvania, whose air is claimed by some physicians to equal that of Colorado. Mineral springs, valued for their curative properties, are numerous in this country. Most popular among them are those of Saratoga, Virginia and Arkansas, though others of more local celebrity widely occur. One disease in particular, that known as hay fever, seems capable of alleviation only by the air of *H. R.*, the region of Mount Washington being a favorite resort of sufferers, while others find relief on the seashore. The U. S. resorts named are paralleled by others in foreign lands, far too numerous to mention; and we need speak further only of resorts visited for the purpose of receiving certain special treatments. In Europe the vineyard regions are in favor for the supposed beneficial effect of the grape. (See Grape-cure.) In other localities a milk-cure is followed, the milk of the goat, the ewe and the cow being taken, while Gais, in canton Appenzell, is the seat of the whey-cure establishment. The spicy air of fine woods is in favor elsewhere than in America, while at Veldes, in Carinthia, such special devices are in favor as warm mud baths, and sun baths (exposure of the uncovered person to the solar rays). Hydropathic establishments, where water (externally and internally) is administered profusely, are favored by the victims of certain classes of disease, while for the many suffering from nervous exhaustion or from incipient consumption, long sea voyages are held to be beneficial. New curative ideas in this direction frequently crop out, one of the latest being the dew-cure, obtained by barefoot rambles through the dewy grass of early morning. That much benefit is derived from visits to *H. R.* there can be question, this benefit being perhaps due to outdoor life in pure air quite as much as to specific location and surroundings.

Hearn, Lafcadio, journalist and author, born at Santa Maura, Ionian Islands, June 27, 1850; educated in England and France; went to the U. S., engaging in journalism in Cincinnati and New Orleans. He is the author of: *Chita: a Memory of Last Island; Two Years in the French West Indies; Youma*, and other works, and has acquired fame for his brilliant word-pictures of tropical scenery.

He'bron, in *Nebraska*, a post-village, cap. of Thayer co., 74 m. S.W. of Lincoln, on B. & M. R. and C., R. I. & P. R. Rs. Has flour mill, planing mill and creamery. *Pop.* (1890) 1,502.

Heck'er, Isaac Thomas, ecclesiastic, was born in New York city, Dec. 18, 1819; joined the Brook Farm Society (1843); afterwards lived in a socialistic community at Fruitlands, Worcester co., Mass., and for a time with H. D. Thorean in his hermitage; became a Roman Catholic (1845); joined the Redemptorists in Belgium (1847), and was ordained a priest by Cardinal Wiseman (1849); returned to the U. S. in 1851. He obtained from the Pope (1857) his release from the Order of Redemptorists and (1858) founded the congregation of St. Paul the Apostle, known as the Paulist Fathers. The members of this order take no special vows, and can withdraw when they choose. He founded a periodical called *The Catholic World*, and was the author of *Questions of the Soul; Aspirations of Nature; Catholicity in the United States*, &c. Died Dec. 22, 1888.

Hec'la, in *Pennsylvania*, a village of Westmoreland co., on Penna. R.R.; has manufactures of brushes, baskets, and lumber. *Pop.* (1890) 610.



Rutherford B. Hayes

1822–1893

Hec'tograph, *n.* [Gr. *hekaton* and *graphō*.] A gelatine pad for duplicating manuscript, supposed to yield at least a hundred copies from one writiug; hence its name.

Hec'tor, in *Minnesota*, a post-village of Renville co., 28 m. W. of Glencoe, on C., M. & St. P. R.R. *Pop.* (1895) 521.

Hedge, Frederick Henry, D.D., Unitarian clergyman, was born in Cambridge, Mass., Dec. 12, 1805; educated in Germany, under charge of George Bancroft, and at Harvard; studied theology at the Cambridge Divinity School; became pastor of the Unitarian Church in West Cambridge (1829), and subsequently held other charges; lectured in Harvard College on Church History, and became professor of German there (1872). He acquired eminence as a author, and his *Prose-writers of Germany* is a standard. He also wrote: *Reason in Religion; The Primeval World of Hebrew Tradition; Hours with German Classics*, &c.; edited the *Christian Examiner* (1857 to 1860); composed hymns; translated poems from the German, and, jointly with Mrs. Annie Lee Wister, published *Metrical Translations and Poems.* Died Aug. 21, 1890.

Hedon'ics, *n.* [Gr. *hēdonē*, delight.] The science of pleasure or actual enjoyment.—The principles of hedonism or gross self-interest. From an ethical standpoint, *H.* treats of pleasure in its relation to one's duties.

Hed'rick, in *Iowa*, a post-town of Keokuk co., on B. & N. W., C., M. & St. P., and Iowa Cent. R.R.; has a tub factory, flour mill, planing mill, and brick and tile works. *Pop.* (1895) 1,021.

Heel'er, *n.* (*Polit. Slang.*) A hanger-on in politics: a politician of the lowest type; particularly, a rowdy who stands ready to execute any command of his political leader.

Hee'ren, Arnold Hermann Ludwig, historiau, born uear Bremen, Germany, in 1760; married a daughter of of Heyne about 1795, and became (1801) professor of history at Göttingen. His celebrity chiefly rests on his *Ideas on the Politics, Commerce, and Trade of the Principal Nations of Antiquity*, which was completed in 1824. Died in 1842.

Hefele (*hā'fēl*), Karl Joseph, a distinguished ecclesiastical historian, born in Würtemberg, Germany, in 1809; after holding a professorship at Tübingen, became (1869) bishop of Rottenburg. His most important works—all of which have been translated into English and passed through several editions—embrace: *A History of the Christian Councils from the Original Documents to the Close of the Council of Nicæa A. D. 325; Cardinal Ximenes and the Ecclesiastical Condition of Spain in the 15th Century*; and *Contributions to Church History, Archæology, and History.* Died June 5, 1893.

Hel'derberg Forma'tion. (*Geol.*) A series of strata in the Silurian and Devonian geological divisions of the U. S. It derives its name from the Helderberg range of eastern New York, and lies apparently on the same geological horizon as the Ludlow beds of England. It is divided into the Lower Helderberg, of the Silurian, and the Upper Helderburg, of the Devonian.

He'lios, *n.* [Gr.] (*Myth.*) The Greek name of the sun (the Roman *Sol*), son of Hyperion and Theia, worshipped as a god. In the later mythology confounded with Apollo or Phœbus.

Helio'sis, *n.* [Gr.] (*Bot.*) Spots on leaves, produced by concentration of the rays of the sun upon them, due to inequalities of the glass in conservatories or other causes.

Heliot'ropism, *n.* (*Bot.*) The tendency of plants to turn toward the sun. If a seedling plant be placed in a glass vessel filled with water in a window, the stem and leaves may be seen gradually to bend towards the outer light, while the roots turn in the opposite direction. Nearly all plants manifest this tendency in the shoots and leaves, a familiar example in a floral organ being the tendency of a sunflower to turn toward the sun. Study of this phenomenon has shown that the growth of the side next to the sun is retarded and that of the opposite side increased, the one side becoming concave, and the other convex, thus causing a curvature toward the light. It is found that the cells on the concave side become less turgid, and those on the opposite side more so, thus forcing the part to bend. The cause of this condition of the cells is unknown.

He'liotype, *n.* A method of printing on an ordinary lithographic press, from a gelatine surface hardened with alum, to which pictures from photographic negatives have been transferred. See Engraving, Photo-.

Heliozo'a, *n.* (*Biol.*) A class of Protozoa, familiarly known as "sun animalcules," and belonging to the rhizopod type, or that of those which move by protruding processes of living matter. These processes differ from those of the Amœbæ in being slender and radiant; and in other particulars from the Foramenifera. The Heliozoon cell is globular in form, with one or more nuclei and vacuoles, and is generally provided with an outer skeleton, gelatinous or silicious in substance. In the latter case it is sometimes composed of loose spicules, through which the processes extend outward. Reproduction is achieved by the division of the cell into two, by budding off particles, or by the formation of interior spores, the young being occasionally provided with flagellate or whip-like cilia, and being active in motion, in contrast to the sluggish character of the adults. *H.* dwell usually in fresh water, but are in some instances marine. They are microscopic in dimensions.

He'lium, *n.* (*Chem.*) In 1868 Prof. Norman Lockyer, while for the first time in the history of science examining the sun with the spectroscope during an eclipse, discovered in the spectrum a line not accordant with any known lines in terrestrial spectra. This was the D-3 line, a bright yellow line near the D line of sodium. As there was then no evidence of the existence in the earth of the substance represented by this line, it was named Helium, after the Greek title for the sun. The line of this hypothetical substance was afterwards discovered in certain stars, and Professor Copeland saw it in the spectrum of the great nebula of Orion. Until 1895 no trace of this substance was found in the earth; but in that year Professor Ramsay, while subjecting to the action of heat a rare mineral of Norway, called *cleveite*, perceived in the spectrum of the gas given off a line that proved to be identical with that of helium. Bröggerite, another mineral, also yielded it, and Ramsay's later researches indicate that it is held by minerals which contain salts of uranium, yttrium and thorium. Oxide of uranium seems capable of retaining it, and it is found plentifully in mouazite, a mineral which contains thorium. It has been found also in the waters of certain mineral wells. *H.* may be a constituent of the atmosphere, but if so must occur in very minute quantity, as no trace of it can be found. Study of its physical characteristics show it to have a density varying in different examinations from 1·874 to 2·133. It is the least soluble in water of all known gases, its solubility at 18° being 0.007. Its refractive index is also very low, being 0 146. That of hydrogen is 0·5, or half that of air.

Hell Gate, a strait in East River, 8 m. N.E. of the Battery, connecting that river with Long Island Sound, and formed by projecting and underlying rocks that

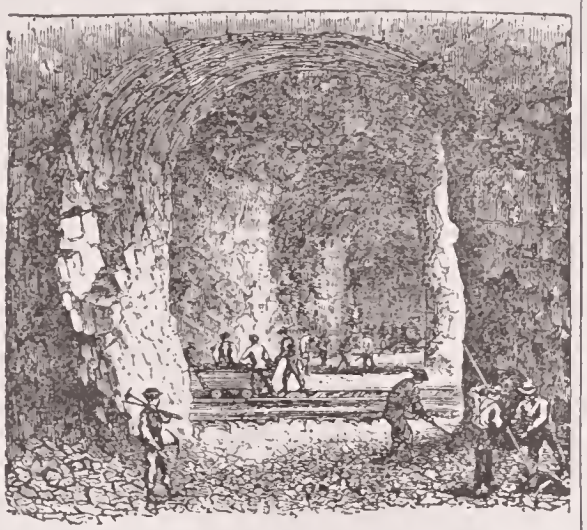


Fig. 2926.—GALLERIES IN THE HELL GATE ROCKS UNDER THE EAST RIVER.

confine the water to a narrow and crooked channel, causing strong eddies and rapid currents. Extremely dangerous for small vessels, the strait was altogether impassable for ships of considerable tonnage. In view of the fact that the removal of the hindrances to the Sound navigation at Hell Gate would enable vessels to avoid a hundred miles of exposure to a dangerous coast, and bearing in mind, too, the heavy losses annually sustained on this point, the New York Chamber of Commerce, in 1851, accepted a proposal made them by M. Maillefort, an eminent engineer, which had for its object the removal of three of the smaller—but most dangerous—reefs at Hell Gate by means of submarine mining. In the carrying out of his project, M. Maillefort was to a certain degree successful; the chief result being the removal of the projection of Pot Rock, and the increased facilities gained thereby for permitting the safe passage of vessels drawing 16 feet of water. Funds to complete the work falling short, Congress was appealed to in 1852, and an appropriation of $20,000 was made for carrying on operations under the supervision of goverument officers. This fund soon became exhausted also, and then came the Civil War to entirely suspend further progress. In 1866, the project was again brought under consideration, and upon a favorable report having been submitted thereupon by Maj.-Gen. Newton, of the War Department, who had been commissioned to make a personal inspection, Congress set apart a sum of $85,000 for proceeding with the Hell Gate removal. After failing to pursue the work successfully by private contract, the U. S. government took it in hand, and placed it under the charge of Gen. Newton, who energetically pushed it to completion. The removal of Hallett's Point was the most pressing of the objects to be accomplished, that spit of land projecting forward 300 feet in such a manner as to divert the Sound tide right upon the dangerous reef known as The Gridiron, over which it broke with irresistible force. The only feasible plan of operation was to work from the shore by sinking a shaft, out of the way of shipping, and after undermining the reef with radiating headings connected by concrete galleries and removing all the rock that could be safely taken out, blow up the roof and its supporting columns at a single explosion, the *débris* to be either buried in the excavation or removed by grappling, as might be proved most economical. The first step taken, therefore, was to construct, between high and low water, around the mouth of the proposed shaft, a strong coffer-dam, 310 feet in length, extending along four sides of an irregular pentagon, the fifth or shore-line of which was about 145 feet. The dam, consisting of a double shield of heavy timbers securely fastened to the rocks by bolts passing through the structure—the space between the walls filled water-tight with sand and clay—was completed and pumped out, so that operations could be begun in the interior. The underground headings radiating from the main shaft were 10 in number, and named, like streets, after persons eminent in American history. The miners employed were Cornishmen, they being found to be the only class who could work long under water and still retain their health. The drilling of the rock, done in the first place by hand, was, during the latter course of the work, much expedited by the use of drills driven by compressed air, and acting in connection with the diamond prospecting drill. In this difficult and dangerous task of mining under water about 200 men in all were employed, working by turns. For blasting, dynamite was originally used; but the detonation caused by it being found to be too great, nitro-glycerine was substituted in its place. For the removal of the smaller channel rocks, too distant to be reached by shore tunnelling, and swept by currents too powerful to permit the sinking of a caisson, Gen. Newton invented a special and unique drilling apparatus, worked by divers with the aid of machinery fitted on a scow moored on the surface of the water above the rock to be operated upon. Sept. 24, 1876, the mine was exploded by the electric current. Over 50,000 pounds of explosive compound were used. The concussion was much less than anticipated, and one of the most successful engineering exploits of the age was partly accomplished. Oct. 10, 1885, by a second explosion, far surpassing the one of 1876, Flood Rock was blown up. This time 280,000 pounds of explosives were used—nearly six times the former quantity. When the *débris* is fully removed, which has not yet been done, owing to insufficient appropriations, there will be an unobstructed channel 1,200 feet in width and deep enough to permit the passage of large vessels.

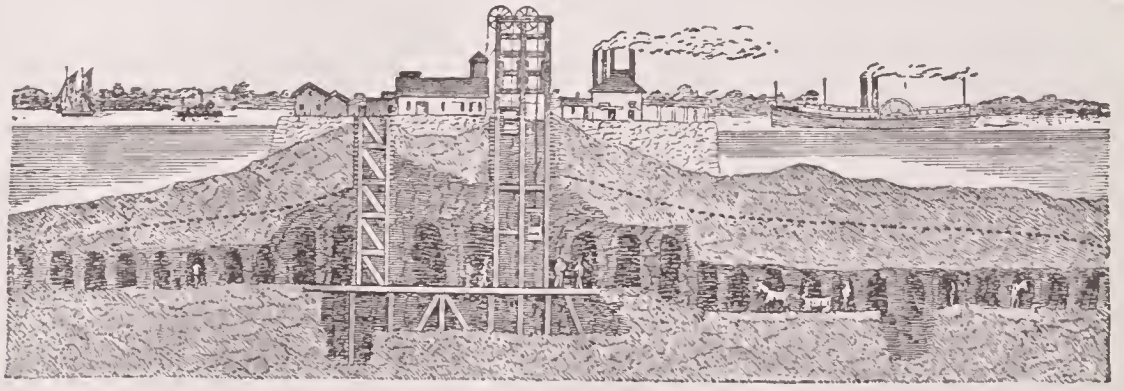


Fig. 2927.—SUBMARINE EXCAVATION OF FLOOD ROCK REEF.

Hellen'otype, *n.* (*Phot.*) Another name for the *diaphanotype*, a picture in which a lightly-printed positive, on translucent paper, has been placed over another printed dark from the same negative, and made opaque on the back, thus producing a composite effect. Also called *hallotype* and *ivory-type.*

Helm'holtz, Herman Ludwig Frederick, a distinguished physicist and physiologist, born Aug. 31, 1821, at Potsdam, Germany; studied medicine at Berlin (1838–47), and for a year was an assistant physician at the Charité hospital. He afterward served as military surgeon, in 1848 entered the Berlin Art Academy as a lecturer on anatomy, and in 1849 became professor of physiology in the University of Königsberg. His fame as a scientist began with his researches while holding this position, and were continued at Bonn, where he accepted a professorship in 1855, and at Heidelberg, in 1858. He remained here as professor of physiology until 1871, when he became professor of physics in the University of Berlin. This position he subsequently resigned to become the head of the physico-technical institute for research at Charlottenburg. In 1870 the French Academy admitted him to foreign membership. In addition to his duties as a teacher and investigator, he held the position of privy councillor to Emperor William I., who conferred on him the title of von. *H.* became equally distinguished in physiology, physics and mathematics, his researches in each being profound and yielding results of high interest and importance. His studies of the phenomena of optics, acoustics and electricity went far to place all these sciences on a new

basis. His first published work, *Ueber die Erhaltung der Kraft*, (1847) gave him a prominent position among the advocates of the new philosophy of force, while his lectures on the same subject were translated into several languages and widely extended his reputation as a profound thinker and experimentalist. His invention of the ophthalmoscope in 1851, the result of a long-continued investigation into the character and conditions of the eye, gave the medical profession an instrument that has saved thousands from blindness. His optical researches were described in his *Handbuch der Physiologischen Optics*, a work which placed the science of vision on a new foundation; while his *Die Lehre von den Tonempfindungen* did the same for the science of music. Many practical questions which had puzzled musicians are solved in the latter work, and both show a combination of ingenious experiments with logical and most profound philosophical reasoning. In his hands acoustics first took definite rank as a science. His invention of the resonator, a hollow body whose contained air vibrated in the presence of sounds of known character, enabled him to analyze the conditions attending musical sounds, and to explain the difference in tones of the same pitch. He learned that the peculiar tone of each instrument is due to special overtones, which combine with the fundamental and give it a distinct character. His researches on *beats*, as the cause of dissonance in musical notes, were of equal originality and importance. In physiology he devoted himself to



Fig. 2928.—VON HELMHOLTZ.

research into the rapidity with which nerves convey an impression, with the interesting discovery that nerve conduction is very slow as compared with that of other conductors of energy, that sensations take an appreciable time to pass from the surface to the brain, and that an act of will is similarly slow in affecting the muscles and causing them to contract. His researches quite disproved the view held by many, that the nerves act as electrical conductors, their rate of conduction being very much less rapid than that of an electric conductor. He extended his experiments into other fields of physical science, making researches of the highest interest into vortex motion, in which he proved that the common vortex ring in smoke or vapor has conditions of activity previously unsuspected and of extraordinary character. His results suggested to Sir William Thompson a new theory of atoms, in which there are supposed to be vortex rings in a non-frictional ether. These are but the most striking of his many researches, which were widely extended, and embraced a vast aggregate of results, described in his various works and his numerous scientific papers. *H.*, in short, won for himself a leading position in modern physical and physiological science, and took the very highest rank among observers and thinkers of the 19th century. Died Sept. 8, 1894.

Helps, SIR ARTHUR, an English historian, born in 1817, graduated at Cambridge, and in 1859 was appointed Clerk of the Privy Council. His principal productions are: *The Conquerors of the New World and their Bondsmen* (1852); *The Spanish Conquest of America* (1855–61); *The Life of Pizarro, with some account of his Associates in the Conquest of Peru* (1869); and *The Life of Hernando Cortez, and the Conquest of Mexico*. Died in 1875.

Hemp'hill, in *Texas*, a N.W. co.; *area*, 900 sq. m. Intersected by the Canadian river. The central part is hilly; in the north and south the surface is mostly level prairie; *soil*, fertile, sandy loam; timbered along streams. *Products*. Hay, sorghum, millet, corn, and potatoes. Cattle raising is the principal industry. *Cap.* Canadian. *Pop.* (1890) 519.

Hen'derson, in *Tennessee*, a post-town, cap. of Chester co., 16 m. S.E. of Jackson, on M. & O. R. R. *Pop.* (1890) 1,069.

Hen'dricks, THOMAS ANDREWS, statesman; was born in Muskingum co., Ohio, Sept. 7, 1819; graduated at the South Hanover College, Ind. (1841); studied law at Chambersburg, Pa., and was there admitted to the bar in 1843. He afterward removed to Shelbyville, Ind., and in 1850 was an active member of the convention elected to revise the constitution of his adopted State; was member of Congress (1851–55), commissioner of the General Land Office of the U. S. (1855–59), U. S. Senator (1863–69). In 1872 he was elected governor of Indiana, serving one term; was the Democratic nominee, with S. J. Tilden, for Vice-President of the U. S. in 1876, being defeated by Hayes and Wheeler; was nominated again in 1884, being this time elected. Died suddenly, at his home in Indianapolis, Nov. 25, 1885.

Hen'nessey, in *Oklahoma*, a post-village of Kingfisher co., about 60 m. N. of Union City, on C., R. I. & P. R. R. *Pop.* (1897) about 1,000.

Hen'nessy, SIR JOHN POPE, British colonial governor; was born in Cork, Ireland, in 1834; educated at Queen's College, Cork; admitted to the bar at the Inner Temple (1861); member of the House of Commons (1859); Governor of Labuan (1867); of the West African Settlements (1872); of the Bahamas (1873); of the Windward Islands (1875); of Hong Kong (1877), and of the colony of Mauritius (1882); was elected to Parliament by a large majority, in 1890, as an anti-Parnellite. Died Oct. 7, 1891.

Hen'ningsen, CHARLES FREDERICK, soldier of fortune and author, was born in England in 1815; served with the Carlists in Spain, and commanded the cavalry with the Russians in Circassia, with Kossuth in Hungary, and with Walker in Nicaragua; engaged in the Civil War as commander of a brigade in the Confederate army; was subsequently employed to superintend the manufacture of Minié rifles. He wrote *The Past and Future of Hungary; The White Slave*, a novel; and various other books of travel and personal adventure. Died June 14, 1877.

Henriet'ta, in *Texas*, a post-town, cap. of Clay co., 100 m. W. of Sherman, on Ft. W. & D. C. and M., K. & T. R.Rs.; has manufactures of flour and cigars. Here are extensive stone quarries. *Pop.* (1897) about 2,300.

Henrietta-cloth, *n.* (*Fabrics.*) A light-weight fabric of wool, or wool and silk, for ladies' dresses.

Hepp'ner, in *Oregon*, a post-village, cap. of Morrow co., 55 m. S.E. of Arlington, on O. R. & N. C. R.R.; has planing mill and flour mill. *Pop.* (1897) about 900.

Her'bert, HENRY WILLIAM, author, was born in England, of noble descent, in 1807. He became a citizen of the U. S. in 1831, and published, under the pen-name FRANK FORRESTER, *The Field Sports of the United States; The Deer Stalkers; The Quorndon Hounds*, &c. Died in 1858.

Herd'-book, *n.* A record of the numbers of a particular breed of animals, in which are given the name, sex, markings, date of birth, pedigree, breed, and owner of every individual. In every case where a breed of any value appears, a herd-book is essential to its preservation; while the individual breeder finds it desirable to keep a similar record of every animal born or bought into his herd. If he succeeds in producing animals possessed of valuable characteristics, giving them a commercial value, the sale of members of this herd, and the multiplication of their progeny elsewhere, renders necessary a common herd-book in which a complete genealogy of pure-blooded members of this breed shall be kept. Such breeds of especial value have arisen in every class of domesticated animals, and been preserved with the utmost care. Among horses we may instance the Arabian, the English thoroughbred, the American trotters, the Percheron, the shire-horse and Clydesdale; among cattle, the shorthorn, Hereford, Angus, Ayrshire, Holstein, Jersey, and Alderney breeds; among sheep, the Leicester, the Southdown, the Merino and the Cotswold; among pigs, the Yorkshire, Berkshire, Essex and Suffolk. Each of these is valued for special excellence, and the preservation of purity of breed is sedulously attended to. The herd-book is indispensable as a guaranty of the pedigree of any particular animal. The production of new breeds of domestic animals, and the preservation and improvement of any valuable qualities that may appear, in which herd-books and stud-books are of the greatest importance, has been fostered by European governments, herds of special breeds being kept on government farms, whose purity is carefully guarded and their pedigrees as carefully recorded. In Great Britain and the United States all such work is left to private enterprise; but a herd-book by a private individual is not fully to be trusted, and it would be an advantage if some good governmental supervision of herd-books existed, such as might, for instance, be undertaken by the National Bureau of Animal Industry.

Her'dic, *n.* [From Peter *Herdic*, the inventor.] A two- or four-wheeled carriage, or omnibus, having a low-hung body, with side seats and an entrance at the rear.

Hered'ity, *n.* (*Biol.*) The fact has long been recognized that the offspring of every animal and plant displays the general characteristics of its parents; and this established fact forms the basis of all systems of classification. From this has arisen the doctrine of the immutability of species, one which has recently been vigorously attacked, on the ground that the resemblance to parents is never complete, and that the slight deviations which occur may accumulate till they become sufficiently decided to constitute a new species. Two principles are therefore recognized: the one of *resemblance*, ascribed to the influence of hereditary descent; the other of *variation*, due to causes not as yet known. The resemblance of children to their parents is a fact of general observation, this going in most cases much beyond the mere likeness of members of the same species, and including many special marks and traits. Occasionally the resemblance is so close that a child and one of its parents are scarcely distinguishable except through difference in age. Usually it is less close, but the cases are rare in which some degree of resemblance to one or both does not exist. Hereditary resemblance, as generally observed, is of external structure, and may embrace likeness in feature, complexion, size and shape, and many minor bodily peculiarities. Even anomalies of structure are hereditarily transmitted, as in the case of six fingers and toes, have been sent down through four generations, and were probably swamped out in the end by intermarriage with normal mates. Heredity in internal structure is no doubt as common, though less apparent. In some families, for instance, the blood vessels have a large development, while in others they are small. The same may occur with the nervous and muscular systems. Tendency to certain diseases is also often transmitted; fecundity, length of life, &c., may be inherited, and idiosyncracies of character frequently reappear in descendants. As one instance, may be mentioned the fact that in the Turgot family the fifty-ninth year was rarely passed, the members of the family usually failing in strength and dying at or before that age. In other families long life seems a hereditary characteristic. These are but a few instances of heredity which might be very widely added to. Many examples might be given of transmission of mental traits; and superior intellectual powers are certainly to some extent transmissible, there being long lists of poets, painters, musicians, &c., whose faculty descended through two or more generations. The tendency to commit suicide has been traced through four generations, and lunacy through eight or more generations. As for the characteristics of human races, they remain intact through whole nations. Chinese parents, for instance, bear children who are never likely to be mistaken for other than Chinese. Each race displays this persistence, and has bred true through long continued generations.

A child, however, cannot resemble both parents, where these differ considerably. In the case of hermaphrodite animals, the offspring very closely resembles the single parent; but in the ordinary case of dual parentage there may be a close resemblance to one or the other parent, or an intermediate mingling of characters, in which case there will be a close resemblance to neither. In other cases a reversional heredity appears, the resemblance of the child being to a grandparent or some more distant ancestor. Occasionally indirect heredity appears, the resemblance being to an uncle, aunt, &c. Such an instance seems puzzling, but the explanation may be that both have derived their characters from a common ancestor. In some instances characters traceable to a very remote ancestor have appeared. These cases seem to indicate a partial arrest of development.

The reason that heredity does not produce still more striking results lies in the fact that it is subject to a constant reversing influence, that of the tendency to vary, there being some principle of variation, whose cause is far from being understood, at work in all organic beings, producing some degree of change in every instance and occasionally highly marked changes. This cause, whatever its origin, seems to act upon the new being in the germ—probably upon the germinal cells of both parents—yielding a tendency to diverge in various characters. The result is that the offspring often bears only a distant resemblance to either of the parents, the divergence occasionally being very considerable. Parents of usual size, for example, may bear giants or dwarfs for children. Hare lip, polydactylism, &c., appear as exceptions, though they may become transmissible. Edward Lambert, the "porcupine man" (his whole body was covered with horny excrescences), was born of normal parents, though his peculiarity was transmitted through five generations. Minor exceptions are of daily occurrence. That these variations are due to some influence exerted upon the individual germ cells seems evident from the case of twins. These often bear a strong resemblance, yet occasionally present marked physical and mental differences. Yet the conditions of gestation were exactly the same and the variation must have had its origin in the reproductive cells, probably before the process of fertilization took place. Some influence exerted from the organism or from external nature, some peculiarity of arrangement of the cell molecules and energies, some effect of a struggle for existence between the many germinal cells, or still more subtle influences, may produce this result, whose causes as yet lie out of scientific sight and reach. The differentiation appears even in twins joined by some connecting link. Thus in the case of Ritta and Christina, the joined twins of Presburg, one was handsome, gentle and sedate, the other ugly and quarrelsome. Chang and Eng, the Siamese twins, also presented differences, though not so great ones, of appearance and character.

Study of organic nature leads to the conclusion that in the conflict between these two forces, that of heredity is the stronger. Individuals constantly diverge from the average characters of the race, yet the divergence rarely becomes great, and soon disappears in their descendants, the race characters being remarkably persistent. This is largely due, no doubt, to the unrestricted sexual union of persons of every condition of organization, with the result that divergence in one direction is soon balanced by divergence in the opposite, and the general average of conditions maintained; any marked divergence being soon swamped out by the influence of intermarriage. It is interesting to find that this is not the case among domesticated animals where selective breeding is pursued. In such cases individuals of new breeds are mated with each other, the swamping effects of promiscuous intercourse is prevented, and any divergence that appears can be retained, while by a continued selective breeding of new varieties results

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